Africa Renewable Energy Initiative

Initiative Africaine pour les Énergies Renouvelables

De-Risking Private Sector Investment in Renewable Energy in Kenya

by

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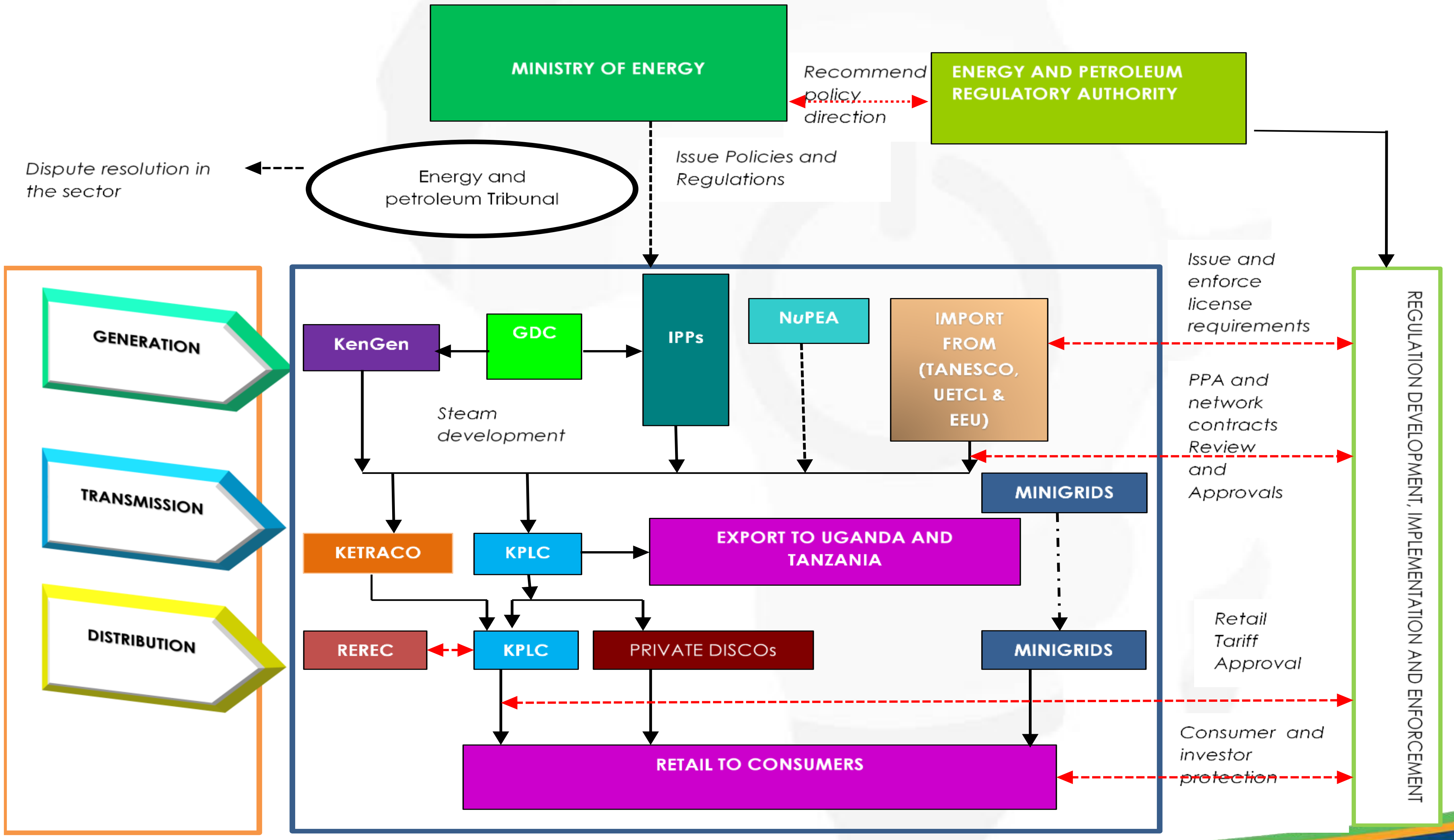
EPRA Energy & Petroleum Regulatory Authority

