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Power Utility Reforms and Privatizations

PNG NATIONAL POWER SECTOR FORUM

Lessons Learned from Market Restructuring / Utility Concessions in Uganda, Vanuatu, Ghana, and Panama

3 April 2025

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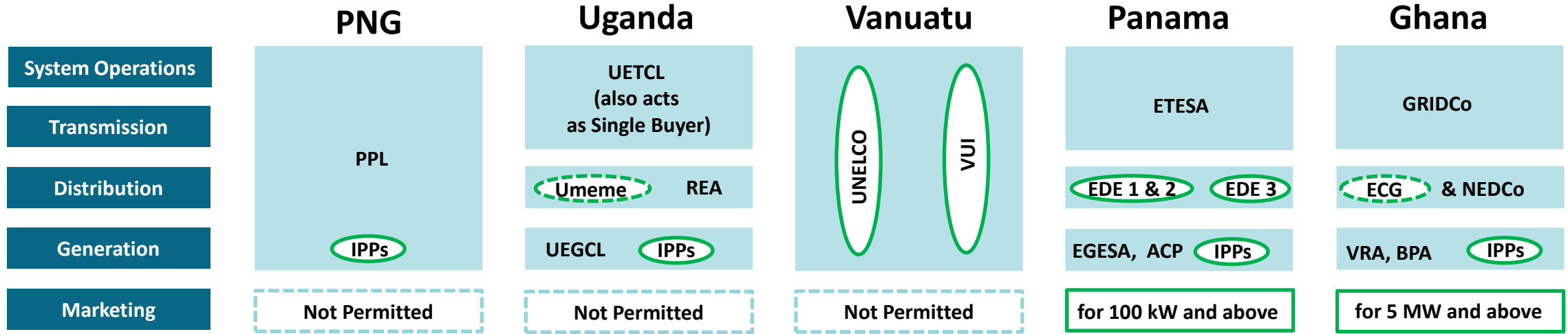
International comparisons: overview



Item	PNG	Uganda	Vanuatu	Panama	Ghana
Population, Millions (2024 – Estimated WB).	10.6	50.0	0.3	4.5	34.4
Installed Capacity, MW	394 (2024 operable)	2,048 (2024)	33 (2022)	3,524 (2024)	5,260 (2024)
Peak Demand, MW	290 (2024 – approx.)	988 (2023)	14 (2022)	2,171 (2024)	3,952 (2024)
Market Structure	Vertically integrated + IPPs	Unbundled; Single Buyer model; distribution concession (UMEME)	Two vertically integrated utility concessions	Advanced restructured market	Moderately advanced restructured market; attempted distco concession

International comparisons: market structure & outcomes

Market Structure



Outcomes

Failing, but not clear that this is a structural problem. Non-cost recovering tariff; little progress on electrification

Umeme distribution concession considered (internationally) a success; major improvements in utility performance; UMEME concession ended 1 April 2025, with no extension agreed; Umeme did not have electrification mandate

Integrated utility concessions considered (internationally) a success; cost recovering (high) tariffs; major progress on electrification; (note there are also two tiny additional concessionaires

Successful, advanced restructured market; much improved distco performance, cost recovering tariff; heavy and consistent private investment sustaining healthy power demand growth and quality of service

Outcomes mixed: Market restructuring initially successful, with large amounts of IPPs entering; 20-year ECG concession began (and was terminated) in 2019. There are ongoing efforts to restart the concession

Key:

