



THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF ENERGY AND MINERALS



TANZANIA – ENERGY SECTOR

Presented at

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OUTLINE:

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LOCATION AND GENERAL INFORMATION

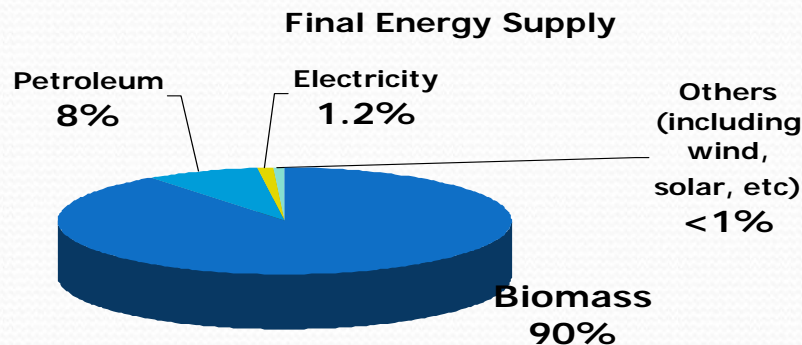
- 42 mil people
- Total area 945,234 km²
- 80% live in rural areas
- Swahili is the national language
- Agriculture => 1/2 of GDP
- Mining gold, diamond, tanzanite, natural gas
- Wildlife & Tourism: 12 national parks, 13 game reserves
- GDP per capita, USD 523
- GDP Growth rate = 7%
- Mount Kilimanjaro, 5892m high





STATUS OF THE ENERGY CONSUMPTION IN TANZANIA

- Estimated national energy consumption is 22 Million tonnes oil equivalent per annum (2009)
 - Petroleum 8%
 - Electricity 1.2%
 - Solar and wind <1% of primary energy
- Biomass fuels (i.e. wood and charcoal) account for over 90% of primary energy supply





STATUS CONT. (Demand and Supply)

- Growth in **Power demand** is 10 -15% per annum
- 14.2% of **Population** has access to electricity (2% rural areas)
- Total grid **installation capacity** is 1,051MW (2010)
- **Hydro** contributes 561 MW (53%). 490MW **thermal** (47%)
- **Independent Power Producers** (IPP's) (Songas and IPTL) contribute 289 MW (30%) of the available power in the grid
- **Co-generation** (Sugar & Wood, paper processing Plants) accounts for: 35.8 MW
- Average **connections** per annum is 50,000 customers (plan 100,000 customers/annum)
- Average power **generation** 700 MW
- **Peak** power demand 802 MW
- **CUSTOMERS** connected were: 868,953 (2010)



THE NATIONAL GRID SYSTEM





LOCAL ENERGY RESOURCES

- | | | |
|-----------------|---|-------------|
| 1. Hydropower: | Potential- | 4,780 MW |
| | Developed- | 561MW (12%) |
| 2. Natural gas: | 7.5 Trillion Cubic Feet (Proven) | |
| 3.Coal: | Potential 2 Billion tonnes; of which
304 Million tonnes are proven | |



LOCAL ENERGY RESOURCES CONT.

4. **Biomass:** Tanzania has a forest area of about 35.5 million hectares of which around 80,000 hectares are plantation forest and 70,000 hectares are privately owned
5. **Solar:** Average solar installation is $> 200 W_p/m^2$
6. **Wind:** Speed variable but speeds greater $8m/s$ are documented
7. **Geothermal:** Potential as high as 650MW. Under assessment
8. **Others:** **Studies on:** Uranium, bio fuels, and ocean based energies are going on.



GRID INSTALLED CAPACITIES

STATION	No. UNITS	INSTALLED CAPACITY (MW)	ENERGY SOURCES/OWNERSHIP
KIDATU	4	204	Hydro/TANESCO
KIHANSI	3	180	Hydro/TANESCO
MTERA	2	80	Hydro/TANESCO
N/P FALLS	2	68	Hydro/TANESCO
HALE	2	21	Hydro/TANESCO
NYUMBA YA MUNGU	2	8	Hydro/TANESCO
Sub total		561	
IMPORT FROM SONGAS	UGT1_UGT6	189	Gas/IPP
UBUNGO GAS PLANT		102	Gas/TANESCO
IMPORT FROM IPTL	10	100	HFO/IPP
DIESEL		54	Diesel/TANESCO
TEGETA GAS PLANT		45	Gas/TANESCO
Sub total		490	
TOTAL		1051	



OFF-GRID INSTALLED CAPACITIES

STATION	INSTALLED CAPACITY (MW)	ENERGY SOURCES
Geita Gold Mining	35	Diesel
Mbingu Sister's Convent	0.85	Hydro
St. Agnes Sister' Convent- Chipole	0.4	Hydro
Tanganyika Wattle Co. Ltd – TANWAT	2.75	Biomass (wattle)
Artumas Group & (Partners) Power	18	Gas
Alstom Power Rental (APR)	40	Gas
Mtibwa Sugar Estate Ltd	4	Co-generation (bagasse)
Kiwira Coal Mines Ltd.	6	Coal
Tanganyika Planting Corporation	20	Co-generation (bagasse)
Kilombero Sugar Company Ltd	10.6	Co-generation (bagasse)
Kagera Sugar Estate Ltd	5	Co-generation (bagasse)
Tanzania Sisal Board	0.5	Biomass (Sisal waste)
TOTAL	143.10	



KEY PLAYERS IN THE ENERGY SECTOR

Energy Policy & Measures

❖ Ministry of Energy and Minerals (MEM)

Oversees and provides policy directives in development of Energy and Minerals resources in the country

❖ Tanzania Electric Supply Company Ltd (TANESCO)

Its core business is generation, transmission, distribution and sale of electricity



KEY PLAYERS CONT.

❖ Energy and Water Utilities Regulatory Authority (EWURA)

Became operational in 2006 with the role for ensuring regulatory oversight and promotion of private sector investment in the energy sector

❖ Rural Energy Agency (REA)

Became operational in 2007 purposely for furthering rural electrification programs via the Rural Energy Fund (REF) by:

- **Facilitating** modern rural energy **project**
- **promoting** modern rural energy **services**
- **Providing** technical assistance to **developers**
- **Projects monitoring and evaluation**



STRATEGIES

- National Energy Policy 2003 aims to ensure availability of affordable and reliable energy supplies and their use in a rational manner;
- The Electricity Act. 2008 attracts substantial private sector participation in the development of the power sector;
- The Government is committed to restructure the Electricity Supply Industry in line with the guidance provided under the Power Sector Reform Strategy in order to support entry of the private sector, participate in regional electricity trading and enhance the sector's operational efficiency;



STRATEGIES CONT.

- The regulator (Energy and Water Utilities Regulatory Authority- EWURA) : Ensures regulatory oversight and promotion of private sector investment in the energy sector
- The New Power System Master Plan (PSMP) was finalized in October, 2008 and updated 2009 to guide the least - cost development of the power sector in order to meet the short to long - term electricity demand
- Rural Energy Agency (REA) became operational in 2007 purposely for promoting and facilitating private sector investment in rural energy.



CHALLENGES

- Limited flow of private capital investment in the power sector;
- Scarcity of resources allocated to the sector from the Government Budget;
- Limited long-term financing especially for small / isolated rural energy projects so as to reach the 80% rural households
- To sustain and increase oil and gas exploration through promotion of private sector participation
- The national grid network is not interconnected with neighbor's grid networks;



Subjects of Interest

- Energy demand and supply forecasting
- Energy Balance and Energy Mix Methods
- Policy Formulation and Review Process
- Strategizing and Monitoring Operationalization of the Policy



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