National Research Institute (NRI) Seminar Series

“Reforms in the Energy Sector to deliver the least cost and reliable electricity”

17 March 2023
Lae, Morobe Province
Obed Batia
Chief Executive Officer
PNG Power Ltd
Presentation Scope

- PNG Power Overview
- What are our challenges
- Actions we are taking to address the challenges
- Recent reforms and partnerships that have been undertaken by the Government
- PPL’s position and plans in response to emerging developments in the market
- Reform proposal and Unbundling Perspective
- Effective economic regulation relating to tariff setting based on a cost-reflective structure
- PPL Recovery Plans

What to expect?
PNG Power Overview

PNG Power is a critical contributor to the Nation’s development as defined by the Vision of 2050 and Strategic Plan for 2030. PNG Power will have a direct impact on each of the key themes in the Nation’s development to 2030 and beyond, including accelerating industrialization and facilitating social and economic growth in each sector while protecting PNG’s unique culture, diversity and environment.

- 307,000 customers
- 600MW of power generated
- 3 main grid networks
- 17 mini-grid networks
- 900 kms of high voltage power lines
- 2589 kms of distribution lines
- 1957 employees (20% female)
- Low reliability / constant outages
- Ageing generation & transmission infrastructure
- Underinvestment in assets
- Reliance on high cost IPPs & Thermal generation
- Technical & non-technical losses
- High operating cost due to fuel

PNG Power Ltd

- Diesel, 20%
- Gas, 20%
- Hydroelectric, 38%
- IPP, 22%
### Challenges

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>Geographical</td>
<td>Population spread is wide through rough terrain &amp; across seas</td>
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<tr>
<td>Lack of investment in grid networks</td>
<td>Substation &amp; distribution</td>
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<td>Exposure to high fuel costs</td>
<td>Prices dictated by external forces</td>
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<td>Theft/illegal usage</td>
<td>Rise from 25% to 30% in the last two years</td>
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<td>Land</td>
<td>Lines pass through multiple landowners</td>
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<td>Tariff Freeze</td>
<td>Costs have increased, PPL tariffs are 10 years old</td>
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<td>Limited system regulation</td>
<td>Inability to ride through system disturbances Increase in system outages</td>
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These are real challenges that PPL deals with in the business.
## What we are doing?

<table>
<thead>
<tr>
<th>Action</th>
<th>Remedy/Projects</th>
<th>Impact</th>
<th>Completion</th>
</tr>
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<tr>
<td><strong>Grid Investment</strong></td>
<td>1. EUPRIP USD30m with GoPNG/WB Network fixes in POM and Lae 2. POM BESS +2MW solar with KCH Avoids cascaded total system blackouts due to frequency swings 3. Ramu/Gazelle BESS Reduces total system blackout 4. Ramu transmission with GoPNG/Japan Over K200m project to build second line to Lae 5. Power Sector Development Project (USD300m) with GoPNG/ADB/AIFFP Improve grid resilience and capability. 60,000 new HH connections.</td>
<td>2023-2024 2023 2024-2025 2024 2026</td>
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**A snap short of projects underway to reform PPL**
### What we are doing?

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<td><strong>Illegal Usages</strong></td>
<td>1. Amnesty Program with USAID PEP</td>
<td>Over 15,000 HH registered (about K0.5m rev/month)</td>
<td>2023</td>
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<td>2. Smart meters Project with WB</td>
<td>5000 units under procurement</td>
<td>2023-2024</td>
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<td></td>
<td>3. Management by Feeder with USAID PEP</td>
<td>Supply monitored at customer level</td>
<td>2023-2024</td>
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<tr>
<td><strong>Reform</strong></td>
<td>1. Actionable Unbundling Plan in partnership with DFAT</td>
<td>Staged approach. Fix basics, and in parallel, prepare for a competitive market</td>
<td>Ongoing</td>
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<td></td>
<td>2. Technical/Commercial Programs with PEP</td>
<td>Improved process and staff Efficiency.</td>
<td>Ongoing</td>
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**Fix Basics**

**Competitive PPL**

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A snap short of projects underway to reform PPL
Recent reforms and partnerships that have been undertaken by the Government

Reforms and Partnership undertaken by the Government

- Government Visions 2050, MTDPIII, the National Energy Policy and the National Electrification Rollout Plan (NEROP);
- National Energy Authority Bill 2021 and Electricity Industry (Amendment) Act 2022
- Establishment of the National Energy Authority – July 2021 - NEA vested with the economic and technical regulatory functions in the electricity supply industry;

2018 APEC and PNG Electrification Partnership (PEP)

- Government signed PEP Partnership Agreement with Australia, US, Japan and NZ;
- PEP Partners providing advisory and technical support to NEA on policy and regulatory matters;
- PEP Partners supporting PPL with Performance Improvement programs across all business value chain;
- PEP partners support PPL with grid intensification and expansion and household connectivity electrification projects;