Gov't
Private

Blue Shapes
Green Shapes



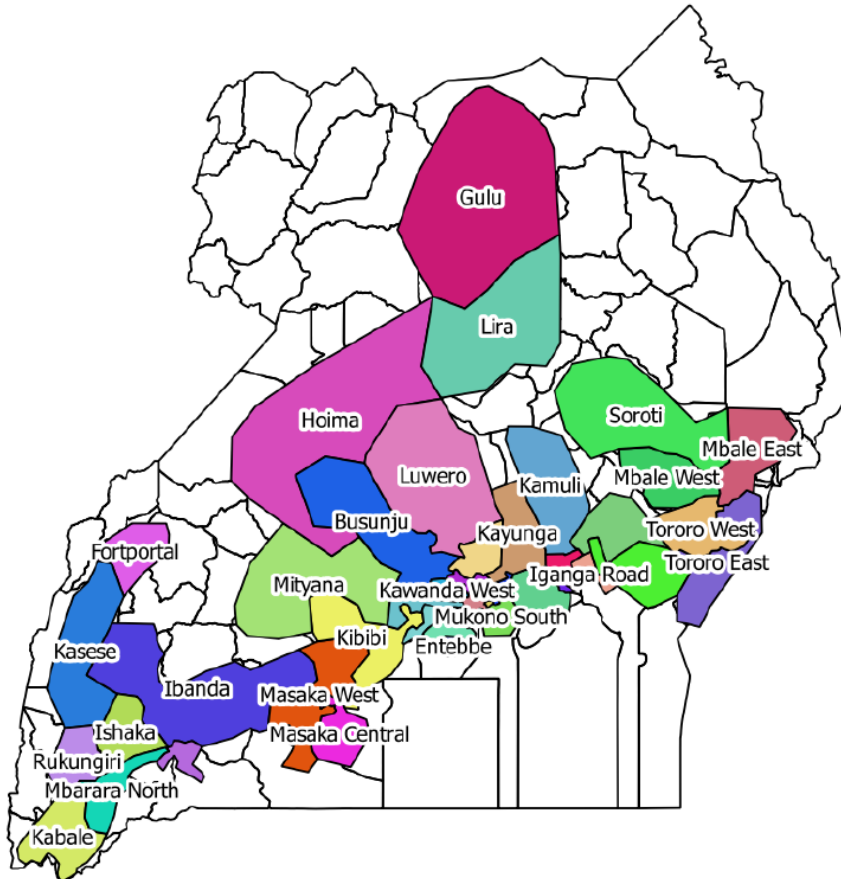
Mini Case Study: Uganda

Distribution Utility

20-year Concession to Umeme Ltd.

Umeme concession

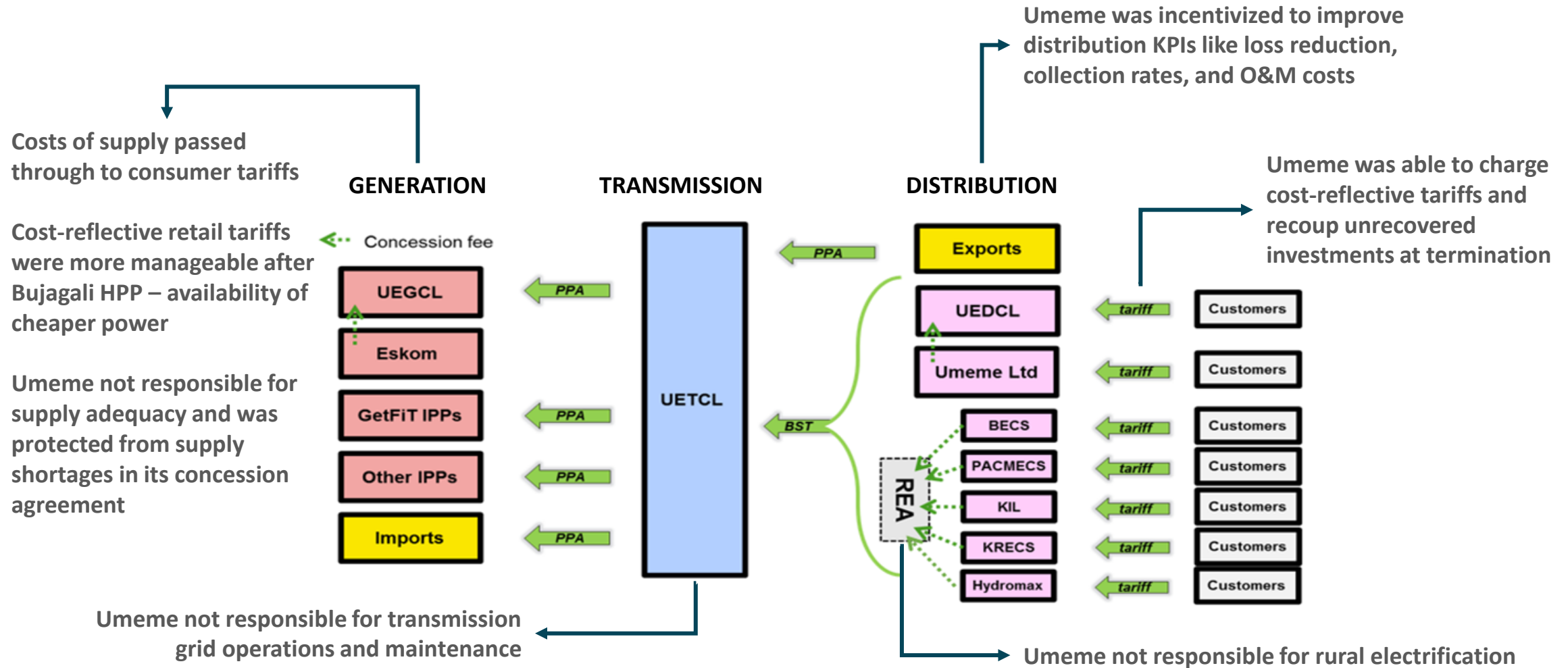
UMEME Service Territory (by district)



