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

We are into the second half of the year already, and as is always the case with journeys, the trip downhill has been faster and slightly easier than the uphill climb. We continue to be blessed in the many things we do, for which we give sincere thanks.

It was an excellent opportunity to come together in the 'City of Sails' at Aotearoa for another NZ- and EU-led Pacific Energy Conference, following the successful back-to-back events of the 2013 Pacific Energy Leaders’ Summit (PELS) in Tonga, and the NZ-EU Pacific Energy Summit, held in Auckland.

A key outcome of the PELS was to address the problem of energy data in the region through what is now referred to as the Pacific Regional Data Repository (PRDR) [http://prdrse4all.spc.int/](http://prdrse4all.spc.int/). The initiative is based on a simple premise: ‘You can’t effectively manage what you don’t know.’

Effective and meaningful energy sector plans and policies depend on reliable data. In 2013, around USD 635 million was committed, and has translated into over USD 900 million of investments across 70 projects. Thankfully, the World Bank was able to top up Australia’s assistance in this very crucial area with a contribution of USD .188 million.

SPC’s Energy Programme continues to be flooded with requests for data from consultants, development partners, power utility companies, pricing commissions and national authorities. Demand is only going to increase as Pacific Island countries are now obliged to report regularly on their progress with the implementation of the Paris Agreement and the 7th Sustainable Development Goal (SDG7) on energy.

The vision for the PRDR, as outlined at the PELS, is that it will help support accountability and efficient and evidence-based decision-making; however, more financial support is needed for the repository to be sustainable.

For years, the Energy Programme has drawn attention to the large proportion of people in Melanesia with no access to electricity. Melanesia has a much larger land area than the Polynesian and Micronesian subregions and is richer in resources. It also has the highest population of the subregions, but the lowest percentage of people with access to electricity, which lowers the percentage for the whole Pacific Island region. It is so low that the Sub-Saharan region, regarded as the poorest in the world, is doing better than the Pacific in this area. If we believe that electricity is an enabler of social and economic development, then the people of Melanesia deserve better.

At the third International Conference on Small Island Developing States (SIDS) in Samoa in September 2014, we launched the Melanesia Million Miracle Programme (M3P) as a platform to facilitate genuine and durable partnerships to address access to electricity in the region. The M3P aims to provide access to electricity to one million people in Melanesia by 2020.

It is with much pleasure that we join many others in celebrating the successful conclusion of the 2016 Pacific Energy Conference held in Auckland, which saw donors commit over USD 1 billion for sustainable energy projects in the Pacific. Among the priority activities to be funded are: support for Polynesia to achieve more than 50 per cent renewable energy by 2024; access to electricity for an estimated one million people in Melanesia; and assistance to other countries in the region to enable them to double their renewable energy generation.

We are happy to see this convergence of minds, which will lead to improved access to electricity in Melanesia.

The outcome of the June 7 gathering at Eden Park marks the beginning of progress and increased blessings for the energy sector and people of the region.
The signing of the Paris Agreement

The Paris Agreement (PA) has been hailed as a major global achievement and beacon for humanity and the planet.

The PA calls for all parties to take actions to limit global temperature change to well below 2°C above pre-industrial levels. Recognising that even this level of warming poses a threat to many vulnerable populations, the Agreement encourages nations to be ambitious, and to take further measures to limit warming to no more than 1.5°C above pre-industrial levels.

Efforts aimed at the 1.5°C target are to be supported by the obligation of all countries to review their low carbon emission development strategies, as outlined in their Intended Nationally Determined Contributions (INDCs). As key proponents of the more rigorous target, Pacific Island countries (PICs) have set a global example, as shown in the table below. The Pacific Community (SPC) has tried to coordinate a common timeline for PICs, to achieve their targets by 2025.

As of 29 June 2016, there were 178 signatories to the Agreement, including all members of the Pacific Islands Forum, excluding Niue. Of these, 19 states also deposited their instruments of ratification, acceptance or approval, accounting for 0.18 per cent of total global greenhouse gas emissions. Among the 19 are six Pacific Island countries – Fiji, Marshall Islands, Nauru, Palau, Samoa and Tuvalu – representing 32 per cent of the total. Seven are from the Caribbean and three are from the African-Mediterranean-Indian Ocean region. Eighty four per cent are from Small Island Developing States, which demonstrates their investment in, and commitment to combatting climate change.

The PA will remain open for signature until 21 April 2017. We are hopeful that PICs will continue to show leadership on the PA, which may increase buy-in within the region’s energy sector.

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Opened for signature on 22 April 2016, 174 States and the European Union signed the PA, and 15 states also deposited their instruments of ratification. In order to formally take effect, the PA needs at least 55 countries, representing at least 55 per cent of the world’s climate emissions, to ratify the treaty.
Energy regulators study tour & training

Energy security by way of universal access to reliable, affordable, clean and safe energy, is fundamental to the sustainable development of every country, regardless of size and resource endowments. As a key vehicle for growth and development, energy security is included in many national development plans and strategies among Pacific Island countries and territories (PICTs).

Since 2009, several PICTs have adopted national energy roadmaps; SPC has played a key role in the development of energy roadmaps and plans for 9 PICTs to date.


Every review and assessment of the energy sector in PICTs points to the absence of an effective legislative and regulatory framework. This gap has resulted in reduced financial and commercial viability of the power utility companies and fuel suppliers in the region.

At the 2014 Pacific Regional Energy and Transport (Aviation and Maritime) Ministers’ Meeting, ministers agreed to the following list of priorities for 2014–2017:

- expand renewable energy investment
- review, analysis and modelling of tariffs

Regulators in the energy sector will have a critical role to play in supporting and enacting these four priorities. As independent and accountable bodies, regulators set the prices and tariffs, as well as the associated technical and financial standards, which means they hold significant influence with regard to potential investors. Almost all the PICTs have regulators, but they vary enormously in terms of their institutional set-up, mandates, authority, capacity, responsibilities, and independence.

Through a SPC-NZAID South-South collaboration, SPC in partnership with the Tonga Electricity Commission and the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communication (MEIDECC), conducted a Pacific Energy Regulators study tour and training in Nuku’alofa, Tonga, from 1–5 August 2016.

The training was aimed at strengthening the capacity of energy regulators in the PICTs to effectively and independently provide oversight on energy prices – power tariffs and petroleum product prices – and standards in a transparent and accountable manner.
Close to 40 delegates registered for this self-funded training workshop. This willingness on the part of governments to fund their own participation, demonstrates that their commitment to working towards the priorities outlined at the 2014 Energy Ministers Meeting goes beyond goodwill.

The training was held alongside the 25th Pacific Power Association (PPA) Conference and Trade Exhibition in Nuku’alofa. The theme of the 2016 PPA – *Integrating Intermittent Renewable Energy with Conventional Generation* – directly relates to the work of regulators. In learning about the technical aspects of the power industry, regulators will be better equipped to set prices and tariffs responsibly.

SPC worked towards facilitating access for participants to both events, so they can join in on each other’s sessions and maximize opportunities for sharing and knowledge exchange during their week in Tonga.

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Participants from energy regulators study tour and training

Group photo of participants from energy regulators study tour and training (1 August)
Pacific region endorses world’s first TVET programmes in resilience

Members from the education and training sector across the Pacific region have provisionally endorsed new technical and vocational education and training (TVET) programmes in the areas of resilience (climate change adaptation and disaster risk reduction) and sustainable energy.

This news was given by Dr Sarah Hemstock, team leader of the European Union Pacific Technical and Vocational Education and Training on Sustainable Energy and Climate Change Adaptation (EU PacTVET) project, a EUR 6.5 million project running from 2014 to 2018 and co-implemented by the University of the South Pacific and the Pacific Community, in partnership with the European Union.

Speaking at the Regional Industry Standards Advisory Committee for Climate Change Adaptation and Sustainable Energy (ISACs) meeting in Nadi, Fiji on 19 May 2016, Dr Hemstock said that this is a double world first in TVET education.

‘These programmes will not only be the first ever TVET courses in resilience in the world, but also the first ever resilience programme with regional accreditation’, she said.

