POWER SITUATION IN KENYA

Reforms to Guarantee Security of Supply

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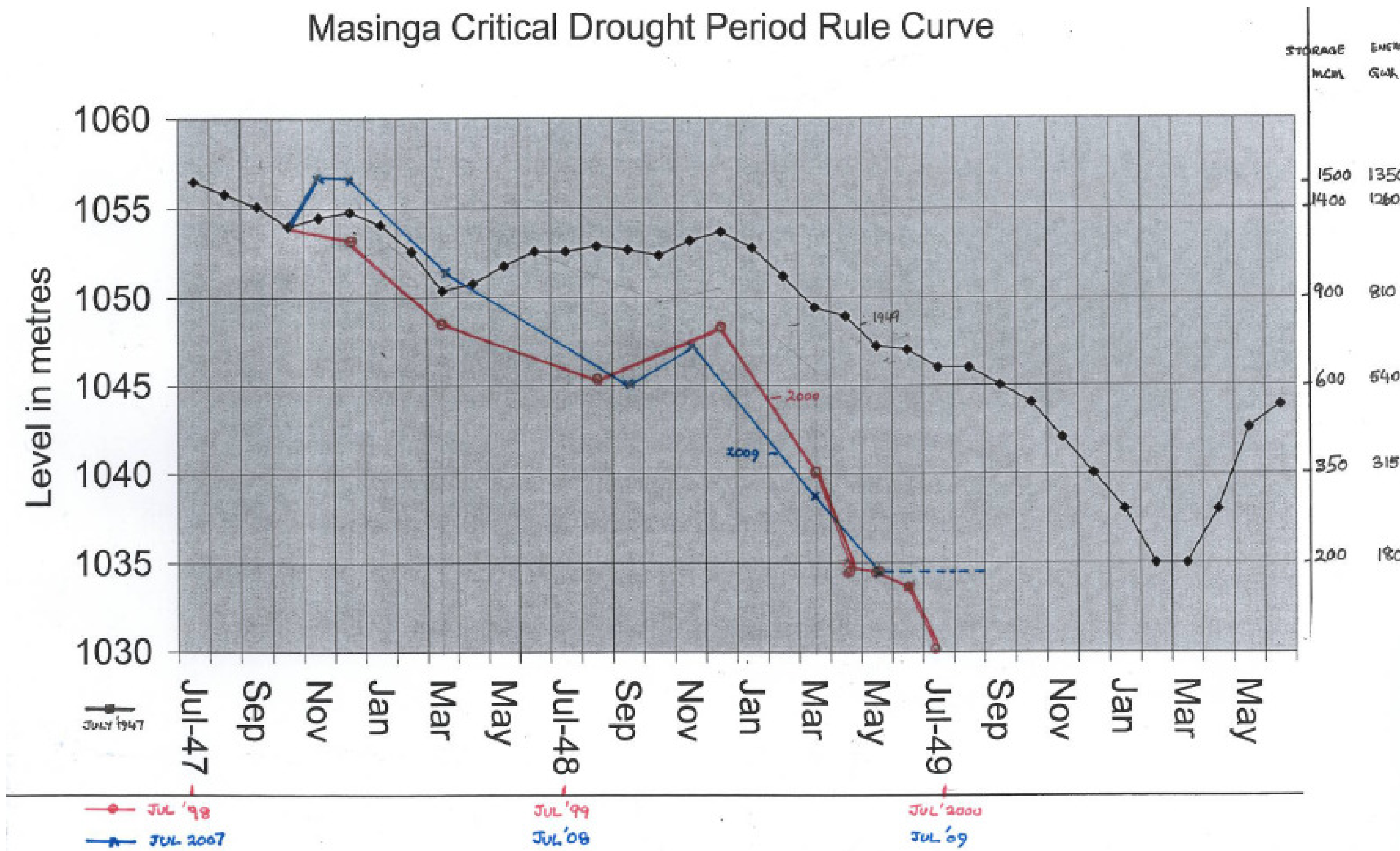
Challenges Facing the Power Sub-Sector

