The role of Power Markets in achieving Security and Decarbonisation Goals in Kenya

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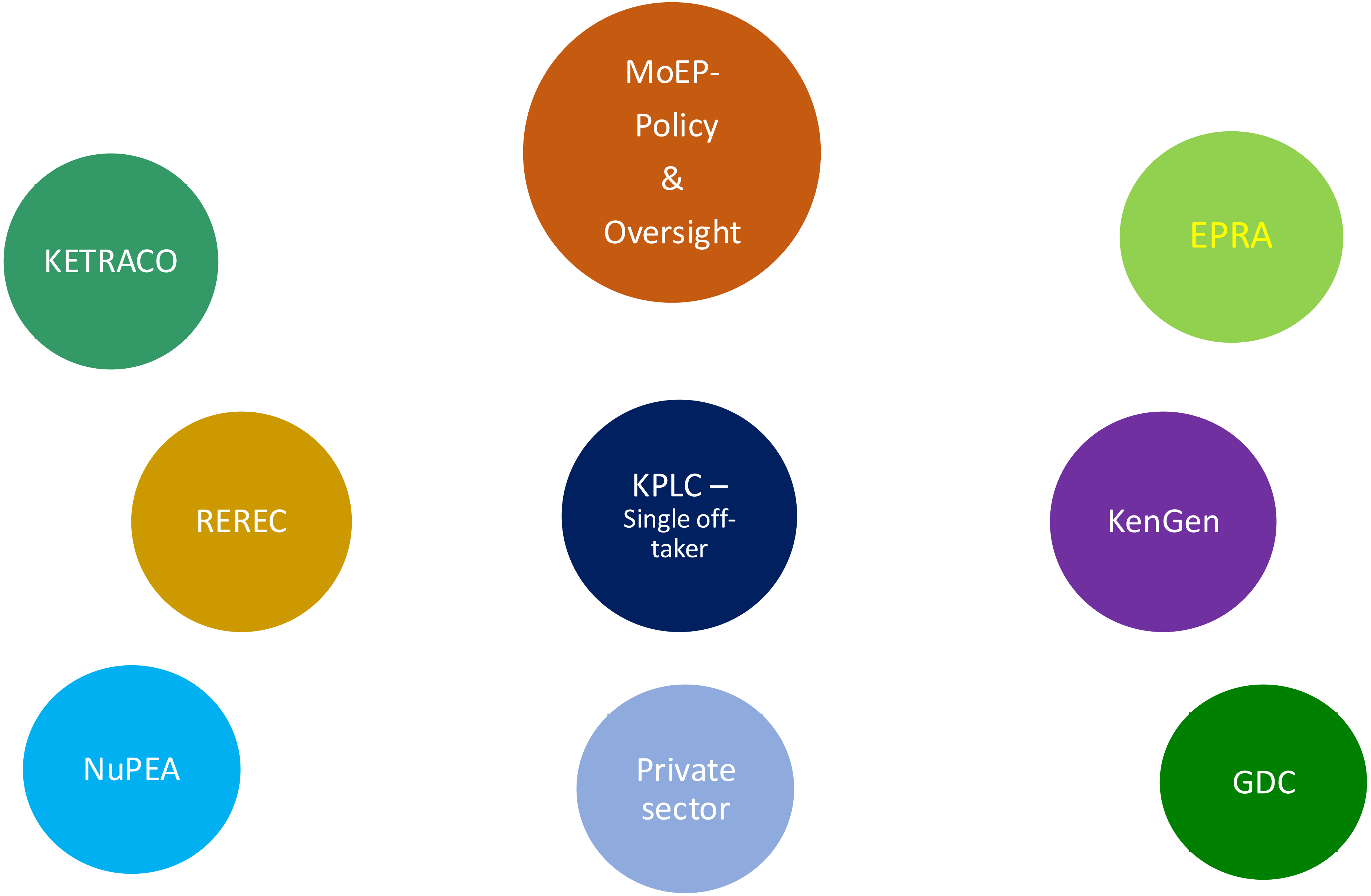
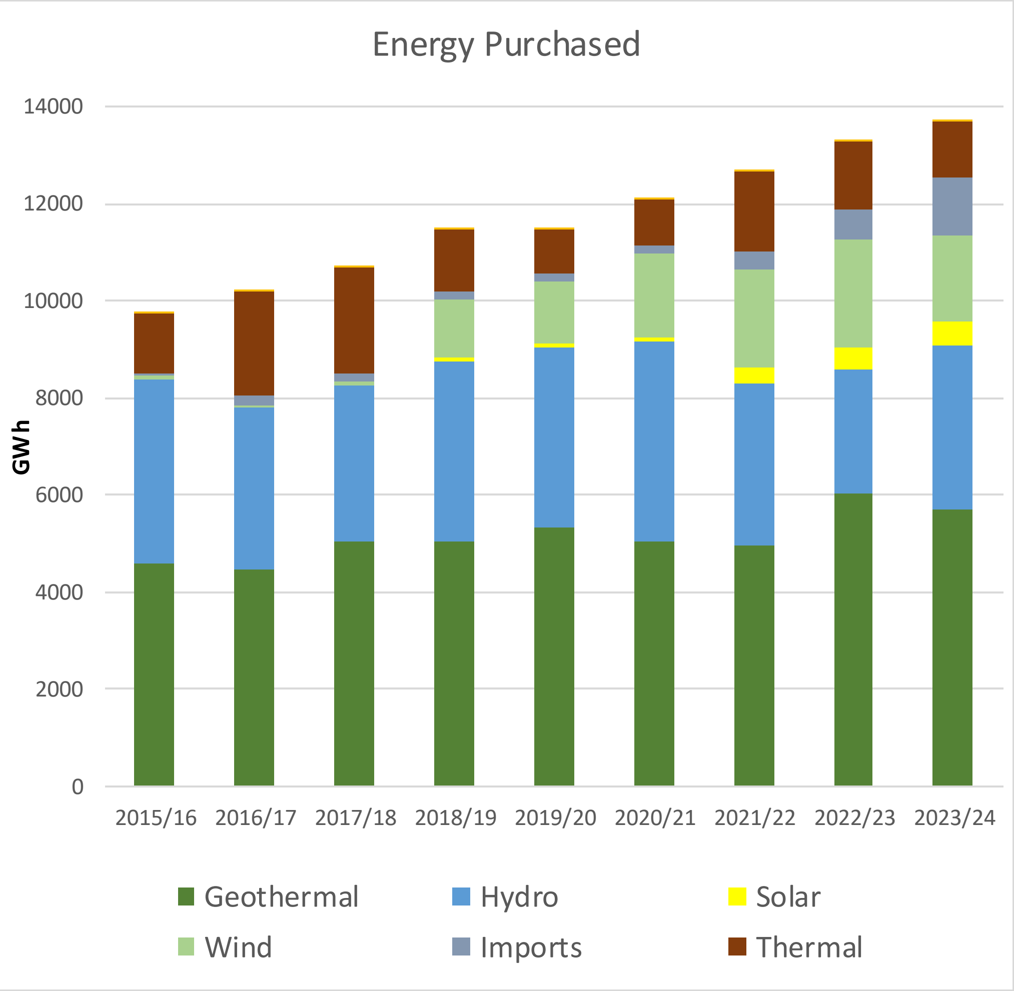
Overview of the Kenyan Power Sector