Dr Hemstock added that having a wide range of industry and education sector representatives endorsing the courses shows the need to address climate change, disaster risk reduction and energy challenges at the national and regional levels across the Pacific.

The project initiative was commended by the consultant to the Fiji Higher Education Commission Mr Viliame Rabici, who said that regional qualifications would give people a greater understanding of how climate change impacts are different in different Pacific countries.

‘Climate change impacts us all differently in the region, and each country will be able to bring their expertise to the courses because of the case studies in their own nations’, he said.

Ms Violet Gereda, ISACs representative for Papua New Guinea, said that being the first countries in the world to provisionally endorse resilience TVET programmes was a bold step that was important for both the people of PNG, and the Pacific region as a whole.

‘Our people must be made aware, and be educated on how these issues can be properly planned and managed towards disaster risks reduction as early as possible to minimise greater impact while experiencing natural disasters and its causes’, she said.

The regional ISACs meeting included members from 15 Pacific countries: Fiji, PNG, Tonga, Samoa, Solomon Islands, Vanuatu, Niue, Nauru, Palau, the Federated States of Micronesia, Cook Islands, Marshall Islands, Kiribati, Tuvalu, and Timor Leste (East Timor).

The meeting, which began on 16 May, came to a close on 19 May with final discussions focused on the methods of delivering the services to the Pacific countries, which would be customised to each country’s needs and at the same time enable the benefits of regionalism.

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Energy workshop reveals Fiji government plans for sustainable energy

A recent workshop in Fiji brought together energy and climate change practitioners to share perspectives and discuss ways forward. Fiji’s Permanent Secretary for Infrastructure and Transport took the opportunity to outline the government’s plans for meeting its sustainable energy targets.

Fiji needs in excess of FJD 50 million per annum to meet its Sustainable Energy for All targets by 2030. This was revealed by the Permanent Secretary for Infrastructure and Transport, Paul Bayly, at the Project L’EAP-organised Workshop for Project Managers in Energy and Climate Change, which was held in Suva, Fiji on 11 May 2016. He said that geothermal, solar power and hydropower are where most funding would be required, and noted that up to FJD 14 million is earmarked for geothermal energy development alone.

Project L’EAP, a three-year project under the African, Caribbean and Pacific Group of States–European Union (ACP-EU) Cooperation Programme in Higher Education (EDULINK), is being undertaken by a consortium of universities that include the Hamburg University of Applied Sciences (lead partner), the University of Mauritius and the University of the South Pacific (USP). L’EAP Project Leader in Fiji, Dr Anirudh Singh, said that the aim of the workshop was to ‘bring together players in the energy and climate change sectors with current or prospective managers to articulate the requirements for project management from different perspectives and to examine the practices that assure good management of projects.’ The workshop attracted more than 70 participants with diverse fields of interests ranging from private sector and non-government organisations to academics, students and the government sector.

In his keynote address, the Permanent Secretary acknowledged the EU for their support for higher education in the region. ‘This continuous co-operation between EU, USP and other universities forms a strategic partnership towards providing a steady supply of highly qualified people in our Pacific countries. In terms of the energy sector, we are on the pathway of building our local capacity to recognise and mitigate climate change.’

Global Green Growth Institute’s Country Representative for Fiji and Vanuatu, Katerina Syngellakis, took the workshop through the project development life cycle and pointed out that applying for funding formed part of the conceptual and planning phases of the cycle. She informed the gathering that funding proposals could be either a one-step process or a two-step process that included a concept note followed by the full proposal.

The Fiji Government has legislation and programmes to promote the funding of energy projects. This was revealed by Fiji Development Banks (FDB)’s Jay Rathod, who described the role of the Import Substitution and Export Financing Facility (ISEFF) and the Global Environment Facility (GEF)-funded Sustainable Energy Financing Facility (SEFF). Director of Energy Paula Katiwa outlined government incentives for energy projects, including the Renewable Energy Loan Ratio (RELR) of two per cent, to which the commercial financing sector is required to adhere.

Fiji Electricity Authority (FEA) CEO Hasmukh Patel revealed that the power utility was on track to achieve its mission of 90 per cent electricity generation by renewable sources by 2025. FEA currently has renewable energy stations at six sites in the country, supplemented by 13 diesel power plants. Together they amount to an installed capacity of 294 MW and available capacity of 262 MW. This is more than ample to meet the 167 MW peak power demand by FEA’s 172,000 customers. However the utility constantly assesses the power demand situation under its 10-year Power Development Plan to find gaps that need to be filled by new energy projects.

The Attaché for the EU Delegation in Suva, Antonio Clemente Hernandez, highlighted the EU’s policy for energy and its Agenda for Change in the Pacific, with examples from Nauru, Tonga and Fiji.

Outlining the qualities of a good project manager, the International Union for Conservation of Nature (IUCN)’s Anare Matakiviti, said the most important attributes of good project managers included good personality, the ability to ‘get things done’, and the desire to do it.

Dr Anirudh Singh said that future Project L’EAP activities included an energy audit workshop planned for July in Suva, and the International Workshop on Energy – Focus on Access, Security and Efficiency that will be held in Lautoka in the same month.

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First and second quarter 2016 oil market report (January–June 2016)

Petroleum fuel is an internationally traded commodity, and as such its price varies on a daily basis. Prices are influenced by a myriad of factors, including the underlying cost of the crude oil used to produce it, the supply/demand of the Asia Pacific region and other world markets, and significant global weather events and geopolitical conditions in oil-producing countries.

During the fourth quarter of 2015, Dated Brent crude oil reached its cheapest price since the global financial crisis of 2008–2009. In the first quarter of 2016, it decreased by USD 9.75/bbl, from USD 44.86/bbl to USD 35.10/bbl. Similarly, there was a decrease of USD 7.35/bbl from USD 39.25/bbl in December 2015, to USD 31.90/bbl in January 2016. In a nutshell, this decreasing trend comes down to too much supply and too little demand.

China’s economic slowdown has curbed appetite for commodities in general, while Saudi Arabia, which produces a third of the cartel output for the OPEC (Organization of the Petroleum Exporting Countries), is keener on preserving its market share than on cutting production to boost prices. At the same time, the rise of the US as a shale oil producer means it now imports less oil, contributing to the glut on world markets.

However, the trend changed in the second quarter of 2016, when markets saw an increase of USD 11.28/bbl, raising prices from USD 35.10/bbl to USD 46.39/bbl. Similarly between May and June, Dated Brent crude oil increased by USD 2.30/bbl, from USD 47.28/bbl to USD 49.57/bbl.

The spike emerged as a result of petroleum outages in Nigeria and Canada, as well as the steady decline in US oil production (IEA Oil Market Report).

The outages have taken nearly two million barrels a day off the market and sent crude oil prices rallying. Since January 2016, the price of Dated Brent increased by more than 50%, from USD 31/bbl to USD 50/bbl in June. Thus, the overall increase in petroleum product price was largely influenced by an increase in international crude price.

* Source: Platts Asia-Pacific/Arab Gulf Marketscan
Refiners margin compared with Dated Brent price

January 2016 recorded the lowest price in crude oil and refined petroleum products, with a barrel of Dated Brent trading at USD 31.90. June saw crude oil prices rallied to a 2016 high of USD 50/bbl, compared to USD 47.28/bbl in May. Data shows that June marked the fifth straight month of consistent average price increases in the wake of recent stronger-than-expected oil demand growth and unexpected supply cuts, caused by Canadian wildfires and militant action in Nigeria and Libya.

The Asian gasoline market (97, 95, and 92 RON) was hovering around USD 50/bbl (USD 46-51 per barrel) in the 1st quarter, compared to June when the price shot up to USD 61.44/bbl (ranging from USD 56-61 per barrel). This was due to the excess supply from huge arbitrage arrivals between March and April 2016. In addition, refineries in North Asia were producing gasoline at higher rates due to healthy light-end margins.

