Solomon Islands

# **Country Energy Security Indicator Profile 2009**





Secretoriat of the Pacific Community





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#### Solomon Islands Country Energy Security Indicator Profile 2009

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SPC would like to thank the European Union Energy Initiative–Partnership Dialogue Facility (EUEI PDF) for providing the funds to carry out in-country technical activities and collect the data required for the energy security indicators.

The cooperation of the many contributors to this edition is gratefully acknowledged. The source note below each table credits the various government and private sector agencies that have collaborated in furnishing the information for the booklet.

### Foreword



Solomone Fifita Deputy Director (Energy) Economic Development Division, SPC

In August 2010 at the 41<sup>st</sup> Pacific Islands Forum at Port Vila. Vanuatu, the Forum Leaders' endorsed the Framework for Action on Energy Security in the Pacific (FAESP): 2010-2020 as the regional blueprint for the provision of technical assistance to the energy sectors of Pacific Island countries and territories (PICTs). FAESP encompasses the Leaders' vision for an energysecure Pacific, where Pacific people at all times have access to sufficient sustainable sources of clean and affordable energy and services to enhance their social and economic well-being.

The Implementation Plan for Energy Security in the Pacific (IPESP) (2011–2015) is a five-year plan for pursuing the vision, goal and outcomes of FAESP. It reflects the priority regional activities that are to be collectively delivered by the participating members of the Council of Regional Organisations in the Pacific (CROP) to support, complement and add value to national efforts on energy security.

In order to better appreciate the impacts of FAESP and its implementation plan on the energy security status of PICTs, baseline energy security indicators must be established, against which performance in future years can be benchmarked.

The energy security indicators in this report derive from a consultative process involving representatives of PICTs, regional organisations, the private sector and development partners. The process culminated in the adoption of IPESP and its monitoring and evaluation framework, the energy security indicators, at the Inaugural Regional Meeting of Ministers of Energy, ICT and Transport in April 2011.

As a first attempt to improve the transparency and accountability in the energy sector, there is obvious room for improvement. Lack of access to reliable and sufficient data is a common problem and this monitoring and evaluation tool can only get better with the kind assistance of the custodians of the energy sector data.

#### Solomone Fifita Deputy Director (Energy) Economic Development Division, SPC

# Abbreviations

ADB	Asian Development Bank
ADO	automotive diesel oil
Ave.	average
CO2	carbon dioxide
DPK	dual purpose kerosene
e.	estimate
EEZ	exclusive economic zone
FAESP	Framework for Action on Energy Security in the Pacific
FICs	(The 14) Forum island countries (SIS and non-SIS)
GDP	gross domestic product
GHG	greenhouse gases
GJ	gigajoules
HIES	household income and expenditure survey
IPP	independent power producer
JICA	Japan International Cooperation Agency
HFO	heavy fuel oil
kWh	kilowatt hour
kWp	kilowatt peak
Km	kilometre
LPG	liquefied petroleum gas
MJ	megajoule

Markwarth Oil
Ministry of Mines, Energy & Rural Electrification
(data) not available
(indicator) not applicable
Pacific Island countries and territories
Pacific Power Association
parts per million
Pacific Regional Information System (Statistics for Development, Secretariat of the Pacific Community)
photovoltaic
renewable energy
solar home systems
(Forum) smaller island states – Cook Islands, Kiribati, Nauru, Niue, Palau, RMI and Tuvalu. Non-SIS members are Fiji, FSM, PNG, Samoa, Solomon Islands, Tonga and Vanuatu.
Solomon Islands Electricity Authority
Secretariat of the Pacific Community
South Pacific Oil Limited
unleaded petrol (another name for motor gasoline)
United Nations Development Programme
United Nations Framework Convention on Climate Change

# **Country profile**

#### Solomon Islands Energy Policy Framework 2007

'In developing the energy policy framework, government is mindful of the critical role of the energy sector in the attainment of its overall socio-economic development goals of improving the livelihood of all its peoples.'