Generation Overview

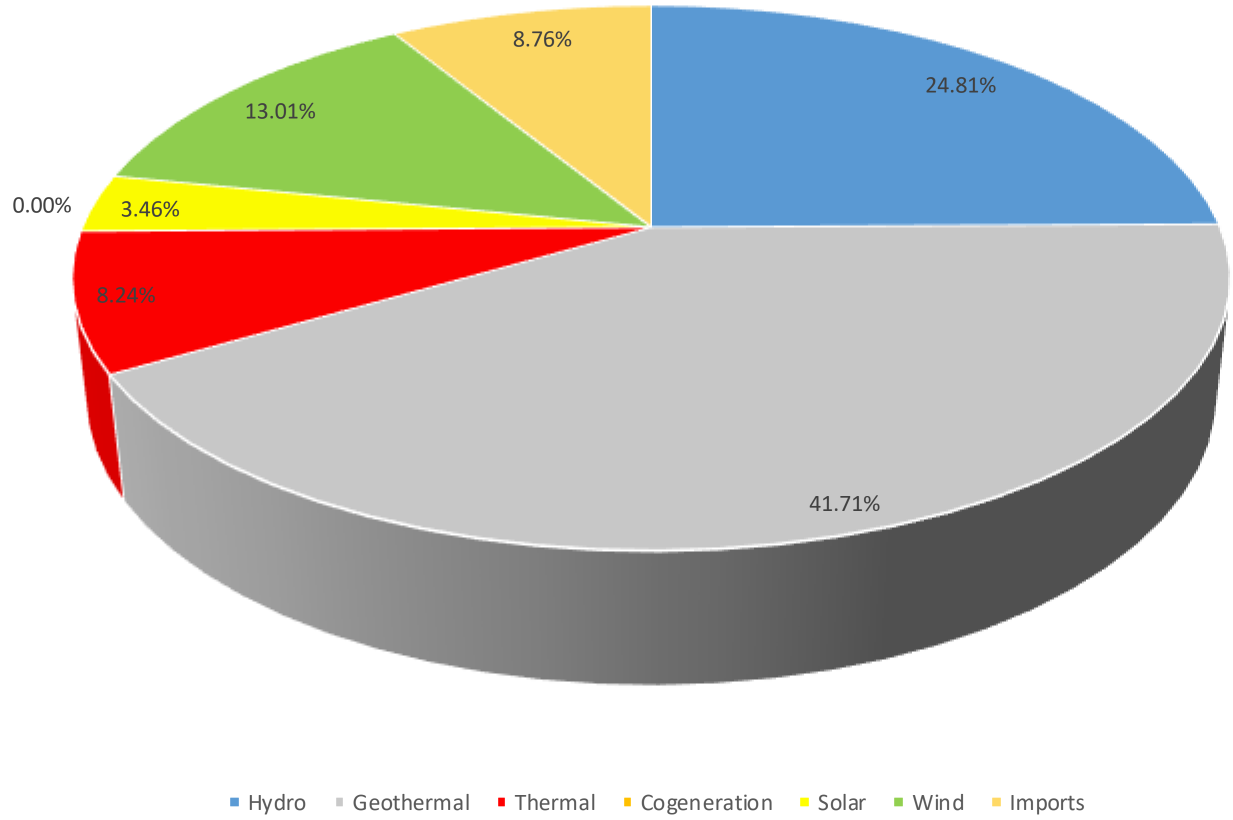
Capacity by Type (MW)

	Installed MW	Effective*/ Contracted MW	Indicative Firm Capacity MW	% (Effective)	% (Installed)
Hydro	839.3	810.4	629.8	26.51%	25.87%
Geothermal	940.0	876.1	876.1	28.66%	28.98%
Thermal (MSD)	512.8	506.4	506.4	16.57%	15.81%
Thermal (GT)	60.0	56.0	56.0	1.83%	1.85%
Wind	435.5	425.5	106.4	13.92%	13.43%
Cogeneration	2.0	2.0	1.0	0.07%	0.06%
Solar	210.3	210.3	0.0	6.88%	6.48%
Import	200	200	200	6.54%	6.17%
Interconnected System	**3,200**	**3,031**	**2,376**	**99.15%**	**98.7%**
Off grid thermal	40.96	24.15	24.15	0.79%	1.26%
Off-grid Solar	2.26	1.91	0.00	0.06%	0.07%
Off-grid Wind	0.55	0.00	0.00	0.00%	0.02%
Total Capacity MW	**3,244**	**3,057**	**2,400**	**100.0%**	**100.0%**