- Weak power supply/demand balance
  - Zero Reserve margin
  - Load Shedding
- Low per capita consumption (<160kWh)
- Low access rate (<20% nationally, 8% Rural)
- Weak T&D Infrastructure
  - High system losses (16.5%)
  - Poor quality of supply (intermittency, blackouts, brownouts)
- Skewed Generation Mix (mainly large hydro, petrol thermal & geothermal)
- Inordinately long lead times for generation projects

Current Power Crisis

- **Major Causes (Historical):**
  - **Disjointed Least Cost Power Planning**
  - **Inordinately long delays in completion of committed projects**
- **Other Causes (Immediate):**
  - Failure of two long rains (Apr '08 and'09) & one short rain (Oct.2008)
  - Delayed 90 MW Rabai Plant by 2 yrs
  - Depletion of Masinga Reservoir by Jun '09, i.e., 24 months instead of 33 months
  - Current rationing of 5 - 10% **(<50MW**) since 6th Aug '09
  - **Any lessons from 1999/2000 load shedding experience???**

Masinga Rule Curve



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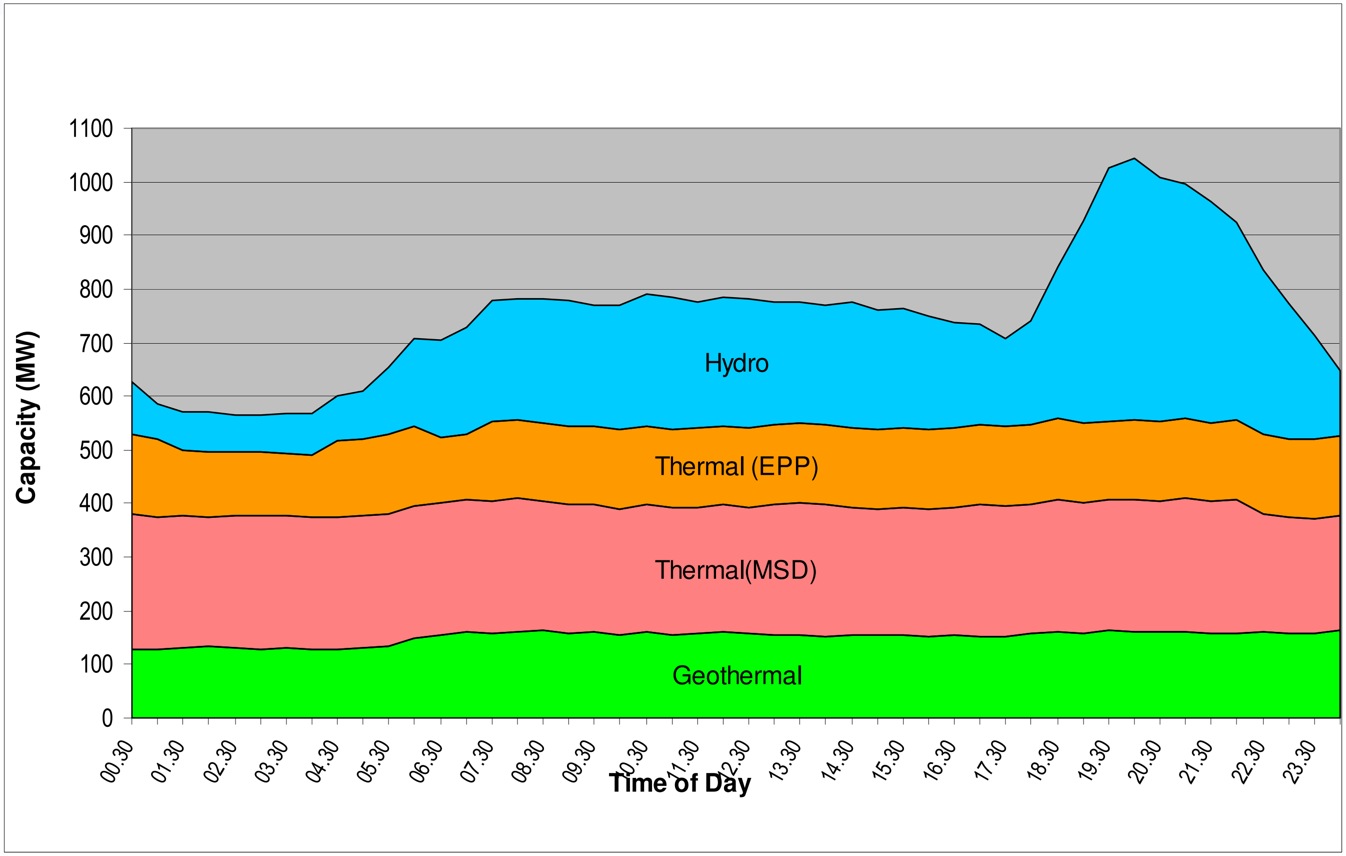
CONTRIBUTIONS BY MAJOR SOURCES TUESDAY AUGUST 4, 2009 (BEFORE LOAD SHEDDING)



