



ZAMBIA COUNTRY EXPERIENCES

ON TARIFF MODELS, TARIFF CALCULATION AND PRICING

Presentation made to the 13th Annual General Meeting of the African Association For Rural Electrification (Club – ER)

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Presentation Outline

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1.0 Mandate

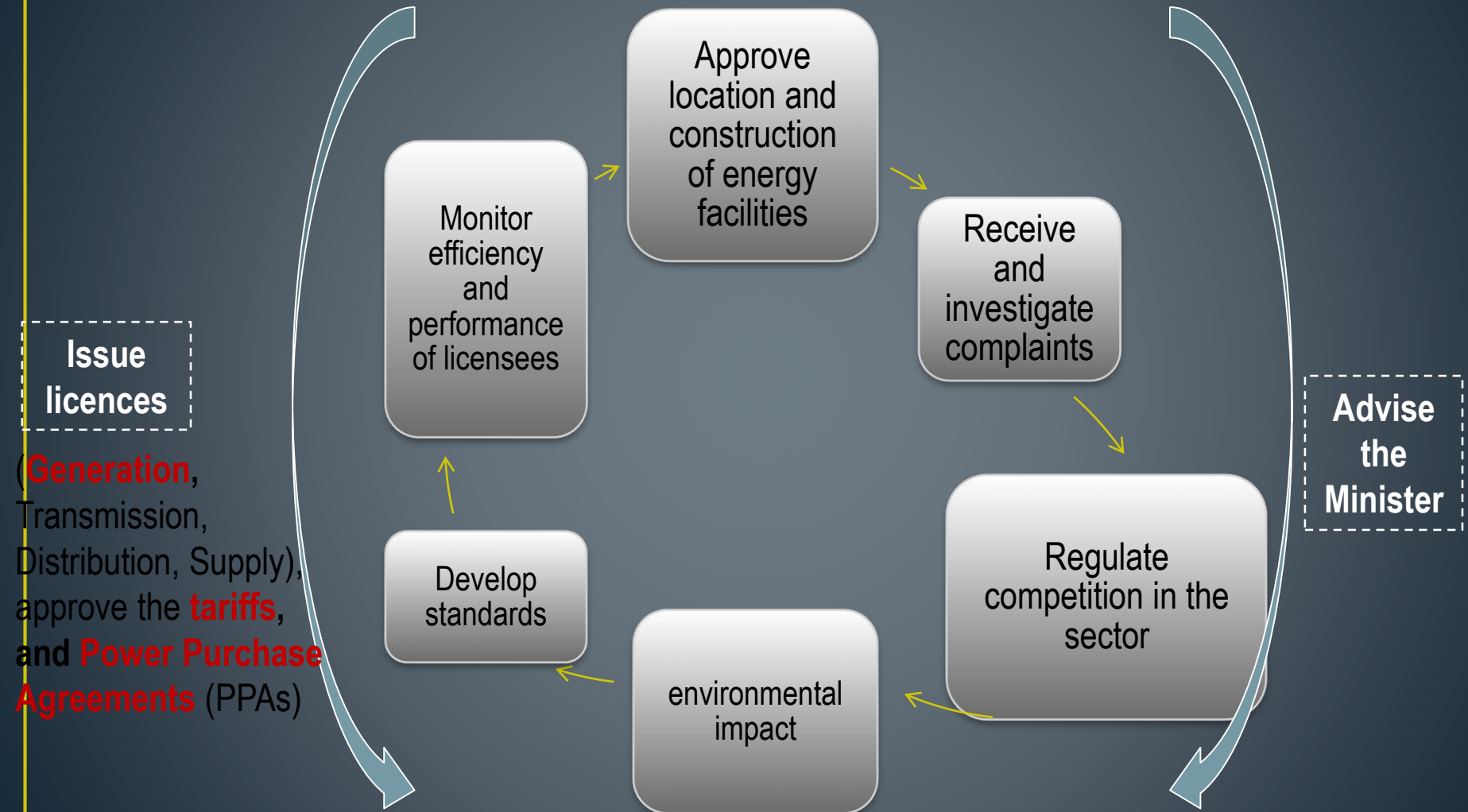
- The Energy Regulation Board (ERB) is a statutory body established by an Act of Parliament to regulate the provision of energy services and products.
- The mandate to regulate the sector is derived from The Energy Regulation Act, Cap 436 of the Laws of Zambia
- Mandated to regulate all undertakings in energy sector – electricity, fossil fuels and other forms of energy (including renewable energy).

Mandate of the ERB

- Responsible for regulating:
 - Pricing;
 - Quality of service; and
 - Quality of product
 - Financial viability of projects.

- ERB has the authority to review electricity tariffs and petroleum prices - Energy Regulation Act Cap 436.

