## **Our Vision:**

energising our nation.

## **Our Mission:**

To provide a safe, reliable, affordable and accessible supply of electricity to the Solomon Islands

## **Our Values:**

- Respect for our customers and our people
- Improvement through change and innovation
- Meeting our service quality commitments
- Care for the environment
- Individual responsibility for our actions
- Honesty and Trust
- Teamwork

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### Letter to the Ministers

31st March 2017

The Honourable David Day Pacha MP Minister of Mines, Energy and Rural Electrification P O Box G37, Honiara, Solomon Islands

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The Honourable Snyder Rini MP Minister of Finance and Treasury PO Box G26, Honiara, Solomon Islands

Dear Honourable Ministers,

# SOLOMON ISLANDS ELECTRICITY AUTHORITY (Trading as Solomon Power) ANNUAL REPORT 2016

On behalf of the Board of Directors of Solomon Power, I have the honour to submit to you both the Authority's Annual Report, in accordance with section 25 (I) of the Electricity Act, Cap 128, and section 14 (1) (a) (b) of the State Owned Enterprises Act 2007.

The report incorporates audited Statement of Accounts and the major developments, activities and achievements of the Authority for the financial period.

On behalf of Solomon Power, I thank you both for your on-going understanding and cooperation and look forward to your continuing support.

Yours faithfully,

David K.C. Quan MBE Chairman

### 2016 Highlights

- Electricity Tariff (Base Tariff and Tariff Adjustments) Regulations 2016 gazetted
- Commenced the Output Based Aid (OBA) programme
- Sustained the reliability of electricity supply
- G-1 operation in Honiara implemented successfully
- The four new generators were brought on line at Lungga
- Commissioned the 1 MW Solar Farm at Henderson
- Commissioned black start facility on the two generators H1 and H2 at Honiara Power Station
- Commissioned three new 11 kV and 415 V network extensions in Honiara
- Progressed the project to design, procure and construct hybrid stations at Seghe and Taro
- Commissioned the new power house at Gizo
- Refurbishment of the existing power house at Noro completed
- Commissioned two new generators at Tulagi and one generator each at Auki and Gizo
- Commissioned the 150 kW Mini Hydro at Buala
- Streetlights in Honiara and Outstations repaired and replaced
- Completed the external works associated with Phase 2 upgrade at Ranadi Head Office
- Project to improve communications to Lata completed
- Extension of mezzanine floor in the Ranadi Head Office commenced
- Awarded the contracts for the Ranadi Substation upgrade, Feeder 12 relocation and Kola'a Ridge Substation projects
- Commenced a project to convert the existing outstations at Kirakira, Lata, Malu'u, Munda and Tulagi to hybrid generation systems
- Under the World Bank funded SISEP tenders called for the third 11/33 kV power transformer at Lungga Power Station
- Commenced a project to install Smart Meters
- Disaster Recovery project completed
- Increased our focus on the development of the Fiu River Hydro Project
- Increased our focus on the development of the Tina River Hydro Project
- Implemented an operations and maintenance plan for all our network and generation assets
- Increased focus on safety, training, nurturing and mentoring
- Implemented a permit outage system for generation and network assets
- Extended the exclusive development rights to K-water for Tina River Hydro Project
- Continued internal safety, lineman and operator training programmes

### Plans for 2017

- Further improvement in the reliability of electricity supply in Honiara and Outstations
- Progress the implementation of the Output Based Aid (OBA) programme
- Commission the new generators at Gizo, Munda and Noro
- Commission the Hybrid stations at Seghe and Taro
- Complete the mezzanine floor upgrade at Ranadi Office
- Continue implementation of the vegetation management plan
- Continue strategic planning and implementation of operations, maintenance and management of SP's assets

- Progress the Feeder 12 relocation, Ranadi Substation upgrade, Kola'a Ridge Substation and the Lungga Power Station third power transformer projects
- Progress the network extensions in Honiara and at the Outstations
- Sign a Power Purchase Agreement for Tina River Hydro Project
- Develop the project for the installation of more Hybrid Generation Systems in Solomon Islands
- Initiate the development of a Supervisory Control and Data Acquisition System (SCADA)
- Initiate and commence a project to upgrade the old Lungga Power Station
- Noise mitigation and other improvements at Honiara Power Station
- Install and commission Smart Meters
- 24/7 Customer Call Centre

# About Solomon Islands Electricity Authority (trading as Solomon Power)

#### Who we are

Solomon Islands Electricity Authority (SIEA) trading as Solomon Power (SP) is a State Owned Enterprise.

#### Our objectives

Under Section 4 of the State Owned Enterprises Act, the principal objective of the Company is 'operate as a successful business', and to this end, be:

- As profitable and efficient as comparable businesses that are not owned by the Crown.
- A good employer.
- An organisation that exhibits a sense of social responsibility by having regard to the interests of the community in which it operates.

To meet these objectives, SP strives to

## Be as profitable and efficient as comparable businesses by:

- Within the Electricity and State Owned Enterprises Acts, installing, operating and maintaining electricity supply systems that meet the needs of connected customers.
- Developing and implementing capital investment plans, to improve electricity system performance and increase the network coverage of agreed areas.
- Seeking to recover efficient costs of the service provision.
- Improving the efficiency of services, whilst improving asset reliability and availability.

## Be a good employer by

- Maintaining a well-qualified and motivated staff.
- Adopting HR policies that treat employees fairly and properly in all aspects of recruitment, retention and employment.
- Promoting a high level of safety throughout the organisation.

## Act in a socially responsible manner by

- Building effective relationships with landowners, customer groups and interest groups that are affected by our activities.
- Improving environmental reporting and performance on issues that are caused by our electricity supply activities.
- Incorporating sustainability into our business activities, and working to improve sustainable outcomes in terms of resource management.

#### Nature and scope of our activities

## SP's principal commercial activities, as defined under the Electricity Act, are the

- Generation and distribution of electrical supply to connected customers in approved areas,
- Operation, maintenance and development of assets that are necessary to achieve these outcomes on a long term, sustainable basis,
- Approved expansion of services to increased areas of operation.