Outline

- Structure of Electricity Subsector, Establishment and mandates of EPRA
- Least Cost Power Development Plan and Procurement of Electricity
- PPP Project Development and Implementation Process
- Considerations for Power Purchase Agreements (PPA) Review Process
- Consideration for the Tariff Review Process.
- Transmission Network-PPP Participation.
- Reforms in the Power Sector to Attract Private Participation

Structure of the Energy/Electricity subsector



Establishment and mandate of EPRA

Core Mandate

The Energy and Petroleum Regulatory Authority (EPRA) is established under Section 9 (1) of the Energy Act 2019 to undertake Technical and Economic Regulation for electricity, renewable energy, downstream coal, coal bed methane gas and petroleum sectors.

Installed capacity vs Peak demand

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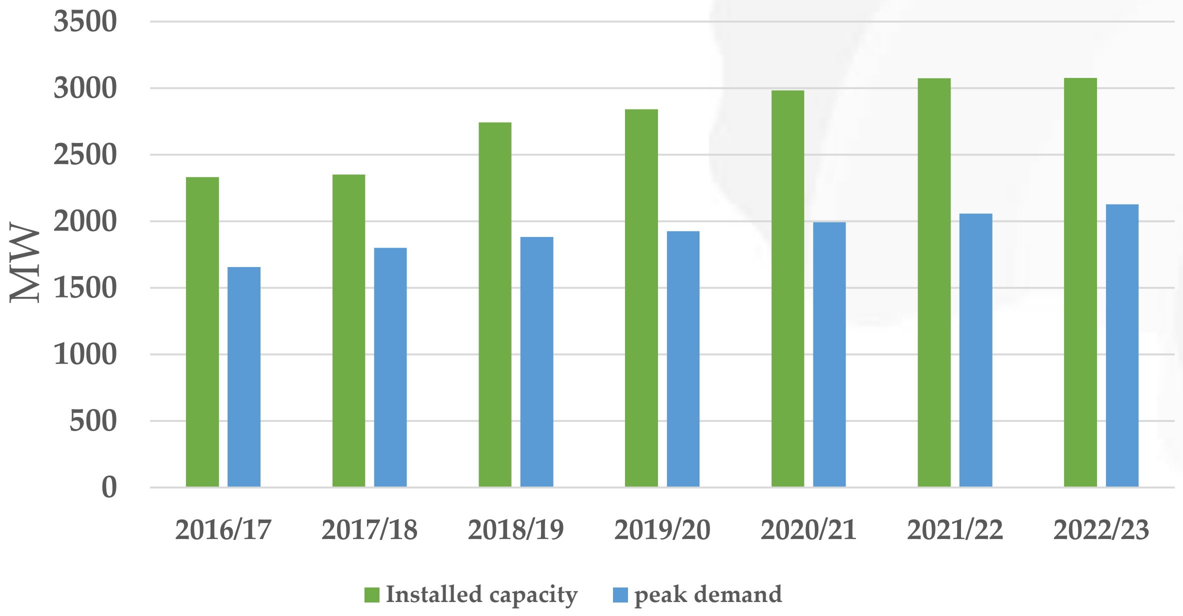

- Both the installed capacity and peak demand for electricity have shown an upward trend over the last six years.
- Peak demand increased by 22.18% while the installed capacity increased by 24.18% between FY 2016/17 and FY 2022/23 (as at August 2022).
- Increasing demand is fuelled by economic growth and deliberate policies to improve electricity access, and this necessitates an increase in the installed capacity.