The Asian jet fuel market also increased by 29% from USD 42.29/bbl in the first quarter to USD 54.39/bbl in the second quarter, due to weak demand in the middle of a seasonal lull in the region. The market was under pressure from an overhang in regional supply. Still, Asia was oversupplied, without sufficient demand within or outside the region. The Asian gasoil market also increased by an average of 32% between the first two quarters due to declining consumption by the industrial and agricultural sectors, especially in Indochina, as a result of monsoon season. The lack of demand in the region is ongoing, as monsoon season will last until August.
Freight rates

Refined petroleum fuels are bulk shipped in 'clean tankers'. The freight market weakened in the second quarter in comparison with the previous quarter. This translates to a decrease in the overall freight component for this month’s fuel prices. Average freight rates decreased by 0.60%, from 21.95 USD/mt to 21.81 USD/mt from the first to the second quarter. The Singapore-Australia route was assessed at 178.61 worldscales points, marking a decrease of 0.59% from the previous quarter. Freight rates decreased as a result of surplus vessel availability amidst a weaker market activity that was unable to absorb the available vessels.

Exchange rates

Source: Platts Asia-Pacific/Arab Gulf Marketscan
During the first quarter, the Australian and Fiji dollar appreciated against the US dollar, while the other major Pacific Island countries and territories (PICTs) currencies depreciated — the Samoan Tala and Solomon dollar remained relatively unchanged. In the second quarter, the Australia, New Zealand and Fiji dollar, along with the Solomon dollar and Tonga Pa’anga, appreciated against the US dollar, while all other major PICT currencies depreciated.

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Fuel storage tanks in Kiribati
First quarter regional petroleum fuel and gas price review
January–March 2016

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
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*Fuel prices are expressed in US cents per litre (cpl).

1. Pacific fuel prices at a glance

Average retail fuel prices including tax and duty – 1st quarter 2016

- Retail Mogas Price
- Retail Kerosene Price
- Pacific Island Average Mogas Price
- Pacific Island Average ADO Price
- Average MOPS 92 RON
- Pacific Island Average Kerosene Price
- Average MOPS 500ppm
2. Key observations – Pacific fuel prices

Overview
Overall, PICT retail mogas, diesel, kerosene and LPG prices fell in the first quarter 2016 (1Q-2016) compared with the previous quarter average. Underlying international oil prices in 1Q-2016 dropped by 6.10 cents per litre (cpl) to average at 21.98 cpl. This decrease will be reflected at pumps in all PICTs in the order of 6 cpl. Notably pricing in Cook Islands has slightly reduced following their work on redesigning their fuel pricing templates with assistance from SPC’s petroleum advisory services.

Mogas
Hawaii had the lowest tax inclusive retail price followed closely by American Samoa and French Polynesia. Pre-tax lowest was French Polynesia (37.49 cpl), Sydney (44.68 cpl), Hawaii (49.82 cpl) and Tongatapu (57.10 cpl). Highest pre-tax costs were Niue (128.78 cpl), Tuvalu (125.01 cpl) and Palau (96.42 cpl). French Polynesia had the lowest PICT wholesale price followed by New Zealand, Port Moresby and Sydney. The PICT retail pre-tax ‘low-to-high’ price gap (French Polynesia compared with Niue) for mogas was 91.29 cpl. Volume weighted, the best performing mogas markets were Fiji, American Samoa, Samoa and Tonga.

ADO
American Samoa and New Zealand had the lowest tax inclusive retail price followed by Fiji and PNG. Pre-tax lowest was French Polynesia (39.75 cpl), Australia (45.93 cpl), Tonga (51.33 cpl) and Fiji (52.37 cpl). Highest pre-tax costs were Niue (130.11 cpl) and Tuvalu (122.13 cpl). PNG had the lowest PICT wholesale price followed by NZ, American Samoa and Fiji. The PICT retail pre-tax ‘low-to-high’ price gap (French Polynesia compared with Niue) for ADO was 90.35 cpl. Volume weighted, the best performing ADO markets were French Polynesia, Tonga, Fiji and Samoa.

Kerosene
Tonga had the lowest tax inclusive retail kerosene prices followed by Fiji and American Samoa. Pre-tax lowest was French Polynesia (36.73 cpl), Tonga (48.44 cpl) and Samoa (52.19 cpl). PNG had the lowest wholesale kerosene price (30.78 cpl) followed by American Samoa and Tonga. The highest wholesale kerosene prices were in Niue, Vanuatu and Tuvalu. The PICT retail pre-tax ‘low-to-high’ price gap (French Polynesia compared with Palau) for kerosene was 169.33 cpl.

The lowest retail LPG prices were in Fiji (USD 1.30 per kg), closely followed by Tonga and Cook Islands. 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 4.21 per kg.

Crude oil
Average Dated Brent crude oil prices decreased by USD 9.75 bbl or 6.10 cpl for 1Q-2016 compared with 4Q-2015.
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

![Wholesale mogas prices sorted by pre-tax cost](image)

Figure 5: Wholesale and retail mogas prices (including tax and duty)

![Mogas price including tax and duty](image)
Figure 6: Mogas pre-tax retail prices 1Q-2016 compared by annual volume

*Note: The centre of the bubble that corresponds to the vertical axis 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.
- The Pacific-wide average pre- and after-tax retail price for mogas was USD 0.80 per litre and USD 1.06/litre respectively.
- Average pre- and after-tax wholesale price for mogas was USD 0.66/litre and USD 0.91/litre.
- Pre-tax wholesale price was lowest in French Polynesia (31.15 cpl), New Zealand (34.82 cpl), Papua New Guinea (35.28 cpl), Sydney (39.45 cpl) and Samoa (46.88 cpl).
- The PICT pre-tax low-to-high wholesale price gap (French Polynesia compared with Niue) for mogas was 74.18 cpl.
- Average MOPS for mogas 92 and 95 RON during the January-March period was USD 0.29/l and USD 0.31/l respectively.
- Pre-tax wholesale margins above the Platts average mogas MOPS price (USD 0.29/l) for the period fell in the range of USD/l 0.02 (French Polynesia) to USD 0.76 (Niue).
- Mogas related retail tax rates between PICTs range from 1.32 cpl (Palau) to 59.17 cpl (New Zealand).
- Mogas related wholesale tax rates between PICTs range from 5.10 cpl (Kiribati) to 42.08 cpl (French Polynesia).
4. Automotive diesel prices

Figure 7: Retail tax inclusive diesel prices

![Retail diesel tax-inclusive price chart](image)

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

![Retail diesel tax-inclusive price chart](image)
Figure 9: Wholesale diesel prices sorted by pre-tax cost

Figure 10: Regional prices of diesel (including tax and duty)
Pre-tax and duty, American Samoa, New Zealand and Fiji have the lowest retail ADO costs and prices, closely followed by Port Moresby and French Polynesia. 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 0.75/litre and USD 1.01/litre. Papua New Guinea had the lowest tax inclusive wholesale prices followed by New Zealand and American Samoa. Pre-tax wholesale price was lowest in New Zealand (29.55 cpl), PNG (30.44 cpl), French Polynesia (33.44 cpl) and Australia (34.19 cpl).

The PICT pre-tax low to high wholesale price gap (New Zealand compared with Niue) for ADO was 76.73 cpl.

The Pacific-wide average pre and post-tax wholesale price for ADO was USD 0.61/litre and USD 0.86/litre.

Average MOPS for gasoil 10ppm and 500ppm during the January–March period was USD 0.26/l for both.

Pre-tax retail margins above the Platts average ADO MOPS price (USD0.26) for the period fell in the range of USD 39.49 (French Polynesia) to USD 129.85 (Niue).

ADO retail tax rates between PICTs range from 1.32 cpl (Palau) to 39.50 cpl (French Polynesia).

ADO related wholesale tax rates between PICTs range from 1.94 cpl (Papua New Guinea) to 42.26 cpl (Vanuatu).
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

- Tonga has the lowest retail kerosene prices while Papua New Guinea has 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 0.85/litre and USD 1.00/litre respectively.
- Average MOPS for Asian jet fuel (the main end-use for kerosene) during the January-March period was USD 0.27/litre.
- Papua New Guinea had the lowest tax inclusive wholesale prices followed by Tonga and American Samoa.
- Pre-tax wholesale price was lowest in Papua New Guinea (30.78 cpl), French Polynesia (32.74 cpl) and Samoa (40.15 cpl).
- The PICT pre-tax low to high wholesale price gap (Papua New Guinea compared with Niue) for kerosene was 97.26 cpl.
- Kerosene related retail tax rates between PICTs range from zero (Kiribati and Fiji) to 30.49 cpl (French Polynesia).
- Kerosene related wholesale tax rates between PICTs range from zero (Kiribati, Papua New Guinea and Fiji) to 30.49 cpl (French Polynesia).

