



# Federated States of Micronesia

Country Energy Security Indicator Profile 2009







# **FSM Country Energy Security Indicator Profile 2009**

**Prepared by the Energy Programme, Economic Development Division  
Secretariat of the Pacific Community  
Suva, Fiji  
2012**

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# Acknowledgement

The *Framework for Action on Energy Security in the Pacific* (FAESP) country energy security indicator report 2009 was prepared by the Energy Programme of the Economic Development Division of the Secretariat of the Pacific Community (SPC).

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



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 energy secure 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. 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

<b>ADB</b>	Asian Development Bank	<b>LPG</b>	liquefied petroleum gas
<b>ADO</b>	automotive diesel oil	<b>MJ</b>	mega joules
<b>Ave.</b>	average	<b>n.a</b>	(data) not available
<b>CPUC</b>	Chuuk Public Utilities Corporation	<b>N/A</b>	(indicator) not applicable
<b>CO<sub>2</sub></b>	carbon dioxide	<b>PICTs</b>	Pacific Island countries and territories
<b>DPK</b>	dual purpose kerosene	<b>PPA</b>	Pacific Power Association
<b>e.</b>	estimate	<b>ppm</b>	parts per million
<b>EEZ</b>	exclusive economic zone	<b>PRISM</b>	Pacific Regional Information System (Statistics for Development, Secretariat of the Pacific Community)
<b>FAESP</b>	Framework for Action on Energy Security in the Pacific	<b>PUC</b>	Pohnpei Utilities Corporation
<b>FSMPC</b>	FSM Petroleum Corporation	<b>PV</b>	photovoltaic
<b>FICs</b>	(The 14) Forum Island countries (SIS and non-SIS)	<b>RE</b>	renewable energy
<b>GDP</b>	gross domestic product	<b>R&amp;D</b>	Department of Resources and Development
<b>GHG</b>	greenhouse gases	<b>SBOC</b>	Office of Statistics, Budget & Economic Management, Overseas Development
<b>GJ</b>	gigajoules	<b>SHS</b>	solar home systems
<b>IPP</b>	independent power producer	<b>SIS</b>	(Forum) smaller island states — Cook Islands, Kiribati, Nauru, Niue, Palau, RMI and Tuvalu. Non-SIS members are Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu.
<b>IDO</b>	industrial diesel oil	<b>ULP</b>	unleaded petrol (another name for motor gasoline)
<b>IUCN</b>	International Union for Conservation of Nature	<b>UNDP</b>	United Nations Development Programme
<b>HFO</b>	heavy fuel oil	<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>kWh</b>	kilowatt hour	<b>YSPSC</b>	Yap State Public Service Corporation
<b>kWp</b>	kilowatt peak		
<b>km</b>	kilometre		
<b>KUA</b>	Kosrae Utilities Authority		



## Country profile

### FSM Energy Policy 2012

‘... the very foundation of our fledgling economies — require that we proactively address the energy issue on a number of levels, especially for electricity and transportation’

*HE Emmanuel Mori*  
*President*

<b>Country</b>	Federated States of Micronesia
<b>Capital</b>	Palikir in Pohnpei State
<b>Capital island</b>	Pohnpei
<b>Population</b>	103,629 (PRISM 2009 projection, 51% males); 107,008 (2000 census)
<b>Land area</b>	701 km <sup>2</sup>
<b>Max height above sea-level</b>	791 m (Dolohmwar)
<b>Geography</b>	The islands in Federated States of Micronesia (FSM) vary geologically, ranging from isolated reefs and atolls rising barely above sea-level to peaks of several hundred meters on the high islands of Pohnpei and Kosrae. There are 607 islands (65 inhabited) in FSM, located north-to-northeast of Papua New Guinea, extending east to west over 2,500 km, and over 1,000 km from north to south. There are four major island groups: Pohnpei (345.4 km <sup>2</sup> ), Kosrae (109.6 km <sup>2</sup> ), Yap (121.2 km <sup>2</sup> ) and Chuuk (118 km <sup>2</sup> ).
<b>Location</b>	6°55'N latitude, 158°07'E longitude
<b>EEZ</b>	2,900,000 km <sup>2</sup>

