In this issue:

Leadership, governance, coordination and partnership
Gender Day at COP 18, Doha, Qatar: Gender and Climate Innovation: Breakthrough changes for gender equality..........................4

Capacity development, planning, policy and regulatory frameworks
Developing an energy road map for Nauru ........................................6
Energy policy review and development of energy efficiency and petroleum strategies and investment plans – Solomon Islands .................................................................8
GSES conducts solar workshops in Cook Islands ..............................11

Energy production and supply (Petroleum)
Fourth quarter 2012 oil market report (October–December 2012).................................................................12

Energy production and supply (Renewable energy)
Tokelau is 100% electrified by renewable energy source ‘The first country to do so in the world’ ........................................14
North-REP: Palau activity update (December 2012)..........................17
Book launch attracts stakeholders from government and industry................................................................................19
Vital to build and operate 100kW solar array on Guam ......................20
Remote island photovoltaic installation in Tonga ..............................21

Other news
IRENA in the Pacific – update..............................................................23

Pacific energy events calendar (January–August 2013)..............................24

Cover photo supplied by Frank Vukikomoala, SPC.

Disclaimer: All care and diligence has been used in extracting, analysing and compiling this publication, however, SPC gives no warranty that the information provided is without error.
Bula and greetings to you all!

It is the Pacific Energiser’s hope that everyone enjoyed their much-needed break for the festive season and that we are all energised for the challenges of 2013.

This issue serves the dual purpose of bidding farewell to 2012 and welcoming 2013. In doing so, we recognise that the end of the year is a good time to take stock of where we have come from and what we have achieved, while the beginning of the year is the time to map out where we would like to be by the end of the year.

2012 will be remembered for the UN General Assembly’s leadership and wisdom in designating it the International Year of Sustainable Energy for All (SE4All). This was in recognition of the growing importance of energy for economic development and climate change mitigation. The UN also attempted to correct what many working on energy and development issues had for years argued was a major error – that of not including action on energy poverty in the Millennium Development Goals.

The Pacific region participated in the various roll-outs of the IY SE4All because we wanted to raise awareness about the fact that seven million people out of the region’s ten million still do not have electricity. While more than 90% of households in the small island states and more than 80% in Polynesia have access to electricity, access is still below 30% in some of the larger and more populated Melanesian countries. Moreover, the region continues to rely heavily on fossil fuel, which supplies about 95% of the region’s commercial energy needs. Not surprisingly, the cost of electricity is among the highest in the world. Total energy losses in some power utilities are as high as 25%, and renewable energy opportunities and efficiency gains in the transport sector remain generally under-utilised. His Excellency Ratu Epeli Nailatikau, President of the Republic of Fiji, was therefore spot on when he said, ‘The situation is no longer confined solely to an energy security situation. Rather it poses as an imminent threat to the security of our economy, our livelihood and our sovereignty as a nation.’

It is therefore very important for Pacific Island countries and territories to be able to monitor their energy security situation closely. With the assistance of the EU Energy Initiative Policy Dialogue Facility and the Government of Australia, the baseline (2009) energy security profiles for the 14 Forum Island Countries was completed and printed in 2012 and these can be accessed from the SPC website: http://www.spc.int/edd/en/section-01/energy-overview.

Other notable achievements of 2012 are: the launch of the Australia-funded Pacific Appliance Labelling and Standards programme in an effort to improve energy efficiency in the region; some good gains in petroleum, with a lot more two-way sharing of petroleum market and pricing data leading to better supply and pricing arrangements; and much progress on renewable energy – a 1 MW solar farm was commissioned in Tonga and history was created in November when Tokelau became 100% dependent on solar power for its power generation.

Towards the end of 2012, the region was challenged with the reality of climate change; a cyclone interrupted the power supplies in Fiji and Samoa.

As we begin the journey into 2013, the climate resilience of our energy infrastructure must be given special attention. Experts have warned that the frequency of natural disasters may not change but their intensity and severity will increase.

The IY SE4All may be behind us but the SE4All initiative is a globally endorsed initiative to mobilise urgent global action to three complementary objectives to be achieved by 2030:

i. ensure universal access to modern energy services;
ii. double the global rate of improvement in energy efficiency;
iii. double the share of renewable energy in the global energy mix.

The Rio+20 Conference has led to the development of the sustainable development goals and no doubt energy will feature in these goals. Closer to home, the Pacific Plan is being reviewed and it is our collective responsibility to ensure that energy is accorded the prominence it requires in the Pacific’s socio-economic and sustainable development.

We embark on 2013 with much optimism, given the funding support: via SIDS Dock, the Danish government has approved USD 4 million for renewable energy and energy efficiency projects in seven Pacific Island countries; the government of Japan has committed USD 15 million to the SIDS Dock via the World Bank; and the governments of Germany and the United Arab Emirates have generously donated USD 1 million through the International Renewable Energy Agency for a capacity building initiative: Promoting the Enabling Environment for Renewable Energy Deployment in the Pacific Small Island Developing States. We also look forward to new funding support from the EU and favourable consideration of extending the successful Pacific Environment Community Fund.

These new initiatives will certainly add value to national efforts to improve energy security, and the planned Energy Summit in Auckland from 25 to 28 March will break new ground for energy investment in the region.

I thank everyone for all the support in 2012 and best wishes for the year ahead of us.

‘Ofa atu
Solomone Fifita
Gender Day at COP 18, Doha, Qatar: Gender and Climate Innovation: Breakthrough changes for gender equality

The official launch of a full Gender Day at the Conference of Parties – COP 18 marks the beginning of a new era for gender advocates. In responding to a comment of Cate Owren, Executive Director of the Women’s Environment and Development Organization (WEDO) that COP 18 would be considered the Gender COP, Christiana Figueres, Executive Secretary of the UN Framework Convention on Climate Change (UNFCCC) said: ‘Every COP should now be a gender COP’. The day was dedicated to raising awareness of gender and climate change issues and celebrating women’s role in addressing climate change.

Part of the Gender Day was a collaborative effort put together by the Gender Climate Coalition, WEDO, the Global Gender and Climate Alliance, LIFE – Education, Environment, Equality and members of the UNFCCC Women and Gender Constituency. They successfully hosted a three-hour side event on the theme: Gender and climate innovation: Breakthrough changes for gender equality.

The event was divided into three parts. The first part was a high level panel discussion on the how to capitalise on the past and make a progress. Taking part were Christiana Figueres, UNFCCC Executive Secretary; Mary Robinson, President of the Mary Robinson Foundation–Climate Justice; and the Hon. Minister Alcinda Albreu, Mozambique Minister for the Environment. The session moderator was Cate Owren.

The session began with Minister Albreu stressing that gender should always be a cross-cutting issue in climate negotiations and that there is a need to recognise the contribution of women in the management of natural resources in their community.

Christiana Figueres gave a very motivating statement to all gender advocates: ‘We can use any desk that we sit at to move this agenda forward – change is difficult, but we can’t give up’. This statement not only motivates gender advocates, it also challenges us in the work we do to progress further in creating awareness of the importance of gender equality in any climate negotiation/policy and its implementation at macro (global) and micro (local) level. Christiana further stressed that, as drivers in advocating for gender and climate change issues, we should take a positive approach and recognise women as agents of change in addressing climate change issues, rather than focusing on the burdens of climate change on women. In the same vein, Mary Robinson stressed that efforts should be made to ensure climate change is more people-centred and this can only be achieved by focusing on what women can do.

The second panel discussion saw gender experts from around the world describing their practical experiences and knowledge of gender-sensitive climate change issues from a local perspective. The panelists consisted of representatives from GenderCC, Action Aid, CARE International, the Heinrich Boll Foundation and University College London. This session was moderated by Gotelind Alber (Focal Point, UNFCCC Women and Gender Constituency).