LCPDP (2022-2041) and Procurement of Electricity

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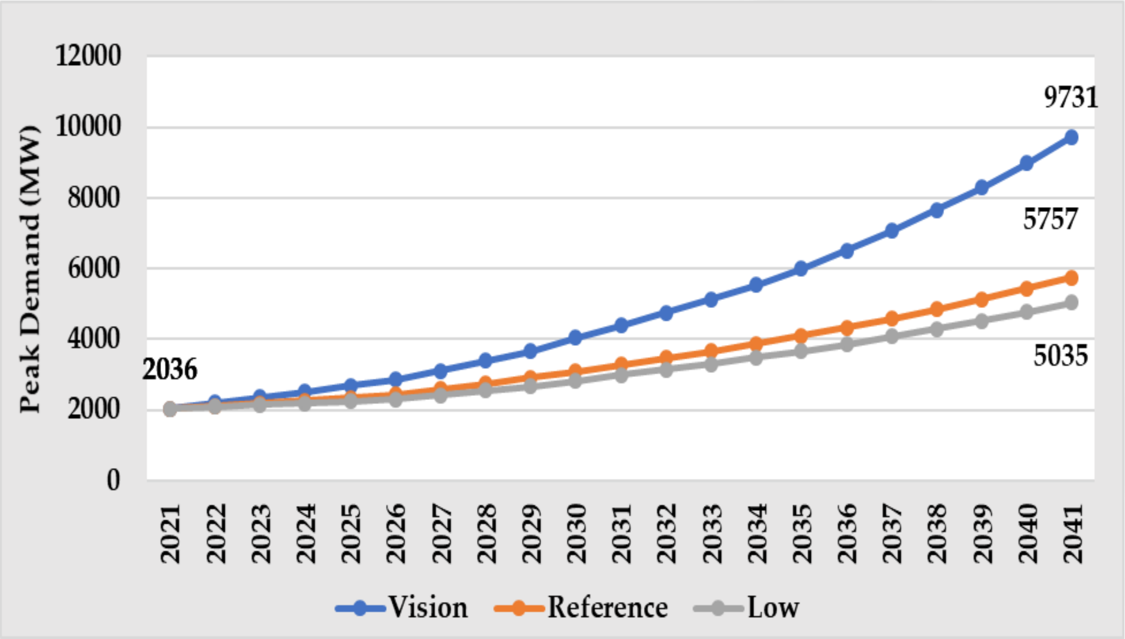

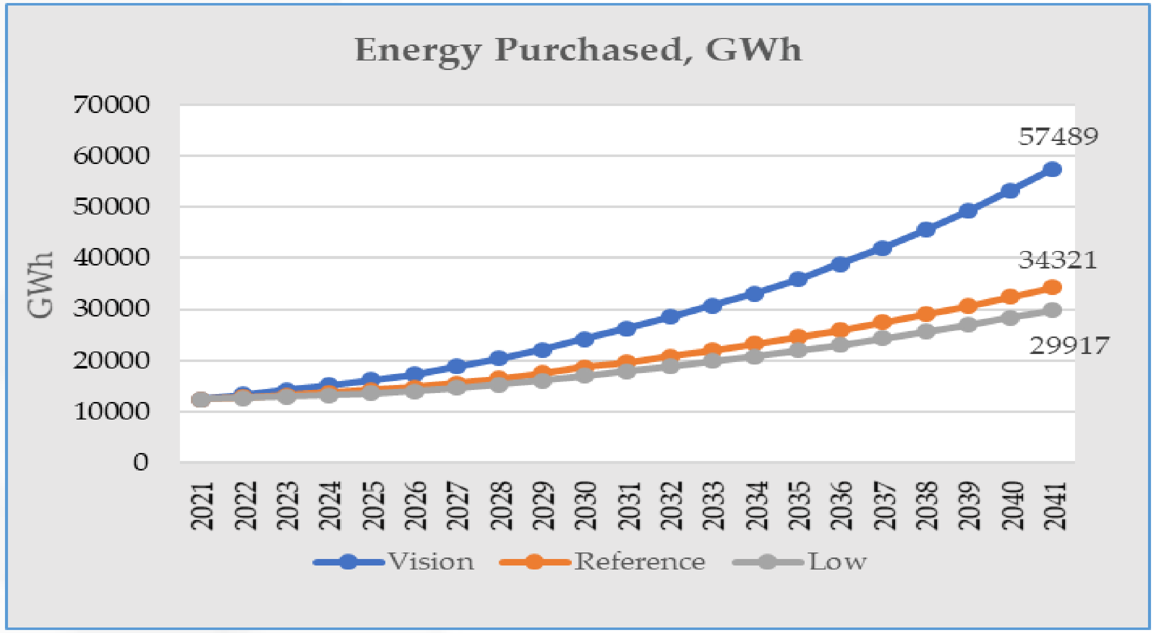

- LCPDP is a 20 year plan. Has Medium Term plans of 5 years in line with MTP planning process of Vision 2030
- Revised every two (2) years to take in account recent development and economic growth dynamics.
- Medium term and the long term plans ensure security of supply.
- We owe future generations clean energy and good standards of living. Need for sustainable use of resources.