<b>Climate</b>	Tropical; heavy year-round rainfall, especially in the eastern islands; located on the southern edge of the typhoon belt with occasional severe impact. Northeast trade winds heavily influence the tropical climate, with strong trade winds prevailing from December to April and periods of weaker winds and doldrums occurring from May to November. Rainfall is extremely high on the high volcanic islands (Kosrae, Pohnpei and Chuuk) and can exceed 10,160 mm per year. FSM is affected by storms and typhoons that are generally more severe in the western islands and by periods of drought and heavy rainfall associated with the El Niño southern oscillation (ENSO).
<b>Rainfall</b>	Rainfall is high, varying from about 3,000 mm per annum on drier islands to over 10,000 mm per annum in Pohnpei.
<b>Mean temperature</b>	27°C
<b>Economy</b>	The leading producers of income include fisheries, aid, agriculture, tourism; exports include fish, copra, & trochus shell.
<b>GDP per capita</b>	USD 3,995.86
<b>Currency</b>	US dollar
<b>Languages</b>	English (official and common language), Chuukese, Kosraen, Pohnpeian, Yapese, Ulithian
<b>Government</b>	Independent and in free association arrangements with the USA
<b>Country representative to SPC</b>	Secretary for Foreign Affairs Department of Foreign Affairs P O Box PS 123, Palikir Station, Pohnpei Federated States of Micronesia 96941 Tel: (691) 320 2641 / 320 2613 Fax: (691) 320 2933 / 320 1626 Email: <a href="mailto:foreignaffairs@mail.fm">foreignaffairs@mail.fm</a>

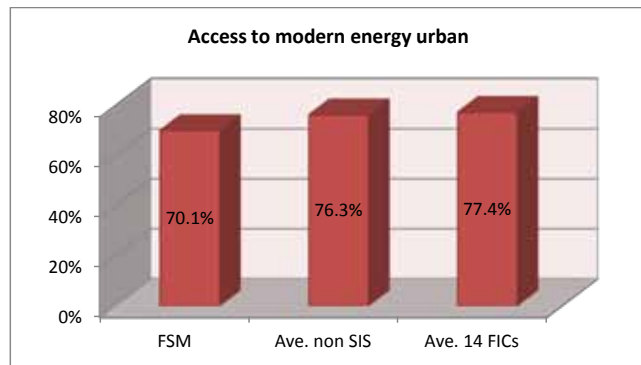
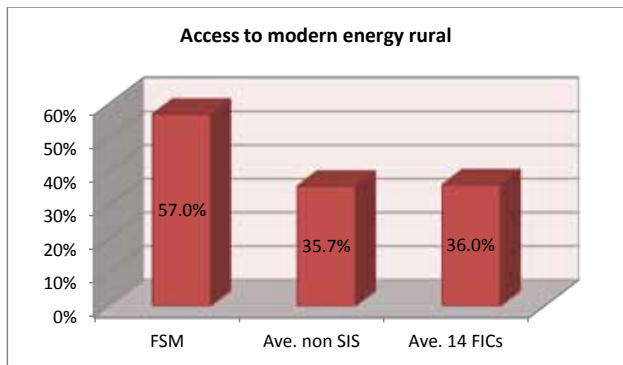
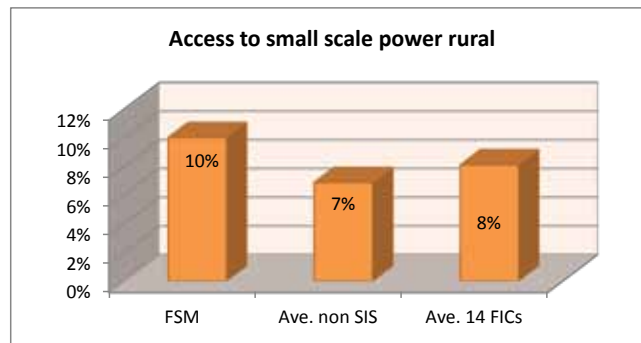
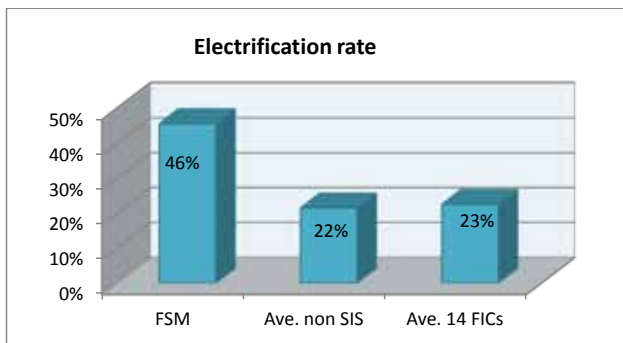
FSM is highly dependent on imported petroleum fuels to sustain its economy. Petroleum fuels (specifically diesel) are used for both electricity generation and transportation with the former being the major user. In 2009, around 34.9 million litres of diesel, 23.8 million litres of petrol and 5.8 million litres of kerosene were imported into the country. Fuel import for 2009 stood in the vicinity of USD 40.05 million with the current gross domestic product (GDP) of USD 253.5 million. Fuel is mostly imported to FSM via Guam. In 2008, FSM Petroleum Corporation (FSMPC), the government-owned enterprise, was established and took over from Mobil as the only fuel distributor in FSM which currently serves all four FSM states.