Our representative from Pacific Gender CC, Ms Kahealani Hekau, shared her practical experience of a participatory approach for community-based projects; she highlighted the importance of focussing on the needs of communities when implementing adaptation and mitigation programmes. Identifying the needs is vital; they guide implementation and mitigation programmes at the community level.

Other panellists shared their views and knowledge. They wanted people to stop considering gender as an “add-on” to climate policy; it is an integral part of every climate change policy. They stressed the need to address inequalities at the national level, as only then we can achieve substantial progress. They also stressed the importance of not stereotyping women as victims of climate change; rather,

---

1 GenderCC–Women for Climate Justice, the global network of gender activists and experts from all world regions working for gender and climate justice
they wanted to empower women not only at the macro level (global) but at the micro-level (national), and to have equity on something that is workable and can be achieved.

The event rounded off with a Gender / Knowledge / Innovation hub that addressed mitigation, adaptation, climate finance, technologies and capacity building. The hub showcased practical knowledge and innovative ideas that are already under way in addressing gender equality in the above areas.

The challenge for the Pacific is to drive at both macro and micro level the significance of gender in all aspects in addressing climate change issues. Our Pacific societies are based on structures and cultures that define the gender roles women and men play in communities and households.

In taking up this challenge of gender equity at all levels, we should capitalise on our ability to work together, blending our traditional knowledge with modern methodologies in adaptation programmes to address the issues of climate change and secure a sustainable future.

All in all, the gender event at COP 18 provided insights and changed the mindset of people to be more positive and focused on viewing women as agents of change in addressing climate change issues; gender should be a cross-cutting issue in climate negotiations, policy making, and implementation; women should be empowered at a local level; and they should receive capacity building assistance so they can become active drivers for true progress. These strategies are important to achieve our common goal – gender equality and a sustainable future for all.

For more information:

Kuini Rabo
Assistant Energy Officer
(Energy) EDD, SPC
(KuiniR@spc.int)
Developing an energy road map for Nauru

The regional Framework for Action on Energy Security in the Pacific (FAESP) emphasises the importance of Pacific Island countries developing their energy sector planning, policy and regulatory frameworks. The existence of relevant and up-to-date energy policies, accompanied by strategies and road maps for their implementation and a supporting regulatory framework, is vital to progress towards a well-coordinated, effective and secure energy sector.

Nauru developed and endorsed its National Energy Policy Framework (NEPF) in 2009 but implementation plans to reach the objectives laid out in the policy were never fully developed and put into action. The lack of an agreed implementation plan was attributed to various factors, including the limited financial and human capacity of the government ministry mandated for energy policy development and implementation, as well as the different priorities of government in the last years. The lack of a dedicated Energy Unit within government has also been identified as a key institutional constraint to the energy sector policy development, planning and implementation.

The Nauru Government sets out its national development goals and objectives in the National Sustainable Development Strategy (NSDS) 2005–2025, which is an overarching national planning document that covers all aspects of development. The 2009 NEPF aligns its goal with the NSDS vision of ‘Reliable, affordable and sustainable energy, enabling the socio-economic development of Nauru.’ However, without an implementation plan or a road map, the policy outcomes cannot be realised and cannot contribute towards the national development goals and objectives of the NSDS.

In January 2012, the Nauru government requested technical assistance from the International Renewable Energy Agency (IRENA) and the German Agency for International Cooperation (GIZ) for the development of an implementation plan to accelerate the use of renewable energy in Nauru. IRENA and GIZ, together with the Secretariat of the Pacific Community (SPC) agreed to deliver this technical assistance through the SPC-GIZ Coping with Climate Change in the Pacific Region Programme (CCCPIR) – Energy component and IRENA’s Pacific Work Programme. In this context, the Department of Commerce, Industry and Environment (CIE), which is the Government body dealing with energy sector matters, organised an inception workshop in May 2012 to discuss ways to realise the renewable energy goal of the NSDS and the national energy policy. It was agreed by the Nauru stakeholders that SPC, GIZ and IRENA should assist the Government of Nauru in formulating a whole-of-sector energy road map.

In November 2012, a joint-mission comprising of IRENA, SPC and GIZ technical experts provided support to CIE for national consultations on the development of an energy road map. These comprised a one-day community consultation workshop with district leaders and youth representatives, a
half-day workshop with women’s representatives organised through the Women’s Affairs Department under the Ministry of Home Affairs, as well as a two-day national workshop.

The objectives of the consultations were to discuss the current status of energy issues to date, to receive feedback and suggestions on approach and methodology in developing the energy road map, and to discuss and develop strategies and actions to feed into the road map. The national workshop gathered participants from various stakeholders, including Nauru Utilities Authority (NUC), Ronphos, Digicel, Australian Aid, the Planning and Aid Department (PAD) in the Ministry of Finance, and the Water and Climate Change Units of CIE. Separate meetings were held with NUC, Ronphos, Australian Aid, PAD, the Taiwan Embassy, the Nauru Statistics Office, the Ministry of Utilities and the Ministry of Foreign Affairs.

Preliminary results from the consultations are listed below.

- There was a common understanding that the road map will in effect be an implementation plan for the 2009 NEPF and the final document may not carry the title of energy roadmap or could be more specific in its purpose, such as ‘Nauru Energy Road Map: An Implementation Plan for Energy Sector Development’.

- The road map will align with the vision, overall goals and strategic policy areas of the National Energy Policy Framework (NEPF) of 2009, with NSDS vision being used as it is more encompassing than the NEPF vision.

- There is a need for a unit within government dedicated to the energy sector (i.e. an Energy Unit). The indicative role of this unit would be sector planning and policy development, coordination of energy sector activities, data collection and storage, monitoring of the implementation of energy sector plans, communications with stakeholders within and outside government, and information dissemination.

- Once set up, the Energy Unit needs to be guided through the development process of the energy road map. To do this a Technical Working Group on Energy will be established as a sub-committee to the National Development Committee (NDC), comprised of relevant stakeholders.

- A number of strategies and activities were identified across the sectors of renewable energy, energy efficiency, power, petroleum, institutional strengthening and capacity building, and finance. These will be considered and incorporated into the road map development.

- A number of needs and potential activities were identified at the community level with regard to everyday end-uses of energy such as lighting, cooking, water, transport and refrigeration. These will be considered and incorporated into the road map development.

For more information:

Godwin Cecil
Mitigation Project Officer, Department of Commerce, Industry and Environment, Nauru
(godwin.cecil@naurugov.nr)

Katerina Syngellakis
Sustainable Energy Adviser, SPC-GIZ Coping with Climate Change in the Pacific Island Region (CCCPIR)
(Katerina.syngellakis@giz.de)

Apisake Soakai
IRENA Coordinator for the Pacific
(ASoakai@irena.org)
Energy policy review and development of energy efficiency
and petroleum strategies and investment plans –
Solomon Islands

Like all other Pacific Island countries, Solomon Islands is heavily dependent on imported fossil fuel for transportation and electricity generation. Reducing the heavy reliance on fossil fuel is very high on the list of priorities of the Government of Solomon Islands. The use renewable energy (RE) sources, energy efficiency (EE), energy conservation (EC) and better management of its fuel supply, distribution and pricing arrangements are some of the strategies to achieve this aim.

After the Renewable Energy and Energy Efficiency Trade and Investment Forum held in Nadi, Fiji in August 2012, which was organised by SPC for the Pacific Island countries with the lowest rates of access to electricity – PNG, Vanuatu and Solomon Islands – Mr Rence Sore, Permanent Secretary in the Solomon Islands’ Ministry of Mines, Energy and Rural Electrification (MMERE), and Mr John Korinihona, Director of its Energy Division, requested technical assistance from the Secretariat of the Pacific Community (SPC) to review its National Energy Policy and formulate its energy efficiency and petroleum strategies and investment plans. Solomon Islands has prioritised the development of its renewable energy strategies and investment plans through the Scaling-Up Renewable Energy Program in Low income Countries (SREP1), under the Climate Investment Fund (CIF).