2.0 Functions



3.0 Tools of Regulation

- Energy Regulation Act as amended;
- Electricity Act as amended;
- Tariff Filing Guidelines;
- Electricity Licenses;
- Standards and Codes;
- Energy Policy; Statutory Instruments, Board Directives, and
- Key performance Indicators

4.0 ERB Tariff Review Principles

- ✓ Recovery of prudently incurred costs by the Utility;
- ✓ Recognition of used and useful Utility assets only;
- ✓ Financial sustainability of the Utility;
- ✓ The need to attain cost reflective tariffs;
- ✓ Delivery of quality service; and
- ✓ Social considerations for the indigent customers.

5.0 Tariff Review Process & Methodology

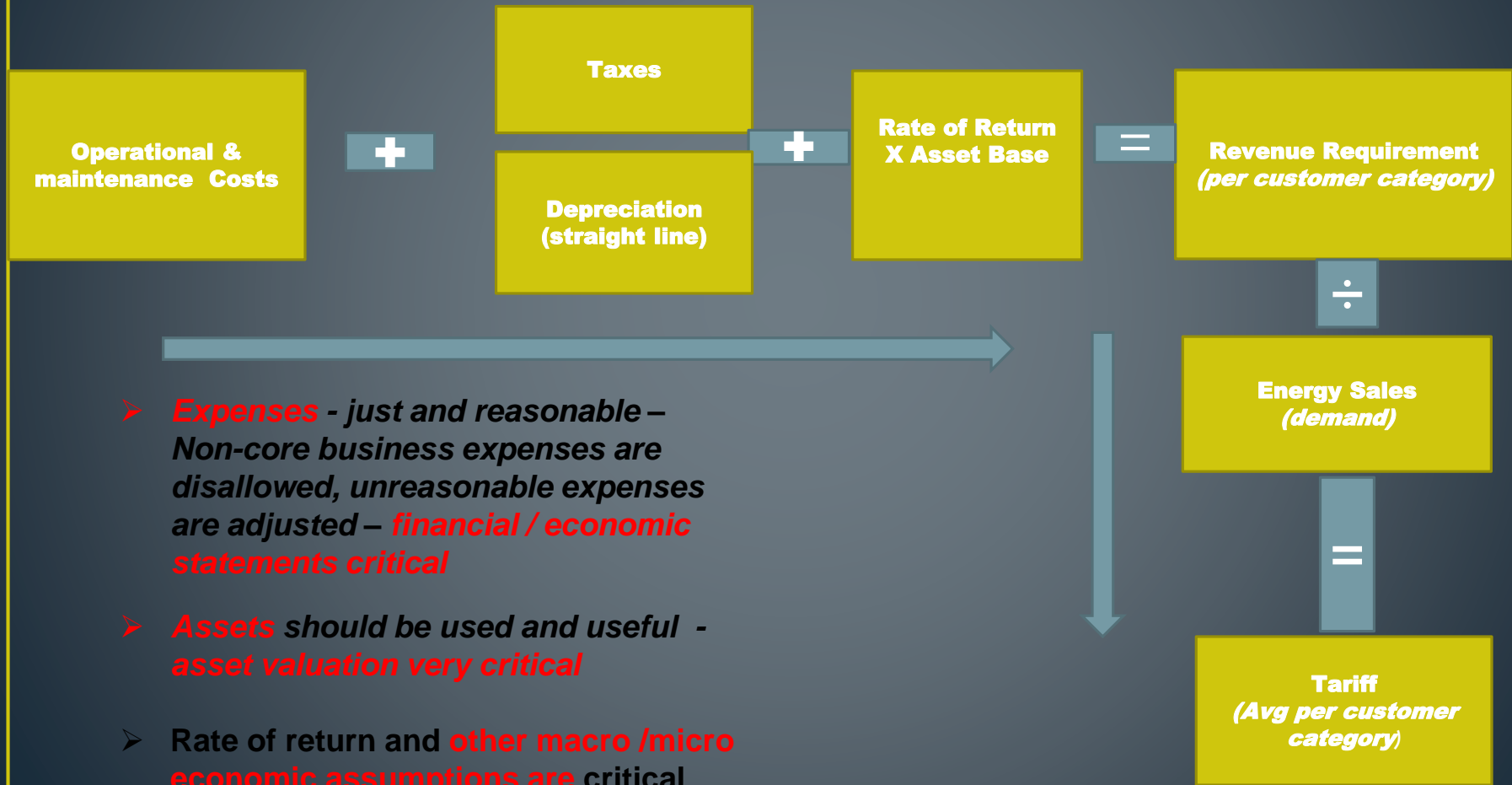
- ERB authority to determine tariffs is enshrined in section 8 of the Electricity Act Cap 433.
- Tariff Filing Guidelines (TFG)