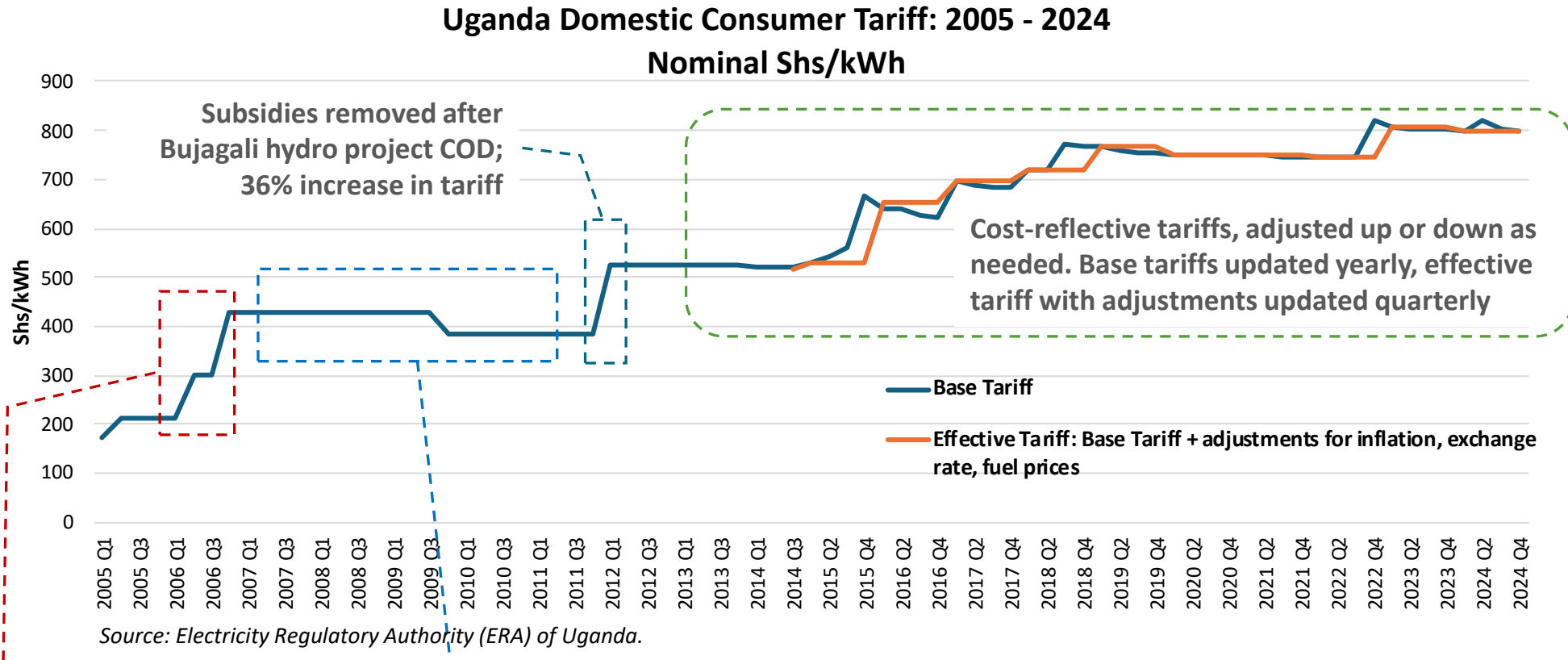
- **March 2005:** 20-year distribution concession awarded to Umeme Ltd; concession ended 1 April 2025, after failed extension discussions
- **Exclusivity:** within 1 km of existing grid
- **Tariff:** set by Electricity Regulatory Authority (ERA)
 - ✓ Review period: 7 years; automatic adjustments capped at 2.5%.
 - ✓ Cost reflective: operating costs (including energy and transmission costs) + 20% ROI on approved network capital investments made
 - ✓ Performance targets: permitted ROI depended on performance on metrics including distribution losses, collection rates, distribution operation and maintenance costs
- **Contractual protections:** WB guarantee instrument against failure to approve tariff adjustments per agreed methodology, non-payment, lack of energy supply, termination
- **Rural electrification:** not in Umeme's mandate; handled by REA

