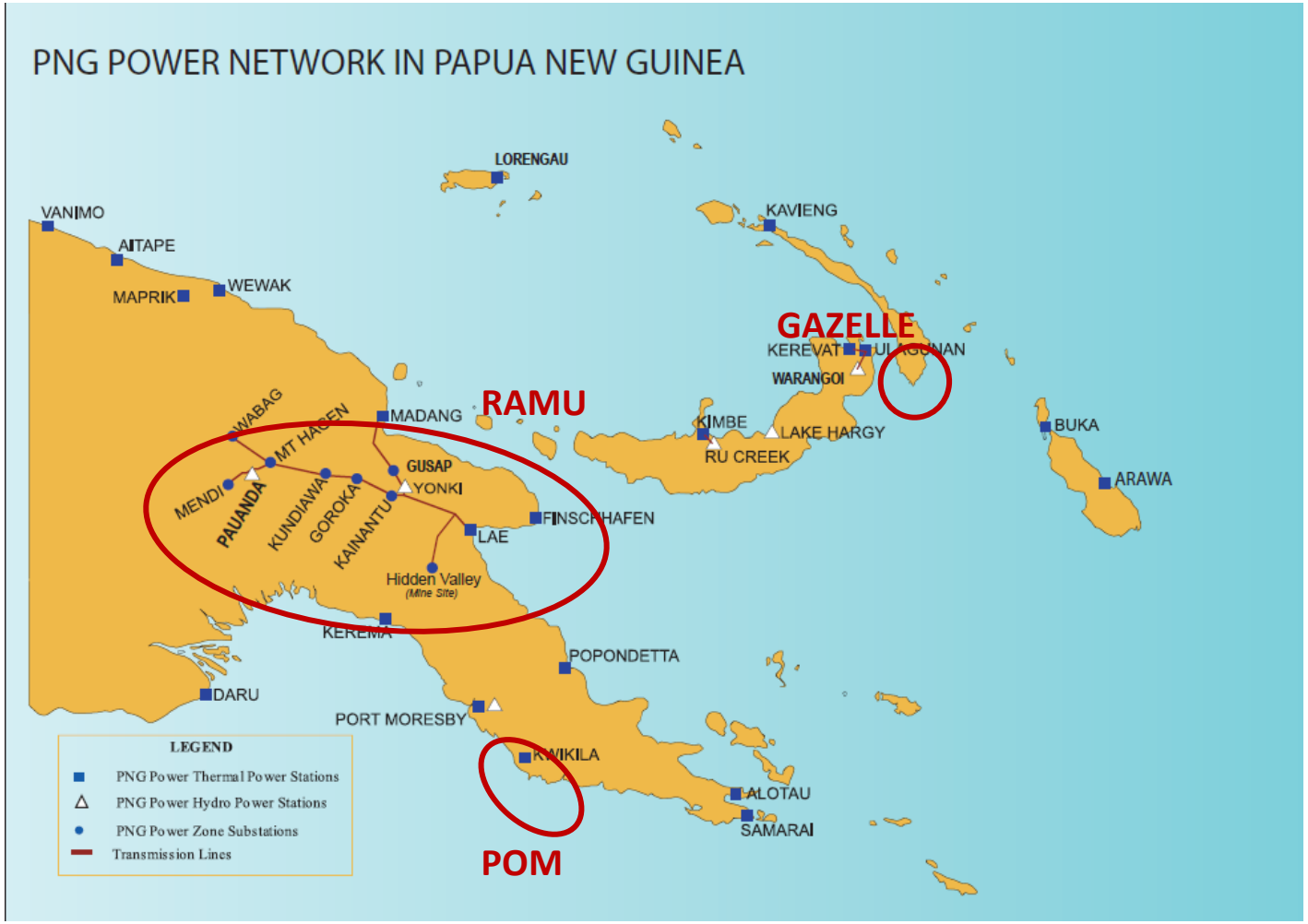
Session 2: Financial Sustainability and Tariff Reforms

PNG NATIONAL POWER SECTOR FORUM

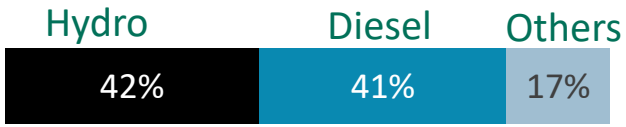
03 April 2025

Power sector in PNG at a glance….



