Pacific Region Infrastructure Facility




PRIF is a multi-development partner coordination, research and technical facility which supports infrastructure development in the Pacific

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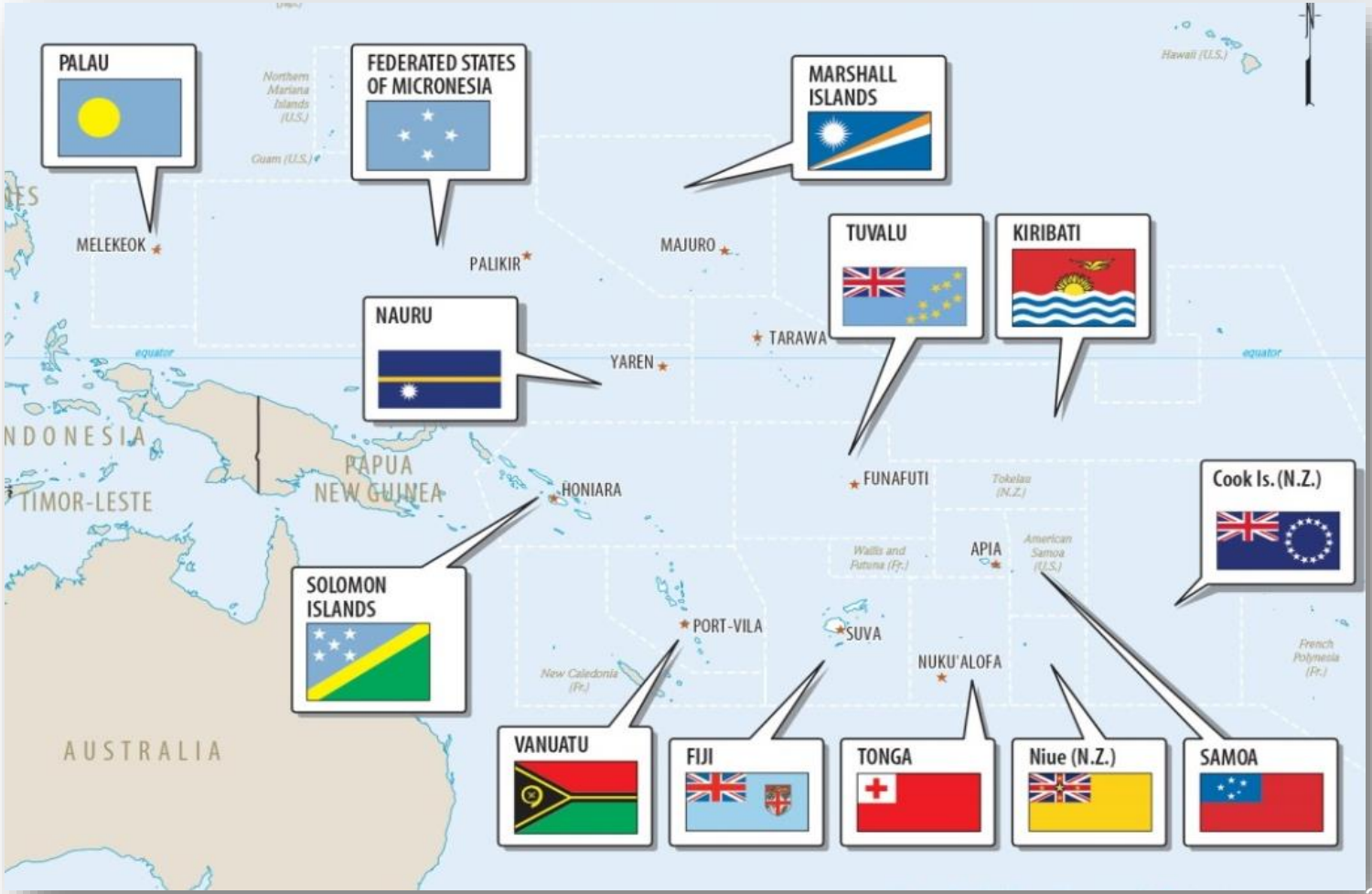

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Published in association with:

Pacific Community
Communauté du Pacifique

PPA
PACIFIC POWER ASSOCIATION

+ consulations with industry, governments, regional organisations, stakeholders.

Alternative energy sources for the Pacific

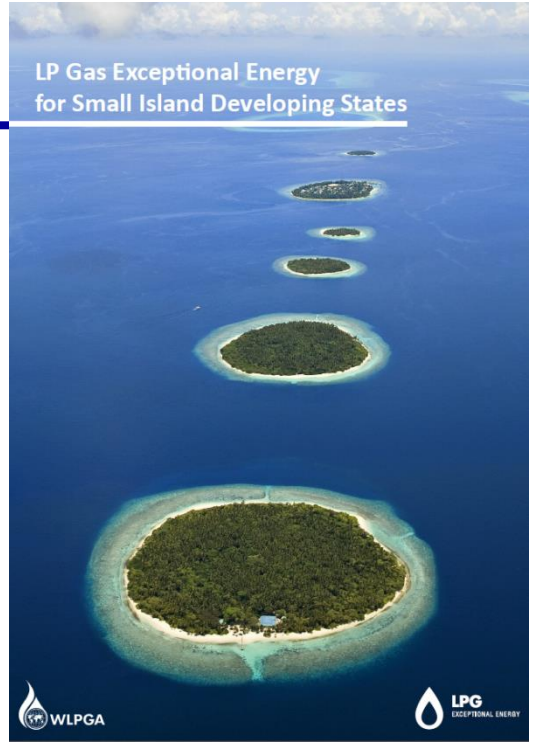
Framework for Action on Energy Security in the Pacific (FAESP): 2010–2020

- adopted by Pacific Forum Leaders in 2010

Link to Donors' Country Partnership Strategy/ Regional Cooperation Strategy

- Energy Leaders' Summit,
  Tonga preceding Summit in Auckland, March 2013
- PPA Annual Conference in Palau in July 2013.