In the power sector, each of the four states has its own utility company. In 2009, total power generated from the states equalled 68 GWh of electricity, of which 53 GWh was sold, recording an estimated distribution loss of 27.5% nationally. Of the grid electricity generated in 2009, virtually all of it was sourced from petroleum fuels, with a mere 0.08% contribution from the grid-connected solar photovoltaic (PV) system in Kosrae. Over 18 million litres of diesel fuel oil were consumed for electricity generation in 2009. According to the 2000 census report, around 46% of households in the whole of FSM are connected to the electricity grid network. An additional 7.91% have access to some form of electricity from solar home systems and small generators. In 2009, total contribution from renewable energy sources (mainly solar PV grid and stand-alone units) stood at 1,255 GJ and accounted for 0.04% of total energy consumed in 2009.

*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 FSM's situation compared to other Forum smaller island states and Forum Island countries.*

# FAESP key energy security outcome 1 — access to energy

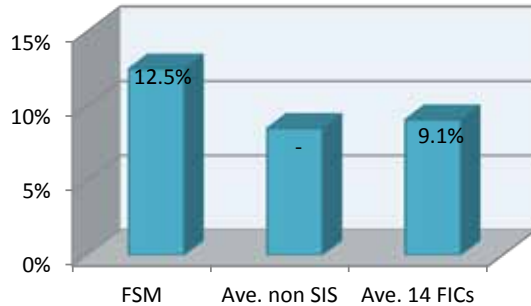
No.	FAESP indicators		Explanatory notes																				
1	Electrification rate (%)	46	<p><i>The indicator tracks the share of households actually connected to a utility grid.</i></p> <p>FSM population and household census 2000 places grid connection at around 45.67% for the whole of FSM. This is rounded off to 46% as per indicator reporting. Based on the 2000 census data, the percentage of households with access to grid-connected electricity is as follows:</p> <table border="1"> <thead> <tr> <th>National</th> <th>Chuuk</th> <th>Kosrae</th> <th>Pohnpei</th> <th>Yap</th> </tr> </thead> <tbody> <tr> <td>45.67</td> <td>19.01</td> <td>97.79</td> <td>63.43</td> <td>56.68</td> </tr> </tbody> </table>	National	Chuuk	Kosrae	Pohnpei	Yap	45.67	19.01	97.79	63.43	56.68										
National	Chuuk	Kosrae	Pohnpei	Yap																			
45.67	19.01	97.79	63.43	56.68																			
2	Access to small scale power rural — Chuuk, Kosrae, Yap (%)	10	<p><i>The indicator tracks the share of rural households with access to basic electrification (solar, pico hydro, small wind, community grid).</i></p> <p>The 2000 census report does not distinguish between urban and rural centres. For this analysis, the capital state is separated from the other three states for comparison purposes. Based on the 2000 census report, the percentage of households in Chuuk, Kosrae and Yap with access to small-scale power stands at 10.02%. This is rounded off to 10% as per indicator reporting.</p> <table border="1"> <thead> <tr> <th>average — Chuuk, Kosrae &amp; Yap</th> <th>Chuuk</th> <th>Kosrae</th> <th>Pohnpei</th> <th>Yap</th> </tr> </thead> <tbody> <tr> <td>10.02</td> <td>45.01</td> <td>1.07</td> <td>13.00</td> <td>1.87</td> </tr> </tbody> </table>	average — Chuuk, Kosrae & Yap	Chuuk	Kosrae	Pohnpei	Yap	10.02	45.01	1.07	13.00	1.87										
average — Chuuk, Kosrae & Yap	Chuuk	Kosrae	Pohnpei	Yap																			
10.02	45.01	1.07	13.00	1.87																			
3	Access to modern energy rural — Chuuk, Kosrae, Yap (%)	57	<p><i>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.</i></p> <p>The 2000 census report does not distinguish between urban and rural centres but more by states. Based on the report, the share of households in Chuuk, Kosrae and Yap with access to modern forms of energy is tabulated as follows. No specific data were provided for population access to types of lighting. Estimation is based on the access to grid-connected electricity and the percentage of households with access to kerosene stoves in the 2000 census report was used to estimate access to modern forms of lighting.</p> <table border="1"> <thead> <tr> <th></th> <th>average — Chuuk, Kosrae &amp; Yap</th> <th>Chuuk</th> <th>Kosrae</th> <th>Yap</th> </tr> </thead> <tbody> <tr> <td>Access to modern forms of cooking</td> <td>38.04</td> <td>26.61</td> <td>90.89</td> <td>50.18</td> </tr> <tr> <td>Access to modern forms of lighting</td> <td>59.08</td> <td>43.57</td> <td>100</td> <td>90.49</td> </tr> <tr> <td>Access to modern forms of energy</td> <td>56.73</td> <td>35.09</td> <td>95.45</td> <td>70.33</td> </tr> </tbody> </table>		average — Chuuk, Kosrae & Yap	Chuuk	Kosrae	Yap	Access to modern forms of cooking	38.04	26.61	90.89	50.18	Access to modern forms of lighting	59.08	43.57	100	90.49	Access to modern forms of energy	56.73	35.09	95.45	70.33
	average — Chuuk, Kosrae & Yap	Chuuk	Kosrae	Yap																			
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Access to modern forms of energy	56.73	35.09	95.45	70.33																			
4	Access to modern energy urban — Pohnpei (%)	70	<p><i>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.</i></p> <p>Based on the 2000 census report, access to modern forms of cooking in Pohnpei stands at 51.84%. Estimated access to modern forms of lighting in Pohnpei is 88.45%. The estimate provided is the average calculated from access to modern lighting and cooking, which stands at 70.15%. This is rounded off to 70% as per indicator reporting.</p>																				