- ❑ Vertically integrated structure with PNG Power Ltd. (PPL) present in all segments of Gx, Tx and Dx*
- ❑ PPL owns more than 50% of installed capacity

- ❑ Of the total capacity ~40% each is hydro and diesel, others include gas and geothermal



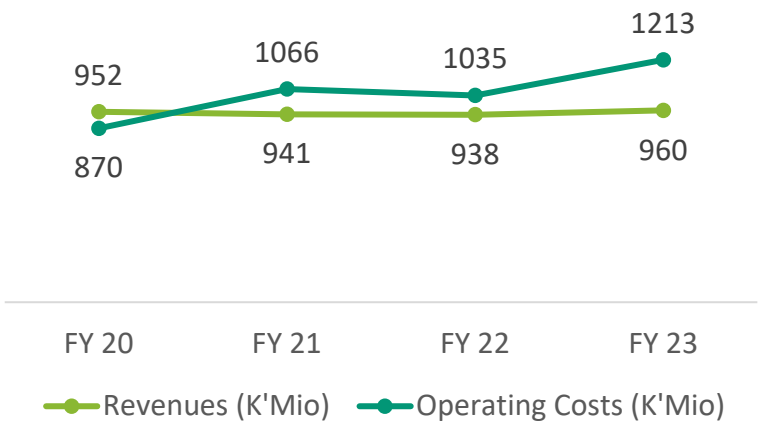
- ❑ 3 main grids serve urban areas + 17 isolated mini-grids serving smaller provincial centers
- ❑ ~20% of population has access to electricity
- ❑ Access to electricity in rural areas is less than 4% ^

** Generation, Transmission and Distribution*

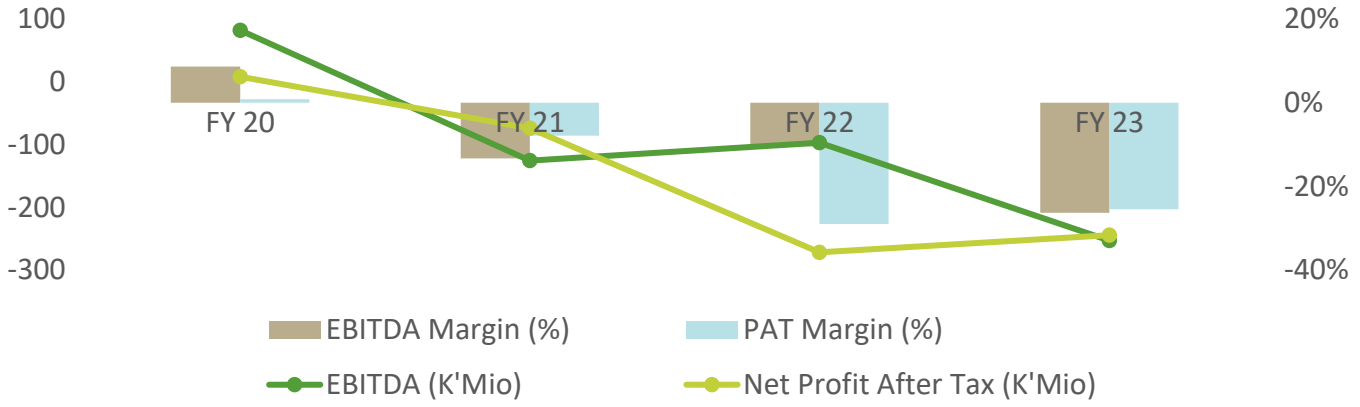
^ Source: ADB / PNG Energy Sector Assessment Paper (PCN PNG 56023-001)

PPL's financial performance has been concerning …

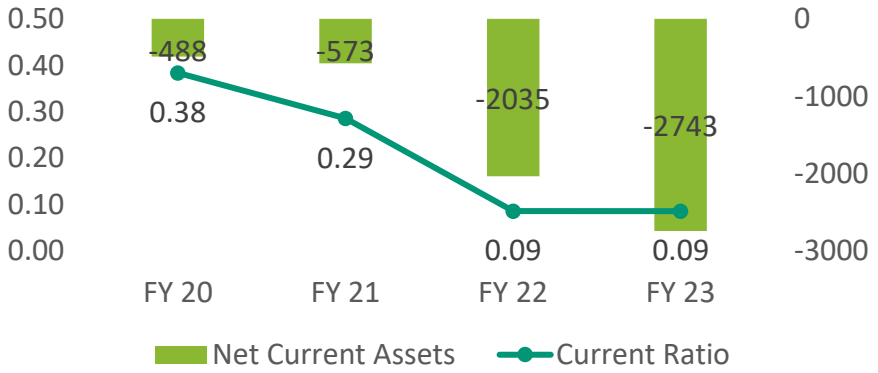
Flat revenues but increasing operating costs