Power Procurement and Project Implementation

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- Power Project implementation in Kenya is currently developed under the following institutional frameworks;
  - **Strategic Project** development by National entities in line with LCPDP:
    - ✓ KenGen (baseload projects), GDC (Steam) and REREC (other Renewables)
  - The Feed in Tariff Policy;
  - The Public Private Partnerships **(PPPs)** and;
  - **Bilateral agreements** such as power imports from Uganda and Ethiopia
- Transition to Renewable Auctions as envisioned in the Energy Act 2019.

- The off taker (KPLC) primarily procures power from Public entities and Independent Power Producers under three methods; **Strategic investment under the Public Procurement and Asset Disposal Act, 2015; FiT and PPP**

Major Types of PPP's- (Based on Contractual Agreement)

- The spectrum begins with Public Utilities retaining entire responsibilities of financing, constructing, operating and maintaining assets and associated risk.
- At the far end, all aforementioned functions are undertaken by the private utility

Considerations for PPA Review Process

- Tariffs provides market signals to private sector investors
- The PPA review process is undertaken in accordance to section 11(h); 163(1), (3) and (4) of the Energy Act 2019.
- EPRA makes the following considerations when reviewing initialed power purchasing agreements;
  - **Economic and Financial Viability of the project** - takes into account forecasted revenues from approved generation tariff and ascertain project viability.
  - **Technical Feasibility** - Reviews approved contracted capacity in line with LCPDP Demand- supply projections. Review grid connection study for load flow analysis on proposed transmission lines, and to ascertain compliance with Grid Code.

Considerations for PPA Review Process-Cont.

- EPRA makes the following considerations when reviewing initialed power purchasing agreements;
  - **Legal Implications** - reviews initialed PPA in line with legal and regulatory provisions.
  - **EHS Considerations** - ensures the PPA addresses the issues of environment, health and safety
  - **Analysis of risk-** completion risk, commercial/off taker risk, resource risk, regulatory/approval risk, force majeure risk etc.

Types of Risks in PPA's

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- **Demand risks:** The PPA deals with the risk of insufficient demand by moving it to the off-taker by means of the take or pay clause. Owing to the bulk of PPA's in the pipeline and sluggish growth in demand, the consumer is expected to finally bear this risk.

- **Operational risk**: Occurs when the developer does not perform as expected (for example it fails to achieve a minimum agreed level of operational availability). *This risk is best managed through either insurance or partial risk guarantees (PRGs)*

Types of Risks in PPA's

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- **Regulatory/approval risks**: These are risks that government licenses and approvals required to construct or operate the project will not be issued or that the project will be subject to excessive taxation, royalty payments, or rigid requirements as to local supply or distribution. *The proposed energy Auctions will manage this risk., also GoK letter of support and condition precedent to cure it.*

- **Resource risk:** This is the risk that for a power station, there are inadequate inputs that can be processed or serviced to produce adequate return. For example, this is the risk that there are insufficient reserves for steam to generate power in the plant. Cured by good feasibility study before project development also PRG with regard to steam supply.

Types of Risks in PPA's-Cont.

- **Commercial/market risk**: Risk that a buyer cannot be found for the product at a price sufficient to provide adequate cash-flow to service the debt. The best mechanism for minimizing market risk before lending takes place is an acceptable forward sales contract entered into with a financially sound purchaser.

- **Political risk:** This is the danger of political or financial instability in the host country caused by events such as insurrections, strikes, suspension of foreign exchange, creeping expropriation and outright nationalization. It also includes the risk that a government may be able to avoid its contractual obligations through sovereign immunity doctrines. Political risk is covered not only as a Force Majeure (FM) in the PPA but also as a Political event under LoS.

