Appliance Efficiency in Pacific Island Countries

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Overview

• The Pacific Countries and their electricity use
• Appliance energy efficiency in the Pacific
• The Pacific Appliance Labelling and Standards program (PALS)
• Estimating the impacts and benefits
• Lighting – a special problem
• What happens next
PALS COUNTRIES
Pacific Appliance Labelling and Standards

Papua New Guinea
Solomon Islands
Vanuatu
Australia (Project aid donor)

Kiribati
Tuvalu
Samoa
Fiji
Cook Islands
Niue
Tonga
Some facts

• Pacific Forum has 18 member states
  • The Secretariat of the Pacific Forum (SPC) is located in Noumea, New Caledonia and Suva, Fiji

• 11 are in the South Pacific (English speaking)
  • 10 of these participate in the PALS program (see next slide)

• 2 are in the South Pacific (French speaking)
  • New Caledonia, French Polynesia

• 3 are in the North Pacific (English speaking)
  • Marshall Islands, Federated States of Micronesia, Palau

• Australia and New Zealand are members
Many similarities between Pacific countries...

• Small land areas, often scattered across many islands and atolls
• Huge maritime economic zones
• Tropical climates, vulnerable to extreme weather events
• Both traditional ways of life (in villages) and growing urban areas
• No equipment manufacturing – all imported
  • Appliances, air conditioners, lights, cars etc
• Good potential for renewable energy development, but the marginal electricity generation fuel is imported diesel
• Every kWh of electricity saved replaces diesel imports
But differences as well...

• Some states have ‘least developed’ status, most are ‘developing’, a few are ‘middle income’

• Population ranges from 7.3 million (Papua New Guinea) to 1,600 (Niue – the smallest independent state in the world)

• Different official languages – mostly English, some French
  • Also local and ‘combined’ languages (Tok Pisin in PNG, Bislama in Vanuatu)

• Between 100% and 12% of household have access to mains voltage power
  • More have low voltage solar, but cannot run standard voltage appliances

• North Pacific was under USA sphere of influence – 110V, 60Hz supply

• South Pacific under British influence – 230V, 50 Hz supply
<table>
<thead>
<tr>
<th>Pacific Island Country</th>
<th>Population ('000)</th>
<th>Persons per Household</th>
<th>Households (HH)</th>
<th>Electrification rate</th>
<th>HH with 230V Electricity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook Islands</td>
<td>19,500</td>
<td>4.0</td>
<td>4,875</td>
<td>97%</td>
<td>4,729</td>
</tr>
<tr>
<td>Fiji</td>
<td>865,611</td>
<td>4.5</td>
<td>191,589</td>
<td>70%</td>
<td>134,112</td>
</tr>
<tr>
<td>Kiribati</td>
<td>112,850</td>
<td>7.5</td>
<td>15,087</td>
<td>51%</td>
<td>7,695</td>
</tr>
<tr>
<td>Niue</td>
<td>1,611</td>
<td>5.8</td>
<td>280</td>
<td>100%</td>
<td>280</td>
</tr>
<tr>
<td>PNG</td>
<td>7,300,000</td>
<td>7.7</td>
<td>948,052</td>
<td>12%</td>
<td>113,766</td>
</tr>
<tr>
<td>Samoa</td>
<td>219,998</td>
<td>7.0</td>
<td>31,428</td>
<td>96%</td>
<td>30,171</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>595,613</td>
<td>5.5</td>
<td>108,293</td>
<td>13%</td>
<td>14,078</td>
</tr>
<tr>
<td>Tonga</td>
<td>120,898</td>
<td>5.7</td>
<td>21,210</td>
<td>87%</td>
<td>18,453</td>
</tr>
<tr>
<td>Tuvalu</td>
<td>12,373</td>
<td>6.0</td>
<td>2,062</td>
<td>98%</td>
<td>2,021</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>243,304</td>
<td>5.0</td>
<td>48,661</td>
<td>22%</td>
<td>10,705</td>
</tr>
<tr>
<td>PALS PICs totals</td>
<td>9,491,758</td>
<td>6.9</td>
<td>1,371,538</td>
<td>24%</td>
<td>336,010</td>
</tr>
</tbody>
</table>
Electricity Use

• Only Fiji, PNG and Vanuatu have significant industry and mining
• Most electricity use is for households, small businesses, offices, hotels, resorts, government buildings, hospitals, schools, public lighting
• Electricity use in almost every country (not counting industry, mining):
  • About 25% is for refrigerators and freezers
  • About 25% is for air conditioning
  • About 25% for lighting
  • 25% for everything else.
• Same types of appliances and lights in homes and small businesses
  • So improving product efficiency effective across most sectors
Pacific appliance energy efficiency programs

• Pacific Forum Secretariat first investigated energy labelling in 1996
• Study recommended minimum energy standards & labelling using Australian and New Zealand labels
  • Most appliances came from there and consumers recognised the label
• Fiji started voluntary labelling in 2002
• Decided to make it mandatory in 2007
• Finally became mandatory at end of 2011
• Studies for other countries as well, but no outcomes
PALS Program