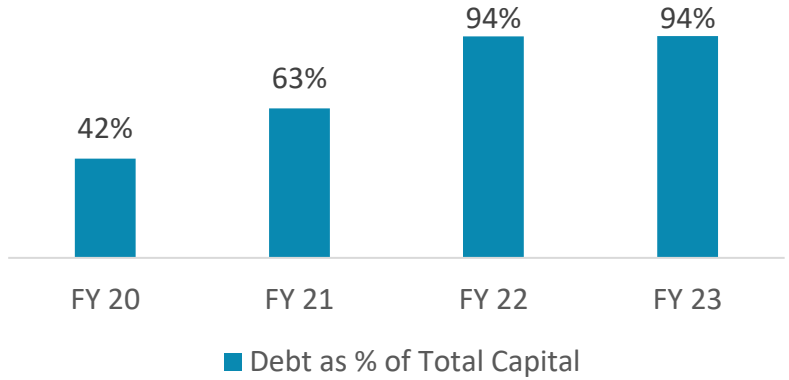
Financial losses, both at operating and net levels



Short term liquidity position deteriorating

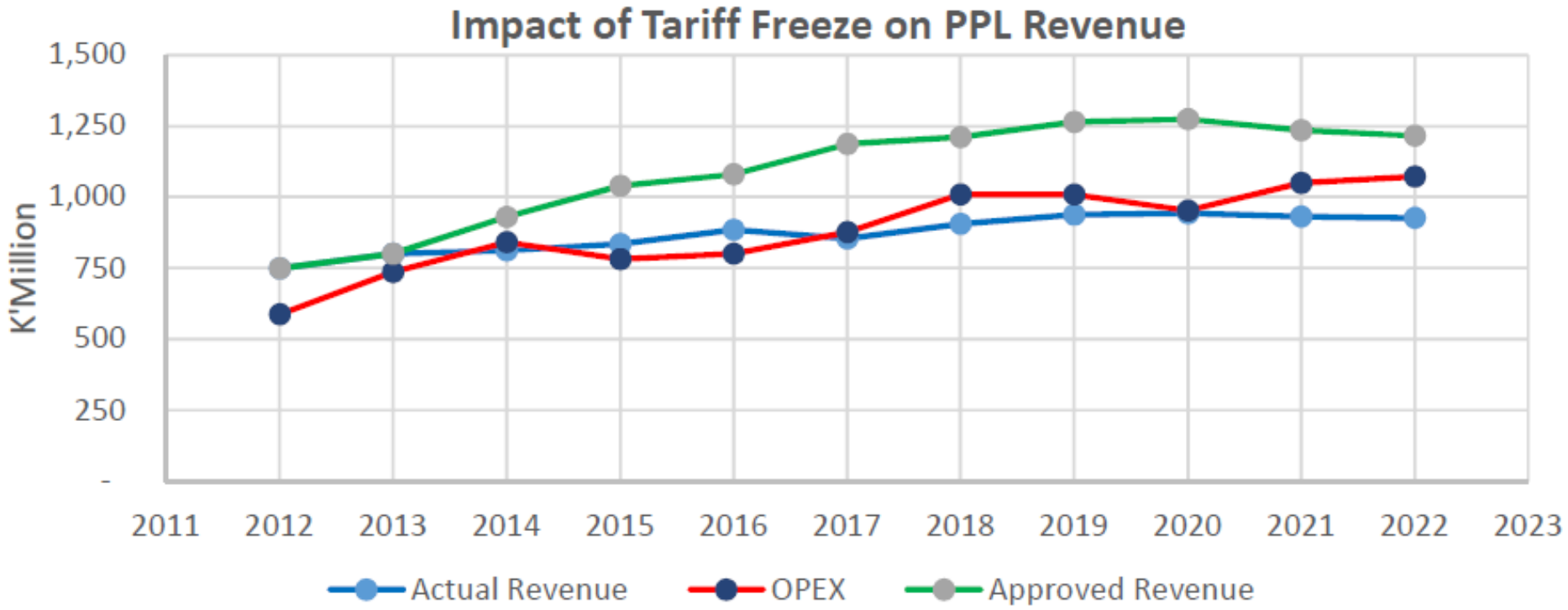


Rising debt levels



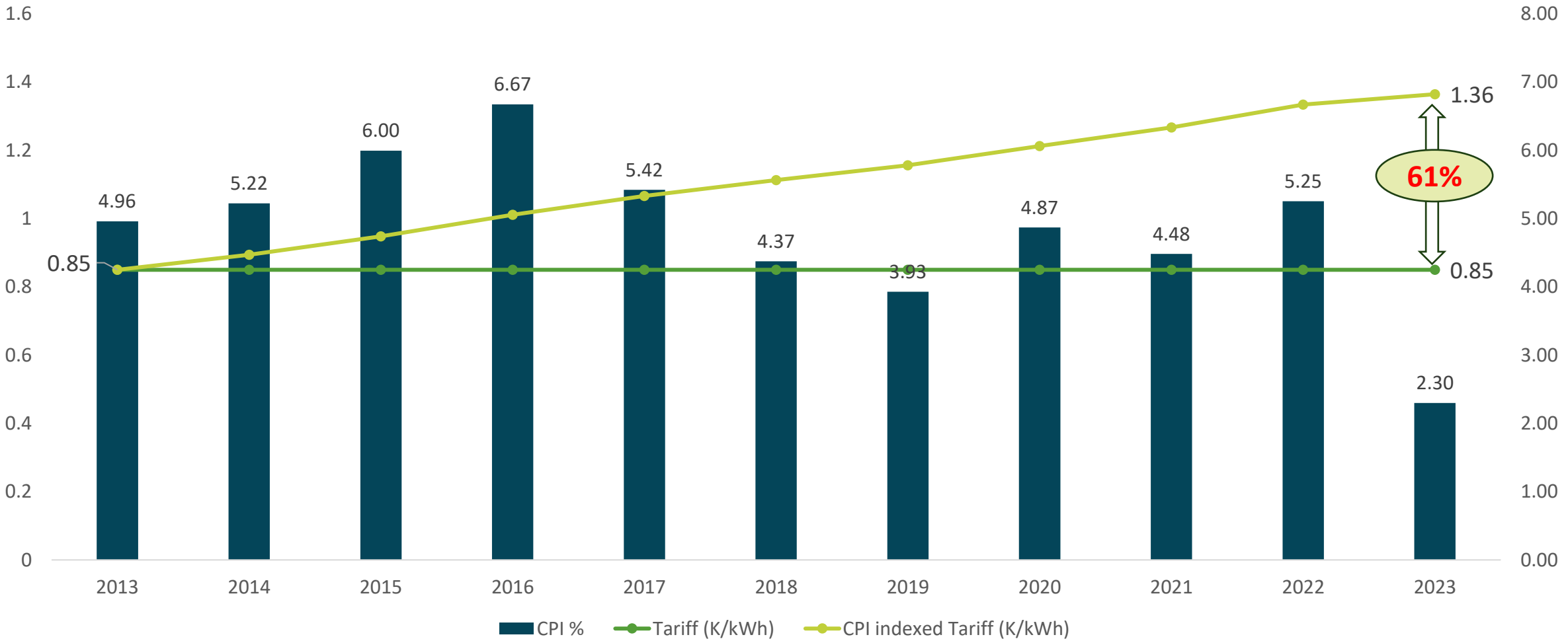
Tariff freeze has significantly impacted PPL's revenues …

- ICCC instituted the Electricity Regulation Contract which regulated PPL's tariffs using a building block methodology - included **penalties for not meeting quality** standards and provided for **quarterly fuel price** changes
- Annual tariff hike of 6.5% was approved in 2013 but never implemented