Despite the huge renewable energy potential of Solomon Islands’ hydro, solar, biomass and geothermal resources, only about 14% of households are connected to the electricity grid network provided by the Solomon Islands Electricity Authority (SIEA).

There has been tremendous improvement in the energy efficiency of the SIEA since the World Bank’s Solomon Islands Sustainable Energy Project (SISEP) commenced implementation in 2009. In 2011, SIEA generated 83 GWh and sold 67 GWh with distribution losses reduced to 19% compared to the 2009 distribution loss of 29%.

The transport sector of Solomon Islands is a major consumer of fossil fuel (more than 60% of imported fossil fuel is used for land and sea transport) and therefore an improvement in the EE of the transport sector will significantly contribute to reducing the importation and reliance on fossil fuel.

In its effort to address its energy challenges, the National Energy Policy (NEP) and its associated Strategic Action Plan 2007–2009 was endorsed by the Solomon Islands Government in 2007. There has been no review of the progress of the NEP and its work plan to date. However, under the agreed terms of reference SPC, in collaboration with the Energy Division of the MMERE, are to provide the following activities as part of the technical assistance on the NEP review.

- Review the National Energy Policy and Strategic Action Plan and its progress on past, current and future activities relating to petroleum and EE by conducting a desktop review and holding consultations.
- Develop and draft petroleum and EE strategies and investment plans after a national workshop and consultations with relevant stakeholders.
- Create a time series of the petroleum and EE indicators for the last five years to show trends in the performance of the petroleum and EE sectors.
- Identify the potential for petroleum and EE to contribute to the energy sector objectives and/or national development strategies of Solomon Islands.

1 SREP was approved in May 2009 under the UNFCCC financial mechanisms. It aimed at demonstrating the economic, social and environmental viability of low carbon development pathways in the energy sector by creating new economic opportunities and increasing energy access through the use of renewable energy. (www.climateinvestmentfunds.org)
Identify the barriers (fiscal and financial, institutional, knowledge, awareness and information, legislative, regulatory and policy, market and technical) to the realisation of the full potential of petroleum and EE to the socio-economic development of Solomon Islands.

Identify the broad strategies for removing the barriers.

Conduct a costing and prioritisation of the identified strategies, in accordance with national development strategies and priorities of Solomon Islands.

Identify the sources and means of financing the prioritised strategies.

Draft petroleum and EE strategies and investment plans for subsequent consideration and endorsement by the Solomon Islands Government.

The SPC technical assistance team visited the Solomon Islands from 26 to 30 November 2012 and carried out consultations with relevant government ministries and civil societies. During a two-day workshop held in Honiara, the team was able to identify the barriers as well as opportunities and potential for developing petroleum and energy efficiency strategies.

A compilation of Solomon Island policies, regulations and fiscal incentives for all the energy sub-sectors was also carried out and a summary is provided below. The summary is aligned to the seven themes of the regional Framework for Action on Energy Security in the Pacific.

### 1. Leadership, governance, coordination and partnership

| Leadership and partnership | The Energy Division of the Ministry of Mines, Energy and Rural Electrification is mandated for policy development, advisory, oversees rural electrification and acts as focal points for international and regional organizations |
| Governance | The Annual Ministry Operational Plan is the leading document for coordinating ED activities and providing links to the Solomon Island National Development Strategy. There is no energy act that governs or provides legal mandates of the ED. |
| Coordination | There is no energy committee or task force to coordinate the energy work. |

### 2. Energy policy, planning and institutional capacity

#### National Energy Policy (NEP) and Strategic Action Plan

The NEP was endorsed in 2007 reviewed in 2012. The revised NEP is to be completed in February 2013. An energy efficiency and petroleum strategy is to be completed by February 2013.

#### Institutional capacity

15 officers are based at the Energy Division as at November 2012: Director, Deputy Director, Energy officers and technicians. Technicians are responsible for installation of renewable energy projects, mainly solar in rural areas.

### 3. Energy (fuel, electricity) production and supply

#### 3.1 Petroleum and alternative liquid fuels

| Petroleum Act | The Petroleum Act 1939 is administered by the Energy Division. The Act regulates the storage and handling of petroleum products. A review is long overdue. |
| Fuel standards | There are no fuel standards and no safety and environmental standards |
| Biofuel standards | There is no biofuel standard. However, biofuel using coconut oil blended with diesel is being trialed at the SIEA Power Sub-station in Auki, Malaita Province. This began in 2011. |
| Grants to utilities | Although SIEA is partly funded by the government, it is expected to function as a private business and in response to increasing debt and shaky financial state; it became a state owned enterprise through the SOE Act 2007. The contractual price between SIEA and South Pacific Oil Limited has reduced diesel costs for power generation. There is no tax exemption on diesel for power generation |
| Price Control Unit | All fuel prices are regulated by the Price Control Unit of the Ministry of Commerce, Industry, Labour and Immigration. |

#### 3.2 Renewable energy

| Renewable energy act | There is no renewable energy act. However, investors are allowed to explore renewable energy potential such as from geothermal and hydro through the Foreign Investment Act. The Mines & Minerals Act (Cap 42) specifically caters for geothermal exploration. |
| SIEA implementing renewable energy technologies | Yes, mainly on hydro power. |
Feed in tariff  There are no feed in tariffs.

Net metering policy  There is no net metering policy but private companies/residents are issued with licenses to install solar panels at their own premises as a cushion during power outages.

Renewable energy targets  The target (set by ED) is 50% in the power generation sector by 2020, and 100% by 2050 (proposed by the SIEA but not documented).

3.2.1 Financial incentives for enhancing renewable energy technologies

<table>
<thead>
<tr>
<th>Subsidy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidies or grants for solar installations in the rural provinces are provided by the Member of Parliament Energy Fund and donor-funded projects.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RE loan</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no specific RE loan.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duty tax</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There is cabinet approval for duty tax exemption on importation of renewable energy technologies but no policy or regulation.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Production tax rebate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no policy and regulation on RE production tax rebate.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Investment tax credits</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no regulation on RE investment tax credits, though tax credit can be approved by Cabinet</td>
<td></td>
</tr>
</tbody>
</table>

4. Energy conversion

<table>
<thead>
<tr>
<th>Electricity Act</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, enacted in 1969 and needs review. The SIEA was established under the Electricity Act as the sole supplier of power in Solomon Islands. SIEA now operates as a state owned enterprise under the SOE Act 2007.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent regulator</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no independent regulator for electricity tariff and prices.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electricity targets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no electricity targets.</td>
<td></td>
</tr>
</tbody>
</table>

5. End-use energy consumption

<table>
<thead>
<tr>
<th>Subsidy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no government subsidies and incentives on importing EE appliances.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Loan for EE investments</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no specific loan criteria on EE investment. Paradise Technology has registered its company in Solomon Islands and is promoting energy auditing at no cost. Government is planning to promote energy efficiency in offices.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duty tax and tax reduction on energy efficiency investments</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no policy or regulation but tax reduction for companies can be approved by Cabinet.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy efficiency programmes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solomon islands is participating in the Pacific Appliances Labeling Programme being implemented by SPC. SIEA, through its reform programme, is implementing a pre-paid meter for residential customers.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minimum energy performances standards</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy efficiency act</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no energy efficiency act.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy efficiency targets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no energy efficiency target.</td>
<td></td>
</tr>
</tbody>
</table>

6. Energy data and Information

<table>
<thead>
<tr>
<th>Energy data policy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The Energy Division is not legally mandated to collect data and information from petroleum companies, SIEA and private companies or rural energy service companies (RESCOs). An energy database officer has been recruited.</td>
<td></td>
</tr>
</tbody>
</table>

7. Finance, monitoring and evaluation

<table>
<thead>
<tr>
<th>SI National Development Strategies 2012–2020</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy is included as one of the essential services for the NDS overarching focus areas; To build better lives for all Solomon Islanders</td>
<td></td>
</tr>
<tr>
<td>To take better care of all the people of Solomon Islands</td>
<td></td>
</tr>
<tr>
<td>To improve the livelihoods of all the people of Solomon islands</td>
<td></td>
</tr>
</tbody>
</table>

For more information:

John Korinihona  
Director of Energy  
Ministry of Mines, Energy and Rural Electrification  
Solomon Islands  
(john.korinihona@yahoo.com)

OR

Koin Etuati  
Energy Policy Officer  
Energy Programme, SPC  
(KoinE@spc.int)
Two workshops were held so that all of the utility’s technical staff could attend. Attendance totalled 17 at the first workshop, which was conducted by Geoff Stapleton (GSES Managing Director), and over 30 at the second, conducted by Matthew O’Regan (GSES Renewable Energy Engineer).