Process

- ☐ Utility applies to the ERB for a tariff review;
- ☐ ERB grants no objection to Utility if duly lodged;
- ☐ Utility issues 30 days Notification to the public;
- ☐ ERB issues a Public Consultation Paper (PCP) highlighting tariff application and invites submissions from the public;
- ☐ Public hearings;
- ☐ ERB undertakes detailed analysis and review; and
- ☐ Board Decision (90 days as per TFGs)

Methodology

Revenue Requirement =



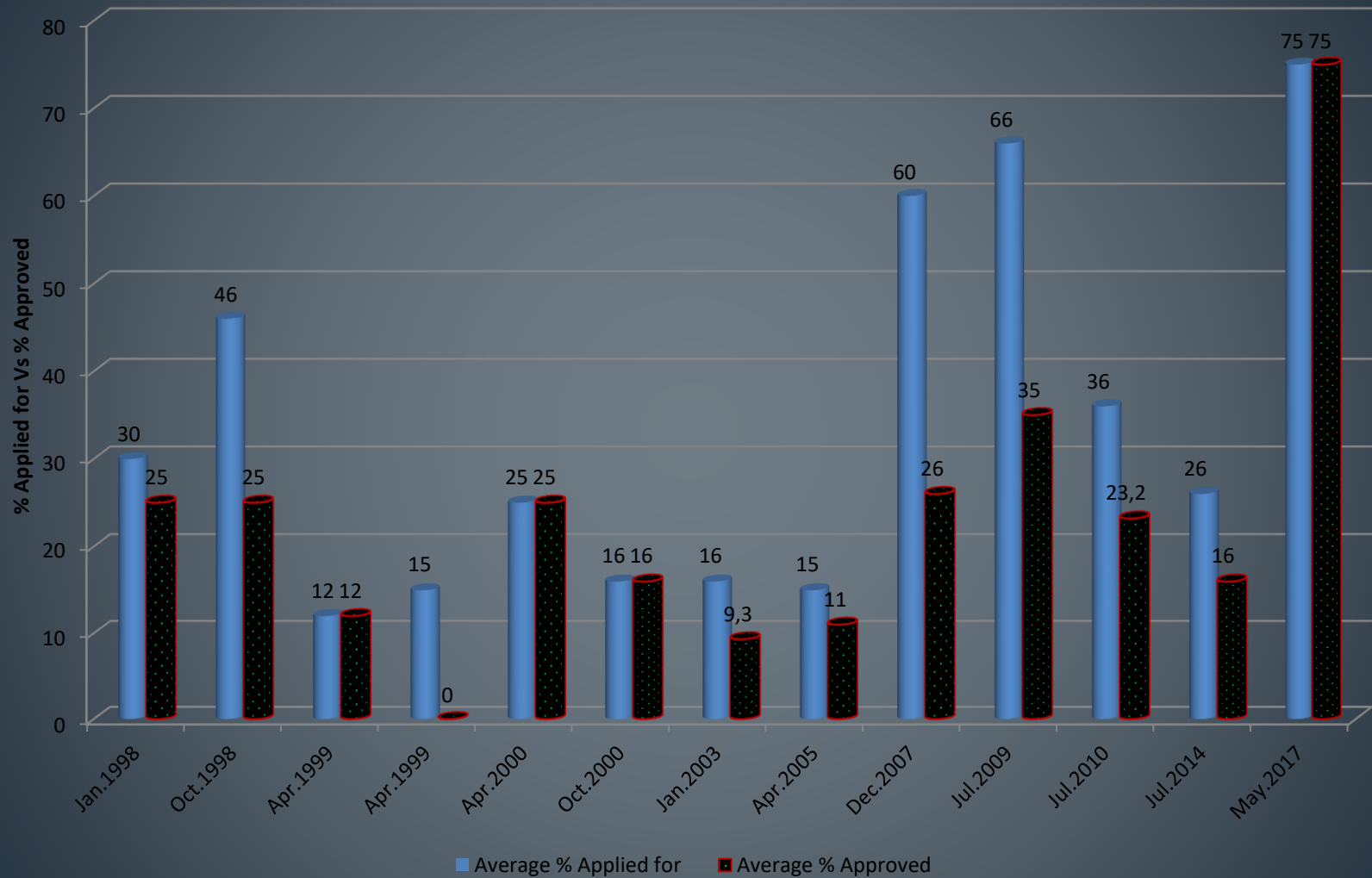
Tariff Review Process

- ❑ Allow only **prudent business expenses** exclusively used for the provision electricity;
- ❑ Costs and Capex Investments must be prudently incurred;
- ❑ **Benchmarking** – staff costs, rate of return, Plant maintenance costs;
- ❑ Trend Analysis and adjustment of costs lying out of the 'normal';
- ❑ Assets should be **used and useful**; and
- ❑ Use of **KPIs** as tariff incentives.