## Other regulatory functions

The Company is also mandated by the Electricity Act to perform the following regulatory functions:

- Be responsible for the registration of Electrical Contractors.
- Ensure that industries and contractors comply with the Electricity Act and the AS/NZS Wiring Standards, by inspecting all electrical installations before connecting to SP mains.
- Be responsible for the licensing of standby generators, Independent Power Producers (IPPs)
   and Cogeneration of power.

MEMBERS OF THE BOARD

(Pictures to be inserted)

**SENIOR MANAGEMENT** 

(Pictures to be inserted)

#### **CHAIRMAN'S LETTER**

2016 has been another significant year for Solomon Power. For the first time we have declared a dividend to SIG. It is six years in a row that Solomon Power has made a profit. Furthermore, the last five year's statutory accounts have all been unqualified, and signed off by the Auditor General before the mandated date of 31st March each year.

The four new 2.5 MW generators were brought on line in the first half of 2016. This additional generation has placed Solomon Power in good stead with sufficient installed generation capacity in Honiara, and has provided sufficient capacity to meet electricity demand with up to two generators taken off line for repairs and maintenance.

To further enhance operational flexibility we have installed and commissioned black start facility on the two generators at Honiara Power Station.

In the outstations too we have commissioned new generators at Auki, Gizo and Tulagi. New generators at Munda and Noro will be commissioned in the first half of 2017 and this will complete the outstations generation upgrade project. The completion of this project will provide additional generation capacity at the outstations and enable Solomon Power to increase its customer base.

We have reduced our diesel consumption by 4% and were awarded the Green Business of the year 2016 for contributing towards the Solomon Islands Government's target of reduction of greenhouse gases. This was made possible by the commissioning of the Buala 150 kW Hydro plant and the 1 MW Solar Farm at Henderson and operation of the 4 more efficient new diesel generators at Lungga.

We have also commenced a project to convert the existing diesel based power stations at our outstations Kirakira, Lata, Malu'u, Munda and Tulagi to hybrid generation systems. Furthermore substantial progress has been made in the project to install and commission hybrid generation systems and distribution network at our two new outstations; Seghe and Taro. Both these outstations will be commissioned in the first half of 2017.

I would like to congratulate the management team for initiating the Output Based Aid programme with the support of the World Bank and for connecting and livening up the first 12 households just before Christmas. This programme envisages grid connection to 2500 new customers and augurs

well for Solomon Power and is another enabler to meet our long term objective of doubling our customer numbers.

The new electricity tariff was gazetted just before Christmas and is effective 1 January 2017 and this would not have been possible without the support of our Shareholders. Well done to Team Solomon Power for bringing this to fruition. I am elated to recognise that for the first time since 2010 the tariff for certain consumption ranges is going to be below \$ 5.00 a kWh. A reduced tariff will increase economic activity and help all to build our Nation.

Solomon Power is committed to renewable energy opportunities such as Tina River Hydro Project (15MW) in Guadalcanal and Fiu River (500kW) in Malaita, and these two projects of national significance are getting our serious and urgent attention.

The continued support of the World Bank, Asian Development Bank, Japan International Cooperation Agency, New Zealand Government and United Arab Emirates Government and other donors to explore opportunities in renewable energy and to drive commercialisation in our operations, is very much appreciated.

I would like to take this opportunity to thank the Shareholders and my colleagues on the Board and Management Team for the continued support rendered throughout 2016.

David K.C. Quan MBE

Chairman

#### CHIEF EXECUTIVE OFFICER'S LETTER

The year in perspective has been another successful one for Solomon Power (SP) financially and operationally. For the first time in many years we have seen a good growth in electricity demand.

Over recent years a significant improvement in the commercial sustainability of SP has been achieved. Prudent management has resulted in a situation where SP has been able to commit to a \$ 1 billion capital investment plan for the period 2013-2021. The capital spend in financial years 2014, 2015 and 2016 has been \$106m, \$133m and \$125m respectively. This capital injection will further increase our customer numbers in Honiara and at the outstations and see the development of new outstations.

The reliability in Honiara dipped in comparison with 2015. As a result of the successful testing and implementation of a seamless G-1 operation regime (no loss of load on loss of the largest generator in operation on the network) in Honiara in the latter part of the year improvements in SAIDI, SAIFI and CAIDI reliability indices in Honiara will be realised during 2017. I am also pleased to note that the black start facility installed on both generators at Honiara Power Station in 2016 will provide operational flexibility and contribute towards improvement in the three reliability indices.

SP is fundamentally different from what it was 9 years ago and is at the forefront of the commercialisation initiative of Solomon Islands Government (SIG). I am pleased to note that SP was

rated as one of the best performing State Owned Enterprises in a recent benchmarking study conducted by the Asian Development Bank which included 8 Pacific participating countries, Mauritius and Jamaica.

In 2016 we commenced a programme to extend the 11kV and 415 V networks and also started implementing the Output Based Aid programme to subsidise the electricity connection to the grid for the low income customers. These projects are complementary and are in line with our long term objective to double our customer numbers and drive economic growth in Solomon Islands.

During the year we signed a contract for the relocation of feeder 12, the upgrade of the existing Ranadi Substation and to construct a new 33/11 kV substation at Kola'a Ridge. The works for these have commenced with commissioning anticipated in 2018. The works for the hybrid sites at Seghe and Taro under a contract have substantially progressed. In the early part of the year we brought on line the 4 new generators at Lungga Power Station, the 1 MW Solar Installation at Henderson and the 150 kW Hydro Station at Buala.

The new 2016 electricity tariff has reduced the rates and this will challenge us to be more efficient, productive and effective in the future.

It is also pleasing to see the mobile top-up facility increasingly being used by our customers.

To improve the efficiency and effectiveness of our operations this year we commissioned and improved the telecommunication connectivity to our outstations.

During 2016 we have continued our focus on safety and training. The safety record has been exemplary with no loss time injury during the year. Furthermore we have experienced a reduction in motor vehicle accidents. The nurturing and mentoring of graduates and other staff is continuing and this will reap great benefits for SP's legacy into the future.