Source for graphic: World Bank. "Uganda Distribution Sector Diagnostic Review and Directions for Future Reforms for Long-term Sector Development and Acceleration of Electricity Access Expansion". Ricardo. 2019

Umeme success factors: limited scope and targeted incentives



Tariffs reflected costs, macroeconomics, politics



Tariffs doubled in two increments: droughts led to hydro shortage, resulting in emergency power rentals

Tariffs kept flat with government subsidies; 10% decrease in 2009 after government inquiry

Umeme results

	Gradual initial progress			Jump up in performance improvement from 2012			Stabilization and back to growth trajectory after COVID-19					CAGR (2005–23)
	2005	2006	2007	2011	2012	2013	2019	2020	2021	2022	2023	
Customers (000s)	292	298	303	458	513	574	1,470	1,507	1,636	1,758	1,949	11.1%
Sales (GWh)	1,015	990	1,138	1,735	1,937	2,118	3,182	3,201	3,507	3,849	4,219	8.2%
Revenues (UGX Bn)	145	195	340	457	860	966	1,655	1,661	1,885	1,829	2,089	16.0%
Gross Profit (UGX Bn)	82	102	108	186	235	290	594	479	642	633	747	13.1%
EBITDA (UGX Bn)	15	26	29	89	117	149	369	246	401	385	483	21.3%
Investments (USD Mn)	6	5	18	28	36	58	29	75	34	30	37	10.6%
Energy Losses (%)	38%	34%	35%	27%	26%	24%	16%	18%	18%	17%	16%	-4.6%
Revenue Collection (%)	80%	84%	90%	99%	94%	100%	100%	100%	99%	100%	99%	1.2%