Cook Islands has established the goal of generating 100% of its electricity from renewable sources by 2020. The country already has photovoltaic (PV) panels capable of generating 502 kWh connected to the grid in Rarotonga, and another 232 kW waiting to be installed. The existing maximum demand in Rarotonga is approximately 5 MW. TAU has established a renewable energy section, but many people within TAU have not had any training on solar systems and issues relating to these grid-connected systems.

The workshops covered only grid-connected solar systems. Topics included: a general overview of solar and grid-connected systems, issues involved in designing a system, the grid-connected PV installation guidelines recently released by the Sustainable Energy Industries Association of the Pacific Islands (SEIAPI) and the Pacific Power Association (PPA), and technical issues that have been identified with systems in Australia.

Mr Stapleton and Mr O’Regan were in Cook Islands because GSES had commenced a study on PV penetration on the Cooks Islands grid.

The government-owned Australian Solar Institute provided funding for the Australian PV Association and the Centre for Energy and Environmental Markets (located within the University of New South Wales) to undertake a study of PV grid penetration issues within Australia. So far they have undertaken studies on the Alice Springs (Northern Territory) and Carnavon (Western Australia) grids, both of which are powered by diesel and/or gas generators.

Mr Stapleton, who also lectures at the University of New South Wales School of PV and Renewable Energy Engineering, felt that as Cook Islands was aiming for a 100% renewable energy for its electricity by 2020, a similar study should be undertaken with TAU. Modelling of the Cook Islands grid and the effects of renewable energy penetration is being undertaken by KEMA; the objective of this study is to obtain real data on what is happening on the grid. 

For more information:

Geoff Stapleton
Managing Director
Global Sustainable Energy Solutions, Australia
(gses@bigpond.com)
Fourth quarter 2012 oil market report
(October–December 2012)

The Asia Pacific Benchmark Dated Brent crude oil remained relatively stable in the fourth quarter. Petroleum product prices showed support in early October and plunged towards end of October, averaging USD 112/bb for Dated Brent crude oil. The Dated Brent crude oil price improved in November, reaching a high of USD 111.37/bbl on 20 November and averaging USD 109.244/bbl for the month.

Prices narrowed at the beginning of December and improved towards mid month. The December month average price stood at USD 109.629/bbl. In comparison to the third quarter of 2012, the Dated Brent crude oil price increased to USD 110.339/bbl – a 1.05% increase.

At the beginning of October, prices were supported by increased buying from major middle-east importer Saudi Arabia to cover for Eid-al-Adha and rare demand from Kuwait and Oman due to unplanned refinery outages. On top of tight supply in the west of Suez markets and wide-open arbitrage economics to the US and Africa kept Asian market firm. Tightness in global motor gasoline markets persist. Demand from Asia looked particularly strong as buying requirements from Indonesia were evident on the back of Pertamina refinery turnarounds. Prices plummeted towards the end of October, as much of the bearish sentiment came from signs of more spot offerings on prompt November barrels from Taiwan and South Korea, and fast-falling prices in the US and European markets.

November prices were marginally up on tight fundamentals for prompt cargoes amid strong import demand from Indonesia. Much of the sustained buying was due to a need to rebuild low stocks ahead of an expected rise in year-end demand following shutdown of Indonesia’s 125,000 b/d Balongan refinery. Regional gasoil prices held steady amid continued buying support from Africa and the Middle East. Gasoil demand in Thailand is growing 5% each year. For 2012 Thaioil sold 3.6 million – 4.8 million barrels of 500 ppm sulfur gasoil at a premium of more than $1/b to Mean of Platts Singapore 0.5% sulfur gasoil assessments.

Prices in early December declined as mid octane continued to be pressured due to more supply moving out of India amid tepid demand from buyers in Malaysia. There was muted interest in 0.5% gasoil as companies were destocking the grade ahead of the change in the benchmark assessments from 0.5% sulfur to 500 ppm in January 2013. Fundamentally, north Asian winter demand continued to underpin the strength in kerosene, with Japan buying prompt delivery kerosene for domestic consumption while South Korea reduced exports for its domestic consumption.

However, mid-December prices surged with sharp gains attributed to hefty import demand by Malaysia, mostly because of outages at the country’s 170,000b/d Melaka II refinery. Supply in the prompt January market remained tight,
in combination with heavy commitments to the earlier rash buying within South-east Asia, lower spot availability from India and a relatively higher outflow of Indian barrels to the Middle East. Jet fuel prices were driven by a cold north Asian winter and demand in Hong Kong was met by supplies from Singapore due to lack of supply from South Korea as a result of ongoing outage of Saudi Petro Rabigh’s 400,000 b/d refinery complex. Furthermore, renewed Japanese kerosene demand supported prices in Asia. The market outlook for Asian gasoil in 2013 was buoyed by continued buying seen from the Middle East and East Africa.

**Freight rates**

Freight rates continued to ascend in the fourth quarter with December rates being the highest. For October, November and December the freight rates stood at 194.318, 206.381 and 216.200 WS points respectively. The average rate for the quarter stood at around 205 WS points, an increase of close to 7.80% when compared to the previous quarter.

**Exchange rates**

The major currencies showed a slight appreciation against the US dollar. The weakening effect of the US dollar should put downward pressure on local fuel prices. However, large gains in freight rates will see local fuel prices slightly increasing.

**End-user product prices in fourth quarter**

Most Pacific countries have reported an increase in fuel prices for the fourth quarter, which is in direct response to escalating freight rates, and an increase in crude oil and refined product prices.

---

For more information:

Pritanshu Singh  
Assistant Petroleum Officer  
Energy Programme, EDD SPC  
(PritanshuS@spc.int)

Source: www.oanda.com
Tokelau is 100% electrified by renewable energy source
‘The first country to do so in the world’

It may sound unbelievable but the simple fact is that the entire population of Tokelau is right now enjoying its electricity from the sun. There are no more diesel being burnt in the three power houses in Tokelau. One might wonder where is the power coming from since the power house had all gone silent.

This is all possible through the vision of the Tokelauan people themselves that saw the need to be part of the global community in mitigating the build-up of greenhouse gases in the atmosphere. This vision and determination was made possible by the New Zealand government by making funds available (~NZD 7.5 M) for the procurement of the solar photovoltaic (PV) systems with the United Nations Development Programme (UNDP) and the French government (~NZD 1.5 M) assisting in preparing the ground works for the systems to be installed.

Tokelau is a New Zealand administered territory, comprising of three small atolls, situated some 600 km northwest-north of Samoa. These three atolls are home to more than 1,400 Tokelauan. Atafu is the furthest atoll that is situated northwest of Fakaofo, an atoll closest to Samoa and Nukunonu is situated between Atafu and Fakaofo.

Prior to the advent of the Tokelau Renewable Energy Project (TREP), the inhabitants of these three atolls have been burning fossil fuel to power diesel power generators for electricity needs. In a typical Tokelauan home an average electrical energy consumed per day (24 hour day) would be in the range of about 5–14 kilowatt-hour (kWh).