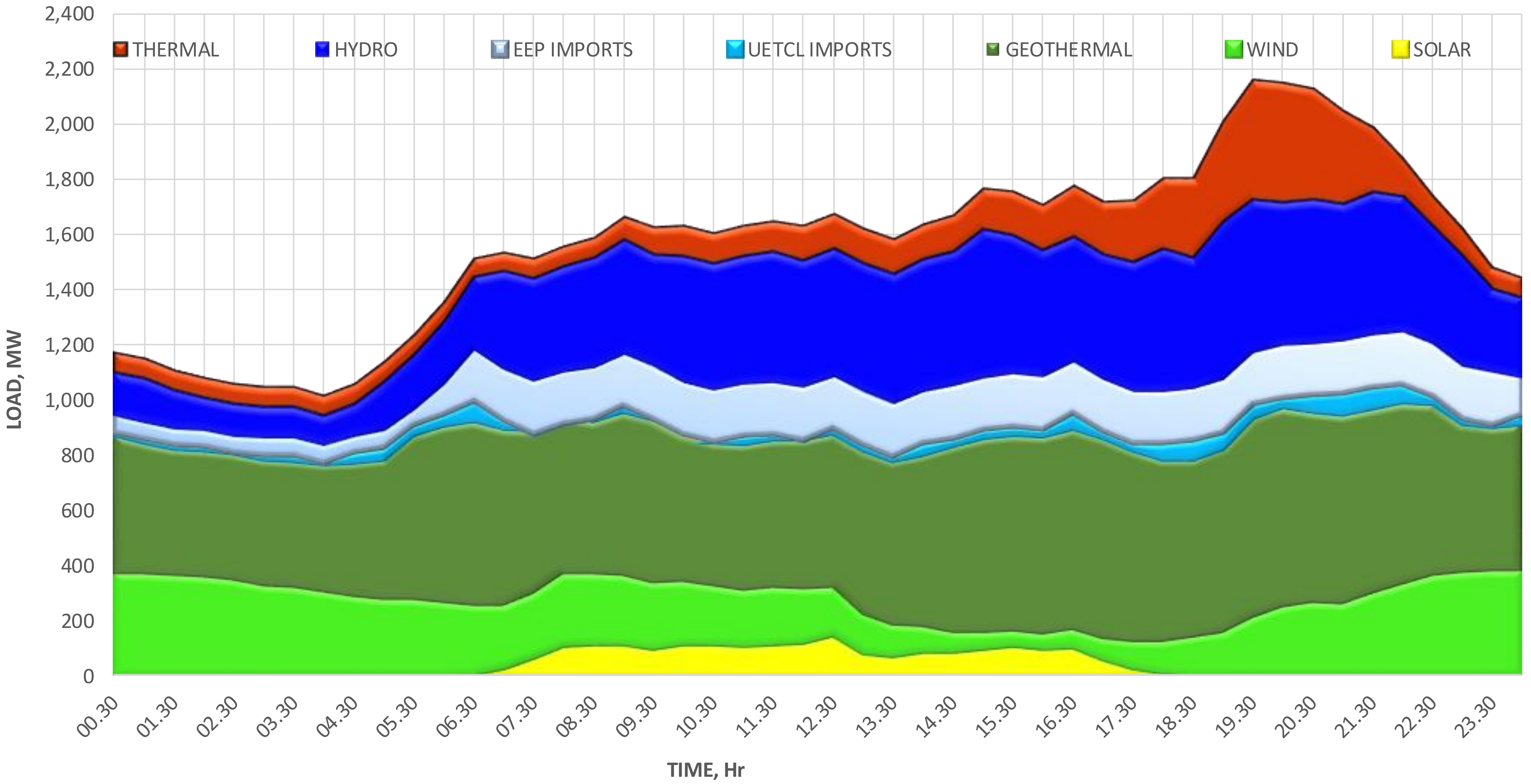


Peak Demand = 2,239 MW

Energy Mix 2023-24



Generation Mix, Mon 9.9.2024



Country Goals

- Attract sustained investments in renewable energy sources to attain 100% green energy supply – fully decarbonise
- Achieving high grid reliability levels
- Universal access by 2030
- Grow electricity demand -Increase adoption of e-cooking and e-mobility
- Harnessing new technologies and emerging frontiers- BESS, Green Hydrogen
- Reduce electricity cost- competitive generation; increase efficiency
- Transition to take-and-pay PPAs
- Liberalisation of the power market – open access; competitive power market; regional integration and power trade
- Net zero emissions by 2050

Energy Security Challenges

- Grid reliability with the increased VRE levels
- Limited system flexibility versus green energy goal
- Transmission and distribution constraints –delays in realizing key infrastructure projects
- System efficiency- curbing energy losses
- Electricity cost –green energy; energy auction; FiT tariffs; forex rates; fuel prices
- Current market structure in relation to the envisaged competitive power market - long term PPAs; FiT project pipeline
- Sustainability in the changing business environment- captive power

Power Market

- Towards further liberalization of the power market:
  - Power market regulations development- structure; open access rules; market operation rules; bulk supply rules
  - Net metering regulations approved
  - Captive power policy and regulations at drafting
- Regional power market-EAPP:
  - Development of IT trading platform
  - Formulation of agreement documents
  - Power market -market operator to be defined and its location identified

Summary

- A power market has potential to enhance energy security in Kenya
- Development of local and regional power market in progress
- Addressing challenges and risks during the process is key
- Sustained engagements, collaborations and partnerships are important in market development and enhancing energy security

Thank you