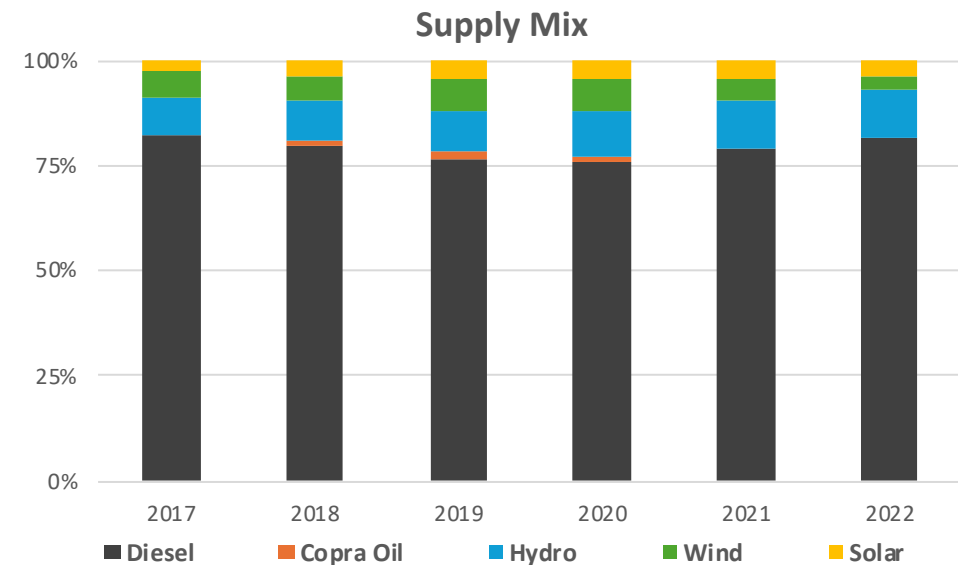
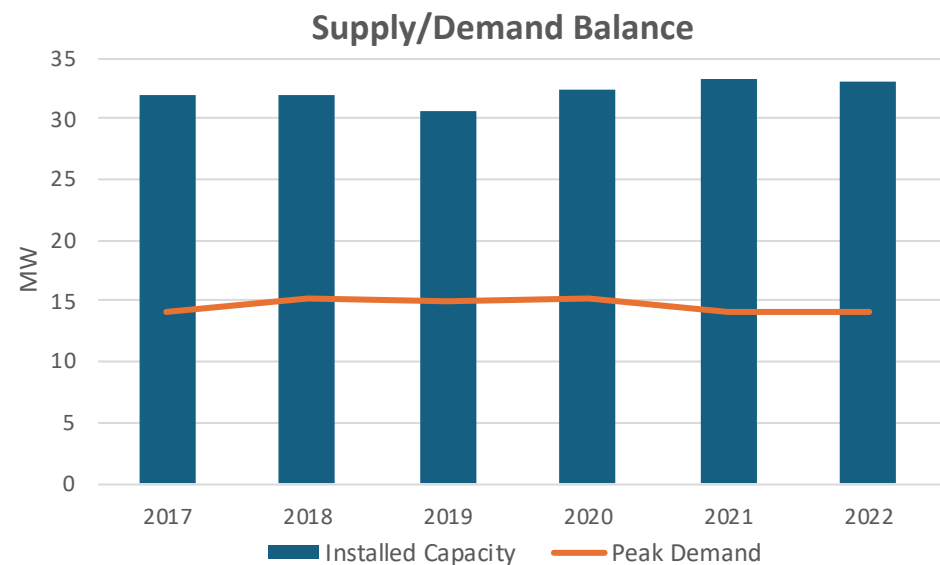
- Energy losses reduced by more than half – most of the loss reduction was achieved by 2017
- Benefits of privatization began mainly after supply adequacy achieved and tariff increases (cost recovery) from 2012 onward
- Buyout amount for unrecovered investments at end of concession (normal at end of concessions): As of March 2025, Umeme seeks USD 234M, government offering to pay USD 118M; Parliament approved loan of USD 190M for buyout and audit



Mini Case Study: Vanuatu

Private Concessions
for Small Island Grids

Vanuatu power sector snapshot



	Port Vila / Efate	Espiritu Santo	Tanna	Malekula
Concessionaire	UNELCO	VUI	VANPAWA	VANPAWA
Since	1939	2019	2023	2023
Peak Load (2022)	11.47	2.24	0.25	0.23
Tariff – USD/kWh (2024)	0.490	0.498	0.527	0.527

1 USD = 123.138 VUV

UNELCO performance compared to PPL for 2021

	PPL-POM	PPL-Ramu	PPL-Gazelle	PPL-Isolated	UNELCO
Tariff, USD cents/kWh	0.210				0.490
Distribution Losses	24% (ATC&C less estimated transmission max losses at 4%)				11%
Debt to Equity Ratio	134%				13%
Return on Assets	- 7%				2.5%
Return on Equity	- 189%				10.1%
Current Ratio	0.3				2.0

