

OPTIONS FOR INCREASING THE EFFICIENCY OF VANUATU'S OIL AND GAS SUPPLY CHAIN

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Overview

The Government of Vanuatu (GoV) has identified addressing the cost of energy and security of supply as two of Vanuatu's development priorities. In an effort to improve both security and the cost of petroleum supply, the GoV together with the World Bank (WB), launched the Energy Road Map 2012-2022¹ to lay the foundation for future energy sector policy and investment. The Roadmap aims to identify the energy needs of the sector over the next 10 years, and the policy direction needed to support the required investment plan. Petroleum is a significant part of Vanuatu's energy needs and therefore an important input into the Road Map.

The Road Map Inception Report identified a number of priorities for petroleum including:

- Reduced reliance on imported petroleum
- Strengthening of the legislative and regulatory framework
- Risk management (including physical storage and financial hedging) to reduce exposure to high and volatile petroleum prices

This study assesses Vanuatu's petroleum dependency over the next 10 years, examines the efficiency of the supply chain, identifies areas for improvement and consider options for reducing Vanuatu's vulnerability to high and volatile petroleum prices, including examining the regulatory arrangements required to do so.

Methods

An initial visit was undertaken to Vanuatu to meet with stakeholders, outline data requirements and develop plans for site visits. A visit by our engineering and environment experts enabled us to review all facilities from an engineering, environment and safety perspective.

Our analysis and recommendations have been guided by the following framework, namely that our recommendations to address development priorities should:

- Be driven by economic efficiency;
- Identify the current level of energy security and recommend areas for improvement;
- Identify an appropriate framework for providing environment, health and safety requirements;
- Identify a transparent, workable and effective regulatory regime;
- Be based on robust risk assessment and mitigation; and
- Be guided by implementation ease and time horizon.

In considering options, this study has aimed to strike an appropriate balance between the needs of the market participants as investors for certainty, appropriate returns and financially sustainable businesses. The customers' needs for efficient, safe, reliable supplies of fuel and the energy security interests of the country.

Results

From a number of perspectives Vanuatu's dependence on petroleum is high and this looks set to continue. By 2022 our analysis indicates that demand will be nearly double what it is today. High and volatile energy prices are therefore likely to have an on-going and significant influence on the Vanuatu economy.

It is notable that in every category, Vanuatu exhibited the lowest vulnerability to petroleum price shocks. Our conclusion is that this is due to Vanuatu's extensive use of biomass for cooking and other household tasks, rather than diesel powered electricity. We cannot identify other significant elements of the supply chain that render Vanuatu less vulnerable than other neighbouring countries.

¹ The Vanuatu Energy Roadmap has been updated for 2016-2030 and endorsed by the council of Ministers in August 2017.

Market Size, structure demand and regulatory framework

The Vanuatu market for petroleum and liquified petroleum gas (LPG) is small by regional standards, with annual domestic demand of around 56 million litres (including 3 million litres of LPG) or about 10% of the size of Fiji's market. Assuming sufficient storage was available in Vanuatu, its annual petroleum demand could be met by slightly more than one delivery from the 40,000 tonne Medium Range (MR) ocean tanker currently used to deliver fuel to Vanuatu.

Diesel is the largest volume imported (63% or 33 million litres) as it is also used in electricity generation (18 million litres including use for outer islands generation). Land transport fuels make up the biggest demand segment (50%), followed by electricity demand.

The market is a monopoly with only one supplier for each of petroleum and LPG. This is a concern as most nations in the region have some form of competition. However this needs to be balanced by the consideration that having more competitors in a small market risks duplication of facilities, leading to higher costs because of the lack of scale.

The regulatory framework specific to the petroleum and LPG sector is poor and the sector appears to be largely self-regulating in terms of environment, health and safety standards including for fuels quality, infrastructure and facilities. Matters such as pricing, risk management, and energy security are also determined by the market participants.

Vanuatu's energy supply comes principally from biomass and petroleum. Our analysis suggests that petroleum's share continues to grow but it is difficult to be precise, because there is little empirical analysis around biomass use (a large rural population using wood for cooking and crop drying). A 2004 SPREP analysis estimated the biomass proportion to be around 50% of energy supply. Petroleum demand trends where growth has been well above population growth would suggest that the biomass share has reduced - our estimate is that biomass now makes up around 40% of gross energy production.

This study has identified that there is a very high cost of fuel in the outer islands where prices can vary by 15-30 Vatu/litre higher than in Vila and Santo; this appears to be due to the high cost and irregular shipping within Vanuatu which results in much higher cost and periodic shortages of fuel.

Stock levels are determined by oil and gas suppliers on a commercial basis, where levels are sufficient to be able to meet typical disruptions in the supply chain, taking into account alternative supply options (such as New Caledonia/Fiji) and the cost of holding stock.

Conclusions

There is a lack of transparency means assurance of fair market pricing is poor. Therefore, the recommendation is to reinstate fuel price monitoring with capability to be undertaken at regular intervals. For the petroleum sector it is recommended to reinstate fuel price monitoring with capability to be undertaken at regular intervals. As there is no evidence of undue margins at present, monitoring (as opposed to price regulation. However, in the LPG sector it is the appropriate measure to increase transparency as a basis for future decision making through an introduction of price regulation. Evidence indicates that margins are high and higher than required to provide the market participant with an appropriate return when balanced against consumer needs for efficient, safe and reliable supplies of fuel.

In August 2017, following adoption of the NERM, the Council of Ministers (COM) adopted and endorsed the recommendations of this report that new law was needed to introduce price monitoring of petroleum (liquid fuels) and price regulation of Liquified Petroleum Gas (LPG). The Government is now implementing that decision and assigned this responsibility to the Utilities Regulatory Authority of Vanuatu (the "Authority").

Distribution inefficiency to outer islands within Vanuatu increases costs for consumers. It is recommended to undertake scheduling optimization with supplier on barge proposal to ensure relevant components of supply chain optimised (balancing storage with vessel schedule).

High stock holding policies are leading to storage investment earlier than necessary to meet demand growth, causing prices higher than might be the case if the timing of new investment was better aligned to demand expansion. High stock holding policies are leading to storage investment earlier than necessary to meet demand growth

It is recommended to examine with the current suppliers scope for deferring storage investment (including constraints driven by electricity supplier UNELCO's requirements).