6. Liquefied petroleum gas (LPG) prices

Figure 16: Saudi Contract Price (CP) for Butane and Propane vs Dated Brent (Crude Oil)

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, decreased in the first quarter compared to the previous quarter. Saudi CP for butane and propane for the quarter averaged at USD 341 and USD 306 per metric tonne respectively.
Figure 17: Regional prices of LPG (including tax and duty)

Key observations – LPG

- Between January – March 2016, Fiji had the lowest LPG retail and wholesale prices at USD 1.30/Kg and USD 1.11/Kg respectively.
- Palau, Samoa, Niue and Vanuatu 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

Figure 18: Comparison – Singapore gasoline, jet fuel/kerosene, diesel and Dated Brent.
During the fourth quarter of 2015, Dated Brent crude oil reached its cheapest since the 2008-2009 global financial crisis. In comparison with this the price of Dated Brent crude oil in the first quarter of 2016 decreased by USD 9.75/bbl from USD 44.86/bbl to USD 35.10/bbl. Similarly, Dated Brent crude oil decreased by USD 7.35/bbl from USD 39.25/bbl in December 2015 to USD 31.90/bbl in January 2016. In a nutshell, this decreasing trend comes down to too much supply and too little demand. China’s economic slowdown has curbed appetite for commodities in general, while Saudi Arabia, which produces a third of the Opec cartel’s output, is keener on preserving its market share than it is on cutting production to boost prices.

**Singapore fuel prices**

In 1Q-2016, Singapore free on board (FOB) prices for Mogas 92 decreased by 18.33%, Kerosene prices by 22.71% and 10ppm and 500ppm Diesel by 25.57 and 25.44% respectively. FOB fuel price comparison for 4Q15 vs 1Q16 is as follows:

<table>
<thead>
<tr>
<th></th>
<th>4Q15 Average (UScpl)</th>
<th>1Q16 Average (UScpl)</th>
<th>Difference (UScpl)</th>
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<tbody>
<tr>
<td>Gasoline 92</td>
<td>56.61</td>
<td>46.23</td>
<td>-10.37</td>
</tr>
<tr>
<td>Diesel 500ppm</td>
<td>54.39</td>
<td>40.55</td>
<td>-13.84</td>
</tr>
<tr>
<td>Kerosene</td>
<td>54.72</td>
<td>42.29</td>
<td>-12.42</td>
</tr>
<tr>
<td>Dated Brent</td>
<td>44.86</td>
<td>35.10</td>
<td>-9.75</td>
</tr>
</tbody>
</table>

In comparison to the fourth quarter of 2015, the price of Dated Brent crude in the first quarter of 2016 decreased (in USD/bbl terms) by 9.75 from 44.86 to 35.10. PICTs are part of the Asia Pacific fuel market, with Singapore being 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 a maximum of 10, 50 and 500 ppm Sulphur, gasoline (92 and 95 RON) and jet/kerosene.

**Figure 19: Difference between market prices**
8. Exchange rates

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

Figure 20: Pacific currencies against USD exchange rate

During the first quarter, the Australian and Fiji dollar appreciated against the US dollar, while the other major PICT currencies depreciated; the Samoan Tala and Solomon dollar remained relatively unchanged. In the second quarter, the Australia, New Zealand and Fiji dollar along with the Solomon dollar and Tonga Pa’anga appreciated against the US dollar, while all other major PICT currencies depreciated.

A decrease in Singapore petroleum product price, fall in freight rates and appreciation of some of the major currencies, should result in a drop in regional pump prices; however depreciation of some of the currencies will offset any decrease in pump prices.
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 from the 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.
- 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 definitions 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>
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<th>Conversion</th>
<th>Value</th>
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<tr>
<td>Litres/USG</td>
<td>3.785</td>
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<tr>
<td>Litres/BBL</td>
<td>159</td>
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<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

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Kiribati Oil Company needs assessment

A team from Kiribati visited Fiji in April this year to seek potential fuel suppliers through a pre-qualified international multi-year fuel tender. This approach to securing a fuel supply for the country was a recommendation following a needs assessment carried out for the national Kiribati Oil Company (KOIL) in late 2015.

The KOIL needs assessment was an initiative of the Pacific Community (SPC) Energy Programme and followed in-country work, including the development of the Kiribati Energy Road Map. The assessment looked at KOIL management and operational issues, and then advised on the best way forward for the future of the Kiribati national fuel supply. Discussions between SPC, KOIL and the Kiribati government began in mid-2014, and the activity was carried out in late 2015.

The KOIL needs assessment was groundbreaking in that it was the first time that fuel industry experts from other Pacific Islands had been engaged by SPC for this type of activity. The team was coordinated by Alan Bartmanovich (former Petroleum Adviser, SPC) and included Carson Korowa (CEO, South Pacific Oil, Solomon Islands) and Sione Lousiale Kava (Manager, Office of Petroleum Management, American Samoa). The team was very ably supported by Pritanshu Singh (former Assistant Petroleum Officer, SPC).

The assessment identified serious operational, environmental and safety issues which were putting Kiribati’s national fuel supply at risk. Potential scenarios included catastrophic fire, threats to worker and community safety, as well as oil-related ground and water pollution. It was also identified that Kiribati could expect to secure more competitive fuel supply and related industry services from regional fuel suppliers if they developed an international tender process.

This intervention was made possible through SPC organising the activity, and the generosity of South Pacific Oil and the American Samoan Government in allowing their staff members to participate. This type of intervention could provide a blueprint for future work in the Pacific Islands where a significant intervention is needed. It builds on and encourages future regional cooperation between Pacific Island countries and territories in terms of coordinating their fuel supply and addressing critical operational issues into the future.

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LPG and natural gas as alternative energy sources for the Pacific

A new research report that assesses the potential and economic feasibility of liquefied petroleum gas (LPG) and liquefied and compressed natural gas (LNG and CNG) to meet medium-term energy needs in the Pacific was launched at the World LPG Association’s Oceania regional summit in Queensland, Australia on 18 May. The report is published by Pacific Region Infrastructure Facility (PRIF), in association with the Pacific Community and Pacific Power Association.

The study, conducted by PRIF in association with the Pacific Community and the Pacific Power Association, considers the end-use applications of electricity generation, process heating, maritime transport, land transport, cooking and water heating. The existing fuels considered for substitution include heavy fuel oil, diesel, gasoline, kerosene and traditional fuels such as firewood.

Liquefied petroleum gas

LPG and natural gas as alternative energy sources for the Pacific

All Pacific Island countries and territories already use LPG, mainly for household cooking, and this study finds significant opportunities for expansion. If LPG replaced all cooking kerosene and biomass in the Pacific region, the current demand could double. LPG is a cleaner burning fuel than biomass and kerosene, so there would be both health and environmental benefits. In his address to the conference, Hon. David Day Pacha, the Minister of Energy, Mines and Rural Electrification, Solomon Islands, explained that ‘LPG has the advantage of being relatively simple to transport, whether it be by road tanker or in cylinders, which makes it accessible to remote communities to provide lighting, refrigeration, and heat to cook. The benefits to communities are significant as it enables activities to be performed at night including education, avoiding time spent collecting traditional fuels and removing the risks associated with open fires such as respiratory diseases.’ Increased uptake would also improve economies of scale in supply chains, which in the case of the Pacific Islands involve great distances and high shipping costs. In some cases the capacity of existing port and storage infrastructure is sufficient, but in others it would require some investment and expansion.