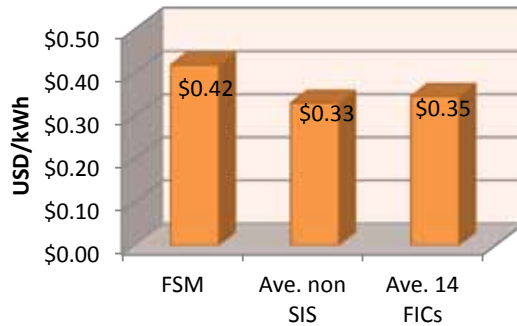
## FAESP key energy security outcome 2 — affordability

No.	FAESP indicators		Explanatory notes																																										
5	Macro-economic affordability (%)	12.5	<p><i>The indicator tracks fuel imports as a percentage of GDP. The higher the figure, the more vulnerable an economy is towards world market price volatility.</i></p> <p>The macro-economic affordability was calculated from reference data provided by the FSM Bureau of Statistics that is, fuel imports over total GDP (USD 31,704,000 / USD 253,500,000). Latest GDP data available are from 2008. 2010 fuel import figures from diesel (ADO and IDO), motor gasoline (mogas, ULP), kerosene (DPK) and cooking gas (LPG) were considered in this analysis.</p>																																										
6	Electricity tariff (USD/kWh)	0.42	<p><i>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 PICs are adjusted several times in a year.</i></p> <p>Refer to the table on the right for reference calculation of the average tariff.</p> <table border="1" data-bbox="847 378 1469 673"> <thead> <tr> <th colspan="2">Electricity tariff</th> <th>National</th> <th>Chuuk</th> <th>Kosrae</th> <th>Pohnpei</th> <th>Yap</th> </tr> </thead> <tbody> <tr> <td>Government</td> <td>USD/kWh</td> <td>0.505</td> <td>0.553</td> <td>0.409</td> <td>0.321</td> <td>0.737</td> </tr> <tr> <td>Commercial block</td> <td>USD/kWh</td> <td>0.399</td> <td>0.533</td> <td>0.353</td> <td>0.321</td> <td>0.388</td> </tr> <tr> <td>Industrial block</td> <td>USD/kWh</td> <td>0.399</td> <td>0.533</td> <td>0.353</td> <td>0.321</td> <td>0.388</td> </tr> <tr> <td>Residential block</td> <td>USD/kWh</td> <td>0.371</td> <td>0.513</td> <td>0.331</td> <td>0.321</td> <td>0.318</td> </tr> <tr> <td>Average</td> <td>USD/kWh</td> <td>0.418</td> <td>0.533</td> <td>0.361</td> <td>0.321</td> <td>0.458</td> </tr> </tbody> </table> <p>Referenced