Country	Solomon Islands
Capital	Honiara
Capital island	Guadalcanal
Population	525,870 (PRISM 2009 estimate, male 52%); 409,042 (1999 Census)
Land area	28,370 km <sup>2</sup>
Max height above sea-level	2,447 m (Mt Makarakombou)
Geography	Solomon Islands consists of six large islands and many smaller ones totalling around 996 islands, of which around 350 are inhabited. The six major islands are Choiseul (3,837 km <sup>2</sup> ), New Georgia (2,145 km <sup>2</sup> ), Santa Isabel (4,121 km <sup>2</sup> ), Guadalcanal (5,320 km <sup>2</sup> ), Malaita (4,200 km <sup>2</sup> ) and Makira (3,090 km <sup>2</sup> ). Most of the Islands are volcanic in origin and are rugged and mountainous. There are some low coral atolls.
Location	Longitude 155° 30'–170° 30' East, latitude 5° 10'–12° 45' South
EEZ	1,340,000 km <sup>2</sup>

Climate	The climate is tropical monsoon, with few extremes of temperature, and weather modified by oceanic environment.
Rainfall	Typically rainfall varies from 3,000–3,500 mm per annum with two thirds of it falling from November to April.
Mean temperature	26°C
Economy	The leading producers of income in Solomon Islands are agriculture, fisheries, forestry and gold; exports include gold, copra, wood products, fish products, palm products and cocoa.
GDP per capita	USD 1,143
Currency	Solomon Islands dollar — SBD
Exchange rate	SBD/USD — \$0.1250 [OANDA]
Languages	English (official), Pidgin and 87 other languages
Government	Independent state and member of Commonwealth
Country representative to SPC	Permanent Secretary for Foreign Affairs & External Trade Ministry of Foreign Affairs & External Trade P O Box G10, Honiara Solomon Islands Tel: (677) 21250 / 24898 Fax: (677) 20351 Email: fiona.indu@gmail.com

# Energy context

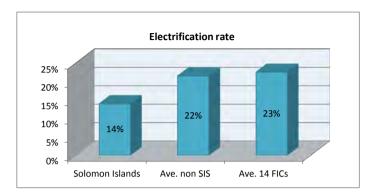
In 2009, Solomon Islands energy consumption totalled 4,857 TJ with petroleum fuels accounting for 99.96% and renewable energy (RE) from hydro and solar accounting for 0.04% (contribution from biomass is excluded in this analysis). Petroleum fuel is currently supplied to Solomon Islands by Markwarth Oil and South Pacific Oil. Liquefied petroleum gas (LPG) products are mostly imported in isotainers from Australia. In 2009, around 97.7 million litres of diesel, 21.6 million litres of petrol, and 10.4 million litres of kerosene were imported into the country. Fuel import for 2009 stood in the vicinity of USD 98.8 million. This accounts for 16.4% of the total gross domestic product (GDP) — USD 601.3 million in 2009.

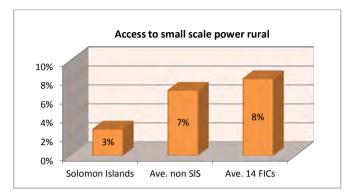
In the power sector, around 14% of households are connected to the electricity grid network provided by Solomon Islands Electricity Authority (SIEA). In 2009, SIEA generated 78 GWh of electricity, of which 55 GWh was sold, recording an estimated 28% distribution loss. Of the electricity generated, around 0.5 GWh was contributed from renewable energy sources (mini hydro and solar). Honiara and Lunga account for over 80% of the total electricity produced in Solomon Islands.

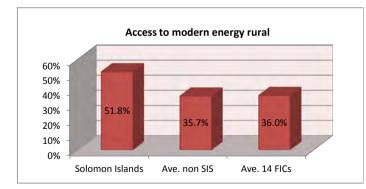
The 2009 baseline energy security indicators presented in this report are compiled and structured according to the four key outcomes to energy security and the seven action themes of FAESP. Graphical comparison included in the analysis provides a snapshot of Solomon Island's situation compared to other Forum non-SIS and Forum Island countries.