Liquefied natural gas

LNG can be shipped long distances in bulk ships in capacities as small as 10,000 m³. However, a major drawback for the Pacific Islands is that considerable new capital investment would be required for more complex transport and unloading facilities in ports, special storage systems, in-country distribution networks, and equipment conversion. New skills and regulations would also be required, as well as extensive marketing to ensure adequate demand. Under current market conditions, therefore, LNG is unlikely to present an economic option for the relatively modest demand that exists in the power generation sector in most Pacific Island countries.

Compressed natural gas

CNG cannot be shipped cost-effectively over large distances due to its relatively low energy density. It can, however, be produced if LNG is put through a pressurised vapourisation process within the country – the so-called ‘liquefied CNG’ (LCNG) process. However, this technology is very expensive, so it is likely to be less attractive to Pacific Island countries and territories.

To download the full report, and a summary paper, [click here](#)

For hard copies: [enquiries@theprif.org](mailto:enquiries@theprif.org)

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Liquefied petroleum gas refers to a family of light gases called propane and butane, which are derived from the processing of natural gas liquids and the refining of crude oil. LPG is gaseous at normal temperature and pressure, and becomes liquid when subjected to modest pressure or cooling. LPG is used mainly in cylinders for portable applications, cooking, heating, lighting, refrigeration and transport fuels.

Natural gas is composed primarily of methane (usually over 85 per cent by volume), but it may also contain ethane and propane with small amounts of heavier hydrocarbons (and some impurities which are removed before liquefaction). Liquefied natural gas is natural gas which has been processed to liquid form for ease of storage or transport, by cooling it to approximately −161°C depending on its exact composition, at which point it becomes a liquid, which reduces its volume by a factor of more than 600 times.
The importance of Government-Industry understanding and collaborations

By Naseer Khan, President of the Fiji Fuel Retailers Association

The Fiji Fuel Retailers Association (FFRA) represents local entrepreneurs who occupy a crucial slot in the country’s economy. We operate 75 service stations nationally, providing the public and the country with fuel for transport, industry, and vital social needs. Each day, FFRA members make sales to 30,000 customers, both private and commercial.

The FFRA is a provider of the premix used by small craft that move people and goods along coastlines and between islands. Those involved in the fishing industry who supply the market with their catches, replenish the tanks of their boat engines from FFRA pumps. Kerosene is used for household cooking and premix for brushcutters.

Some five years ago we decided to develop a profile and image for FFRA. We were motivated by the lack of understanding of our industry as a vital cog in the machinery of the economy. There was little or no dialogue with those in positions of authority. Our aim was to win wider awareness of our national role. We publicised our concerns and ideas through the media, and began to be more professional in the way we staged our major meetings. We made sure we communicated with top decision-makers in a transparent manner.

The central business issue for FFRA was – and remains – price control. The way it had been imposed placed such a burden on our members that they were barely surviving. FFRA began to tell this story to the public and the government.

There was an early breakthrough in our awareness campaign when the Attorney General and then Minister for Trade and Commerce, Mr Aiyaz Sayed-Khaiyum, accepted an invitation to open the FFRA 2011 annual conference. Mr Sayed-Khaiyum acknowledged the importance of what we do, not only in our operations in urban areas, but for rural communities too. He made particular mention of FFRA members’ contribution to tourism. The message from our side was that we welcomed the government’s attempts to provide the right framework for business, but we warned that our industry was not sustainable under the existing margins.

Last year Prime Minister Hon. Voreqe Bainimarama was chief guest at our annual meeting. This was another milestone. The PM acknowledged that we were an important part of the economy and thanked us for our contribution to Fiji. It was the first time a head of government had given us such an accolade. Importantly the PM assured us that at the ministerial level our interests would be given full consideration.

As FFRA president I told the PM that price control was ‘sucking the lifeblood out of our businesses’. We see him as an ally because in a budget speech as Finance Minister he declared that price control is ‘archaic, uneconomic, anti-investment and anti-business.’ That perfectly sums up our stance. The PM’s criticism is strongly underscored in the People’s Charter, which previously guided his government’s policies. It advocates the principle that business people should generally be left to make their own commercial decisions. The Charter specifically places price control in a negative context.

But despite the PM’s pro-business and accommodation stance, we continued to be given a rough ride from the regulators. For a time, the decisions of the old Prices and Incomes Board – later the Commerce Commission – actually caused us to lose money. This was regulation at its worst. As a survival tactic many service station proprietors focused on their convenience stores. The earnings from these helped partly to offset the losses caused by the regulated fuel prices.

Research showed the extent of our problem. Our percentage profit margins were the lowest in the Oceania region. Compared to the wider international market we also fared poorly. Our difficulties were compounded by the constantly rising costs of doing business. While we were confined to a financial straitjacket, we had to contend with rising costs related to Fiji National Provident Fund contributions.

1. All views expressed belong solely to the author and do not necessarily represent the views of SPC.
wages, insurance, uniforms, security, licences, health and safety, repairs and maintenance, and electricity. In my own business, for instance, the electricity bill has gone up by 20 per cent in the last three years. We also carry extra costs from our commitment to providing 24-hour service. Our industry never sleeps.

We had one of most bitter experiences from regulation just over a year ago, when the government suddenly announced a big reduction in fuel prices four days before the scheduled price change was supposed to happen. The timing was a commercial disaster for our members. Our members were caught with huge fuel stocks bought at a much higher price. The announcement meant we had to sell this fuel at a loss. Combined losses to our members were FJD 819,000.

Our industry could not continue with this kind of volatility and vulnerability. We felt that what happened was not the outcome of normal business risk – it was a disaster caused by regulation. We subsequently made yet another presentation to the Commerce Commission board, which by then had gained a slate of new members. Our submission asked for 15 cents per litre on unleaded and diesel fuel, rather than a percentage margin. We then met with the new board to explain our proposal in greater depth, and to answer questions from commission members. In our view the new appointees have a positive purpose and vision. They wish to allow commercial people to make a difference, create jobs and build better companies. They have a good grasp of the principles of business.

On 14 April 2016, the Hon. Mr Faiyaz Koya, Minister for Industry, Trade and Tourism, announced big reductions in fuel prices. At the same time he confirmed that the FFRA proposal for a fixed price markup had been accepted by the Commerce Commission. This was set at 10 cents per litre for unleaded and premix, and 9.5 cents for kerosene and diesel. So from our point of view, we had made some progress. We commend the Minister and the Commerce Commission. Mr Koya felt the new system meant our margins would remain constant irrespective of the movement in international prices. This reduced the risk of losses to the retailers due to fluctuation of world prices. He said there would be certainty for traders and a solid platform for investment decisions.

While acknowledging that an increased return as provided in the current fixed price formula is an improvement, I must emphasise that we are still controlled. The fixed prices announced were below what we had requested. We are still behind the rest of the region, with the exception of Samoa. Meanwhile, we continue striving to improve our businesses and make a positive contribution to the economy.

It is imperative that we address the ongoing issue of losses from fuel evaporation. A solution must be found by bringing all parties together to create a roadmap. In other countries, evaporation losses are dealt with through vapour control systems. In the absence of this expensive technology in Fiji, we believe that these losses should be factored into our permitted returns. The evaporation emissions are highly carcinogenic, so there is a health problem to deal with as well.

We are investigating a system of charging a nominal fee for plastic bags made available in our convenience shops for carrying purchases. One hundred per cent of the revenue collected will be used for environmental initiatives. Our support for this stems from the fact that our 75 service station members give out an estimated 2.7 million plastic bags every year. We estimate that charging for plastic bags will reduce their use by 50 per cent within a year.

There is also hope for arriving at an agreement with the Fiji Police Force for cooperation in tracking down stolen vehicles used in armed robberies. The drivers of such vehicles often call at our service stations to fill up as they go about their criminal activities. If we are alerted directly through the police communication system when a vehicle is stolen, we can pass information rapidly to the enforcers of the law if it appears at an FFRA service station.

Finally we acknowledge that we are not perfect. As with any business, there is always room to improve. We are not afraid of constructive criticism from the public, the Consumer Council or the Commerce Commission. We are ready to innovate, to play our part in a rapidly developing economy, and to respond quickly to the high service standards demanded by our customers and stakeholders.