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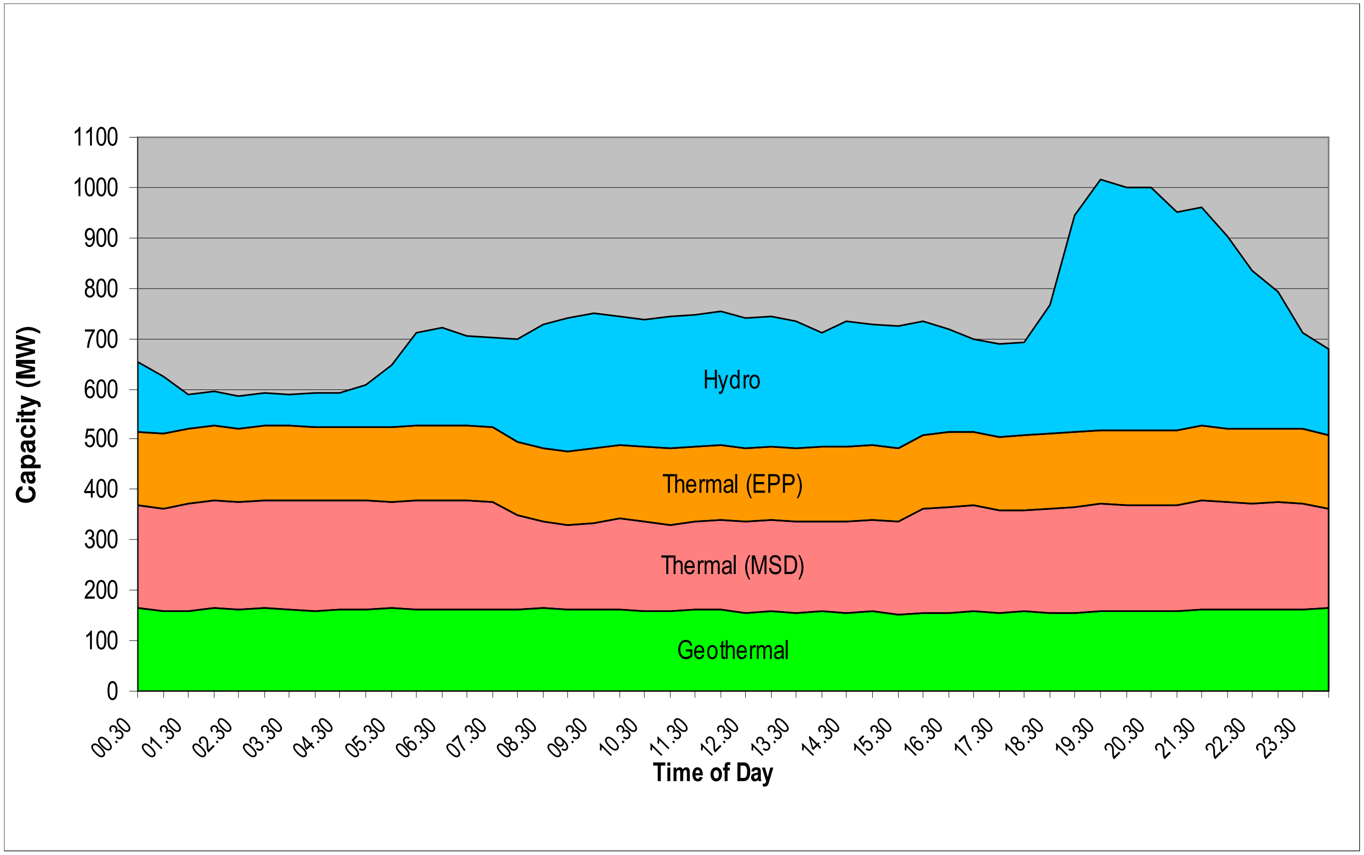
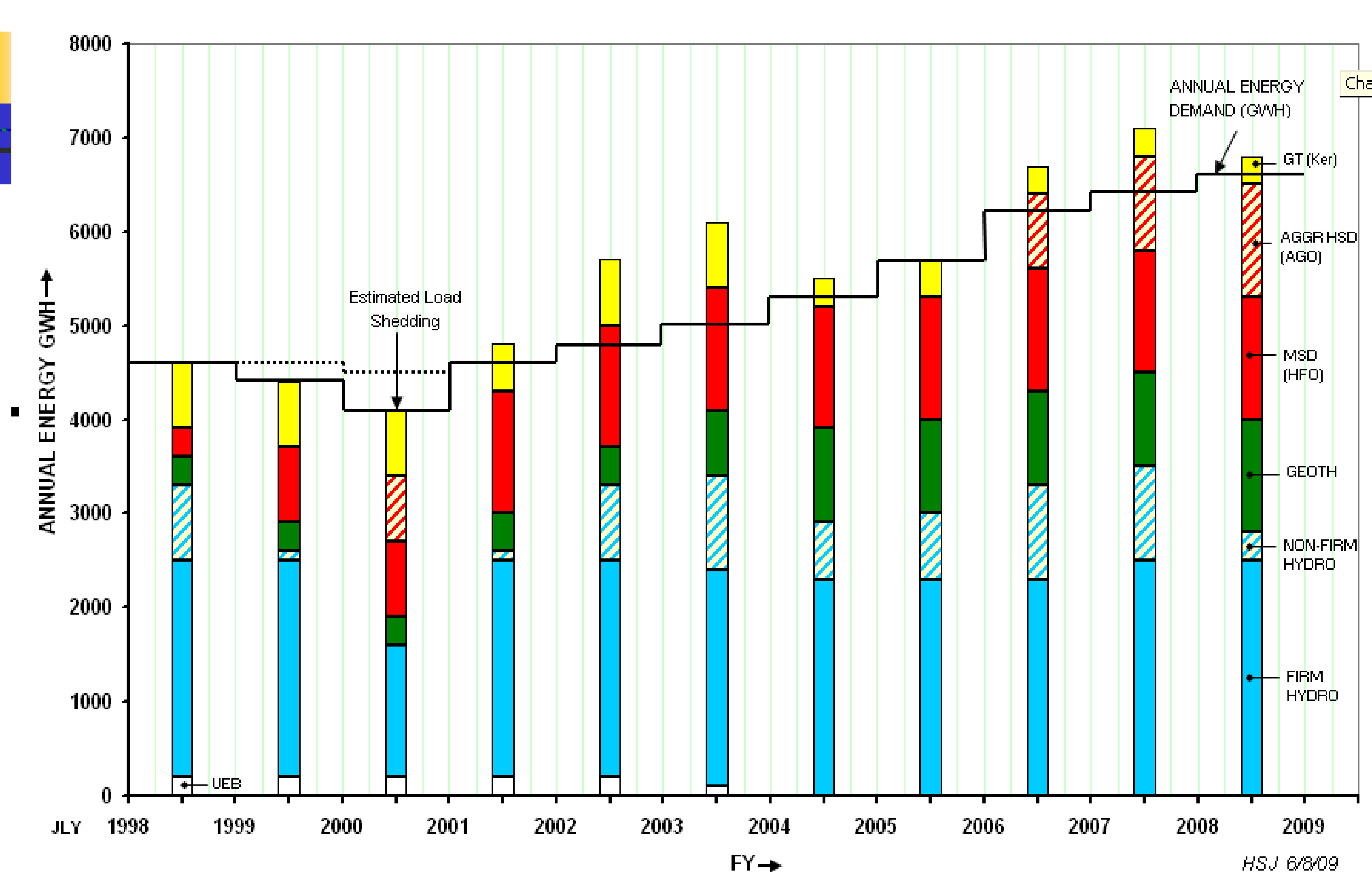