I wish to thank the Board for the excellent support they have provided to me and the SP Team during 2016.

Congratulations to Team SP and all our stakeholders for everything we achieved together in 2016.

**Pradip Verma** 

**Chief Executive Officer** 

# **ENGINEERING HIGHLIGHTS FOR 2016**

#### Overview

For the first time after 24 months of impeccable performance Honiara City went through a period of scheduled load shed for seven (7) days, during the period 15<sup>th</sup> January to 1<sup>st</sup> February 2016. This was due to the overhaul of one of the large generators (L7 Wartsila) at Lungga Power Station and the failure of the two Caterpillar generators (H1 and H2) at the Honiara Power Station.

Furthermore, the year started off with a series of outages due to network feeder faults and issues on our generators. During the months of January and February a total of eight (8) unplanned outages were experienced. Similar outages were also experienced during the months of May and June at midyear and towards the end of the year during the months of November and December.

In Honiara, we added 10MW of power to our generation capacity following the successful commissioning of a new diesel power plant with 4x2.5 MW MAN diesel generators in March. A further 1.0MW of power was added to the Honiara generation capacity from a new solar power plant at Henderson, east of Honiara; co-funded by the Governments of the United Arab Emirates and New Zealand. Honiara's available generation capacity has increased to 30.5MW compared to 20.5MW in 2015.

With the additional capacity, SP has achieved a G-2 generation criterion, which has been one of its targets.

Generation of power in Honiara is mainly from the four new MAN generators, which are more fuel efficient, and the balance of power requirement from the old generators at Lungga and Honiara power stations.

On the Distribution network, particular efforts have been on to improving the reliability of the network. Improved vegetation management saw the drastic reduction of line faults compared to previous years. Despite a high demand for distribution work by infrastructure projects and other urgent repairs and limited resources, the Distribution team was able to address a number of constraints in the network by installing Ring Main Units (RMUs) and Air Break Switches (ABSs) on strategic parts of the network to enable back feeding from one feeder to another. In addition, a number of over loaded distribution transformers were upgraded, in particular at Ports and Ministry of Infrastructure Development (MID) compounds; both were upgraded to 500kVA units.

At the Outstations, keeping the lights on has continued to be a challenge in 2016 due to the aging and deteriorating conditions of the power generation facilities at the stations. At Auki and Gizo, rotational load shedding had to be carried out whilst repairs were undertaken on the generators, and at Lata a total outage for 7 days was experienced due to the breakdown of its operational generator.

Under the Outstations Generation project the power situation at Auki and Tulagi has improved dramatically following the successful commissioning of 2x500kW new Kohler generators at Auki and 2x250kW generators at Tulagi. In order to stabilise the power situation at Gizo, one new 500kW Kohler generator was temporarily commissioned whilst permanent installation work was in progress. With the completion of the Outstations Generation project in 2017 the power situation at Auki, Gizo, Munda, Noro and Tulagi will improve substantially.

#### Generation:

The generation staff had the opportunity of working with the contractor during the installation, testing and commissioning of the 4x2.5MW new MAN diesel generators as part of their training in preparation of taking over the operation and maintenance of the new plant.

Scheduled major overhauls were carried out on L7 Wartsila and L9 Mitsubishi generators whilst the overhaul on L10 Niigata was delayed as technical issues continued to be experienced on the new MAN generators since commissioning and the prolonged outage of L8 Wartsila due to the faulty

11kV voltage transformer. L8 Wartsila was re-commissioned in November after the new voltage transformer was installed.

Other activities included monitoring of the power plants, attending to faults and breakdowns both in the mechanical and electrical systems; and the scheduled 1,000 hours service on the generators. Hastings Deering was engaged to provide weekly monitoring, scheduled maintenance and attending to faults and issues on H1 and H2 Caterpillar generators at Honiara Power Station.

#### Distribution:

The Distribution Department undertook a number of major activities in Honiara and at the Outstations. In Honiara, 11kV and 415 V line extensions were carried out in Titinge Village, Tinge and Green Valley areas. In addition the team carried out urgent repairs on the 33kV overhead line from Lungga to Honiara in March due to corroded dead end terminations. The team also relocated the RMUs at Town Ground on feeder 3 and at the Ministry of Infrastructure and Development compound on feeder 4. Furthermore there were distribution transformer upgrades at various locations in Honiara.

The Department also supported works for the various projects in Honiara, in particular the Japan International Cooperation Agency road upgrade project, the Henderson 1 MW solar plant. The Department also carried out new 415 V line works in connection with the new hybrid systems being developed at Seghe and Taro.

Furthermore the Department continued the much needed vegetation management programme in Honiara in an effort to improve the reliability of the network and reduction of line losses due to vegetation. Other activities were the construction of minor 415V extensions, new service connections, inspection and condition monitoring of the network, implementation of planned maintenance activities and attending to network faults.

#### **Outstations:**

With the aging generation and network facilities at the Outstations, keeping the lights on was challenging during the year. Prolonged generator outages were experienced at Auki, Gizo, Lata, and Munda/Noro. The high voltage switchboards at Auki, Gizo and Noro also experienced problems. At Auki, one of the distribution feeder circuit breakers had to be bypassed in order to restore power supply to the township.

At Noro, maintaining N1 and N2 generators in an operational state was difficult due to their deteriorating conditions and difficulties in sourcing of both the mechanical and electrical parts. The 11kV underground cable between Munda and Noro also experienced faults that often took longer to restore.

At Auki and Tulagi however, the situation has improved since the commissioning of the new Kohler generators under the Outstations Generation project. Gizo power situation was stabilised by temporarily connecting one of the new 500kW Kohler machines.

Lata in the Temotu Province experienced total outage for seven (7) days when the only operational generator had voltage regulation problem whilst the other generator's alternator was undergoing repairs in Honiara. A new 80kW Kipor generator was purchased and installed at Lata to stabilise the power situation.

## Regulatory:

The Authority started discussions with relevant stakeholders both locally and overseas to enable electricians and local contractors to sit for their licensing examinations. By the end of 2016 participants from both Solomon Power and external parties were put through gap assessment tests to identify training needs prior to sitting for the Australian set examination for licensing purposes.