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European Union and SPC adjust focus of Micro Projects Programme following TC Winston

In February 2016, Tropical Cyclone Winston made landfall in Fiji as a Category 5 storm – the strongest ever recorded for the Southern Hemisphere. Forty-three people lost their lives and the damage bill was estimated at approximately FJD 1 billion (USD 460 million), a devastating cost for a Pacific Island country.

Communities in the western sugar cane belt were some of the hardest hit, with around 265 schools damaged, 25,000 people in need of water and sanitation assistance, and 80 per cent of the power supply disrupted.

In responding to the disaster, the European Union (EU) and Pacific Community (SPC) worked together to redirect the focus of the Micro Projects Programme (MPP) to recovery efforts. The MPP will focus primarily on rural electrification and water, sanitation and hygiene (WASH). The MPP Energy team already collaborated with the Fiji Department of Energy in May to conduct surveys to identify energy requirements, including income generating opportunities in cane belt communities. Other activities identified under MPP efforts include the construction of 20 WASH facilities in the schools most affected by the cyclone; surveys and assessments of new groundwater sources across six communities; and the installation of up to 400 individual household solar systems to provide a stable power supply.

This practical support will provide improved access to both affordable electricity and income-generating opportunities and to safe, disaster-resilient water supply, sanitation and hygiene facilities.

The MPP team has continued to work closely with the relevant ministries and communities with the aim of completing activities by June 2018.

MPP is a EUR 4.3 million initiative supported by the EU and implemented in partnership with SPC. It is designed to assist sugar cane belt area communities by improving livelihoods and reducing their vulnerability to social, environmental and economic shocks.

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The Faseu micro-hydro scheme, which was damaged by floods and landslides in 2007, is being rehabilitated under the Small Energy Projects Programme. Completion, scheduled for August 2016, will restore hydropower for approximately 215 people.

Access to clean, affordable energy is an enabler for human development, and contributes to improved services such as education, healthcare, jobs and transport. Papua New Guinea (PNG), Solomon Islands and Vanuatu are the most disadvantaged Pacific Island countries in terms of access to energy. According to country energy profiles compiled by SPC in 2009, connection to the grid is estimated at 17 per cent in PNG, 14 per cent in Solomon Islands and 28 per cent in Vanuatu, with figures for off-grid access in rural populations at 3 per cent in PNG, 9 per cent in Solomon Islands and 5 per cent in Vanuatu.

SPC’s Economic Development Division supports the Small Energy Projects Programme (SEPP). Six projects were approved for SEPP funding during 2015/2016, one of which was the rehabilitation of the Faseu micro-hydro scheme in Morobe Province, PNG. This project is being carried out under a partnership between SPC, Friends of Faseu (Faseu Trust) and the Appropriate Technology & Community Development Institute of the University of Technology (ATCDI).

Faseu village is at an altitude of approximately 1,350 m in the interior of the eastern Huon Peninsula. The total population is approximately 215 people in 33 households. The road to the village is often inaccessible due to high rainfall and limited maintenance. The hydro scheme was damaged by floods and landslides in 2007. Reconstruction of the scheme will restore electricity to the main communal buildings in Faseu village, the elementary school and outdoor lighting for the main public areas. The total cost for the project is FJD 47,869.13, of which FJD 22,340.03 was provided by SPC for technical personnel (engineer, technical officer and electrician), while Friends of Faseu provided FJD 25,519.10 for materials. ATCDI, the implementing partner, has completed 90 per cent of the reconstruction, with a final trip planned to the site to complete the pipeline, start the generator, and monitor the system for a period of at least 24 hours. The rehabilitation of the micro-hydro scheme is anticipated to be completed by the end of July, and the scheme commissioned in August 2016.

Although the power output of the hydro generator is only 5–7 kW, it meets basic needs for the Faseu people, and supply of electricity day and night provides a sense of safety and security for the community, especially women and children.

Restoration of the village electricity supply also provides opportunities through, for example, the powering of a small workshop and a photocopy machine.

Also under the SEPP, the Hulavu Conference Centre solar energy project in Solomon Islands was completed and commissioned in early May 2016. The centre is now fully operational and generating income for the Hulavu women’s group. Three further SEPP projects are in the pipeline for implementation by October 2016: the Taroniara clinic solar project in Solomon Islands, and projects providing clean fuel and efficient stoves for cooking in Kiribati and Tuvalu.

The SEPP projects are demonstrating the importance of access to modern energy for development. Projects have provided energy that is contributing to social services such as education, health clinics, and safety and security for communities, as well as encouraging economic production and improving livelihoods in rural communities.

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Fiji school a model for sustainable energy development

Pacific solar energy provider Sunergise has installed an 88 kW roof-mounted solar photovoltaic (PV) array at International School Suva (ISS). The system will help the school promote sustainable energy and future technological development while saving on power costs.

ISS is undergoing extensive modernisation. The solar installation, completed by Sunergise’s engineering partner Clay Energy, is just part of a development programme that is designed to position the school and its students for a bright future. The system will displace over 78 tonnes of carbon dioxide every year – the equivalent of planting more than 2000 trees.

Anna Marsden, Principal of ISS, commented, ‘Our curriculum is focused on building skills to assess and respond to the world’s challenges, and to develop responsible global citizens. Living in the Pacific, our students are very aware of the discussion around climate change, and the positive impact that renewable energy can have. Installing solar on the ISS campus brings the conversation right to our doorstep, and turns classroom theory into practice.’

Ajay Raniga, Director of Sunergise Fiji, said ‘ISS students today will be part of the nation’s leadership in the future. Adopting solar at the school is not just a smart business decision. The installation can be a catalyst for inquiry, critical discussion, and communication among the students, and between the students and the community. The ISS students will become ambassadors for the promotion of renewable energy amongst the community and also within their own homes.’

The International Union for Conservation of Nature (IUCN) has partnered with ISS and Sunergise to develop curriculum enhancements to introduce solar technology and energy efficiency concepts through presentations and discussions with students of all ages. More than 200 students participated in the initial round of renewable energy workshops. Anare Matakaviti, IUCN Energy Program Coordinator, said ‘It is important to take a holistic approach to addressing conservation issues. The introduction of renewable energy in the school environment is an excellent way to open a dialogue about our role in the environment.’

Solar is now serving a broad array of large enterprises in Fiji, including resorts, supermarkets, manufacturers, agricultural concerns and financial institutions.

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Republic of Marshall Islands champions energy efficiency

In its revised draft national energy policy, the Republic of the Marshall Islands (RMI) has prioritised smarter use of energy in households, businesses, government, the transport sector and power utilities. It aims to achieve measurable and substantial improvement of energy efficiency by 2020 in at least 25 per cent of households, 50 per cent of businesses and 75 per cent of government buildings.

The demand for electricity seems almost limitless. Building new power plants to meet these demands is costly, time consuming, and can harm the environment. A promising solution is greater efficiency, on both the demand and supply side. In support of this, advanced technologies and supporting policies offer an opportunity to meet future electricity needs while minimising the environmental impacts. Both suppliers and consumers of electricity can benefit from the savings.

The RMI Ministry of Education (MOE) conducted a level 3 energy audit in 2013 that recommended a number of energy-efficient measures. For the MOE administration building, the audit conducted between October 2011 and September 2012, revealed a baseline electricity consumption of 137,200 kWh – 85 per cent of which was for air conditioning and lighting. The limited availability of funding delayed the implementation of the energy audit recommendations, but in 2015 the European Union and SPC, through the North Pacific ACP Renewable Energy and Energy Efficiency Project (North-REP), assisted the MOE with retrofitting energy-efficient air conditioning units and lights. North-REP procured 130 energy-efficient air conditioning units and 4670 LED lights at a total cost of USD 321,186. Calculations show that such an investment will bring about savings of 550,200 kWh, USD 275,100 and 1,028,800 lbs of CO₂ and a payback period of 17 months.

Since the retrofitting exercise in 2015, there has been a remarkable reduction in electricity consumption at the MOE building. The yearly average electricity bill from 2010 to 2014 of about USD 49,000, has been reduced to a bill of USD 29,000 in 2015, equivalent to a 41 per cent reduction. The first four months of 2016 show a total bill of USD 9952. These results are illustrated in the graph below. Further savings are expected to be seen as the MOE expands its energy-efficient campaign across its schools and other buildings in the RMI.