electricity tariff calculation based from the four utilities in FSM in 2009</p>	Electricity tariff		National	Chuuk	Kosrae	Pohnpei	Yap	Government	USD/kWh	0.505	0.553	0.409	0.321	0.737	Commercial block	USD/kWh	0.399	0.533	0.353	0.321	0.388	Industrial block	USD/kWh	0.399	0.533	0.353	0.321	0.388	Residential block	USD/kWh	0.371	0.513	0.331	0.321	0.318	Average	USD/kWh	0.418	0.533	0.361	0.321	0.458
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7	Electricity lifeline (%)	n.a	<p><i>Relation between average tariff and lifeline tariff if a lifeline tariff exists.</i></p> <p>Electricity lifeline tariff is applied to Kosrae and Chuuk in FSM. However, relevant data were not provided for 2009 during data collection.</p>																																										
8	Household energy expenditure load (%)	19	<p><i>The indicator tracks average household expenditure for energy per year as a percentage of average household income.</i></p> <p>The analysis was based on the 2005 HIES. Reporting gives a breakdown of expenditure to the annual household operation expenditure and annual transport expenditure.</p> <table border="1" data-bbox="408 922 938 986"> <thead> <tr> <th>National</th> <th>Chuuk</th> <th>Kosrae</th> <th>Pohnpei</th> <th>Yap</th> </tr> </thead> <tbody> <tr> <td>19.14</td> <td>20.70</td> <td>17.22</td> <td>18.49</td> <td>21.19</td> </tr> </tbody> </table>	National	Chuuk	Kosrae	Pohnpei	Yap	19.14	20.70	17.22	18.49	21.19																																
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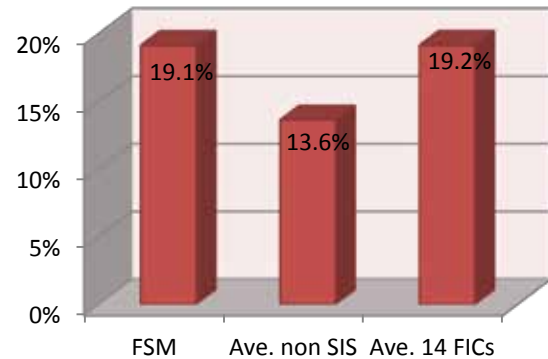
### Macro-economic affordability



### Electricity tariff

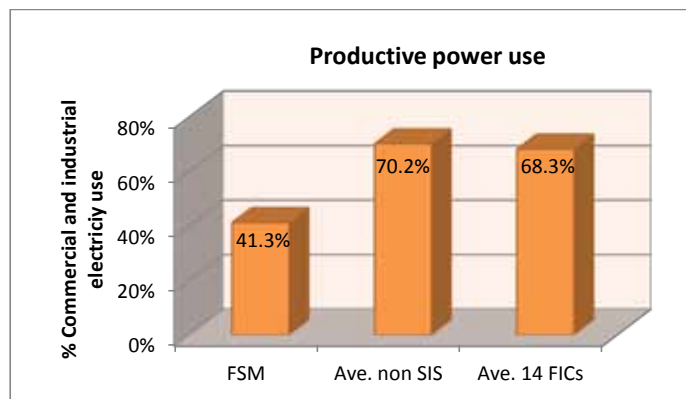
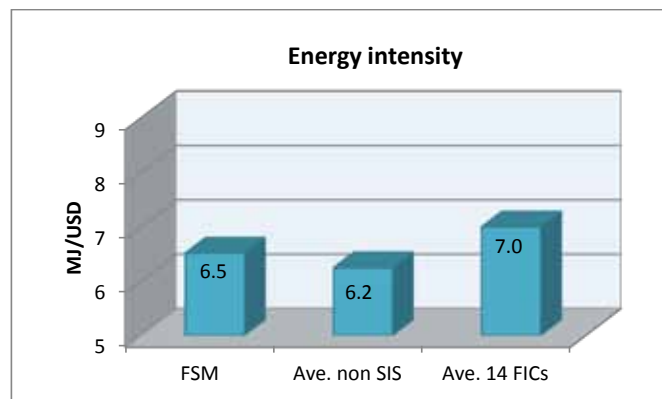