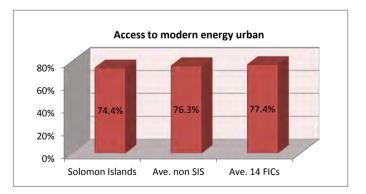
### FAESP key energy security outcome 1 — access to energy

No.	FAESP indicators		Explanatory notes
1	Electrification rate (%)	14	<i>The indicator tracks the share of households actually connected to a utility grid.</i> HIES 2005/2006 places grid connection in Solomon Islands at around 13.99% of the population, of which 60.8% covers the urban areas and an estimated 5.5% covers the rural areas.
2	Access to small scale power rural (%)	3	The indicator tracks the share of rural households with access to basic electrification (solar, pico hydro, small wind, community grid). Based on the HIES 2005/2006, access to small scale electrification in Solomon Islands stands at around 2.8% in the rural areas.
3	Access to modern energy rural (%)	52	The indicator tracks the share of rural households with access to modern cooking and lighting, which specifically covers all forms of energy other than traditional biomass. Based on 2005/2006 HIES. Access to modern forms of cooking in rural areas is 7.4%. Estimated access to modern forms of lighting in rural areas is 96.3%. Estimate provided is the average calculated from access to modern lighting and cooking in the rural areas.
4	Access to modern energy urban (%)	74	The indicator tracks the share of urban households with access to modern cooking and lighting, which specifically covers all forms of energy other than traditional biomass. Based on 2005/2006 HIES. Access to modern forms of cooking in urban areas is 51.1%. Estimated access to modern forms of lighting is 97.8%. Estimate provided is the average calculated from access to modern lighting and cooking.



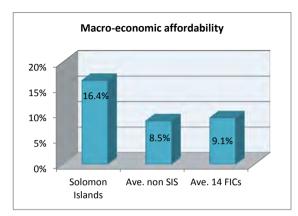


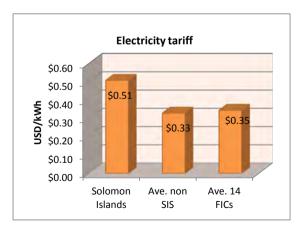


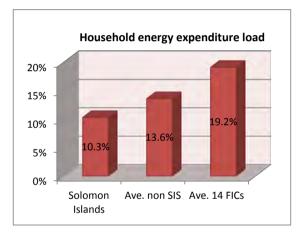


### FAESP key energy security outcome 2 — affordability

No.	FAESP indicators		Explanatory	notes		
5	Macro-economic affordability (percentage)	16.4	The indicator tracks fuel imports as a percentage of GD economy is towards world market price volatility. The macro-economic affordability was calculated from a of Statistics office; that is, fuel imports over total GDP (U are referenced from 2007.	reference data provid	ded by the Sol	omon Bureau
6	Electricity tariff (USD/kWh)	0.51	The indicator tracks average tariffs for the year (all tariff categories, i.e. residential, commercial and industrial). Requires averaging during the year as tariffs in most PICTs are adjusted several times a year. Refer to the table on the right for reference calculation of the average tariff.	Electricity tariff		\$0.51
		Re PIO Re		Commercial block	USD/kWh	\$0.53
				Industrial block	USD/kWh	\$0.51
				Residential block	USD/kWh	\$0.48
				Referenced electricity t	ariff calculation base	ed on SIEA data
7	Electricity lifeline (%)	n.a.	<i>Relation between average tariff and lifeline tariff if a lifeline tariff exists.</i> Solomon Islands is one of the countries in the region that does not use lifeline tariffs.			
8	Household energy expenditure load (%)	10.34	The indicator tracks average household expenditure for energy per year as a percentage of average household income. The estimate attained is based on the 2005/2006 HIES. Reporting gives a breakdown of expenditure accounted from the total annual costs to household operation and transport expenditure.			

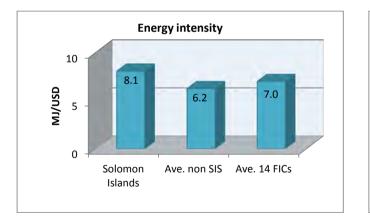


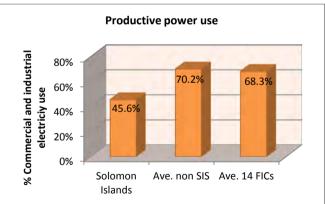




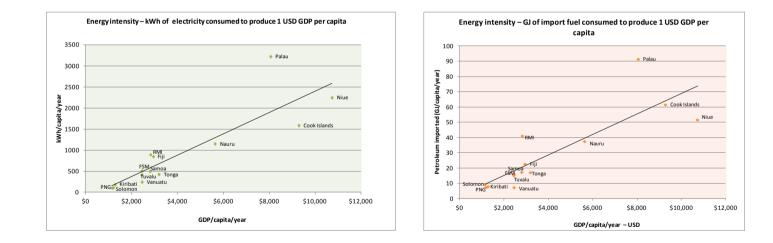
#### FAESP key energy security outcome 3 — efficiency and productivity