• Australian government aid grant to SPC in 2011 - $3 million
• Aim: to help Pacific Countries set up mandatory standards & labelling
• 13 countries made written agreements to take part
  • The 3 North Pacific Countries left the program later
• Aim: to have standards and labelling in 5 countries by June 2015
• Program was extended to June 2019 (without more money)
• Target was achieved, but in 7 years, not 3 years
• Reasons: changes of government, changes of legislation etc.
  • For example, decision to cover whole energy sector, not just appliances
### Status of countries at June 2019

<table>
<thead>
<tr>
<th>Pacific Island Country</th>
<th>Status of S&amp;L</th>
<th>Date of effect</th>
<th>Refrig &amp; Freezers</th>
<th>Aid conditioners</th>
<th>Lighting products</th>
<th>Other products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiji</td>
<td>Enacted</td>
<td>1/2012</td>
<td>✓</td>
<td>Proposed</td>
<td>Proposed</td>
<td>Televisions</td>
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<tr>
<td>Tuvalu</td>
<td>Enacted</td>
<td>4/2016</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Vanuatu</td>
<td>Enacted</td>
<td>3/2017</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Solomon Is</td>
<td>Enacted</td>
<td>4/2017</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Samoa</td>
<td>Enacted</td>
<td>5/2018</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Kiribati</td>
<td>Draft 2018</td>
<td>NA</td>
<td>Proposed</td>
<td>Proposed</td>
<td>Proposed</td>
<td></td>
</tr>
<tr>
<td>Tonga</td>
<td>Draft 2017</td>
<td>NA</td>
<td>Proposed</td>
<td>Proposed</td>
<td>Proposed</td>
<td></td>
</tr>
<tr>
<td>Cook Is</td>
<td>Draft 2014</td>
<td>NA</td>
<td>Proposed</td>
<td>Proposed</td>
<td>Proposed</td>
<td>Washers</td>
</tr>
<tr>
<td>Niue</td>
<td>Draft 2018</td>
<td>NA</td>
<td>Proposed</td>
<td>Proposed</td>
<td>Proposed</td>
<td></td>
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<td>Draft 2017</td>
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<td></td>
</tr>
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</table>
Which energy label to choose?

• Before law was made, appliance could have any type of energy label, or no label at all
• There were different energy labels depending on where the appliance came from
• Buyers were confused – could not compare energy efficiency of products with different labels
• It was necessary to pick one type of label only – consumer surveys showed that Australian and New Zealand labels were the most familiar
Most common energy labels in the Pacific

Australia and New Zealand

China

Singapore

Hong Kong, China
Less common energy labels in the Pacific

USA
(Mainly north Pacific)

Old EU label
(Mainly Francophone countries)

New EU label
Fake labels (created by the supplier?)
The labelling rules in PALS countries

• All products covered by the law MUST be tested to the correct Australian/New Zealand Standard
  • This means refrigerators, freezers and air conditioners
• They must carry the correct Australian/New Zealand energy label
• It is illegal to display any other type of energy label
• Unfortunately, the law does not cover ‘non-regulated’ products
  • So clothes washers, etc can still carry other types of energy labels
  • This weakens the impact of the energy labelling scheme
• If suppliers break these rules, they have to pay a fine and the products can be destroyed or re-exported (at the importer’s cost)
To help compliance, models must be registered.
The Pacific Appliance Database (PAD)

• The PALS program set up an online system in 2018
  • http://pad.spc.int/

• Consumers can check which models are available in their country, and see their star ratings and kWh/yr values

• Importers can make registration applications online
  • Can upload tests reports etc

• Regulators can check applications online, and if correct can issue a registration certificate electronically

• Where products are already registered in Australia or New Zealand, the PAD can import the technical details direct from their database
Lighting

• Lighting products are also covered by the regulations
  • Traditional incandescent lamps are no longer legal to import
  • Linear fluorescent tubes are OK if not less than 25mm diameter
  • Compact fluorescent lamps OK if registered in Australia or New Zealand
  • Fluoro ballasts OK if electronic
• These cover old lighting technologies, so have little effect
  • PALS decided not to put too much effort into monitoring compliance
• Lighting in the Pacific, like everywhere else, is moving to LEDS
• Many LED imports are very poor quality so standards are needed
• Waiting for Australia to adopt LED standards, and will follow those
Conclusions

• PALS started in 2011, with aim of finishing in 2015
• It took until 2019 to achieve the objectives: similar appliance energy laws covering 5 Pacific countries
  • Another 5 on the way, but now that PALS has finished not sure how long
• Legislative programs in developing countries take a long time to set up, but once they are in place they are very effective
• A regional approach is better than countries acting separately
• There is an independent evaluation of the program at http://prdrse4all.spc.int/data/pacific-appliance-labelling-and-standards-programme-pals-final-evaluation-final-report
THANK YOU – ANY QUESTIONS?