With an average demand of more than 150 kW, Tokelau would have emitted 2,574 kg of carbon dioxide or 2.6 metric tons of CO\textsubscript{2} per day. This translates to 940 metric tons of greenhouse gas (GHG) emitted by Tokelau in one year for power generation only.

Tokelau, like any low lying atoll states, is vulnerable to the adverse effects of climate change, such as sea-level rises and other climatic effects. Climate change will be dictating the way Tokelauan live their lives. They are and will continue to be living life clouded by mist of uncertainty as to what the future holds for them. Impacts of climate change will continue to be a challenge to the pristine waters and shores of the beautiful Pacific Island territories of Tokelau. This is a real challenge that all Tokelauans have to join hands with their Pacific Island friends to face.

On 29 October 2012, Tokelau had officially become the first country in the world to be using electricity from 100% renewable source. That is from the sun. Tokelauan are blessed with abundant sun, as one could notice that as early as 7:30
in the morning the glaring sun’s rays and the accompanying scorching heat possess enough energy that can lift you up from your bed in the open-style Tokelauan homes. An again in the late afternoon, when someone is expecting some sort of relieve from the glaring rays and the ever-punishing heat from the sun, the solar panels would still be enjoying the harnessing of the sun’s energy that needs to be stored for the upcoming night’s use. This truly warrants the solar project in Tokelau.

The Tokelau Renewable Energy Project’s first installation was done in the atoll of Fakaofo. This was commissioned in mid-August 2012. The installed capacity in Fakaofo atoll is 364 kW. This provides electrical power to an estimated 87 households with a total population of 490 (2011 National Census). With this installed capacity, 25% accounts for systems loss that include panel loss; shadings/low irradiance due to partial cloud shading during day times; losses in wirings; inverters power requirement and battery losses. From these losses about 270 kW is available to meet the load demand that peak in the early hours of the evening to about 80 kW. The average load demand is about 55 kW for Fakaofo.

In the mid-lying atoll of Nukunonu, with a total population much less than Fakaofo, of 397 (2011 National Census) and a total of 75 household, the household size is at an average of five people per household. The installed panel capacity in Nukunonu is 265 kW. When losses are accounted for, about 198 kW is available to meet the load demand which mainly comprises of household plus a few public amenities. As expected, Nukunonu’s load demand peaks around the early hours of the evening when household turn on their light to add on the power already being used by other household appliances such as fans, refrigerators and freezers. The peak demand is between 50–60 kW, with an average load demand of around 30–40 kW, usually during the daylight hours and low demand could be experience from 11 pm until 6 am.

Atafu, the furthest and a much smaller in size (but not population-wise), had its 298 kW installed capacity commissioned on 19 October. After the losses, 220 kW is available to cater to the load demand. Usually, the peak load demand for Atafu is nearly the same as for Nukunonu or could be at times slightly more, and the average load demand is around 30–40 kW, mainly during the day.

From these data, it can be summarised that as of 29 October 2012, Tokelau is now generating electrical power to meet its electricity need, using 100% solar PV.

The systems in the three atolls are hooked up to the existing power distribution network, but battery banks are used for storage for night time use or during rainy days. It was designed in such a way that the autonomous days (days without sun – cloudy or raining) is 1 ½ days only. This was taken into account the number of sun-peak hours in Tokelau, which seems to be much higher. This is so as there is low rainfall in Tokelau due to shifting northwards of the convergence zones – the zones where flows of weather meet and interact – resulting in less rainfall and more unpredictable rainfall patterns in Tokelau and the nearby countries like Tuvalu and Samoa.

From the data given it seems that more generated and stored power is not fully utilised by the load. The actual load is much less than the available power that needs to be utilised. This might be an issue but to the Tokelauan this is not, as having more capacity in store is better than having less to meet the demand. A solution to this is to have more battery storage capacity. With regards to battery storage, the battery that is use is called ‘Classic’ each at 2 V and a capacity of 3,000 Ampere-hours (C10). They are wet-cell batteries. The total storage capacity for all three atolls is 168,000 Ampere-hours (Ah). To put this in perspective, if all households that has electrical appliances that has a total power rating of 16,800 watts, these households can use power from the battery bank for 480 hours. That means the battery bank will be fully discharged after 480 hours (20 days @ 24 hours per day) of use by a load of 16,800 watts. But in reality one cannot fully discharge a battery bank. The required daily depth of discharge (DOD) is 30%. That means a battery bank of 168,000 Ah should be discharged down to no further 117,600 Ah. So in reality again, a load of 16,800 watts should be accessing power from the battery bank for 336 hours (14 days @ 24 hours a day) to maintain the battery bank at a charged capacity of 70%.
The total installed capacity of the Tokelau Renewable Energy Project is 927 kW. Taking into account of the losses, 695 kW is available for the load. Again looking at the total peak load demand, it is only about 200 kW, which is roughly 30% of the available total power. Power that is being generated by the solar PV seems not to be fully utilised during the daylight hours due to the relative smallness of the total load. This power is being diverted to the storage banks, which will be in a ‘float’ (fully charged stage) stage by 1 or 2 pm. Excess power being generated by the solar PV cannot be store or utilised during the day time as the load and the battery banks are being saturated, hence this is power being ‘wasted’. The only solution is to increase the capacity of the battery bank.

In a nutshell, this is not a problem to be contemplated by the Energy Division of Tokelau as such situation will always give room for the increase in capacity of the battery bank and/or utilize the most needed power that is being ‘wasted’ by increasing the load, especially in the food freezing and cooling, space cooling (air-conditioning) and other productive sectors in the communities.

These installations of solar PV with battery bank were said to be the largest of its kind in the Pacific and could the rest of the world. Large solar PV installations in most parts of the world are mainly connected to the grid as being ‘embedded’ into the existing power distribution network. That is to say that there is no battery bank for power storage. Whatever power is generated from the solar PV cells are inverted and send to the distribution network.

Now that Tokelau had celebrated a milestone from being a small islands nation dependent on fossil fuel for it electricity requirement, to a zero-carbon emitter, for its electricity need, one could ask a question as to ‘what next?’ Will Tokelau just sit back and keep boasting that it is getting it electricity from 100% renewable source or will it start planning for how it will keep the systems in ‘good health’ so that it can continue to maintain the ‘title’ as being the ‘world’s first’ to go 100% renewable for its electricity requirement?

Talks on looking into the demand side for the appliance use were aired from relevant government officials in Tokelau. This could be looking into doing energy efficiency awareness measures as means to encourage households to use more energy efficient white goods and lightings. With its smallness, the government structure and being a New Zealand territory, any regulatory measure put in place can be implemented easily.

Further to the issue of sustainability of the systems, it was a practice that users pay for what they use. Households use pre-payment meter, or cash power, where they have to ‘top-up’ the ‘credit’, so to speak, when the meter reading is low in ‘credit’. The basic tariff is 50 New Zealand cents per unit. Bills are collected by the village council (the Tapulegas) in each of the three atolls. This fund will be used to pay for the maintenance of the powerhouse and to pay for the diesel fuel.

With the introduction of the new solar PV systems in the three atolls, the payment system will remain the same and the funds collected will go towards system parts, maintenance and the cost to replace batteries when their life-time catch up on them in about ten years time.

With the launching of the TREP to mark the new era in Tokelau’s renewable energy endeavour, celebration by way of traditional dancing by young Tokelauans girls and boys and cocktail hosted by the ‘Ulu o Tokelau’ (the Head of the Tokelau government), followed in the evening, where those involved in the project were acknowledge, such as the contractor – Power Smart of New Zealand and SPREP for its presence to witness this remarkable achievement. It was a new beginning to a renewable era for Tokelau. Let’s all give Tokelau a ‘thumb – up’.