No.	FAESP indicators		Explanatory notes
9	Energy intensity (MJ/USD)	8.1	The indicator tracks the amount of energy utilised to produce 1 USD of GDP.
10	Productive power use (%)	45.6	<i>The indicator tracks the share of commercial and industrial use of electricity in total supply.</i> Data source from SIEA 2009



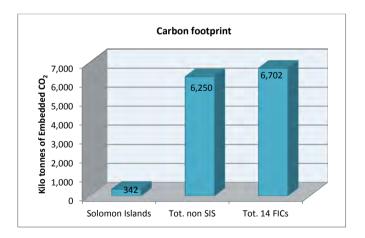


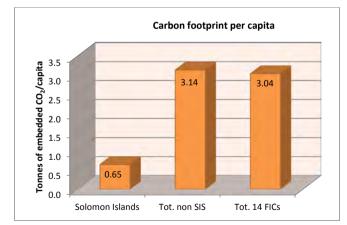
Provided below are energy intensity graphs that are presented in terms of electricity (kWh) and fuel (GJ) consumption against GDP when seen on a per capita comparison. Countries identified above the trend line are perceived to have higher than average energy consumption levels per person when compared to its corresponding economic wealth [GDP per capita]. That is, countries above the trend line are considered to be relatively energy inefficient as compared to countries below the trend line.



#### FAESP key energy security outcome 4 — environmental quality

No.	FAESP indicators		Explanatory notes
11	Carbon footprint (tonnes of $CO_2$ )	342,043	<i>The indicator tracks total GHG emissions using embedded carbon as a measure (not UNFCCC method).</i> Greenhouse gas (GHG) emission calculated is specifically accounted from the total fuel imported into Solomon Islands, which mainly covers diesel fuels (ADO and IDO), kerosene (DPK) and motor gasoline (mogas/ULP).
12	Diesel fuel quality (ppm S)	500	The indicator assesses the standard for sulphur (S) content of diesel fuel in parts per million (ppm) sulphur.





## FAESP action theme 1 — Leadership, governance, coordination and partnership

No.	FAESP indicators	Explanatory notes
13	Status of energy administration (score)	2 The indicator assesses the status the energy administration has in the country. (Score system: Energy ministry = 3; Energy department = 2; Energy office = 1) The Department of Energy under the Ministry of Mines, Energy & Rural Electrification (MMERE) is responsible for energy policy and planning, including development and implementation of renewable energy projects in Solomon Islands. SIEA is responsible for electric power supply and distribution to all urban and provincial centres. Petroleum products are imported into the country by South Pacific Oil and Markworth Oil. LPG and petroleum fuel prices are regulated at both wholesale and retail level by the Price Control Unit within the Ministry of Commerce and Employment.
14	Energy legislation (score)	2 The indicator assesses the status of energy sector legislation in the country. (Score system: Updated energy act = 3; Adopted energy policy = 2; Subsector act or policy = 1) There is no energy act for Solomon Islands. However, in 2006, the National Energy Policy and Strategic Action Plan were developed, and in 2007 they were endorsed by cabinet. Comprehensive reviews of legislative framework were performed in 2006, including Electricity Act, Foreign Investment Act, Petroleum Act, Price Control Act, Consumer Protection Act, Land and Titles Act, River Waters Act, Provincial Government Act). Modernisation of legislation outlined but not implemented.
15	Co-ordination and consultation (score)	1 The indicator aims to measure how decisions and directions given at regional or subregional events translate into practical action at national level. (Score system: Meetings lead to relevant national action = 1; No action = 0) Solomon Islands actively participate in regional activities and SIEA is a utility member of the Pacific Power Association.