The Regulatory Department provided technical support during the testing and commissioning phases of the 1.0MW solar farm at Henderson. The Regulatory team also assisted in the testing and commissioning of the 30kW solar plant at the Helena Goldie Hospital at Munda in the Western Province.

The Regulatory and Customer Services team carried out investigations on the current transformer (CT) metered customers to see if the ratios and multiplying factors were correct and the meters are giving correct readings. This is amongst other activities which were undertaken during the year to eliminate or reduce non-technical losses in the system. A total of seventy seven (77) customers were either with wrong CT ratios or with defective CTs which were replaced as part of the exercise. Six (6) customers were with wrong multiplying factors and these were corrected. The remaining twenty six (26) customers will be addressed when new CTs are received in 2017.

A total of 719 new connections were done for Honiara and the Outstations in 2016 compared to 785 connections in 2015.

## Planning:

The Planning Department managed the feasibility and line route studies for the proposed 66 kV transmission line and also undertook the Least Cost Generation Study and the Due Diligence Study associated with the proposed Tina River Hydro project in Guadalcanal.

In addition the Department assisted the Asian Development Bank (ADB) to carry out the feasibility studies on the project to convert the existing diesel operated Outstations at Kirakira, Lata, Malu'u, Munda and Tulagi to Hybrid Generation systems.

The Department also carried out detailed survey on seven (7) of the twenty one (21) proposed sites in Honiara for the extension of the 11kV and 415V networks. The other major activity carried out was high level consultations on nine (9) of the first fifteen (15) sites identified for Hybrids mini-grids developments for 2016. The nine sites completed were Batuna, Vonunu, Ringgi, Sasamunga, Pangoe, Arariki, Kilusakwalo, Lambi and Visale.

#### Electrical:

The Electrical team provided support to the contractor on the 1 MW Solar Farm project at Henderson on the installing of the new switchboard at the Lungga Power Station end and also on the testing and monitoring of the operation of the solar installation.

The other activities carried out by the Department included maintenance works on all electrical auxiliaries, the main alternators and other electrical equipment on the L7 Wartsila and L9 Mitsubishi generators at Lungga Power Station during their major overhauls. The team also supported the protection specialist to carry out primary injection tests on the relays and energy meters associated with these generators.

In addition the Department attended to repairs and maintenance works both in Honiara and at the Outstations, investigation of faults and outages in the Honiara Generation system and network.

## Renewable Energy

Two proposed Hydro Projects, the 750kW at Fiu River, Malaita Province and the 20MW at Tina River in Guadalcanal Province were being progressed through various stages during the year and will be further developed in 2017.

A 1.0MW grid-connect solar project jointly funded by the United Arab Emirates (UAE) and the New Zealand Governments was commissioned in June 2016. The plant recorded outputs of up to 850kW on sunny days and was supporting power generation through the Lungga Power Station 11kV system.

We completed the feasibility studies and assessments on an ADB funded 2MW project to convert the existing diesel operated outstations at Kirakira, Lata, Malu'u, Munda and Tulagi to hybrid generation systems. SP has been providing assistance with the acquisition of the land at these sites which are mainly government owned.

SP funded hybrid mini-grids at Seghe and Taro were progressed to final design stages, procurement and delivery of the equipment. The projects are expected to be completed by mid-2017. Land for these projects has been secured and lease agreements signed.

Initial consultations and feasibility studies were carried out on nine new sites for the development of new hybrid mini-grids. Detailed studies and land acquisition have progressed very well for Hauhui on Malaita. Detailed studies for Vonunu, Ringgi, Kilusakwalo, Sasamunga, Pagoe and Arariki have been completed and will progress on to land negotiations; whilst detailed studies for Lambi and Visale on Guadalcanal will be carried out in 2017.

### **Power System Reliability**

SP's System Reliability in Honiara is measured using the internationally accepted performance indicators as follows:

## The System Average Interruption Duration Index (SAIDI)

SAIDI defines the average interruption duration per customer served per year.

SAIDI = (Sum of Customer Interruption Durations/Total number of customers)
For Honiara, this was measured to be 381.9 minutes, compared to 217.7 minutes in 2015. This is an increase by 164.2 minutes over the 2015 figure.

#### The System Average Interruption Frequency Index (SAIFI)

SAIFI defines the average number of times a customer's service is interrupted during a year for longer than 2 seconds. A customer interruption is defined as one interruption to a customer.

SAIFI= (Total number of customer interruptions/Total number of customers served)

For Honiara this was measured to be 3.8 times compared to 3.2 times in 2015.

## The Customer Average Interruption Duration Index (CAIDI)

This is a measure of the average time (minutes) that a customer is without power per interruption. For Honiara this was measured to be 103.1 minutes per interruption compared to 74.2 minutes in 2015.

### Reliability and Efficiency

To maintain the efficiency of the generators at Lungga; an improved cooling water treatment and quality control has continued to be maintained and as a result the large generators except L8 Wartsila were able to be loaded to 90% of their rated output capacity. This has enabled the generators to maintain the growing demand for power during the year.

The implementation of the G-1 operation criteria, the under frequency load shedding scheme on a number of the 11kV Honiara feeders and the revised delayed time setting on the existing under voltage system protection on the 33kV feeders at Honiara will prevent a wider network outage due to faults in the 11kV feeders, and this should contribute to an improvement in the performance and reliability of the network in Honiara.

#### **Energy Produced**

Energy produced in 2016 is shown in the table below. Lungga and Honiara operations produced a total of 82.16Gwh (90.6%) whilst the Outstations, Solomon Tropical Products (IPP) and the Ranadi and the Henderson solar plants produced 8.48Gwh (9.4%).