For more information:

**Nixon Kua**
Climate Change Mitigation Officer, Climate Change Division Secretariat of the Pacific Regional Environment Programme (nixonk@sprep.com)
North-REP: Palau activity update (December 2012)

Palau energy administration

The North-REP project has initiated a technical assistance project to strengthen the functions and roles of the Palau Energy Office. This includes staffing needs, regulations and budget support required to successfully implement the energy policy. The timing of this is thought to be particularly suitable with the change of government in Palau.

Solar PV project

The North-REP project is planning to procure and install a grid-connected solar photovoltaic (PV) project in central Koror. It will have a capacity of up to 150 kW and will be located on the roof of the Track and Field grandstand. Once the structural assessment has been completed, a request for proposal will be issued, internationally advertised, for a turnkey project.

We are holding discussions with Palau Community College regarding the potential for a follow-on solar PV project to be located on the nearby College roofs.

Energy efficient retrofitting of government buildings

The North-REP-funded retrofitting of the Department of Public Works building in Koror is now under way, although the recent passage of typhoon Bopha delayed the project a little. A number of energy-saving measures have been incorporated, including coating the roof to reflect radiation away from the building, roof insulation with reflective coating, fluorescent tube-light replacements, cool air leakage reduction, and high efficiency air conditioner replacement.

This project is in-line with the Palau National Energy Policy which requires “…measurable and substantial improvement of energy efficiency by 2020, in at least 80% of households, businesses and government buildings”. The total expenditure on this project is close to USD 80,000. However, with an expected reduction in energy demand of approximately 30%, the return on investment is favourable. The project is a good demonstration and learning project. Further projects will now be undertaken at the National Hospital, the Ministry of Education, and the Ministry of Finance and Social Security buildings.

Energy efficient retrofitting of Palauan homes

The North-REP project, in partnership with the National Development Bank of Palau, is funding a loan subsidy programme designed to make existing Palauan homes more comfortable and energy efficient.

The rate of uptake was found to be behind schedule so the programme was recently extended to provide larger subsidies and energy efficient appliances for new homes. The marketing of the programme has also been stepped up.

Wind energy study

Three 115 feet-tall monitoring masts have recently arrived and the North-REP Energy Specialist is preparing to erect them at three locations on Babeldaob. The locations have been carefully selected to provide information for a wind resource map, and as possible future wind farm sites. Wind resource, proximity to transmission or load, and practicality were key factors influencing location choice. Permission to install on those sites is being negotiated with landowners, so is currently still pending.
Power utility renewable energy framework

The following documents have been delivered to the power utility and the National Energy Committee under this RE framework consultancy:

- a grid stability report
- grid-connection guidelines, regulations and standards
- capacity assessment and training
- a tariff analysis
- an investment analysis
- a power utility policy paper
- a request for proposal template
- a power purchase agreement template

Awareness and education

The North-REP project supports a variety of workshops and training events. In addition to this, two courses are being prepared for Palau Community College to integrate into their current Electrical and Construction Programs:

- Solar PV design and installation;
- Energy efficient building construction and retrofit.

These courses are likely to be Certificate courses that count towards Associate of Applied Science degrees in Electrical Technology and Construction Technology respectively.

For more information:

William Thorp
North-REP Energy Specialist (Palau)
Energy Programme, EDD, SPC
(WilliamT@spc.com)
Book launch attracts stakeholders from government and industry

On 9 November, a new introductory book on renewable energy was launched by Mr. Jai Narayan, Director of Education Secondary at Tanoa Plaza hotel in Suva.

Called ‘All about renewable energy – a basic renewable energy kit for decision-makers’ this 64-page publication introduces the basic concepts of renewable energy with a quick assessment of the relative merits of the different types of renewable energy.

The launching ceremony was attended by more than 40 participants from the departments of education and energy, the International Union for Conservation of Nature, the United Nations Development Programme, universities and the private sector.

According to the author, Anirudh Singh, the book ‘is a crash course in renewable energy for anyone who knows nothing about renewable energy and wants to find out as quickly as possible’. The book also provides an ideal primer for the study of renewable energy at any level. The language used is non-technical, and the physical principles are described in simple everyday English as far as possible. The multi-disciplinary nature of the subject of renewable energy is emphasised throughout.

According to the author, this publication will provide a resource material for students and others who may not have a scientific background for studies in these areas. It will also provide a first step for teachers to plan their curricula, and for students to learn about the basics of renewable energy without needing any special knowledge of physics or other sciences. The book has evolved out of the activities of Project DIREKT, a renewable energy project undertaken by five universities from the ACP region and Germany. A part of the project was to provide enough knowledge and information to decision-makers in government, non-governmental organisations and the private sector to make wise decisions about which renewable energy technology to acquire. It was later decided to convert this learning kit into text form and this book is the result.

The production of the book has been funded entirely by Project DIREKT, which is an EU-funded renewable energy project.

Copies of the book are available upon request from the Project DIREKT Technology Transfer Centre at USP.

For more information:

Ms Pritika Bijay Tel 3232404
(pnitka_m@usp.ac.fj)

Dr. Anirudh Singh Tel 3232437
(singh_ag@usp.ac.fj)

University of the South Pacific
Vital to build and operate 100 kW solar array on Guam

Another regional energy milestone was reached in October with an agreement between Vital Energy Inc. and the Guam Power Authority (GPA) that will allow Vital to build and operate a 100 kW solar array at the GPA Bulk Fuel Facility on the island.

For Vital, it’s the first step in an 18-month project to facilitate investment in over 1MW of generation capacity from solar arrays across its six locations throughout Micronesia. ‘We aim to be the only petroleum corporation in the region that distributes fossil fuels from entirely renewable means,’ says Vital Chairman of the Board, Mr. William Hawley. ‘Our solar projects will complement our biofuels program being launched in 2013 and move us slowly but surely towards this goal.’

Vital, and its parent company, FSM PetroCorp, currently spends between USD 300,000 and USD 400,000 annually in electricity bills and the application of the latest renewable technologies will enable the company to significantly reduce utility costs and pass on operational savings to its customers.

The strategic program of work is also in harmony with the mandates of the Chief Executives’ – the Governors of Guam, Saipan, Kosrae, Yap, Chuuk, Pohnpei and the President of the FSM-state and national energy policies to move toward less dependence on fossil fuels and broaden the regional energy mix with renewables.

‘Current electricity expenses comprise approximately 25% of our total operation cost,’ says Vital Chief Operating Officer, Jonathan Perez. ‘The installation of a solar system, whilst capital intensive, will provide long-run cost benefits that will enable us to allocate resources towards maintenance and safe operations of the GPA facility, and ultimately provide GPA long-term savings.’

Vital Energy was selected amongst numerous bidders as the most qualified and competitive to manage and operate the GPA Bulk Fuel Facility in April this year. The 538,000bbl facility supplies nearly all of Guam’s energy needs.

GPA General Manager Joaquin Flores, in a letter to Perez, thanked Vital for its ‘investment in renewable energy and your efforts to reduce the facility’s dependency on imported fuel’ and stated he ‘looks forward to a productive and mutually beneficial partnership with Vital.’

Vital will continue to pursue similar projects in the region in line with the state and national energy policies of the different islands and aligned with the company’s long-term view toward regional energy security and economic sustainability.

For more information:
Olivier Wortel
Communications Officer
Vital FSM PetroCorp
(owortel@fsmpc.com)
Remote island photovoltaic installation in Tonga

Access to sustainable, clean, affordable and locally available energy sources is an important factor in making life in remote islands more attractive and helping to stem the tide of urban drift. Many bi-lateral and multilateral funding agencies have financed Tonga’s remote/rural photovoltaic (PV) electrification programmes, which are underpinned by the country’s Energy Roadmap Initiative and other interrelated national efforts, such as the Climate Change Joint National Action Plan.

Many feasibility studies and analyses over the years have indicated that solar power is the answer for remote islands, with their small, scattered populations and low power demand. On many islands, solar home systems (SHSs) were recommended.