Government Policies and key partnerships call for reform at PPL
PPL Power Development Plan

• With the Government Visions 2050, MTDPIII, the National Energy Policy and the National Electrification Rollout Plan (NEROP), PPL has developed a PPL grid intensification and expansion plans in a 15 Year Power Development Plan (PDP)

• The focus on the PDP is on the 3 main grids and is expected increased households connections by 100,000 per annum to meet the 70% electrification target of 2030;

• The PDP focuses on the least cost generation options consideration, renewables, mainly hydro, biomass, Solar PV/BESS;

• Hybridization of the mini-grids/diesel centers through renewable energy development with a planned approach with cheap financing options;

PPL Regulatory Transitioning

• With the establishment of NEA, PPL has transferred all the delegated technical regulatory roles to NEA;

• PPL requires immediate regulatory support relating to regulatory contract and tariff reset for cost recovery;

• Absence of key provisions in the NEA Act may hinder effective regulatory enforcement;

Least cost plan is part of PPL’s reform strategy
Reform proposal and Unbundling Perspective

PPL Reform Plan and Proposed Unbundling

- Government Decision - NEC Decision NG129/2019;
- PPL Board approval in December 2021 to commence the Reform Plan work for limited unbundling pursuant to NEC Decision NG129/2019;
- PEP Partners (DFA) supported with technical assistance to engage expert consultant to undertake preliminary review;
- Initial review of PPL’s operational and financial position considered that immediate unbundling of PPL’s entire business is not feasible;
- Recommended for phased approach of PPL Reform plans with more focus on PPL internal operational status.
- PPL Reform Plan roadmap with an Actional Unbundling Plan (AUP) phased out for internal separation, financial transformation, billing and collections etc.;
- Preparation for change management support to be within PPL to drive PPL Reform Plan;

Fixing basics in the immediate, improving reliability and reducing cost of supply are key to reforming PPL
Effective economic regulation relating to tariff setting based on a cost-reflective structure

Electricity Regulatory Contract and Tariff Adjustments for cost recovery

- The last Electricity Regulatory Contract has expired in Dec 2017 – new draft ERC has been released in March 2021 however could not be completed as economic and technical regulatory functions have been shifted to NEA from ICCC, hence no proper transition leaving the review in limbo to date;

- PPL has not adjusted any tariff increase since 2013 due to a tariff freeze – PPL cost structures have been increasing ever since and PPL has been absorbing them without a cost recovery mechanism for the last 9/10 years;

- PPL accumulated approved tariff is estimate at 28% but never applied – substantially approved revenue have been forgone over he last 9 years accumulates to over K2-3 billon - The approved revenue would have recovered PPL’s cost and would have put PNG Power in a stronger position than it is in today;

- It is appropriate for PPL to implement the approved tariff increases to offset the increase in costs associated with the business that are largely beyond its control.

- The cross subsidy mechanism and implementation of least cost generation will give PPL the unique position to be GoPNG’s realistic vehicle to supporting development at provincial centres.

Effective regulation that polices a cost recovering tariff is important for the sector
Roadmap- Path to Recovery

PNG Power is dedicated to supply reliable electricity services and in doing so promoting a profitable, professional, and growing company while contributing to the development and wellbeing of our present and future customers.

Stability
Stronger footing, both commercially and technically.
- High voltage circuit between Ramu and Highlands
- Investment in POM and Ramu grids
- Rehabilitation of hydro-electric power stations
- Replacement of mini-grid generation with Hybrid Systems
  - Complete KCH recapitalization
  - Increase ERC regulated Tariff rating
  - Prioritise positive cashflow projects
  - Establish Grid Stabilisation Fund

Recovery
Medium-term activities to reduce costs through the adoption of least-cost principles, improve performance, and ensure PNG Power can deliver a high-quality service to its customers
- Increase revenues through major industry connections and metering
- Connect mining demand
- Introduce hybridisation
- Establishing robust MIS
- Fuel switch program - From HFO, diesel to gas and then renewables

Transformation
A fundamental restructure of the power sector in PNG, including the unbundling of PNG Power, which will unlock value, drive efficiencies, and enable private sector investment
- Internal separation program of generation assets to drive operational efficiencies
- Incorporate subsidiaries, focus on GenCo
  - Put in place process of asset transfers
  - Complete internal restructure

Growth
Increase margin through ongoing process improvement initiatives and continue to grow revenue base from industrial and mining demand whilst strengthening the capital structure
- Integrate and automate systems and processes including ICT systems to improve efficiency and productivity
- Strengthen capital structure through on-going debt reduction and investment in new capital infrastructure.
- Retail centric approach
- Customer household connection driven
Thank you