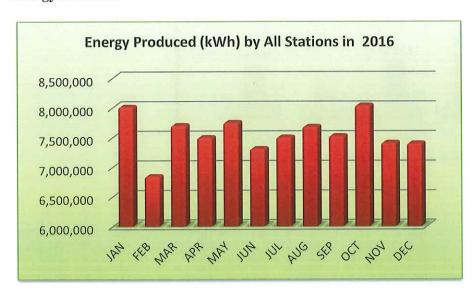
Station	Gwh (2015)	Gwh (2016)
Lungga	71.91	76.86
Honiara	6.00	5.30
Outstations	7.48	6.75
Henderson Solar	0	0.63
Ranadi Solar	0.073	0.005
Solomon Tropical Products (IPP)	1.36	1.10
Total	86.823	90.64

#### **Maximum Demand**

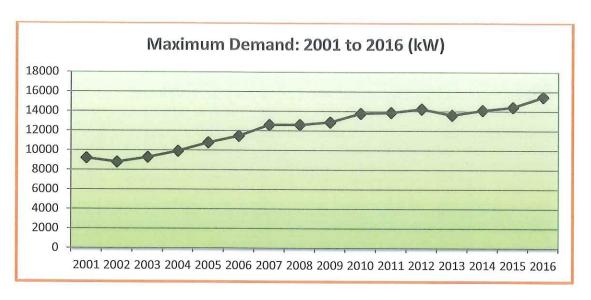
The demand for electricity in Honiara in 2016 peaked at 15,470 kilowatts compared with a figure of 14,425 kilowatts in 2015, an increase of about 1,045 kilowatts over the 2015 demand.

## **Generation Statistics**

## **Energy Produced**

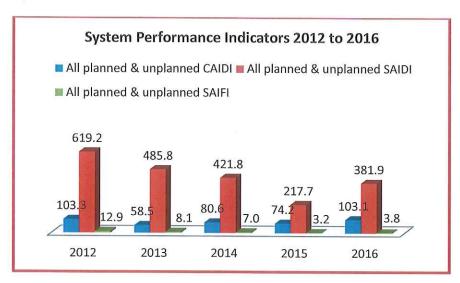


Energy Generated by all Stations in 2016



Honiara Demand Growth from year 2001 to 2016

System Performance Indicators for Honiara for 2012 to 2016 are in the histogram below



#### CAPITAL WORKS DIVISION

During 2016 there were 23 capital infrastructure projects being progressed to the value of \$426m. Of these the following were completed and commissioned during the year.

- The new power station at Lungga with 4 new 2.5 MW generators;
- The 1 MW Solar generation plant at Fighter 1, Henderson;
- The upgrade of the Ranadi Head Office complex car park area;
- The construction of the new Power Station at Gizo;
- The replacement of diesel engines and switch gear at Auki and Tulagi

Key projects which started during 2015 and were progressed during 2016 include:

- The development of the smart meter project;
- The development of Hybrid Generation systems at Seghe and Taro;
- The development of the Fiu River Hydro Project;
- The development of the Tina River Hydro Project including the associated Transmission Line;
- Relocation of SP assets around Mataniko Bridge and the Honiara City Council Roundabout to facilitate the Kukum Highway upgrade project

Projects that commenced during 2015 and will conclude during 2017 include:

- The development of Hybrid Generation systems at Seghe and Taro;
- The replacement of diesel engines and switch gear at Gizo, Munda and Noro

Projects that commenced during 2015 and will continue during 2017 include:

- Relocation of feeder 12 at Henderson;
- The redevelopment of the Ranadi Substation;
- The development of the Kola'a Ridge Substation

Projects commencing during 2016 and will continue in 2017 include:

- The development of the East Honiara Substation site as an industrial park;
- The installation of a second transformer at Lungga;
- The Honiara Power Station Redevelopment;
- The development of 5 Hybrid replacement generation systems for the existing Outstations at Kirakira, Lata, Malu'u, Munda and Tulagi;
- The extension of the mezzanine floor at the Ranadi HQ location;
- The development of 11kV and 415V network extensions

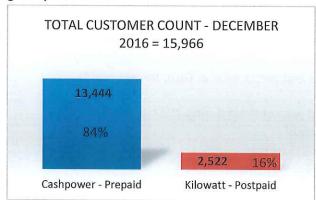
SP has continued to develop its Project Management Office during 2016. The team has continued to develop systems to monitor projects as they advance and go through the different stages of their life cycle. This system development has included progressing document management of projects at SP which has continued to improve particularly since the appointment of a dedicated Document Management staff. In early 2016 a Contract Coordinator was appointed to support the various contract requirements SP is exposed to in its capital works programme. There has been significant use of external resources to undertake projects where they not available from within SP.

The development of staff is particularly important with the young project engineers undertaking projects within SP. Mentoring opportunities with experienced expat project personnel to capacity build the SP Capital Works team have been provided to guide the project engineers on the job as they execute their allocated projects. Staff training of a friday afternoon exposes the project engineers to the various aspects of Project Management and discusses the various skills required by a project engineer or project manager when undertaking a project.

The year of 2017 will bring further opportunities for SP to increase its project management capacity. The proposed training of staff will progress with a proposed Construction Supervisor certification and further project management skills training. This will ensure SP has the resources at its disposal to undertake the projects required to build the capital electricity infrastructure for the Solomon Islands.

#### **CUSTOMER SERVICES DIVISION**

With a total number of 40 permanent staff, the Customer Services division is responsible for customer enquiries, cashiering, Kilowatt billing (post-pay), Cashpower administration (pre-pay), metering and public relations.