Tonga’s Ministry of Lands, Environment, Climate Change and Natural Resources, through its Energy Division, has been implementing the remote island electrification programme for decades. The programme has now reached 82 kilowatt-peak capacity and has benefitted almost 500 households on remote islands across the country. By July 2013, an additional 552 systems will be commissioned, to give a total solar home system capacity of almost 0.2 megawatt-peak, serving around 1012 households. Every household uses 5x13 W compact fluorescent lamps, radio connection sockets, fixed cellular connection and mobile phone charging sockets. Community halls and church buildings are given 7x13 W to 10x13 W compact fluorescent lamps or LED lights, depending on the size of the building and expected operational hours. A few community halls have solar powered Sky TV. Only 292 households in remote islands will then be without access to electricity services.

A Management Committee [as Board of Directors] has been set up, registered in Government as a legal entity to adopt a management guideline, and endorse annual reports/budgets and employment contracts with the following as its disconnection policy.

- A consumer who fails to pay his/her monthly fee for two continuous months [60 days] shall be disconnected from service.
- A disconnected consumer must pay the total monthly fee owed and $20 for a reconnection of service and shall be made 2 months [60 days] after disconnection.
- The components [panels, batteries and controllers] that are owned by the Management Committee shall be removed from a consumer who fails to pay the monthly fee for a period of four continuous months.
- The solar utility’s PV components [panels, batteries and controllers] shall be removed from a consumer who show total disregard for their safety and proper functioning.

The most recent SHS installations were completed in Niuatoputapu by technicians assigned from Ha’apai Off-grid Solar Electricity Inc as part of their on-the-job training. A total of 15 solar home systems, each of 190 Watt-peak capacity, were installed in all community halls and some church buildings. These systems were commissioned in November 2012 by the Prime Minister, Hon. Tu’ivakano, at the handing over ceremony of the whole rehabilitation work after the tsunami of 2009.

The Management Committee has set an installation fee of about USD 120, which was paid upfront before the installation, and a monthly fee of about USD12. The project was co-funded by the Tongan Government and the German Agency for International Cooperation (GIZ). It will be managed, together with NZAID-funded Tafahi SHS, under the Niuatoputapu Off-grid Electrification Society Inc. as a renewable energy service company. The guideline has stressed that 60% of annual revenue must be saved for future maintenance and the remaining will be used for operations. A trained local technician has been employed by the Management Committee and is monitored by the...
Energy Division. It has been agreed that the wages shall be paid on receipt of technical and financial reports. This electrification scheme has been part of the rehabilitation effort after the tsunami. Two hundred residential buildings are yet to be electrified.

Tonga’s outer island PV electrification programme so far is expected to save approximately 1803 barrels of kerosene and 169 barrels of motor spirit, every year. School children, fishermen, women, youth and the whole communities are also benefitted through handicraft making, preparation of agricultural and fishery products, community gatherings and the like.

We would like to fully acknowledge the continuing financial and technical support of the governments of Australia, Austria, Germany, Japan, New Zealand and Italy, which enable remote communities, including Niutoputaupu, to have access to an affordable and clean electricity source. The capacity development effort of the Secretariat of the Pacific Regional Environment Programme’s project (Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project) is also acknowledged, as well as our other regional organisations: the International Union for Conservation of Nature, Secretariat of the Pacific Community and GIZ. We could not have advanced our PV electrification programme without their generosity.

For more information:

Ofa Sefana
Acting Energy Planner, Energy Programme
Ministry of Environment, Climate Change and Natural Resources
(ofasefana@yahoo.com)
IRENA in the Pacific – update

The International Renewable Energy Agency (IRENA) 3rd Assembly convened at Abu Dhabi from 13 to 14 January 2013 and delegates from over 150 countries participated in the annual event, which is a platform for setting the policy agenda for renewable energy (RE) globally. The Assembly is also a framework that brings countries who share common goals to work together towards accelerating the uptake of renewable energy globally. The Assembly convenes annually to discuss and decide upon issues such as the work program, annual budget and performance report, including application for membership.

Renewable energy (RE) installation globally has shown steady growth. Solar photovoltaic (PV) now stands at 100GW, growing ten-fold over the last five years. Wind continued its steady growth to reach 280GW of installed capacity. The International Renewable Energy Agency (IRENA) studies have shown that costs of RE have declined leading to wind and solar technology deployment to become competitive in the global market. Mature technologies such as geothermal and hydropower are already producing electricity to competitive prices.

During the Assembly, the Renewable Energy Global Atlas (for wind and solar) was launched. The Global Atlas is a comprehensive information platform on the potential of renewable energy. It provides resource maps from leading institutes worldwide and tools for evaluating the technical potential for renewable energies. A Pacific component of the Atlas is yet to be formed and such a tool would be useful for the decision makers and practitioners across the region. Contribution of data is open to those who are willing to share information and contact can be made to potentials@irena.org.

IRENA is also developing REMAP 2030 – a roadmap that will provide possible paths to achieving the goal of doubling the share of renewables by 2030 as well as highlighting the gaps and potentials for international cooperation. A number of national roadmaps in the region have been developed and implemented but a regional RE roadmap may need to be considered as a useful tool for achieving a common goal by integrating RE initiatives across the region. A Pacific RE roadmap will add value to the REMAP 2030 initiative of which will help focus IRENA’s programmatic activities in future.

IRENA convened a side meeting on Promoting the Enabling Environment for Renewable Energy Deployment in the Pacific Island Developing States. The initiative is an 18 month project funded by the governments of United Arab Emirates (UAE) and Germany (through GIZ) and contains two components – the first component targets policy makers, regulators, and utilities; the second component aims to support higher education institutions to address the skill needs of the renewable energy market. Several training workshops will bring relevant players together in the region followed by targeted support as per the needs of the respective islands. It is anticipated that the outcome of these interventions will add value to national efforts in accelerating deployment of renewable energy.

The Global Renewable Energy Islands Network was also launched at the Assembly to serve as a platform for pooling knowledge, sharing best practices, and seeking innovative solutions for the accelerated uptake of clean and cost effective renewable energy technologies on island states and territories. Island representatives were asked to identify their interest in proposed activity clusters on resource assessment, readiness assessment, technology deployment, project development, power grid integration, water desalination, waste to energy systems, and tourist industry applications for renewable energy. Several activity clusters will begin their work this year, selecting a leader to guide and plan their work. Cluster launch and meeting is planned to start at the margin of the New Zealand Renewable Energy Summit at Auckland in March 2013.

A number of IRENA Publications and Reports about IRENA activities across the regions were distributed. One of these publications included the Kiribati Renewables Readiness Assessment Report and copies of these reports and guidelines are available for download from the IRENA website www.irena.org.

The 3rd Assembly coincided with the World Future Energy Summit (15–17 January 2013) during the activities of the Abu Dhabi Sustainability Week where various government and private sector entities converged at the Abu Dhabi National Exhibition Centre to showcase their technologies and practices. This event was hosted by the UAE government and it provided IRENA delegates an opportunity to view, speak with and learn directly from various exhibitors including the IRENA.

The 3rd Assembly endorsed the IRENA Work Program 2013 including the acceptance of Tuvalu as a member of the IRENA and Pacific SIDS membership now increased to seven members and others (e.g. Kiribati) are in the accession process. The Pacific delegations to the Assembly included representatives from Australia, Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Palau, Papua New Guinea, Tonga, and Vanuatu including regional agencies such as the Secretariat of the Pacific Community and the Pacific Power Association.