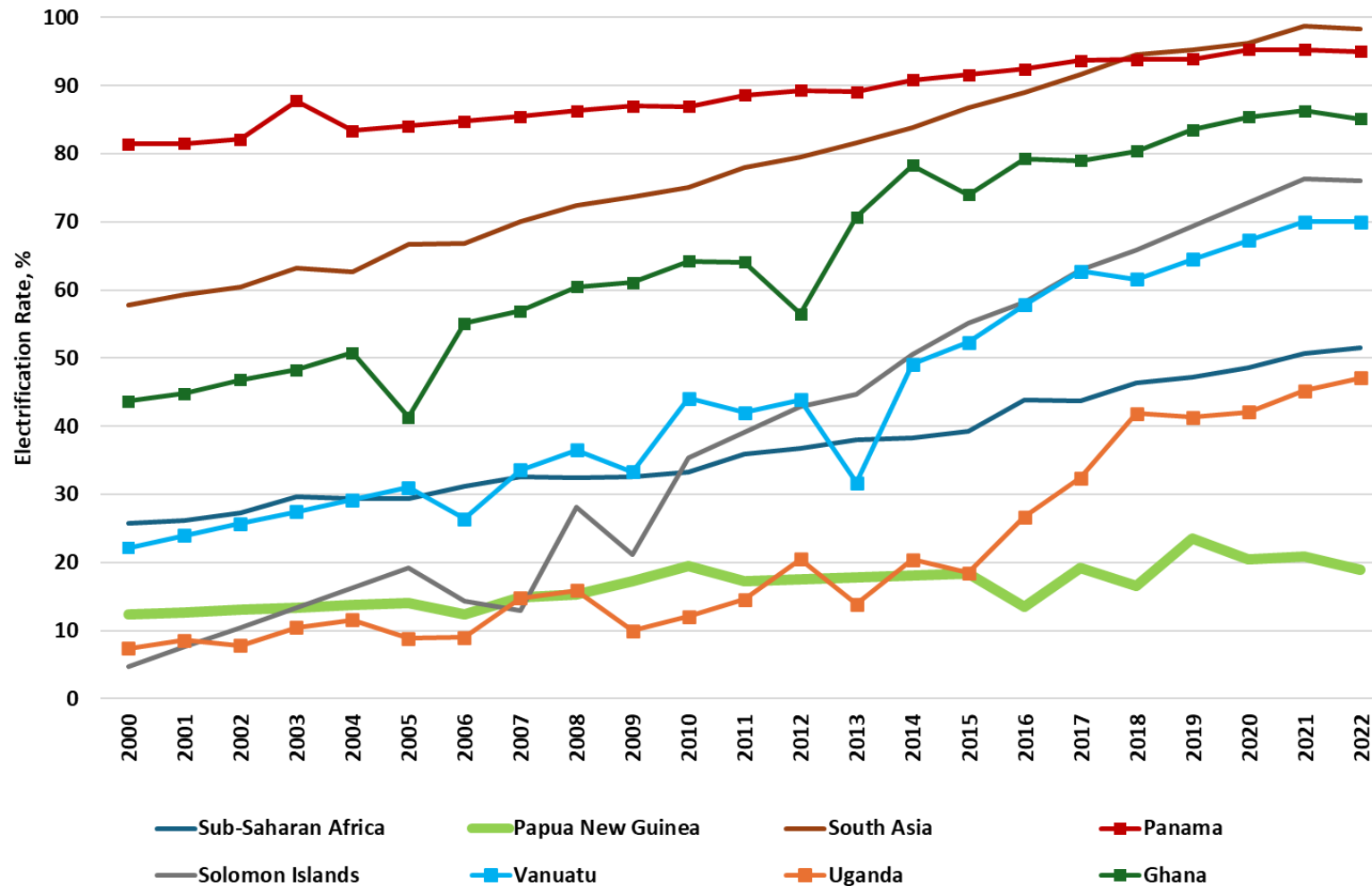
Source: Pacific Power Utilities Benchmarking Report, 2021 Fiscal Year. PPL Corporate Financial Model

- UNELCO's tariff over twice as high as PPL's
- UNELCO's performance is comparable to or better than PPL's across both operational and financial metrics
- PPL's financial situation has deteriorated significantly since 2021 values shown; distribution losses are now about where they were in 2021



Concluding thoughts

Electrification rates for PNG and comparator countries



- The rest of the world has dramatically increased electrification rates
- In 2024, only 5 countries had lower electrification rates; in 2000, 22 countries had lower rates
- PNG electrification rate is the same now as in 2010
- PNG electrification rate will NOT improve under business as usual

Summary of findings

- Introducing private capital and management experience, including through concessions, can work
- Success factors for concessions include
 - ✓ Cost recovery
 - ✓ Address risks faced by private parties
 - ✓ Limit electrification mandate
 - ✓ Either (i) a strong regulator or (ii) limited regulatory oversight
 - ✓ Supply adequacy
- Challenges to address
 - ✓ Careful matching of concession design to country and market structure
 - ✓ Concession area vs rural electrification territories / mandate



Thank You!