### Household energy expenditure load



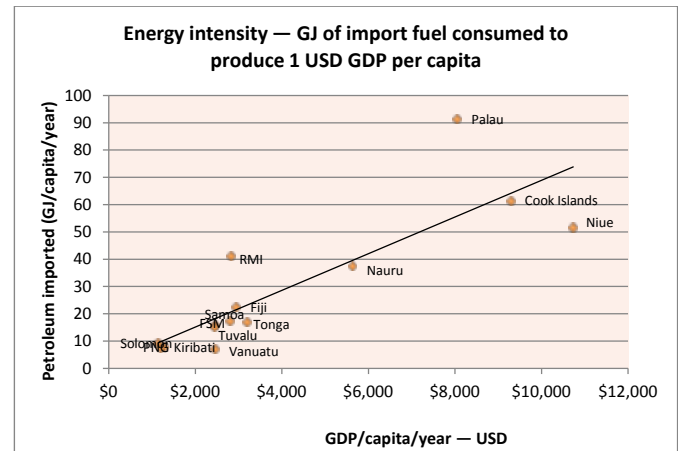
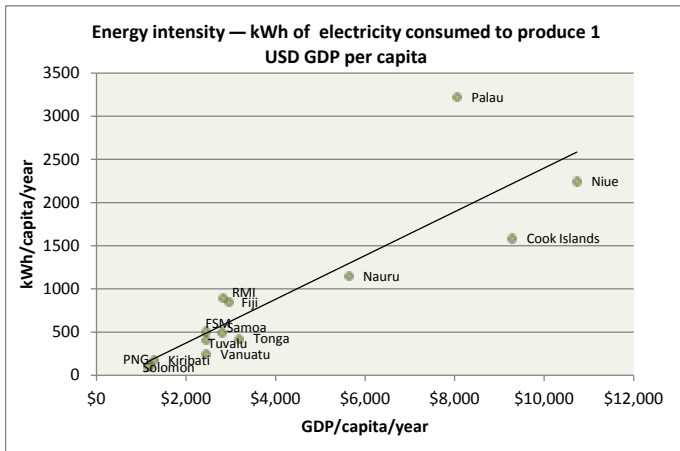
## FAESP key energy security outcome 3 — efficiency and productivity

No.	FAESP indicators		Explanatory notes				
9	Energy intensity (MJ/ USD)	6.5	<i>The indicator tracks the amount of energy utilised to produce 1 USD of GDP.</i>				
			National	Chuuk	Kosrae	Pohnpei	Yap
			6.5	1.4	11.4	9.4	5.9
10	Productive power use (%)	41.3	<i>The indicator tracks the share of commercial and industrial use of electricity in total supply.</i>				
			National	Chuuk	Kosrae	Pohnpei	Yap
			41.3	45.7	36.1	42.1	65.6





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 be having higher than average energy consumption levels per person when compared to their 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 action theme 1 — Leadership, governance, coordination and partnership

No.	FAESP indicators	Explanatory notes
13	Status of energy administration (score)	<p>1 <i>The indicator assesses the status the energy administration has in the country. (Score system: Energy ministry = 3; Energy department = 2; Energy office = 1)</i></p> <p>Currently, the FSM energy office is under the Department of Resource and Development. Staffing structure mainly consists of one staff. Energy implementation work is undertaken through the FSM energy working group. The energy working group consists of members from the power utilities, and representation from the national and state offices. At the state level, there is a state energy workgroup, which consists of members from the state utility and the state office.</p>
14	Energy legislation (score)	<p>0 <i>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)</i></p> <p>There is no energy act for FSM. In 2009, FSM status on energy legislation involved the drafting of an energy policy and action plan. This was finalised and submitted to FSM congress for the first time in 2010. A revised version was submitted again in 2011 with endorsement in 2012.</p>
15	Co-ordination and consultation (score)	<p>1 <i>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)</i></p> <p>FSM actively participates in regional activities. FSM has four state-level power utilities and all of them are members of PPA.</p>