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Pacific Appliance Labelling and Standards Programme – Training for key implementing agencies

SPC’s Pacific Appliance Labelling and Standards (PALS) Programme has developed a three-phase training programme to strengthen capacities of Pacific Island countries to administer minimum energy performance standards and labelling (MEPSL) legislation. Phase 2 training held in Fiji in April was attended by over 40 participants, who were able to observe the legislation in action.

Standards and labelling programmes are amongst the most cost-effective means to improve energy efficiency, reduce energy consumption and environmental impacts (including greenhouse gas emissions), improve health, and increase energy security. The potential net economic benefit from implementing standards and labelling for electrical appliances and lighting in Pacific Island countries (PICs) is estimated at over USD 640 million (in the period up to 2030). The projected electricity savings are over 2,100 GWh, with associated fuel import savings of about 720 million litres and emission savings of 1.9–2.0 Mt equivalent carbon dioxide (CO$_2$e).

PICs have no manufacturing industry for electrical appliances of their own, and all capital equipment for energy supply and consumption is imported, as are the fossil fuels used in generation (almost all of which is diesel). Historically, the equipment imported to PICs has been of medium-to-low energy efficiency, because PICs have had no way of identifying more energy-efficient products or restricting the import of inefficient products.

Cost–benefit analysis undertaken for the Pacific Community (SPC) has demonstrated that adopting MEPSL programmes for appliances, lighting and equipment is far more cost-effective than importing an equivalent quantity of fossil fuel or investing in capital-intensive renewable energy generation.
To this end SPC, with financial support from the Australian Government, has been implementing the first ever Pacific Appliance Labelling and Standards (PALS) Programme to address and improve energy efficiency in PICs. The objectives of the PALS Programme are:

1. To analyse the appliance markets in PICs to inform the development of the appropriate standard and labelling approach in each participating PIC;

2. To build the knowledge and capacity to deliver standard and labelling programmes within SPC and among the officials of participating PICs;

3. To facilitate Cabinet approval to adopt standard and labelling programmes and develop regulatory frameworks in participating PICs;

4. Once a PIC approves the development of a regulatory framework, to review their regulatory options and engage in-country legal expertise to draft the necessary legislation and regulations; and

5. To assist with drafting of legislation, stakeholder engagement and communication materials.

Using energy-efficient appliances through mandatory performance standards and energy labelling has gained significant support from PICs, and promising advancements have been made, particularly in Fiji, Kiribati, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. These island nations have developed appropriate legislation on performance standards and energy labelling for refrigerators and freezers, air conditioners and lights using Australia and New Zealand standards.

To strengthen the capacities of PICs to effectively administer their MEPSL legislation when enforced, a three-phase training programme has been developed. Phase 1 and 3 will be carried out in each country, while Phase 2 will be conducted in Fiji as this is the only PIC that is already implementing MEPSL, and participants can observe actual working examples.

Phase 1 training was carried out in Kiribati, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu between October 2015 and March 2016. The training, for key agencies responsible for implementing the legislation, focused on developing the administrative framework, understanding the legislation and roles of each key agency, and identifying the best ways to work together.

Phase 2 training was held in Fiji from 11 to 14 April 2016 and was attended by over 40 participants from national energy offices, customs offices, trade and commerce offices, as well as regional agencies and development partners. The training aimed to provide participants with a better understanding of the key aspects of actual operation (e.g. registration, product inspection and monitoring), finalise administrative procedures, understand technical details of mandated products, and carry out hands-on training with registration.

In his opening address, Fiji’s Permanent Secretary for Infrastructure and Transport, Paul Bayly, reiterated the importance of appliance efficiency and energy efficiency to improve our island nations’ energy security and resilience, and urged countries to continue to work together to share information and knowledge that will contribute towards the successful implementation of labelling and standards programmes in the PICs.

It was announced during the training that Tuvalu’s legislation had been approved by parliament, making Tuvalu the second country after Fiji to have its labelling and standards legislation approved. Kiribati, Samoa, Solomon Islands, Tonga, and Vanuatu are working towards having their legislation approved this year. When the legislations have been approved in these PICs, this will be a significant milestone for energy efficiency goals and climate change adaptability in the PICs. Low-quality products will be eliminated from PIC markets; regional trade/market competition will be increased; and individuals will save on their electricity bills, thus supporting the power utilities in reducing fossil fuel consumption and increasing national savings.

The PALS Programme kindly acknowledges the assistance provided by the Fiji Department of Energy in co-organising the Phase 2 training. As SPC’s Deputy Director (Energy) Solomone Fifita said in closing the training, ‘the success of the PALS Programme is based on partnership.’ The PALS Programme will continue to work with the PICs for their Phase 3 training.

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Building capacity for energy auditing in Pohnpei State, FSM

The goal of the energy audit project is to promote energy efficiency as a means to reducing fossil fuel consumption and CO₂ emissions throughout the region. The International Institute for Energy Conservation (IIEC) was selected as technical consultant for the project.

To improve energy efficiency and develop long-term strategies for energy efficiency, it is important to ensure accuracy of data collection, estimates of energy savings potential and costs, and appropriateness of recommended measures. It is therefore important to build knowledge and skills in carrying out energy audits.

The main activities of the energy audits conducted in Pohnpei State in FSM are outlined below.

Preliminary energy audits were carried out in five complexes covering 31 public and commercial buildings: the FSM national government complex, the national campus of the College of Micronesia-FSM, the state executive building (Kolonia), the Pohnpei state hospital, and the Cliff Rainbow Hotel. Detailed data were collected on energy use, energy costs and energy management activities, and these were specifically analysed for areas of energy wastage and utilisation inefficiency, and energy saving opportunities.

A detailed energy audit was carried out on the FSM national government complex, which included more detailed data gathering, and evaluation (e.g., material and energy balances) for the design, engineering, planning, financing and implementation of specific energy saving opportunities that were identified during the preliminary energy audit.

The next step was the design and planning of energy-saving schemes. An implementation plan was developed based on the findings of the preliminary and detailed energy audits, and evaluation of the identified energy efficiency measures. The energy efficiency measures included those that could be implemented at no cost or low cost, as well as those that required investment.

The exercise included capacity building for DOE-MRD personnel. Technical, operation and maintenance personnel were invited to take part in an energy audit training programme. The programme covered energy surveys, data collection and analysis, preliminary and detailed energy audit procedures, energy efficiency technologies, cost–benefit analysis of energy efficiency measures, monitoring and verification of savings, and report preparation.

The energy saving measures identified during the preliminary and detailed energy audits may be replicated across other public buildings in the other states of FSM, i.e. Chuuk, Yap and Kosrae. Some of the lessons learned from FSM’s experience may also be shared and applied across the Pacific Islands region. The training programme has enhanced the skillsets of local professionals, enabling them to provide support in energy auditing and implementation to government departments, building owners, industries and households.

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Update on the Pacific Regional Data Repository

http://prdrse4all.spc.int

The period from June 2015 to June 2016 was a productive one for the Pacific Regional Data Repository team, following funding support provided by the World Bank, which led to a number of key activities being undertaken to strengthen the efforts of the PRDR initiative in the region.

First, there was the development of the draft strategy for the PRDR, which outlines the plans for implementing the programme and the estimated costs needed for sustainable implementation. Dr Herb Wade, a renowned energy expert in the region, was hired to compile the strategy document, which is currently under review before finalisation and submission to energy officials for their endorsement at the upcoming Pacific Energy Advisory Group (PEAG) meeting in November 2016.

The PRDR team together with Dr Wade, and Natsuko Toba from the World Bank, then undertook a review of the repository features of the PRDR portal, using the KISS principle – ‘Keep it simple, stupid’ – to ensure the portal is user-friendly. These features were finalised and put into production as of October 2015. The team has since added more features to the portal to capture energy statistics, with further capacity building provided to the PRDR team on developing data templates and establishing verification procedures. As part of this capacity building, Ms Amali Shaw received training on energy statistics and modelling with the Asia-Pacific Energy Research Centre in Japan in May 2016.