For more information:

about IRENA can be found on https://www.irena.org or you may contact Ms ‘Apisake Soakai at (ASoakai@irena.org) regarding activities in the Pacific region
<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>Jan</td>
<td>Commencement of installation of solar PV systems in the outer islands of FSM</td>
<td>Chuuk &amp; Yap, FSM</td>
<td>SPC</td>
<td>Emanuele Taibi (<a href="mailto:EmanueleT@spc.int">EmanueleT@spc.int</a>)</td>
</tr>
<tr>
<td></td>
<td>Continuation of installation of SHS in the outer islands of RMI</td>
<td>RMI</td>
<td>SPC</td>
<td>Arieta Gonelevu (<a href="mailto:ArietaG@spc.int">ArietaG@spc.int</a>)</td>
</tr>
<tr>
<td>10 Jan–Feb</td>
<td>RFP – Development Framework for the Energy Sector in Palau</td>
<td>Palau</td>
<td>SPC</td>
<td>William Thorp (<a href="mailto:WilliamT@spc.int">WilliamT@spc.int</a>)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rupeni Mario (<a href="mailto:RupeniM@spc.int">RupeniM@spc.int</a>)</td>
</tr>
<tr>
<td>13–14 Jan</td>
<td>Third IRENA Assembly</td>
<td>Abu Dhabi</td>
<td>IRENA</td>
<td>Apisake Soakai (<a href="mailto:ASoakai@irena.org">ASoakai@irena.org</a>)</td>
</tr>
<tr>
<td>13–17 Jan</td>
<td>Abu Dhabi Sustainability Week including World Future Energy Summit and Abu Dhabi Renewable Energy Conference</td>
<td>Abu Dhabi</td>
<td>IRENA and others</td>
<td>Apisake Soakai (<a href="mailto:ASoakai@irena.org">ASoakai@irena.org</a>)</td>
</tr>
<tr>
<td>14 Jan–Mar</td>
<td>RFP (re-open) – refurbishment of Nanpil Hydro, Pohnpei, FSM</td>
<td>FSM</td>
<td>SPC</td>
<td>Emanuele Taibi (<a href="mailto:EmanueleT@spc.int">EmanueleT@spc.int</a>)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rupeni Mario (<a href="mailto:RupeniM@spc.int">RupeniM@spc.int</a>)</td>
</tr>
<tr>
<td>25–29 Jan</td>
<td>National Cost-Benefit Analysis training Workshop</td>
<td>Kiribati</td>
<td>SPC/GIZ/SPREP</td>
<td>Katerina Syngellakis (energy component)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(<a href="mailto:katerina.syngellakis@giz.de">katerina.syngellakis@giz.de</a>)</td>
</tr>
<tr>
<td>30–31 Jan</td>
<td>Consultation Meeting on the PIGGAREP Plus</td>
<td>Suva, Fiji</td>
<td>SPC</td>
<td>Solomone Fifita (<a href="mailto:SolomoneF@spc.int">SolomoneF@spc.int</a>)</td>
</tr>
<tr>
<td>1 Feb</td>
<td>PALS Steering Committee Meeting</td>
<td>Suva, Fiji</td>
<td>SPC</td>
<td>Makereta Saturaga (<a href="mailto:MakeretaS@spc.int">MakeretaS@spc.int</a>)</td>
</tr>
<tr>
<td>Feb (tbc)</td>
<td>Training of Trainers by the US-funded Vocational Training and Education for Clean Energy (VOTEC)</td>
<td>Suva, Fiji</td>
<td>USP</td>
<td>Gavin Pereira (<a href="mailto:gavin@climatecatalysts.com.au">gavin@climatecatalysts.com.au</a>)</td>
</tr>
<tr>
<td>Mar (tbc)</td>
<td>RMI North-REP National Project Steering Committee meeting (North-REP)</td>
<td>RMI</td>
<td>SPC</td>
<td>Arieta Gonelevu (<a href="mailto:ArietaG@spc.int">ArietaG@spc.int</a>)</td>
</tr>
<tr>
<td>Mar (tbc)</td>
<td>FSM National Project Steering Committee meeting (North-REP)</td>
<td>Pohnpei, FSM</td>
<td>SPC</td>
<td>Emanuele Taibi (<a href="mailto:EmanueleT@spc.int">EmanueleT@spc.int</a>)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rupeni Mario (<a href="mailto:RupeniM@spc.int">RupeniM@spc.int</a>)</td>
</tr>
<tr>
<td>Mar or Apr</td>
<td>SIDS DOCK Pacific Regional Meeting</td>
<td>Nadi, Fiji</td>
<td>SIDS Dock</td>
<td>Al Binger (<a href="mailto:abinger@sidsdock.org">abinger@sidsdock.org</a>)</td>
</tr>
<tr>
<td>21–22 Mar</td>
<td>Tonga Energy Roadmap Review Meeting</td>
<td>Tonga</td>
<td>TERM Implementation Unit</td>
<td>Inoke Vala (<a href="mailto:inokefvala@gmail.com">inokefvala@gmail.com</a>)</td>
</tr>
<tr>
<td>21–22 Mar</td>
<td>Pacific Leaders Energy Summit</td>
<td>Nuku’alofa, Tonga</td>
<td>TERM Implementation Unit</td>
<td>Inoke Vala (<a href="mailto:inokefvala@gmail.com">inokefvala@gmail.com</a>)</td>
</tr>
<tr>
<td>27–30 Mar</td>
<td>Regional Preparatory Meeting for the Asia Pacific Energy Forum</td>
<td>Bangkok</td>
<td>ESCAP</td>
<td>Shaswat Sapkota (<a href="mailto:sapkota@sun.org">sapkota@sun.org</a>)</td>
</tr>
<tr>
<td>Week of 13</td>
<td>Project Steering Committee meeting (North-REP)</td>
<td>Kosrae, FSM (tbc)</td>
<td>SPC</td>
<td>Rupeni Mario (<a href="mailto:RupeniM@spc.int">RupeniM@spc.int</a>)</td>
</tr>
<tr>
<td>May (tbc)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27–30 May</td>
<td>ESCAP Asian and Pacific Energy Forum (APEF 2013)</td>
<td>Vladivostok (Russian Federation)</td>
<td>ESCAP</td>
<td>Shaswat Sapkota (<a href="mailto:sapkota@sun.org">sapkota@sun.org</a>)</td>
</tr>
<tr>
<td>Jun (tbc)</td>
<td>Completion of installation of Phase 1 – 500 solar home systems</td>
<td>RMI</td>
<td>SPC</td>
<td>Arieta Gonelevu (<a href="mailto:ArietaG@spc.int">ArietaG@spc.int</a>)</td>
</tr>
<tr>
<td>1–5 Jul</td>
<td>IPCC Assessment Report 5: Lead Authors Meeting 4</td>
<td>Addis Ababa, Ethiopia</td>
<td>SPC</td>
<td>Solomone Fifita (<a href="mailto:SolomoneF@spc.int">SolomoneF@spc.int</a>)</td>
</tr>
<tr>
<td>8–12 Jul</td>
<td>Pacific Climate Change Routable Meeting including the Mitigation Working Group</td>
<td>Nadi, Fiji</td>
<td>SPC/SPREP</td>
<td>Solomone Fifita (<a href="mailto:SolomoneF@spc.int">SolomoneF@spc.int</a>)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Netatua Pelesikoti (<a href="mailto:NetatuaP@sprep.org">NetatuaP@sprep.org</a>)</td>
</tr>
<tr>
<td>Jul (tbc)</td>
<td>Pacific Power Association 2013 Conference</td>
<td>Palau</td>
<td>PPA</td>
<td>Gordon Chang (<a href="mailto:gordonc@ppa.org.fj">gordonc@ppa.org.fj</a>)</td>
</tr>
<tr>
<td>Aug</td>
<td>Energy Symposium (North-REP)</td>
<td>RMI</td>
<td>SPC</td>
<td>Arieta Gonelevu (<a href="mailto:ArietaG@spc.int">ArietaG@spc.int</a>)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rupeni Mario (<a href="mailto:RupeniM@spc.int">RupeniM@spc.int</a>)</td>
</tr>
</tbody>
</table>