

ACCESS TO ENERGY, CHALLENGES AND OPPORTUNITIES:

The PNG Case

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Outline

- Motivation
- Overview
- Challenges and Opportunities
- Conclusions

Motivation

- Assess the current energy situation of Papua New Guinea;
- Identify some of its challenges, and list the opportunities that can actually obtain from these challenges.



Overview

Basic facts



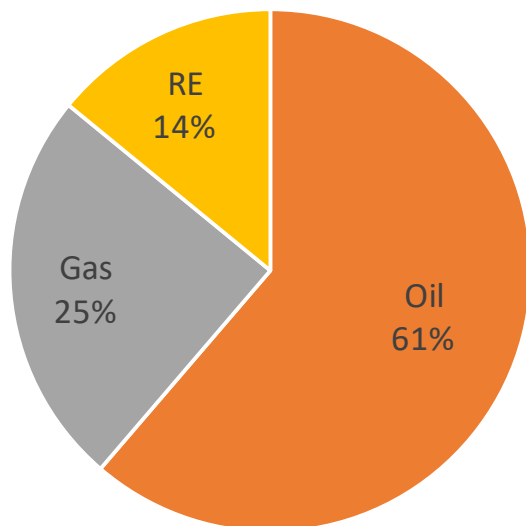
- Population: 7.3 million as of 2011 Census¹ with a growth rate of 3.1% per annum
- Land Area: 462,840 Km²
- 87% (6.4 million people) live in the rural areas of PNG's varied and rugged terrain, which makes access to many locations and provision of essential services difficult.

1. National Census 2011, National Statistics Office PNG, <http://www.nso.gov.pg/index.php/population>

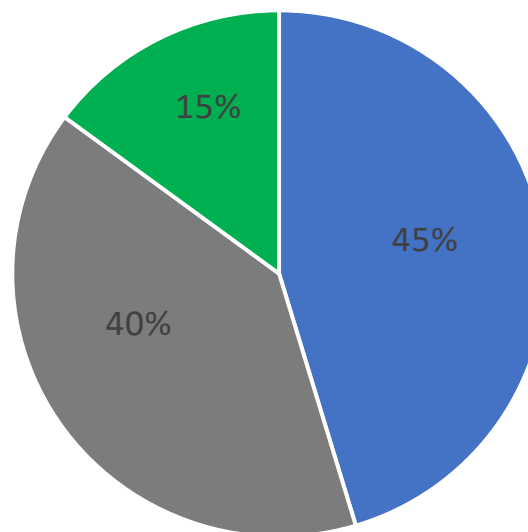
2. <http://data.worldbank.org/indicator/EG.ELC.ACCS.ZS>

Energy situationer (1)

TPES and TFEC, 2016



TPES = 3 178.2 ktoe



TFEC = 1 616.1 ktoe

- Industry
- Transport
- Other Sector

EGEDA, 2019

PNG's TFEC is dominated by industry sector;

PNG has the lowest energy consumption per capita in APEC with 0.20 toe

Energy situationer (2)



- 3 Island Grid (Ramu, Port Moresby, Gazelle);
- PNG Power sole national electricity company – 300MW
- (generation, transmission, distribution & retail)
- 280 MW (IPPs)
- 9 Provincial Centre powered by thermal generation.
- Power generation : 4 445 GWh; 70% fossil fuels; hydro: 23%

Only 13% of the population, mostly living in urban areas, has electricity access



Challenges and opportunities

Challenges and opportunities (1)

Challenges

- *Highly ambitious target to reach 2 500 MW electric generating capacity by 2050*
 - Whether this level is appropriate depends on macroeconomic variables such as population and economic development, as well as electric system variables, such as capacity factor and technical losses.

Opportunities

- *Analyse latent demand for electricity so that capital-intensive energy infrastructure investments can be optimised to meet customer needs in non-electrified areas.*
 - estimate capacity expansion of the electric system;
 - understand better the assumptions used in reaching the 2 500 MW estimate;
 - harness untapped energy resources

Challenges and opportunities (2)

Challenges

- *Poor public attitude and perception*
 - PNG's rural communities face multiple pressing needs hence, electricity may have been undervalued

Opportunities

- *Mapping the people needs*
 - improves the productivity or quality of life;
 - conducting survey,
 - taking one step at a time, and
 - education and public education/awareness raising.

Challenges and opportunities (3)

Challenges

- *Shortage on manpower, capacity and skills for expanding energy access*
 - One of the low hanging fruits; for the government to devote more resources, both technical and financial,

Opportunities

- *Training needs assessment*
 - Assess the requirements of its workforce and review the need for training across the board;
 - knowledge transfer from expats working in PNG.
 - increase collaboration with international agencies for capacity building;
 - increase collaboration with neighboring APEC economies to learn best practices

Challenges and opportunities (4)

Challenges

- *High cost of infrastructure*
 - Private capital tends to flow to electric systems with predictable sources of revenue.
 - Increasing rural access can be costly and logistically challenging

Opportunities

- *Focus attention and resources on a near-term action plan to develop the lowest cost renewable resource available near load centres*
 - focusing on a few priority projects resulting in the biggest impact;
 - making the most of both donor funds and PNG government expertise;
 - Channeling efforts and resources towards success in one or two areas

Conclusions

- PNG has immense potential to tap on the full range of renewable energy options;
- Much of the needed groundwork has already been laid for a supportive policy environment, enabling the newly-elected government to quickly set priorities for the development of the electricity system in PNG.
- Stronger government commitment is necessary to drive draft policies to implementation.



Thank you for your kind attention!

<https://aperc.ieej.or.jp/>