### FAESP action theme 2 — Capacity development, planning, policy and regulatory frameworks

No.	FAESP indicators	Explanatory notes
16	Energy planning status (score)	3 The indicator assesses the state/quality of energy planning. It distinguishes between integrated planning and subsector (i.e. power, petroleum) planning. (Score system: Whole of energy sector plan/roadmap operational with M&E framework = 3; Subsector plan operational with M&E framework = 2; Energy sector plan in preparation = 1) The Strategic Action Plan and the National Energy Policy is in place. Elements of long-term development plan for power utility under consideration in the framework of World Bank and ADB supported power sector projects.
17	Energy sector regulation (score)	1 The indicator assesses energy sector regulation. It measures the progress towards a regulator independent of government or regulated entities. (Score system: Independent whole of energy sector regulator established = 3; Whole of energy sector regulator established = 2; Subsector regulator established = 1) Electricity tariff regulation is under the Ministry of Mines, Energy and Rural Electrification based on tariff study of 2007, fuel prices are regulated by pricing template under the Price Control Act. Assistance in fuel price verification is through SPC.
18	Enabling framework for private sector participation (score)	0 The indicator assesses progress towards an enabling framework for private sector participation in selling electricity to the grid. (Score system: Standard power purchase and petroleum supply agreements operational = 3: Standard agreements for subsector operational = 2; Standard agreements in preparation = 1) SIEA is the sole supplier of electricity in Solomon Islands. There was no general framework for private sector participation in 2009. Small power purchase agreements for two small Honiara producers — several independent power producers (IPP) proposals in the past. Currently a major hydro project under development intended as IPP.
19	Private sector contribution (%)	0 The indicator tracks the share of electricity produced by independent power producers under a power purchase agreement.

### FAESP action theme 3 — Energy production and supply

#### 3.1 Petroleum and alternative fuels

No.	FAESP indicators		Explanatory notes
20	Fuel supply security (days)	n.a	The indicator measures the number of days a country can keep operating in case of a petroleum product supply interruption. Calculation used if actual data are not available (size of total petroleum storage (m³)/average petroleum product consumption per day).
21	Fuel supply diversity (%)	0.05	The indicator measures the share of locally produced fuel (biofuel or fossil fuel) as a percentage of total supply. Estimated contribution from bio fuel in the Solomon Islands in 2009.
22	Fuel supply chain arrangements (score)	0	The indicator assesses control of countries over fuel supply chain. (Score system: Joint procurement scheme operational = 2; Participation in preparation of joint procurement arrangements = 1) Solomon Islands is supplied with fuel by two companies, Markwarth and South Pacific Oil Limited (SPOL), that purchase fuel from Exxon Asia Pacific in Singapore. Both companies have separate supply arrangement with Exxon Mobil Asia Pacific. SPOL purchased the assets of Shell when they sold out of Solomon Islands (and other Pacific Islands) in 2006. Markwarth purchased the assets of Exxon Mobil when they sold out of Solomon Islands around 2001. Markwarth has the dominant position, supplying just over 60% of the market.

#### 3.2 Renewable energy

No.	FAESP indicators		Explanatory notes
23	Renewable energy share (%)	0.04	<i>The indicator measures the share of renewable energy as a percentage of total supply for a given year.</i> Referenced calculation takes into account RE contributed mainly from hydro and selected solar photovoltaic (PV) units in Solomon Islands. Contribution from biomass is excluded in this analysis.
24	Renewable resource knowledge (score)	2	The indicator assesses the quality of knowledge of national renewable energy potential. (Score system: Comprehensive assessment of all RE resources including cost for each source = 3; Comprehensive physical assessment of all RE resources = 2; Resource assessments fragmentary, under way = 1) Indicative biomass, solar and hydro data available, some empirical data on feasibility of coconut oil as diesel substitute, comprehensive hydro studies undertaken by the Japan International Cooperation Agency (JICA), economic analysis of biofuel option available.
25	Least-cost RE development plan (score)	0	The indicator assesses if data and information on RE have been translated into a least-cost development plan that gives priority to the most economical RE resource or application. (Score system: Least-cost development plan operational = 2; Least-cost development plan in preparation = 1) Elements of least-cost development plan available — plan not yet fully developed option.