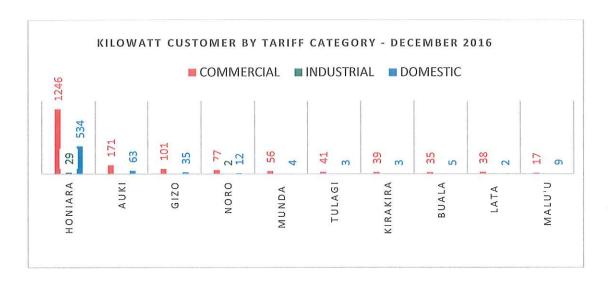


In terms of customer count, by the end of 2016, SP had a total of 15,966 customers connected to its Honiara and outstation's network. Honiara, the capital city, is situated on the island of Guadalcanal. There are 9 other outstations on the other island provinces outside of Guadalcanal, namely Auki, Gizo and Noro being the bigger outstations, with the smaller stations being Buala, Kirakira, Lata,

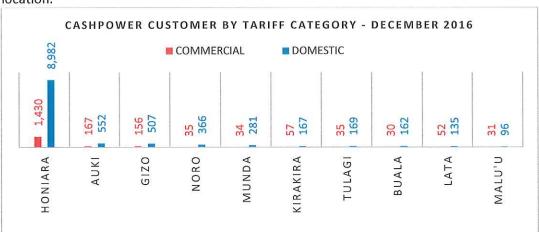
Malu'u, Munda and Tulagi. Two new Hybrid Stations are being developed in Taro, Choiseul Province and Seghe in Marovo, which are planned to be commissioned in 2017. 84% of the customers are registered on the prepay system (Cashpower) called Suprima, and the other 16% on the post-pay billing (Kilowatt) system called USP or Utility Star Platform. The Suprima system has been in place since 2000 while the USP was introduced in June 2014.

Customers are categorised into commercial, industrial and domestic installations and charged according to their respective electricity tariff rates. The post-pay system registers commercial, industrial and domestic customers, while the prepay system only registers commercial and domestic customers.

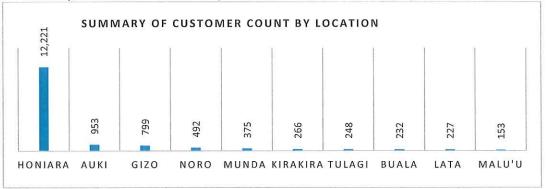
The graph below shows the number of post-paid (Kilowatt) customers by tariff category by location.



The graph below shows the number of prepaid (Cashpower) customers by tariff category by location.



In summary, total customer count by location is as shown on the graph below:



With scattered outstations location, the V-SAT project provided by SATSOL and the government has enabled ease of billing connectivity from the Head Office to these outstations.

SP currently uses two types of meters; Cashpower meter on all pre-paid installations and the normal conventional kilowatt meter on post-pay installations. Following successful tests and integration into the billing system, work has progressed well into replacing all of Honiara's

commercial and industrial kilowatt meters with EDMI Smart meters. Work has also progressed well into reducing non-technical losses through monthly analysis of no load meters and upgrading of all ratios on Revenue Metering Current Transformers.

The cost of service and tariff review was carried out by Quantum in 2015. An outcome of this review is the gazetting of the Electricity Tariff (Base Tariff and Tariff Adjustments) Regulations 2016 by the government in December 2016, with implementation to be effective 1st January 2017. The new tariff has resulted in lower electricity rates for customers.

The division has taken the lead to run community awareness sessions under the Output Aid Based (OBA) programme. These sessions were conducted at eight sites with customer applications processed and approved. By the end of 2016, 12 homes at Titinge were connected under this programme.

A new-look website was developed in 2016, which can be accessed on <a href="https://www.solomonpower.com.sb">www.solomonpower.com.sb</a>. The new site has updated contents with formats that are easier to browse and maintain unlike the previous site. The website's Enquiries Section provides a path for customers to raise issues and ask questions on line. A new Facebook page is planned for 2017. The weekly Saturday morning one hour radio programme on the national radio is still gaining popular following amongst keen listeners, the general public and our valued customers, especially the end of the month talk back shows which provide very good opportunities for our customers to raise issues and ask questions. The Cashpower Drive-Through and Walk-Through windows, extended Cashier opening hours to 8.30pm Mondays to Fridays and the 24 hours Cashpower mobile top-up service are still going very well and have been very helpful in reducing customer queues at the counters, especially with the growing number of Cashpower customers. With all these, we look forward to another Customer Survey in 2017 where we hope to see a marked improvement in our customer service.

In terms of training, the department is pleased to have four of its staff graduate and attain their APTC qualifications over the year. Two officers graduated with the APTC Certificate III in Electrotechnology Electrician and another two with APTC Certificates in Leadership and Management. Two other staff are doing full time studies both locally and overseas, while two Meter Technicians were sent to the Fiji Electricity Authority for work attachments on the area of meter testing and inspections. Training has also been carried out by the suppliers in both Suprima and USP. On the job training plans were put in place for the four newly recruited officers for the new Hybrid Stations in Seghe and Taro, to be carried out in January 2017. Training activities are ongoing for the division, to ensure that we are able to meet the challenges ahead. Apart from training, our policies and processes have continually been developed and updated, to ensure that our quality commitments to our valued customers are met.

#### FINANCE DIVISION

Sound financial management and governance has placed SP in good stead. Solomon Power is, financially, the best performing State Owned Enterprise in the Solomon Islands and is one of the best in the Pacific. During the year:

- SP has declared a dividend of \$4.4m,
- Net Profits have increased,
- Return on equity and return on assets has been 14.7% and 13.3% respectively,
- Generation cost per kWh has dropped to less than \$2 (less than US \$0.25)
- Fuel costs, being 45% of our costs, has dropped,
- Monthly kWh sales reached its highest ever, and
- Capital Infrastructure being funded using retained earnings (Such as Outstations
   Generation Project Replacement of Generators in Outstations; New Outstations, Seghe &
   Taro; and Network Extensions in Honiara)

### Information, Communications and Technology

The Information, Communications and Technology (ICT) department of Finance took substantial strides to protect our information, connect our key sites and modernise our hardware and software.

The Outstation at Lata was connected to corporate network through the Virtual Private Network (VPN) and it can access central application services located in Ranadi Head Office.

VPN has been successfully set up such that we can remotely access information from Lungga Power Station and from Buala Mini-Hydro Plant.

Implementation of smart metering for postpaid customers has now commenced. Continuous process improvements have also been supported by the Department, with commencement of automated timesheets and implementation of the asset management software.

During 2016 SP generated a monthly average income of approximately \$2.0m via its mobile top-up facility with an average of 25,600 top ups done each month.

### Renewable Energy and the Tariff Review

The 1 MW Solar Plant at Henderson and the Buala Mini-Hydro plant have both contributed to the reduction of diesel fuel consumption during 2016.