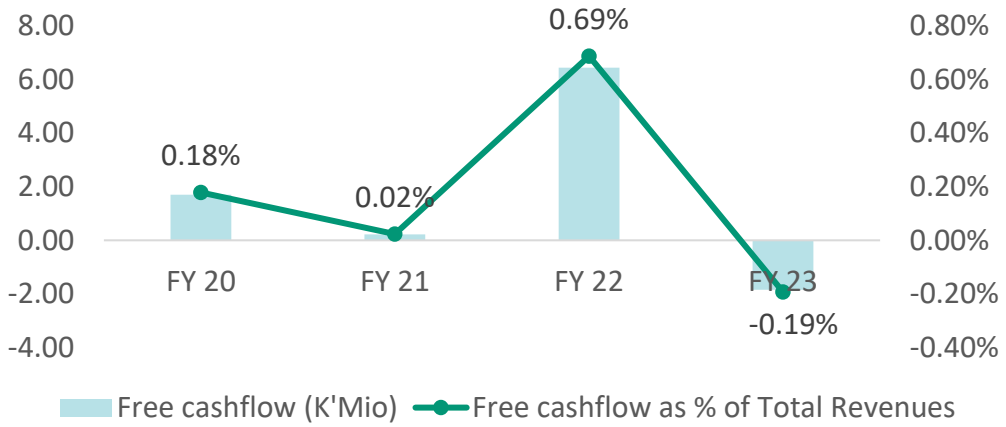
Source: Corporate Plan 2024-26

Considering inflation, PPL's tariffs are ~60% lower than 2013 levels…

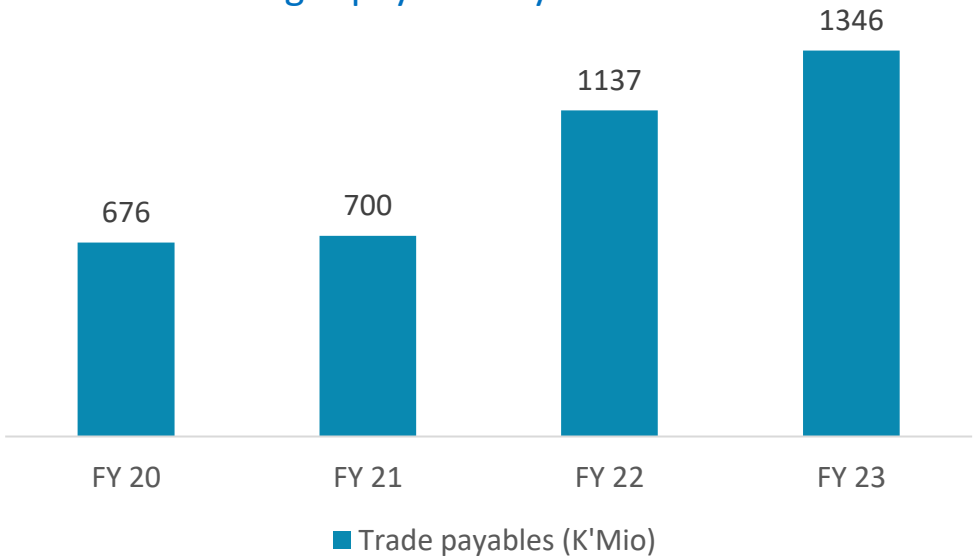


… affected ability of PNG's power sector to attract investments

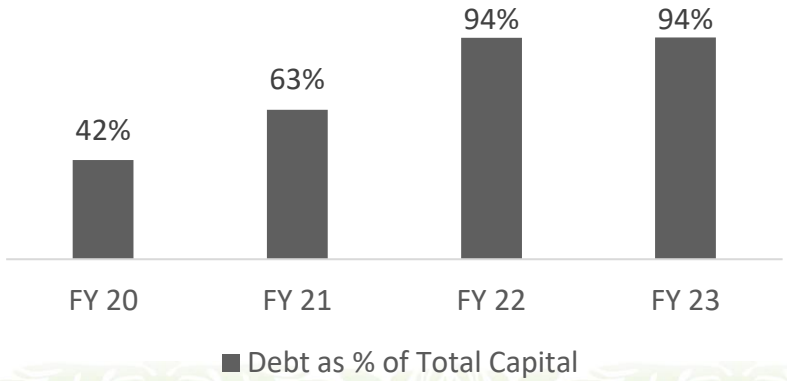
Free cashflow generation is weak



Longer payment cycles for IPPs



Limited capacity to raise further capital



PPL financially stretched to undertake investments, whether for efficiency improvement, capacity expansion or improving quality of supply