SIDS conference – Sept 2014



New sustainable energy partnerships

Example:
The Secretariat of the Pacific Community (SPC) is the lead regional agency on sustainable energy in the Pacific.

Cooking for Life Partnership
Mr Solomone Fifita, SPC

Partnership between SPC, governments, NGOs, women's groups, private sector and development partners promotes the use of liquefied petroleum gas and improved, cleaner, safer biomass stoves.

Research – objective and coverage

To assess the potential and economic feasibility of LPG, LNG or CNG to meet medium term energy needs in the Pacific, taking into account market conditions affecting uptake

LNG – conclusions

Under current market conditions, possibly a viable investment:

- for a few of the PICTs.
- requires considerable capex in infrastructure
- requires new skills and regulations, and extensive marketing to ensure adequate demand
- depends on the size of the market, and the relative cost of alternative energy sources
- amortisation over the life of the assets with a reasonable rate of return.
- PICTs with sufficient fuel demand are Fiji, French Polynesia, Guam & New Caledonia.

LNG – recommendations

Potential actions could be considered:

- **Develop policy frameworks for LNG import and use in relevant countries**
- **Individual power station, IPP, government, gas importer, or consortium could enter into a long-term contract for LNG supply**
- **End-users with >40MW capacity assess bulk LNG import, using floating storage units or floating + regasification unit.**
- **PICT governments could consider facilitating LNG use in transport or industry once LNG infrastructure is established on the back of an ‘anchor demand’ in power generation.**

LPG – conclusions

Potential to expand and stimulate demand, both domestic and commercial:

- grants and/or microfinance initiatives for early market uptake
- information campaigns on LPG use
- introducing subsidised cylinder exchange/deposit schemes
- adopting LPG in schools, hospitals, hotels and via other business customers
- developing a niche use for LPG in commercial air conditioning systems
- supporting or providing training of installers, contractors and building managers to operate LPG appliances
- reduce import duties and tax for LPG relative to household kerosene

LPG – recommendations

Expansion of LPG

- **Accelerate transition from biomass and kerosene to LPG for cooking**
- **Governments consider approaches for developing small piped LPG networks in urban areas to supply LPG for cooking and other purposes.**
- **Help improve economies of scale and create centres of demand.**
- **Governments consider developing LPG options for the transport sector.**
- **Governments consider introducing appropriate incentives for private sector and other stakeholders to increase their LPG import and storage capacities.**

Both LPG and Natural Gas

Utilities and IPPs consider investing in multi-fuel and gaseous fuel injection capability (LNG/natural gas, diesel, HFO, LPG) when buying new generators in relevant countries – for maximum flexibility in future fuel choices with a relatively small incremental cost.

LPG and Natural Gas

as Alternative Energy Sources for the Pacific

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SUMMARY REPORT

Photo: OriginEnG

LPG and Natural Gas

as Alternative Energy Sources for the Pacific

This research study was commissioned by the Pacific Region Infrastructure Facility (PRIF) and undertaken in collaboration with the Pacific Power Association (PPA), a member of the Council of Regional Organisations in the Pacific (CROP), which represents 25 electric power utilities in the Pacific, and the Secretariat of the Pacific Community (SPC), which participated through its Economic Development Division in Suva, Fiji.

Pacific Community
Communauté du Pacifique

The report summarises the research and outcomes of several workshops with industry experts, development agencies and government officials. The views, conclusions and recommendations expressed in the report are those of the authors and do not necessarily reflect the views and policies of the PRIF Members or partner agencies or the governments, companies or institutions they represent.

Background

The Pacific Island Countries and Territories (PICTs) face particular energy supply challenges in regard to their small, remote island economies, limited natural resources, and long distances to major markets. Most PICTs are highly dependent on imported petroleum products to meet their energy needs. This dependence means they are heavily impacted by high or volatile global oil prices. In addition, these countries are among the most vulnerable in terms of climate change and natural disasters.

Historically, limited options have been available to displace liquid petroleum fuels such as kerosene, gasoline and diesel. However, recent market developments have changed this situation: liquefied petroleum gas (LPG) and natural gas, including compressed natural gas (CNG) and liquefied natural gas (LNG), are increasingly offering more economical, low-emission interim solutions in the transition from liquid petroleum fuels towards renewable energy.

This study assesses the potential and economic feasibility of LPG, LNG or CNG to meet medium term energy needs in the PICTs. It considers the end-use applications of

Liquefied Petroleum Gas, or 'LPG', refers to a family of light gases called propane and butane, derived from the processing of natural gas liquids and the refining of crude oil. LPG is gaseous at normal temperature and pressure, and becomes liquid when subjected to modest pressure or cooling. LPG is used mainly in cylinders for portable applications, cooking, heating, lighting, refrigeration and transport fuels.
Natural gas is composed primarily of methane (usually over 85% by volume), but it may also contain ethane and propane with small amounts of heavier hydrocarbons (and some impurities which are removed before liquefaction). Liquefied Natural Gas, or 'LNG', is natural gas which has been processed to liquid form for ease of storage or transport, by cooling it to approximately -161°C depending on its exact composition, at which point it becomes a liquid, reducing the volume of the gas by a factor of more than 600 times as it goes from its gaseous state to liquid.

Thank you!
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