The cost of service and tariff review was completed during the year, the outcome of which is the new Tariff Regulation 2016 effective 1 January 2017. The new reduced tariff is tiered and has a fuel and non-fuel component. The reduction in tariff is challenging us to be more efficient and effective.

#### Community Service Obligations (CSO) and Non-Profitable Services

The Solomon Islands Government has approved and paid \$4.4m for Provincial Electricity Service and streetlights. We have improved the performance of outstations as a whole to the point where they

are breaking even excluding depreciation and head office overheads. We have invested in new generators to improve efficiency and are partnering with the Asian Development Bank to install hybrid farms to further reduce costs. Automation, mobile top-up and shared services will reduce operational costs further.

### CORPORATE SERVICES DIVISION

The Corporate Services Division provides support services to other divisions in Solomon Power through its human resources & administration; training & development; health, safety, security and compliance; fleet and land & buildings and legal services teams.

#### **Human Resources**

At the end of December 2016 there were 239 permanent employees, compared to 245 at the end of 2015, a slight reduction by 2% in permanent employees but complimented by the engagement of 8 graduate trainees with engineering, finance, economics and management degrees.

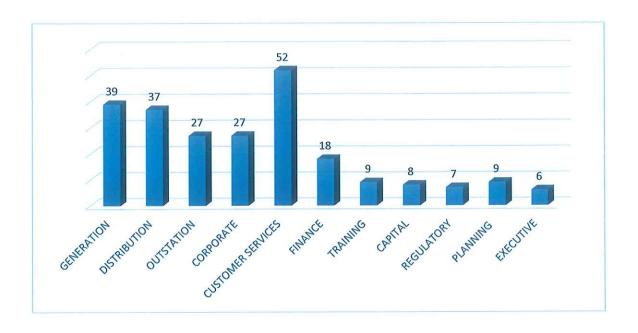


Figure 1: Employee numbers

## **Employees by location**

148 employees, the majority of the workforce, are based at the Ranadi Complex where the head office for SP is located. The Executive Office and the Finance, Corporate Services, Customer Services, Capital Works and Distribution & Transmission teams are located at the Head Office. Lungga site has the second highest number of employees at 37.

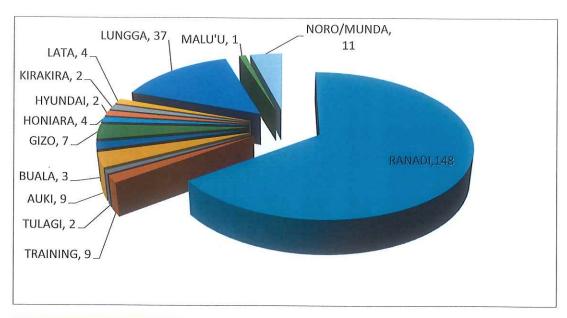


Figure 2: Number of employees by location

#### Highlights in 2016 included:

- Review of key human resources policies and frameworks
- Recruitment into key vacant positions including that of 2 engineers and localisation of a senior executive management position in the appointment of the 1<sup>st</sup> local and 1<sup>st</sup> female Chief Financial Officer
- Broadening of the Graduate Programme to include other disciplines apart from the core areas of electrical, mechanical and civil engineering

#### **Training and Development**

SP considers workforce development as a strategic organisational objective and the appropriate activities, initiatives, planning and resourcing to achieve this continues to be a focus area for the Corporate Services Division. Programmes included a blend of class room and practical training, attendance at workshops, seminars and conferences; and support for full time studies at tertiary institutes.

3 employees were awarded Solomon Islands Government scholarships in 2016 for tertiary qualifications studies in Fiji; 4 were granted full SP scholarships to do full time studies in SINU and USP; and 6 attended formal full time studies in APTC Papua New Guinea and Fiji respectively, also fully funded by SP. During 2016 four employees graduated, of these three were sponsored by SP and one by the Solomon Islands Government.

To further enhance our drive for workforce development, SP continued with its Graduate Development Programme with the engagement of 6 graduates in 2016 and provided workplace attachment opportunities for 23 tertiary students from SINU and USP.

#### Occupational Health & Safety

SP is committed to an effective and robust OHS management framework as the basis of its commitment to a safe environment for its employees and customers and the community at large. In

2016, the team underwent the review of two key policies which were then prepared for execution and monitoring. The Safety Manual and the Drivers Handbook were reviewed and ready for roll out.

### Highlights in 2016 included:

- Nil (0) Lost Time due to Injury (LTI) was recorded in 2016 compared to three (3) Lost Days in 2015. The Lost Time Injury Frequency rate for 2016 closed at 0 whereas it was 4.28 at the end of 2015.
- Carried out OHS awareness programmes for employees and electrical safety awareness programmes in communities
- Continuation of First Aid Training and provision of First Aid Kits and Basic Fire Fighting Training for Power Station Operators
- Continuation of Power Station Operator Training and Electric Power Lineman Training
- Developed, implemented and trained Contractors on site safety inspection process
- Developed and implemented security services engagement process
- · Reviewed Fleet Policy Manual and Driver Handbook
- · Reviewed Solomon Power Safety Manual

#### **Solomon Power Fleet of Vehicles**

As at 31st December 2016 SP had 89 vehicles in its fleet. During 2016 we continued with the review of our Fleet Policy, conducted "Hands on Wheel" defensive driving programme in conjunction with our Telekom participants and increased the focus on safety, behaviour and professionalism.

### **Land & Buildings**

#### Land

2 Land Consultants were engaged in December 2016 to assist with current land issues SP is facing with its current and future project developments, for new land acquisitions and proper registration of all SP properties.

### **Buildings**

Apart from our commercial properties in Honiara, Ranadi, Lungga and the Outstations, SP provides housing for employees. There are 90 staff houses and the Land and Buildings unit had a major annual repair and maintenance work programme in 2016.

A valuation exercise of all our properties was carried out in 2016, with the last being executed in 2013.

