



Renewables & Energy Transition
Domestic & Regional Small Scale LNG
10 December 2023

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Who is NiuPower?

- The Government of PNG's Electricity Industry Policy (EIP) of 2011 sought to bring greater private sector investment into the industry
- Kumul Petroleum Holdings Limited (KPHL) and Oil Search (now Santos) had each independently responded by looking at Power sector opportunities
- Due to strongly aligned interests in this area in late 2016 KPHL and Oil Search joined forces to create-
 - NiuPower Limited – a business focused on PNG domestic power generation
 - NiuEnergy Limited – a business focused on PNG domestic gas distribution
- Both NiuPower and NiuEnergy are currently 50% owned by each of KPHL and Santos (ASX:STO)
- Operate on a commercial basis with a focus on ensuring PNG maximises the domestic use of PNG produced gas

Port Moresby Power Station



1. 57.88MW gas-fired power station located adjacent to PNG LNG Liquefaction Plant lease
2. 6 High efficiency WartsilaW20V34SG gas engine generators
3. US\$120m investment – 100% equity funded
4. Power Purchase Agreement with PNG Power
5. Gas Sales Agreement with PNG LNG JV
6. Sublease from Kumul Petroleum (PNG NOC)
7. Regulated grid tariff 38t/kWh at 100% capacity factor, \$64.18/bbl (to 2030)

Choice of Technology



- **Plant Configuration**
 - 6 units of Wartsila W20V34SG gas engine-generator sets
- **Proven Solution:**
 - more than 850 engines of the type W20V34SG sold/installed;
- **Lowest Levelized Cost Of Electricity (LCOE)**
 - Class leading efficiency: Lower fuel consumption compared to other engines in its class - lower carbon footprint
 - lower lube oil consumption
- **Lower lifecycle cost**
- **Dual fuel capability**



Community Investment Programme



- 5 project impact area villages
- Promote water security
 - 6 x 9,000 litre water tanks in each village over 4 years and continuing
 - >1 million litre water catchment
- Delivered 1st library on Kido Island
- 2nd library with 30k books at Lealea Village
- Deliver Life Skills Training | Sewing clothes
- Distributed 5 solar powered vaccine refrigerators, 1 each for the 5 villages
- Sponsor sports at the school level
- Book distribution programme to schools across the 5 villages using *Buk Bilong Pikinini*
- Installed off-grid solar kits at Gorohu Village for 118 households
- Supporting Metago Bible College with 25 x 9,000 litre water tanks
- Supports church programmes



4 Years of Reliable Supply to Port Moresby



16 Jan 2016

MOU to fund gas-fired power station as a tax credit project delivered by ExxonMobil as part of PNG LNG JV's P'nyang development – did not proceed



6 Apr 2017

Cabinet resolution supporting IPP as alternative funding model



15 Nov 2019

Commercial Operations Date

Consistently Delivering Value for our Counterparty



- 15 Year Power Purchase Agreement with PNG Power, a State Owned Enterprise - PNG's national utility
- PNG Power continues to derive a material positive margin from NiuPower's contribution
 - A. PNG Power derived a positive margin of K40.1m in 2022 from NiuPower's contribution
 - Excludes a Generation Levy of K2.9m which increases cost of generation by K9/MWh
 - At K3.83/litre of diesel for the equivalent output in 2022, PNG Power would have realized a loss of K219.5m
 - B. PNG Power has derived a positive margin of K53.5m YTD 2023 from NiuPower's contribution driven by lower oil price
 - Based on an average retail tariff of 87t/kwh in Port Moresby

High Risk, High Reward Investment Environment



- Managing ongoing counterparty credit risk – you have to be part of the solution
- Moratorium on providing State Guarantees
- Forex rationing restricts ability to repatriate profits, pay offshore vendors or be paid by your counterparty in a currency other than PNG Kina
 - Project development requires an onshore and offshore EPC arrangement for local and offshore procurement and then project asset transfer at/ after commercial operations date
- Material exposure without an exhaustive overarching Project Agreement with GoPNG
- Immature debt recovery regime so codify receiver and manager type remedies by private treaty with counterparty
- Investment in power generation not following a plan based on outlook
- Tariff freeze since 2013
- Oil price / fuel price volatility
- Regulatory risk and protection
- Low skill base
- Visa and work permit system that ‘bottlenecks’ labour mobility
 - 6–8-month cycle time for onboarding skilled foreign workers
- Relative high cost of doing business
- Local content important
- Creative commercial solutions
- Export industry preferred – earn foreign currency
- A political champion

Challenges & Opportunities – 2 sides of the same coin



Our vision is the development of the Hiri West Energy Hub to serve the growing needs of our nation and in due course, the Pacific



NiuEnergy Small Scale Domestic & Regional CNG, LNG Plant, Storage and Distribution Terminal

Small Scale Domestic LNG

Enablers

- In 2027 – 2028, domestic gas becomes available at \$4.50 / mmBTU – roughly equivalent to \$25/boe vs \$74/boe
- Add \$4/mmBTU for LNG Plant adds \$22.2/boe
- Relatively high cost of diesel
- MARPOL Annex VI Treaty to be ratified and adopted as national legislation. This effectively bans the use of high sulfur fuel oil in PNG
- Increasing uptake of renewable energy still requires thermal energy as part of the generation mix / backup
- Requires Newmont Mining and Ramu NiCo support

2 Stage Development

1. LNG distributed in 20/40 foot isotainers to coastal locations – modest modular investment
2. Introduction of a small LNG carrier

Bulk Supply ssLNG vessel Economics (2017 numbers)

- NPV10 of \$106M
- IRR of 15%
- Capex of \$305M with a schedule of 26 months from FID to First shipment

Stage 1 Small Scale Liquefaction, NiuPower Storage & Distribution by Isotainer



Stage 1 involves-

- Modular micro-LNG Plant liquefaction
- storage and distribution by 20/40-foot isotainers loaded on coastal shipping vessels
- Skid mounted LNG vaporizers at customer location



Plant Specifications



- High operational flexibility
- Fast (5 minute) and ultra-fast (2 minute) start-up and loading to 100% load
- Ultra-fast unloading from 100% to 0% load in one minute
- Modular and allows for duplication on the plot. Most infrastructure will support both plants. More can be done if expansion is planned in the short to medium term.
- Utilities
- Admin and Warehouse
- Drainage system
- Black start and essential power