## FAESP action theme 4 — Energy conversion

#### 4.1 Electric power

No.	FAESP indicators		Explanatory notes
26	Generation efficiency (kWh/l)	3.85	<i>The indicator measures the annual average fuel conversion efficiency for diesel generation in power utilities.</i> Referenced figure was calculated for the diesel generators only. Source: SIEA
27	Distribution losses (%)	28	<i>The indicator compares the amount of kWh sold with the amount of kWh sent out from the power station.</i> Source: SIEA
28	Lost supply (SAIDI) — (hours)	323	<i>The indicator tracks electricity outage time (hours of lost supply per customer per year)</i> Referenced data sourced from the Performance Benchmarking for Pacific Power Utilities report.
29	Clean electricity contribution (%)	0.64	<i>The indicator measures the share of renewable energies as a percentage of total electricity supply.</i> Percentage contribution from hydro and selected solar PV units in Solomon Islands. Source SIEA and Department of Energy.

## FAESP action theme 5 — End-use energy consumption

#### 5.1 Transport energy use | 5.2 Energy efficiency and conservation

No.	FAESP indicators		Explanatory notes
30			<i>The indicator tracks retail and wholesale fuel prices for petroleum products (diesel, petrol, MPK, LPG).</i>
		Retail price	Wholesale price
	ADO (USD/l	0.98	0.77 Sourced from SPC data collection mission in country
	ULP(USD/l	0.97	0.75 Sourced from SPC data collection mission in country
	DPK (USD/l	0.88	0.73 Sourced from SPC data collection mission in country
	LPG (USD/kg)	n.a.	n.a. Sourced from SPC data collection mission in country
31	Legislative framework (score)	0	The indicator assesses progress towards a comprehensive legislative framework for import of end-use devices. (Score system: Comprehensive framework covering transport, appliances, buildings = 3; Legislative for one subsector operational = 2; Preparation of frameworks under way = 1) No legislative framework for supporting importation of efficient end-use devices available. Demand side management mentioned in energy policy.
32	Appliance labelling (score)	0	<i>The indicator assesses the state of appliance labelling. (Score system: Compulsory appliance labelling operational = 2; Appliance labelling in preparation = 1)</i> No compulsory appliance labelling available. Imports mostly from New Zealand and Australia, and most products sold carry Australian and New Zealand energy labels.

No.	FAESP indicators		Explanatory notes
33	Availability of national energy balance (score)	1	The indicator assesses the availability of national key energy data to SPC data management unit and other regional stakeholders. (Score system: Comprehensive data sets covering energy input conversion and end-use available 6 months after end of reporting year = 3; Partial data set available within 6 months = 2; Partial data set available within 12 months = 1) Energy Balance available and considered as an important planning tool for energy administration. Detailed reports and statistical booklets yet to be developed.

## FAESP action theme 7 — Financing, monitoring & evaluation

No.	FAESP indicators		Explanatory notes
34	Energy portfolio (USD)	80,423,600	The indicator tracks the flow of funding into the country's energy sector. Grant aid commitments + loan commitments Funding contribution as of 2011 into Solomon Islands.
35	Availability of financing information (score)	2	The indicator assesses the availability of national energy financing information to SPC and other regional stakeholders. (Score system: Comprehensive set of information covering petroleum, utility and government financing = 3; Partial information set available within 6 months = 2; Partial information set available within 12 months = 1) Comprehensive set of information on funding activities available with the Energy Office.
36	Monitoring framework (score)	0	The indicator assesses if there is a national energy sector M&E framework in place. (Score system: M&E framework in place = 1, No M&E framework = 0) No specific monitoring and evaluation framework in place for Solomon Islands in 2009.

#### Solomon I slands energy contacts

Mr Rence Sore	Permanent Secretary
Tel: (677) 21521	Ministry of Mines, Energy and
Fax: 677) 25811	Rural Electrification
Email: ps@mines.gov.sb	
Mr John Korinihona	Director
Tel: (677) 21521/21522	Energy Division
Fax: (677) 25811	Ministry of Mines, Energy and
Email: jkorinihona@solomon.com.sb	Rural Electrification
john@mines.gov.sb	
Mr Martin Sam	General Manager
Tel: (677) 39422	Solomon Islands Electricity Authority
Fax: (677) 39472	Website: www.siea.com.sb
Email: msam@siea.com.sb	