… hampering its ability to provide reliable service

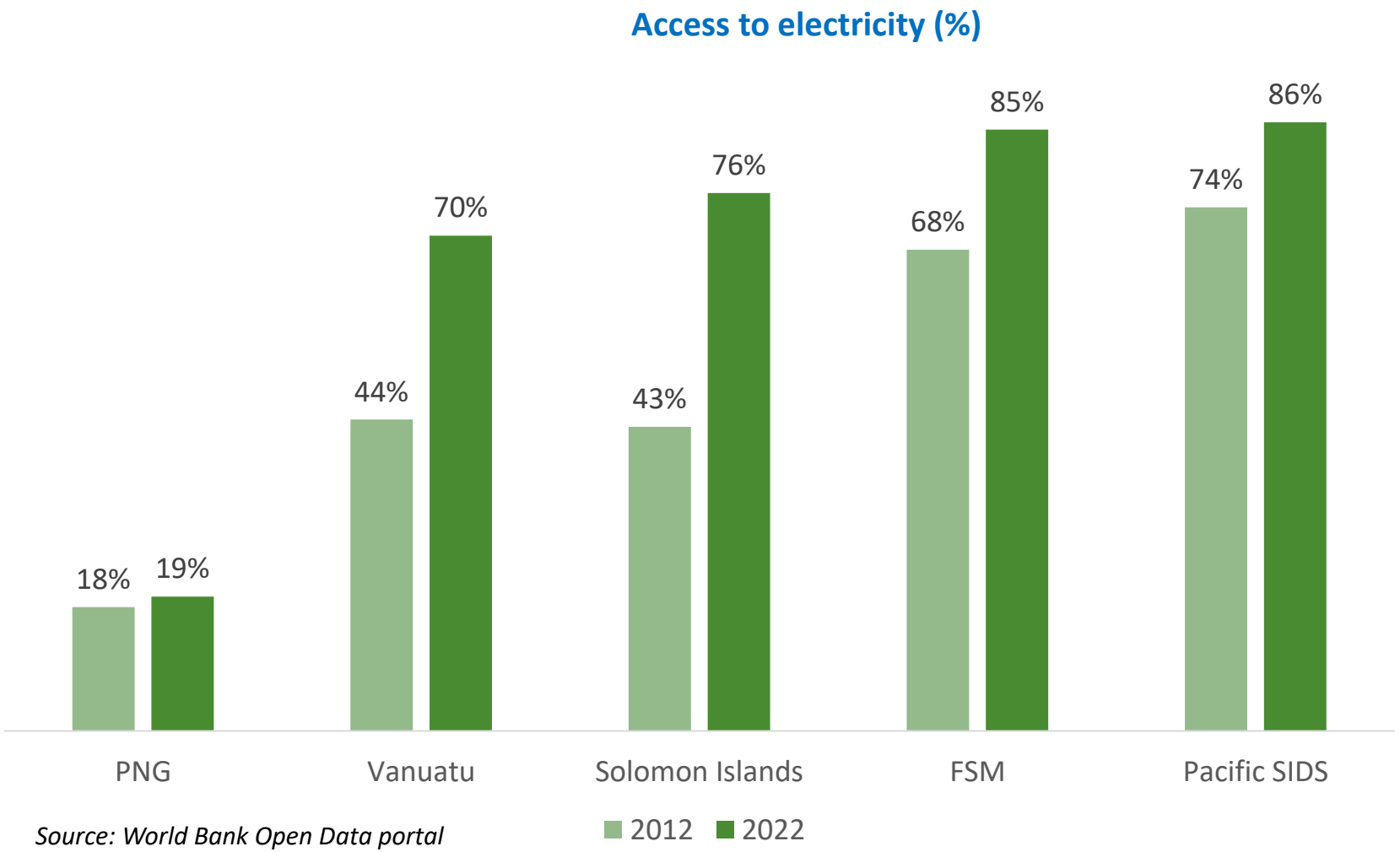
- Typical PPL customer faces an average of 3 interruption events daily lasting upto 5-6 hours

	2022	2023
SAIFI	1,205	1,000
SAIDI	134,888 mins	112,968 mins

Source: Corporate Plan 2024-26

- Reasons:
  - ✓ Lack of asset management culture or preventive maintenance program
  - ✓ Ageing assets due to several years of underinvestment
  - ✓ Lack of maintenance skills, lack of root cause analysis of major faults
  - ✓ Issues with fuel supply, lack of spares in isolated mini-grids

PNG has lagged behind other Pacific SIDS countries in terms of electrification



Source: World Bank Open Data portal

PPL's strategies to improve its operational efficiency and performance

Source: Corporate Plan 2024-26

Stabilization

- Tariff proposal
- Automate business processes
- Cost control
- Review/ Renegotiate contracts
- Install prepaid meters

Recovery

- Increase revenue from major customers
- Revenue protection measures (meter boxing, feeder teams)
- Least cost generation for B&C centers
- AMI meters

Reform

- Competitive bidding for new generation
- Work with NEA to set tariff ceilings for IPPs
- Charge IPPs for use of Transmission system

Growth

- Grow revenue organically from large customers
- Strengthen capital structure
- Levy late payment fees
- Integrate call centre and technical operations teams