Key data and Information for Tariff calculation and Pricing

- An unambiguous, clear legal mandate;
- A predictable transparent regulatory framework;
- An up-to-date Cost of Service Study (2006, now 2017);
- Detailed Utility performance and Capital investment plan (IRP)/ asset values;
- Audited Financial statements;
- A robust set of tariff setting rules – *TFGs, Tariff calculation model etc;*
- A timely forward looking tariff adjustment/Migration plan;
- Incentive scheme (e.g KPIs) is required to balance stakeholder needs/expectations.

6.0 ERB Tariff Decisions 1998 - 2017



7.0 Electricity Tariff Structure

Zambia has a two-part tariff structure that provides for Fixed monthly charges and Energy charges. This has made it possible to provide for a Life-line tariff for indigent consumers. The Current Tariff structure is as shown below:

CUSTOMER CATEGORY	CONSUMPTION BANDS
1.RESIDENTIAL	1. Energy Charges /kWh i. R1: 0 – 200 kWh ii. R2: Above 201kWh 2. Fixed Charge/Month
2.COMMERCIAL	1. Energy Charge/kWh 2. Fixed Charge /Month
3.SOCIAL SERVICES	1. Energy Charge/kWh 2. Fixed Charge /Month
MAXIMUM DEMAND 1 - 4	1. Energy Charge/kWh 2. Fixed Charge/Month 3. MD Charge/kVA/Month

8.0 Key Performance Indicators

Key Performance Indicators (KPIs) :

- 1. Customer metering (10%)**
- 2. Cash management (20%)**
- 3. Staff Productivity (15%);**
- 4. Quality of Service (20%);**
- 5. System Losses (10%);**
- 6. Power Generation (5%);**
- 7. Safety (5%);**
- 8. Resolution of Consumer Complaints (10%); and**
- 9. Equipment Failure (5%)**

KPI Tariff Award Rules

SCORE	RULE
75% -100%	One hundred percent (100%) of the ERB determined tariff would be awarded
50% -74%	Seventy five percent (75%) of the ERB determined tariff would be awarded
25% -49%	Fifty percent (50%) of the ERB determined tariff would be awarded
00%-24%	Twenty five percent (25%) of the ERB determined tariff would be awarded

9.0 Regulation of Power Purchase Agreements

- ❑ Tariffs under the Power Purchase Agreements (PPA) are negotiated between the two Contracting parties;
- ❑ The ERB is not involved in the negotiations;
- ❑ The parties submit draft PPA for regulatory approval by ERB;
- ❑ The PPA must provide for Tariff indexation over the life of the PPA; and
- ❑ The ERB undertakes legal, financial/economic and technical review on the Basis of PPA Review Guidelines and grants regulatory approval if all requirements are met.

10.0 The REFiT Programme – Regulatory Support

ERB has developed Standardized documents up to 20 MW

- Standard PPA;
- REFIT Rules;
- Model Grid Connection Agreements;
- Standardized Licence;
- REFIT Guidelines: Support Mechanisms and Regulations

ERB Website



The REFiT Programme – Indicative Benchmark Tariffs

Indicative Benchmark Cost-reflective REFiT for Solar PV and small Hydro Projects applicable for Phase 1 of REFiT, with price discovery allowed below the benchmark.

Plant Size Range	Tariff (U.S. ¢/kWh)	
	Small Hydropower	Solar PV
500 kW to 1 MW	13.98	17.82
1+ MW to 5 MW	9.53	16.76
5+ MW to 10MW		15.74
10+ MW to 20 MW	8.05	14.25

11.0 Challenges under Current Framework

- ❑ Under the current framework, ERB has to wait for an Application from the Licencee;
- ❑ Annual Reviews have proved to be cumbersome and costly;
- ❑ Current framework is not responsive to emergency situations e.g emergency cost pass through and automatic tariff adjustments because of the need to undertake Public consultations;
 - ✓ Proposed Multi-Year Tariff Regulation Methodology
 - ✓ Proposed Automatic Cost-pass through mechanism (Exchange rate, cost fuel etc)
- ❑ TFG requirements not suited to small Off-grid operators – Light handed regulation is in place;

12.0 Conclusion and key success factors

- ❑ Tariff determination is not a pure science, it incorporates financial, economic, consumer/social, investment and political perspectives as maybe demanded by specific Country circumstances;
- ✓ *However, the **Key success factors** are common across Countries*
- ❑ **Transparency** is critical in order to ensure buy-in;
- ❑ A **phased approach** to migrating tariffs to cost reflective levels is important to forestall tariff shocks; and
- ❑ A framework (e.g **KPIs**) to hold the Utility accountable to improving service delivery is necessary to balance customers' need and Utility's needs; and
- ❑ Timing of commencement of **migration and consistency** are critical to attract/incentivise new investments and also to avoid huge increases in future.

THANK YOU FOR YOUR ATTENTION

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