Number of Generating Plants in Kenya

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Technology	No. of PPAs	Capacity (MW)
Hydropower	10	838
Geothermal	12	949
Thermal	8	646
Wind Power	4	436
Solar PV	5	170
Cogeneration	-	-
Biogas	1	2
Imports	1	0
Total Interconnected System	**41**	**3,041**

- There are currently forty one (41) Power Purchase Agreements for the various plants supplying power in the interconnected system.
- **There are 33.8 MW in off grid stations managed by KPLC and REREC

Considerations for Tariff Review Process

✓ *Stages of the review process*

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- Demand forecasting for the bulk markets and retail
- Generation planning to meet forecasted demand
- Determination of revenue requirements based on forecasts of costs likely to be incurred for generation, transmission, distribution and supply
- Determination of marginal costs of generation, transmission, distribution and retailing; based on pricing periods
- Allocation of total revenue requirement among customer classes on the basis of the marginal costs and price sensitivity
- Computation of initial retail tariff proposal
- Sensitivity analysis of the proposed retail tariffs.
- Stakeholder engagement of the proposed tariffs
- Determination of the final retail tariffs

Considerations for Tariff Review Process

Revenue Requirements

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- In computing the Revenue Requirement, EPRA makes the following considerations;
  - Market returns on prudent investment; computed as the product of the Regulatory Asset Base (RAB) and the allowed Rate of Return (RoR).
  - Allowances for technical losses.
  - Prudent levels of operations and maintenance expenses (EO&M) comprising the cost of supply, including working capital.
  - Depreciation on the asset base (ED)
  - Applicable Taxes (T)
  - Revenue Requirement is computed as follows;
    - RR= (RAB*RoR)+ EO&M +ED+T

Considerations for Tariff Review Process

Allowed Rate of Return

- EPRA computes the allowable Rate of Return as the Weighted Average Cost of Capital (WACC).
- WACC is computed as follows;
  - WACC = (Debt*cost of Debt)+ (Equity *Cost of Equity)
- The Rate of Return computation is based on 70:30 debt to equity ratio.
- EPRA considers the actual cost of debt of Kenya Power
- Cost of Equity is computed based on Capital Asset Pricing Model (CAPM) and is currently set at 10.5% post tax for all public utility regulated entities

Reforms in the Power Sector to attract Private Participation

Energy Act of 2019

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- Provision for non-discriminatory **open access** to transmission or distribution system so as to enhance competition.

- KETRACO designated as System Operator to encourage regional interconnections to enhance regional electricity trade and improve transparency and efficiency in power dispatch

- Development of a **Power Market** to enhance competition, improve efficiency, increase reliability and security of supply as well as the quality of service by all licensees.

- All new capacity of variable renewable energy to be procured through the **Renewable Energy Auctions except** for small capacity projects of less than 20MW from small hydro, biomass, and biogas sources.

- Gazettement of Guidelines for Return on Equity (RoE), Return on Investment (ROI), Indicative Feed in Tariffs (FiT) and Benchmark Tariffs for Renewable Energy Auctions to facilitate transition to Renewable Energy Auctions.

Reforms in the Power Sector to attract Private Participation

Energy Act of 2019- Cont.

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- Introduction of an Integrated National Energy Plan consisting of electricity and renewable energy plan that incorporates **County Energy Plans.**

- Provision for **viable financing options** from local and international sources for cost effective utilization of all its energy resources, to maintain a competitive fiscal investment climate in the country.

- Establishment of an inter-ministerial Renewable Energy Resources Advisory Committee (RERAC).

- Transformation of the Kenya Nuclear Electricity Board(KNEB) into the Nuclear Power and Energy Agency (N*u*PEA) with expanded mandate to promote and implement a nuclear electricity generation program and implement a capacity building programme for the power sector.

Conclusion

- Kenya is committed to provide enabling environment to the private sector to invest in the electricity grid in the country and the region.
- Incentives and cost recovery tariffs
- Various instruments exist to promote private sector investments—capital allowance in taxes e.t.c
- Friendly procurement laws that promote private sector investment in the energy sector.
- EPRA is committed to ensure an enabling regulations to oversight in the Energy Sector in Kenya.
- Promote Generation through PPPs
- Promote Transmission /power Grids through PPPs
- Promote Open Access and Power Market

Thank You

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