#### **LEGAL SERVICES**

Legal Services is responsible for ensuring that legislation relating to the operation of the organisation is complied with. These pieces of legislations include the Electricity Act (Cap 128), the State Owned Enterprises Act 2007, the Labour Act, the Employment Act, the Safety At Work Act and other relevant pieces of legislation.

#### **Bypass Customers**

There is a concerted effort to recover monies owed to SP by "Bypass" and defaulting customers, the efforts can be most challenging with various dimensions of each case including prosecuting of "Bypass" customers.

SP is proceeding with recovery from these customers with several good outcomes by the end of 2016.

#### **Workmen Compensation**

One case of Workmen Compensation was reported to the Department of Labour and is being facilitated by external Counsel.

### **Trade Dispute Panel**

One case for unfair dismissal was lodged by a former employee and was amicably settled during the year.

### **Outstanding claims**

The claim over the strip of land at the rear entrance to SP Headquarters is still pending in the High Court.

## **Corporate Governance Practices**

#### Role of the Board

As required by Section 6 (4) of the State Owned Enterprises Act 2007, the Board is responsible for charting the Company's strategic direction, for the setting of objectives, policy guidelines, goals management, and for monitoring the achievement of these matters.

The Board is also responsible for reviewing the Business Plan, Corporate Plan and Statement of Corporate Objectives, and approves the Operating and Capital Budgets each year. The Board also reviews matters of a major or unusual nature, which are not in the ordinary course of business.

## Composition of the Board as at 31 December 2016

The Board Directors, appointed under the State Owned Enterprises Regulation 2010, (Part 2, Prescribed Process of Appointment of Directors) are as follows:

Name	Position	Appointment	Term
Mr David K.C. Quan	Chairman	February 2016	3 years
Mr Adrian Wickham	Chairman	August 2011	Ended on 18 February 2016
Mr David Laurie	Overseas Director	February 2015	Ended on 1 September 2016
Mr Henry Kapu	Director	June 2012	3 years
Mr Harry Zoleveke	Director	June 2012	3 years
Mr Sebastian Ilala	Director	June 2012	3 years
Ms Yolande Yates	Director	September 2014	2 years
Mr Rovaly Sike	Director	September 2014	2 years
Mr John Bosco Houanihau	Director	September 2014	3 years

Mr Adrian Wickham's term of appointment as Chairman of the Board was terminated effective 18 February 2016.

Mr David K.C. Quan was appointed the Chairman of the Board of Directors effective 19 February 2016.

### Directors' Duties

The role and duties of the Directors are defined in regulations 17 to 27 of the SOE Regulations, 2010. A key responsibility of the Directors is to achieve the principal objective of the Authority, as stated in Section 5 of the SOE Act:

The principal objective of every State Owned Enterprise shall be to operate as a successful business and to this end, to be (a) As profitable and efficient as comparable businesses that are not owned by the Crown or established as statutory bodies by an Act of Parliament,

(b) A good employer, and

(c) An organisation that exhibits a sense of social responsibility by having regard to the interests of the community in which it operates.

#### Statutory Duties of the Board

In addition to the above duties, the Board of Directors of SP collectively and individually have agreed on the fulfilment of the following duties toward the company:

- When exercise powers or performing duties, Directors must act in good faith and in what the Director believes to the best interests of the State Owned Enterprise.
- A Director of a State Owned Enterprise, when exercising a power as Director, must exercise that power for a proper purpose.
- · A Director of a SOE must not:
  - (a) Agree to the business of the SOE being carried out on or in a manner likely to create a substantial risk of serious loss to the SOE creditors or,
  - (b) Cause or allow the business of a SOE to be carried out on or in a manner likely to create substantial risk of loss to the SOE creditors.
- A Director must not agree to the SOE incurring an obligation unless the Director believes at the time, on reasonable grounds, that the SOE will be able to perform the obligation when it is required to do so.
- A Director of a SOE, when exercising powers or performing duties, must exercise the care, diligence, and skills that a reasonable Director would exercise in the same circumstances.
- Another controlling measure imposed on Directors is the requirement to enter any conflict of interest in an interests register.

## Fiduciary Duties of Directors

The Directors of SP also owe the following duties to the company. These fiduciary duties form the code of ethics of SP. A fiduciary relation imposes an obligation of utmost good faith on Directors by putting the interests of the Company first, and the SP Directors have pledged to uphold this principle at all times. The Fiduciary Duties of the Directors include the following:

- To act in good faith in the best interest of the company,
- To exercise powers for a proper purpose,
- To retain discretion
- To avoid conflicts of interest.

## **Board Meetings**

The Board held 12 meetings during the financial year, which ended 31st December 2016. Of these 6 were scheduled meetings and the rest extra-ordinary meetings. The regular business of the Board covers corporate governance, financial performance and risk management, business investment and strategic matters.

#### **Board Committees**

There are three Board Sub-Committees; Audit and Finance, Technical, and Human Resources, that are responsible for deliberating detailed issues and making suitable recommendations to the Board. The Sub-Committees meet as and when required.

### **Board Secretary**

Mrs Natalie Kairi

#### Audit & Finance Sub-Committee

Membership:

- 1. Henry Kapu- Chairman
- 2. David K.C. Quan- Member from 19 February 2016
- 3. David Laurie Member up to 1 September 2016
- 4. Sebastian Ilala Member
- Yolande Yates Member

Number of meetings: 4

#### HR Sub-Committee

Membership:

- 1. John Bosco Houanihau (Chairman)
- 2. David K.C. Quan- Member from 19 February 2016
- 3. Yolande Yates- Member
- 4. David Laurie- Member up to 1 September 2016

Number of meetings: 4

## Technical Sub-Committee

#### Membership:

- 1. David Laurie- Chairman up to 1 September 2016
- 2. Rovaly Sike- Chairman from 1 September 2016
- 3. David K.C. Quan- Member from 19 February 2016
- 4. Henry Kapu- Member
- 5. Harry Zoleveke- Member

### Number of meetings: 4

## Glossary

kV

Kilovolt

HV

High Voltage

kW

Kilowatts

MW

Megawatt (= 1000 kW)

Gwh

Gigawatt-hour (= 1 million kWh)