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

No.	FAESP indicators		Explanatory notes
16	Energy planning status (score)	0	<p><i>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&amp;E framework = 3; Subsector plan operational with M&amp;E framework = 2; Energy sector plans in preparation = 1)</i></p> <p>Nothing formally endorsed in 2009. Draft national energy policy and action plan was developed in 2010. This was endorsed in 2012. Implementation of activities in the action plan will be driven from the state level. All state common issues are addressed at the national level, which includes awareness activities, standards, issues, etc.</p>
17	Energy sector regulation (score)	1	<p><i>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)</i></p> <p>Subsector regulation only is established for FSM especially on fuel pricing only. Electricity tariffs are not regulated but are set by the utility companies.</p>
18	Enabling framework for private sector participation (score)	0	<p><i>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)</i></p> <p>In 2009, no specific legislation was in place to support private sector participation in supplying electricity to the utility grid. Interest shown including independent power producers (IPPs). But nothing yet on regulation to allow for the inclusion of IPPs.</p>
19	Private sector contribution (%)	0	<p><i>The indicator tracks the share of electricity produced by independent power producers under a power purchase agreement.</i></p> <p>FSM in 2009 had no IPPs that sell to the utilities in any of the states.</p>

## 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	<p><i>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 (m<sup>3</sup>)/average petroleum product consumption per day).</i></p> <p>Data collection could not acquire relevant fuel supply security data information for the whole FSM.</p>
21	Fuel supply diversity (%)	0	<p><i>The indicator measures the share of locally produced fuel (biofuel or fossil fuel) as a percentage of total supply.</i></p> <p>In 2009, no major biofuel projects were undertaken in FSM.</p>
22	Fuel supply chain arrangements (score)	1	<p><i>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)</i></p> <p>FSM, together with RMI and Palau, were part of the first group of countries that pursued the bulk purchasing of petroleum initiative from 2005 to 2007. However, the joint procurement scheme did not eventuate as each of the countries had their own fuel supply contracts and arrangements. FSMPC, the government owned company, was established in 2008 and is responsible for the supply of fuels to the four FSM states. Fuels are mainly imported from Guam, which has two supply routes to FSM. One fuel supply route from Guam covers Kosrae, Pohnpei and Chuuk state, and also covers RMI. The second supply route from Guam covers Yap state, and also includes Palau.</p>

## 3.2 Renewable energy

No.	FAESP indicators		Explanatory notes										
23	Renewable energy share (%)	0.04	<p><i>The indicator measures the share of renewable energy as a percentage of total supply for a given year.</i></p> <p>The following estimate is calculated from the solar units installed by the EU EDF 9 — REP-5 (support to the energy sector in five ACP Pacific Island countries programme) in FSM. Use of biomass for domestic cooking is excluded from the analysis. A 2MW hydro system is installed in Pohnpei but the plant has not been working since 2006.</p> <table border="1"> <thead> <tr> <th>National</th> <th>Chuuk</th> <th>Kosrae</th> <th>Pohnpei</th> <th>Yap</th> </tr> </thead> <tbody> <tr> <td>0.04</td> <td>0.10</td> <td>0.10</td> <td>0.02</td> <td>0.05</td> </tr> </tbody> </table>	National	Chuuk	Kosrae	Pohnpei	Yap	0.04	0.10	0.10	0.02	0.05
National	Chuuk	Kosrae	Pohnpei	Yap									
0.04	0.10	0.10	0.02	0.05									
24	Renewable resource knowledge (score)	1	<p><i>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)</i></p> <p>Energy data sets fragmentary on renewable resources, a number of studies have been undertaken on biomass, solar, hydro and wind.</p>										
25	Least-cost RE development plan (score)	0	<p><i>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)</i></p> <p>No specific least-cost development plan was in place for FSM in 2009.</p>										