Figure 8: ANNUAL ENERGY (GWH) ACTUAL FY 1998-2009



Response to the Challenges Immediate Future

- **Additional 140 MW EM Plant** (AGGREKO – Oct '09)
  - Capacity charges?
  - Energy Charges?
  - Fuel Costs
- **26 MW MUMIAS –** From Jan'09 to Aug '09
- **Additional 52.5MW Iberafrica**– From June'09 to Aug '09
- **90 MW RABAI** – Oct '09 (2 yrs later than originally planned)
- **5MW KenGen Wind** – Aug.2009
- Feed in Tariffs projects (Genpro, KTDA)

Bulk Supply Outlook

Committed Generation Projects

FY	Project	Type	Developer	Capacity (MW)	Commissioning
2009/10	Mumias	Baggasse	IPP	26	Aug '09
	Ngong Wind	Wind	IPP	5	Aug '09
	Addnl. Iberafrica	MSD	IPP	52.5	Aug '09
	Rabai	MSD	IPP	88.6	Oct'09
	Kiamb. Upgrade	Hydro	KenGen	10	Oct '09
	Aggreko Additional	HSD	EPP/ KenGen	140	Oct '09
	Addtnl.Tana	Hydro	KenGen	10	April '10
	Aeolus Wind*	Wind	IPP	50	Apr '10??
	Olkaria 3rd Unit	GEO	KenGen	35.0	June '10

Bulk Supply Outlook

Committed Generation Projects

FY	Project	Type	Developer	Capacity (MW)	Commissioning
2010/11	Athi River, Ruaraka & Naivasha MSD	MSD	KPLC	200-240	Mar '2011
	Kipevu D3	MSD	KenGen	120	Mar '11
	ARM 1	Coal	IPP	20	Jun '11
	Raising of Masinga	Hydro	KenGen	Energy (90GWh)	May '11
2011/12	Sangoro	Hydro	KenGen	20	Nov '11
	Mombasa Coal*	Coal	KenGen/ IPP	300	Jun '12
	Turkana Wind*	Wind	IPP	300	Jun '12
2012/13	Kindaruma 3rd Unit	Hydro	KenGen	32	Oct '12
	GEO 2x70 Olkaria IV	GEO	KenGen	140	Dec'12
	GEO 2x70 Olkaria I Unit IV&V	GEO	KenGen	140	2012/13??
	Ethiopia Import	Import	KPLC/EEPCO	200	Jun'13
	Grand total			1,919	

Transmission & Distribution Projects

- Major T&D Projects to Improve Power Supply and Reduce Technical Losses, at cost of Ksh11,633 Million being implemented by KPLC
    - Reduce system losses
    - Improve Quality of Supply (intermittency, back outs, brownouts etc

Response to the Challenges Medium to Long Term

- **Coordinated LCPDP – EA 2006 mandates ERC**
  - M&E on committed projects
- **Further Restructuring of the Power Sector**:
  - GDC Model to unlocking Geothermal Potential;
  - Ketraco Model to allow for open access to transmission assets;
- **Diversification of Power Supply sources**
  - **KenGen's Geothermal Strategy**
  - **Feed in tariffs Projects**
- **Opportunities for Power trade/Regional Interconnections (Regional Catchment)**:
  - Kenya – Ethiopia
  - Kenya-Uganda
  - Kenya-Tanzania
  - EAPP
  - Potential Benefits (resource complementarities, Security of supply, Least Costs etc)
- **Attractive feed in tariffs for other technologies, Biogas, municipal wastes, solar etc)**