Need to implement a regulatory system that allows for systematic and regular review of tariffs and initiate adjustments accordingly … its helpful to learn from approaches adopted by other Asian/ SIDS countries

Revenue Cap methodology to promote efficiency and cost recovery – Solomon Islands

- Tariff consist of 2 components – **Fuel charge** and **Non-fuel charge**
  - ✓ Fuel revenue requirement is adjusted every month based on actual costs in n-2 trailing month.
  - ✓ Non-fuel revenue requirement covers Operating costs + a return on Regulated Asset Base (RAB).
  - ✓ Revenue requirement towards Operating costs is fixed at an efficient level
- Annual **Non-fuel charge** is **fixed for a 5-year period** based on an investment plan.
  - ✓ Monthly *adjustment factor* for domestic inflation, international inflation and exchange rate
- During the last 10 years, Solomon Power has had **2 major review** cycles (2016 & 2021)

Building block approach - Fiji

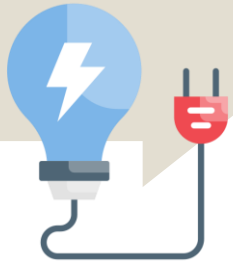
- Review of tariffs:
  - **4-year** comprehensive tariff determination cycle
  - Annual review of **uncontrollable** costs
  - Ad-hoc review for **extra-ordinary events** (natural disasters such as cyclones and droughts)
- **Revenue requirement** is based on prudently incurred costs plus a fair return to the investors
- Criteria for including assets in RAB is provided: **Used** (shall be in good condition to satisfy demand in next 12 months) and **Useful** (shall be long term and useful for life beyond 12 months)
- **Fuel & IPP costs** are reviewed annually and tariffs accordingly adjusted
- **Incentive mechanisms** to reduce controllable costs

Performance Based Regulation (PBR) to improve service quality – Philippines

- PBR introduced since 2006. Applicable to all major distribution licensees.
- PBR is combination of **Revenue Cap and Incentive regulation** to improve operational efficiency and service quality
- Incentive regulation sets certain thresholds for service quality KPIs – e.g. **SAIFI, CAIDI**, Time to connect new customer, etc. -- Utility is incentivized/ penalized based on achievement of service quality
- Incentive regulation also followed by **Malaysia** to set tariffs for Tenaga Nasional Berhad, the largest utility in the country

NEA has been established through NEA Act. The Authority has launched draft tariff regulations for consultations and is in the process of finalizing the same.

Regulation is applicable for determination of tariff for retail supply of electricity in PNG



- Regulation applies to Licensees who are distributing and retailing electricity services of more than 1 MW in Papua New Guinea
- Regulation deals with the principles and methodologies for tariff determination, and dwells on the process aspects as well
- Tariff to be based on the Annual Revenue Requirement ascertained for distribution and retail of electricity

Tariff application of the licensee to provide for details on costs, investments and revenues

Key data:

a) forecast of Annual Revenue Requirement for the entire tariff period;

b) expected revenue from existing tariffs;

c) expected revenue gap or surplus, for each year of the tariff period;

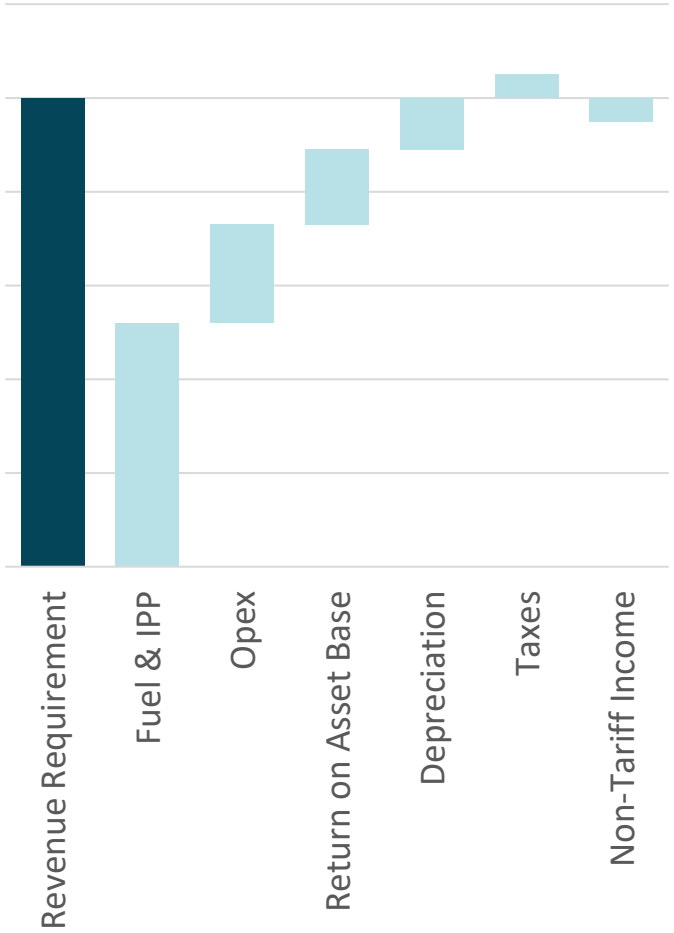
d) details of capital expenditure for each year of the tariff period;