# FAESP action theme 4 — Energy conversion

## 4.1 Electric power

No.	FAESP indicators		Explanatory notes														
26	Generation efficiency (kWh/l)	3.59	<p><i>The indicator measures the annual average fuel conversion efficiency for diesel generation in power utilities.</i>            Datasets referenced from the 2011 KEMA report and the FSM energy office.</p> <table border="1"> <thead> <tr> <th>National</th> <th>Chuuk</th> <th>Kosrae</th> <th>Pohnpei</th> <th>Yap</th> </tr> </thead> <tbody> <tr> <td>3.59</td> <td>3.33</td> <td>3.67</td> <td>3.66</td> <td>3.71</td> </tr> </tbody> </table>					National	Chuuk	Kosrae	Pohnpei	Yap	3.59	3.33	3.67	3.66	3.71
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27	Distribution losses (%)	27.5	<p><i>The indicator compares the amount of kWh sold with the amount of kWh sent out from the power station.</i>            Datasets referenced from the 2011 KEMA report and the FSM energy office.</p> <table border="1"> <thead> <tr> <th>National</th> <th>Chuuk</th> <th>Kosrae</th> <th>Pohnpei</th> <th>Yap</th> </tr> </thead> <tbody> <tr> <td>27.5</td> <td>47.5</td> <td>18.4</td> <td>23.2</td> <td>20.9</td> </tr> </tbody> </table>					National	Chuuk	Kosrae	Pohnpei	Yap	27.5	47.5	18.4	23.2	20.9
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28	Lost supply (SAIDI) — (hours)	n.a	<p><i>The indicator tracks electricity outage time (hours of lost supply per customer per year).</i>            No data were available.</p>														
29	Clean electricity contribution (%)	0.26	<p><i>The indicator measures the share of renewable energies as a percentage of total electricity supply.</i>            Percentage calculated is mainly accounted from the EU-EDF 9 REP-5 project. This includes the grid-connected solar PV units in Kosrae and the mini-grid and stand-alone units in the other states.</p> <table border="1"> <thead> <tr> <th>National</th> <th>Chuuk</th> <th>Kosrae</th> <th>Pohnpei</th> <th>Yap</th> </tr> </thead> <tbody> <tr> <td>0.26</td> <td>0.25</td> <td>0.92</td> <td>0.14</td> <td>0.29</td> </tr> </tbody> </table>					National	Chuuk	Kosrae	Pohnpei	Yap	0.26	0.25	0.92	0.14	0.29
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# 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	Retail fuel prices	<i>The indicator tracks retail and wholesale fuel prices for petroleum products (diesel, petrol, MPK, LPG).</i>		
		Retail price	Wholesale price	
	ADO (USD/l)	1.15	0.96	Sourced from Customs via FSM Energy office
	ULP (USD/l)	1.04	0.90	Sourced from Customs via FSM Energy office
	DPK (USD/l)	1.33	1.10	Sourced from Customs via FSM Energy office
	LPG (USD/kg)	n.a	n.a	No data were available for 2009. Data gathered from stakeholder visit roughly points to USD 4.30/kg in Pohnpei.
31	Legislative framework (score)	0	<p><i>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 framework for one subsector operational = 2; Preparation of frameworks under way = 1)</i></p> <p>There is no comprehensive legislative framework in place for regulating the importation of end-use devices in FSM. However, plans for pursuing energy efficiency activities targeting importation of efficient appliances is indirectly mentioned in the 2012 energy policy document ‘Promote appropriate incentives (including taxes, subsidies and tariffs) to encourage efficient energy use and minimisation of waste.’</p>	
32	Appliance labelling (score)	0	<p><i>The indicator assesses the state of appliance labelling. (Score system: Compulsory appliance labelling operational = 2; Appliance labelling in preparation = 1)</i></p> <p>No compulsory appliance labelling programme adopted in FSM in 2009. Imported products in FSM predominantly carry American energy rating labels.</p>	



## FAESP action theme 6 — Energy data and information

No.	FAESP indicators		Explanatory notes
33	Availability of national energy balance (score)	0	<p><i>The indicator assesses 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)</i></p> <p>No national energy balance is available for FSM. Energy datasets available are fragmented with irregular data reporting.</p>

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

No.	FAESP indicators		Explanatory notes
34	Energy portfolio (USD)	28,200,000	<p><i>The indicator tracks the flow of funding into the country's energy sector. Grant aid commitments + loan commitments</i></p> <p>The following compilation accounts for funding projects on the ground as of 2011.</p>
35	Availability of financing information (score)	2	<p><i>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)</i></p> <p>Financial data sets are readily available with the energy office, where rough estimates can be provided by the energy office. Detailed financial accounts from the Ministry of Finance will however, take a month or two.</p>
36	Monitoring framework (score)	0	<p><i>The indicator assesses if there is a national energy sector M&amp;E framework in place. (Score system: M&amp;E framework in place = 1, No M&amp;E framework = 0)</i></p> <p>No specific monitoring and evaluation framework is in place for FSM energy sector activities in 2009.</p>

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