The third component of the funding assistance from the World Bank covered country missions to raise awareness of the PRDR initiative, and establish and operationalise institutional arrangements for the PRDR data collection process. Three-party data sharing agreements have been established between the data provider, the national PRDR focal point and SPC as the regional host. Countries visited to date include RMI, Tuvalu, Samoa, Tonga, FSM, Palau, Vanuatu, Solomon Islands, Fiji and PNG. Of these countries, Tonga, Solomon Islands and PNG also held national workshops to share more information on the PRDR initiative and provide a platform for stakeholders to discuss their experience and concerns in relation to data sharing. Workshop participants included key energy stakeholders from petroleum and energy offices, statistics offices, power utilities, climate change offices, petroleum companies, and other relevant government departments. The proceedings of the national workshops can be downloaded from the PRDR portal –

1. Tonga: http://prdrse4all.spc.int/production/node/4/content/tonga-national-workshop-pacific-regional-data-repository-prdr
2. PNG: http://prdrse4all.spc.int/production/node/4/content/png-national-consultation-workshop-prdr
3. Solomon Islands: http://prdrse4all.spc.int/production/node/4/content/solomon-islands-national-workshop-prdr-se4all-initiative

Following the country missions, the priority for the PRDR team is to ensure consistency in getting data from data providers and making information available as soon as possible. SPC is now undertaking follow-up discussions with country energy offices and data providers on the signing of data-sharing agreements where applicable. To ensure that data providers actively participate in the PRDR, continued dialogue and communication are needed to build networks to support the data collection process.

Of the countries visited, Palau and PNG are the only two that have recently enacted legislation that includes a section on mandatory data collection (Palau Energy Act and PNG Climate Change Management Act). Both the Palau Energy Office and PNG Climate Change and Development Authority are in the process of developing their respective regulations. The PRDR will support countries in the development of their regulations via the provision of data collection templates.
The country missions also provided an opportunity for the PRDR team to meet with development partners, CROP agencies and energy experts in the region. As a whole, there is consensus on the concept and support for the PRDR initiative. Most of these meetings resulted in the provision of terabytes of reports and information that SPC is still in the process of uploading to the portal.

In addition to the country missions, a joint SPC-APEC Regional Workshop on Energy Statistics and Modelling for Sustainable Development Goal 7 and the COP 21 INDC (Intended Nationally Determined Contribution) Energy Targets was undertaken in Tonga in March 2016.

The workshop, which was a partnership between SPC and APEC’s Asia Pacific Energy Research Centre, supported by the World Bank, was held in Nuku’alofa, Tonga from 14 to 18 March 2016. The selected participants comprised energy or climate change officials from countries that have made firm commitments and good progress towards establishing their national energy databases. A total of 14 countries participated, with representatives from American Samoa, Cook Islands, FSM, Fiji, Kiribati, Marshall Islands, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. The objectives of the workshop were to:

- enable Pacific energy officials to utilise and model energy data collected from country data sources and deposited in the PRDR to effectively plan and manage their energy sector;
- increase awareness of the application of data captured in the PRDR portal and the importance of having timely, accurate data from countries for modelling and planning purposes;
- present and discuss the draft PRDR strategy for the next five years and efforts to have all PICT data sources sign a data-sharing agreement with the PRDR;
- demonstrate the application of data in a ‘one-stop shop’ PRDR, and the utilisation of this energy data for a formal regional energy database under SPC.

The workshop demonstrated the importance of good quality data for effective planning and management of the energy sector. Lack of reliable and up-to-date energy data is the key challenge for the energy sector. The PRDR offers the region a one-stop shop solution for accessing timely reliable energy data. Technical workshops, such as the one delivered by SPC-APEC, help transfer knowledge and skills to the Pacific and enable countries to carry out proper statistical analysis and modelling to track progress on their INDCs, as well as national and regional energy sector goals and targets.

Proceedings of this technical workshop can be downloaded at: http://prdrse4all.spc.int/production/node/4/content/joint-spc-apec-regional-workshop-energy-statistics-and-modelling-sdg-7-and-cop-21

During the second half of 2016, the following activities will be undertaken:

1. Completing an informational DVD on the PRDR – to be made available in August 2016
2. Progressing the signing of data-sharing agreements with data providers
3. Supporting countries in facilitating data collection for the PRDR
4. Endorsing the PRDR strategy during the PEAG meeting in November 2016
5. Seeking funding support for the implementation of the PRDR strategy

Ms Kinisimere Kucuve

Kini is a newly recruited intern who will assist with data management, research and analysis for the PRDR. The internship is for a period of six months. Kini graduated from the University of the South Pacific in Library & Information Studies in 2015.

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Mr Antony Garae sets new direction for Vanuatu’s Department of Energy

Readers of Pacific Energiser newsletter would like to congratulate Mr Antony Garae on taking up the role of Director of Vanuatu’s Department of Energy (DOE).

A young and vibrant individual, Mr Antony Garae has been serving the Government of Vanuatu for three years. He joined DOE in October 2013 as an On-Grid Principal Scientific Officer.

On 24 May 2016, Mr Garae was appointed as the new Director of DOE. The Directorship was formerly held by Mr Jesse Benjamin, who is currently the Director General of the Ministry of Climate Change.

During his three years of service with the Energy Department, Mr Garae coordinated various projects, such as the Global Partnership on Output Based Aid (GPOBA), which is expected to connect 4,375 low-income households to the national grid; the UAE 767kW Solar PV Systems project, which is currently operational; and Talise Hydro, which is currently in its second phase of electrical reticulation and is expected to be completed early next year. He has also been instrumental in the commissioning of two biofuel sites that are ready for operation, as well as the Imaki Pico Hydro on Tanna Island.

The Department of Energy and Pacific Energiser readers, congratulate Mr Garae on his new role as Director of DOE. We look forward to working together to help improve the energy sector and promote energy, as a key enabler for development in Vanuatu and the region.
Farewell

The Pacific Community’s (SPC) Energy Programme would like to wish a warm farewell, and extend our thanks to Alan Bartmanovich and Pritanshu Singh for their contribution to the region.

Alan joined SPC in 2013 as Petroleum Advisor. His role focused mainly on providing advice and coordinating the implementation of the Framework for Action on Energy Security in the Pacific – in particular, the regional effort to ensure reliable supply and safe transportation and storage of cost effective, good quality petroleum products (and feasible liquid fuel alternatives) to Pacific Island countries and territories (PICTs).

Pritanshu joined SPC in 2012 as Assistant Petroleum Officer. Her role included assisting PICTs with their fuel industry reviews and preparing petroleum market advisories. Before joining SPC, Pritanshu was working at Pacific Energy South West Pacific Limited as an Environmental Officer.

Vinaka vakalevu Alan and Pritanshu. We deeply appreciate both of your efforts and we wish you all the best in your future endeavours.

SPC continues its services by responding to the central role of petroleum in the current and future energy supply mix of PICTs. Our role is to provide petroleum advisory services to support PICTs to obtain fair prices for their petroleum supplies, and to ensure that the quality of products used are in line with global developments, while ensuring the reliability of the supply logistics, and compliance with adopted national safety and security standards. Petroleum market advisories are provided to PICTs on a weekly, monthly and quarterly basis.
### Pacific energy events calender (August–December 2016)

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Venue</th>
<th>Responsible agencies</th>
<th>Officer responsible</th>
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<tbody>
<tr>
<td>TBC</td>
<td>Sustainable Energy training workshop (under the KfW project)</td>
<td>Vanuatu</td>
<td>SPC</td>
<td>Kuini Rabo</td>
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<tr>
<td>TBC</td>
<td>Follow-up of Hawaii Renewable Energy Workshop</td>
<td>Suva, Fiji</td>
<td>SPC</td>
<td>Solomone Fifita</td>
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<tr>
<td>TBC</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</td>
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<td>December (TBC)</td>
<td>7th Meeting of the Pacific Energy Advisory Group</td>
<td>Suva, Fiji</td>
<td>SPC</td>
<td>Solomone Fifita</td>
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