e) proposed customer category-wise tariff;

f) details on performance parameters that can form the basis for Annual Revenue Requirement for the tariff period; and

g) actual expense and revenue based on audited accounts versus approved revenue and expense details of the last completed fiscal year(s)

Annual revenue requirement to be based on fuel and IPP costs, other operating costs and a return component



Fuel and IPP Costs

DieselMWh = (DemandMWh / (1-SysLos)) - HydroMWh- IPPMWh – OthMWh

FuelL = DieselMWh 1000 * CF*

*Fuel Cost = FuelL * FPL where FPL is fuel prices*

OPEX

OPEX(t) = (R&M(t) + EMP(t) + A&G(t)) x (1 – X(t)) + any other one-time operational expenses

Rate of Return

Rate of Return = Re x (1-Gearing%) + Rd x (1-t) x Gearing%

Cost of Debt (Rd) = Rf + DM

Cost of Equity (Re) = Rf + β x (Rm-Rf)

RAB

RAB(t) = RAB(t-1) + Capex(t) – Depreciation(t) ;

Where,

i. RAB(t) is Regulated Asset Base of Applicant at the end of year t
ii. RAB(t-1) is Regulated Asset Base of the Applicant at the end of year t-1
iii. Capex(t) is the Capital Expenditure during the year t
iv. Depreciation(t) is the allowed depreciation expense over the RAB for the year t
v. t = is year in consideration

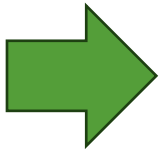
Regulations envisage a four-month time-period for determining tariffs after the acceptance of tariff application…

S. No.	Milestone	Timeline
1	Tariff Application submitted by the Applicant	August
2	Tariff Application data analysis, review, and reconciliation by Authority	September
3	Data re-submission and query resolution by Applicant	October
4	Submission of response to public suggestions by Applicant	October
5	Draft tariff order publication and public consultation by the Authority	November
6	Final tariff order publication by Authority	December

Concluding remarks

Key conclusions

- PNG's power sector faces systemic challenges due to over-reliance on diesel-based generation, and low access rates
- PPL's financial performance (profitability, liquidity, solvency) has been concerning
- High system losses leading to low revenue recovery: AT&C loss 25 to 30%
- PPL's capacity to make investments is severely restricted and quality of power supply has been deteriorating



- Revenue Cap and Performance Based Regulations have achieved fair success amongst peer countries in terms of promoting cost recovery and improving quality of service
- NEA is in the process of finalizing tariff regulations in PNG
- For the new regulatory process to be successful:
  - ✓ Timely submission of tariff application with required information
  - ✓ Gradual increase in performance targets
  - ✓ Implementation of periodic adjustments as may be indicated in the final determination
  - ✓ Transparency and public consultations

The road ahead … Financial recovery of PPL

- Regular **tariff adjustments** linked to operational performance improvement by PPL on key parameters such as AT&C losses, SAIFI/ SAIDI, time to connect, etc.
- Devise mechanisms for Government to compensate PPL for selling electricity in **B & C Centres**
- Financial recovery of PPL by **restructuring** the debt and trade payable. Some countries have successfully undertaken financial restructuring of their distribution companies:
  - ✓ Partial takeover of distribution company's debt
  - ✓ Restructuring repayment tenure
  - ✓ Moratorium on principal payment
  - ✓ Interest subvention
  - ✓ Performance linked financial support
- Technical assistance for **NEA to strengthen its capacity** in technical and economic regulation. It also needs to be equipped with regulatory tools to monitor licensee performance, implement fuel cost adjustments in tariffs, and strengthen its compliance and enforcement oversight.