
Energy-Forum 2018

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Gostritzer Str. 63, 01217 Dresden; GERMANY

Tanzania Renewables Portfolio: Prospective Investments in Tanzania Electronic Supply Co. Limited (TANESCO)

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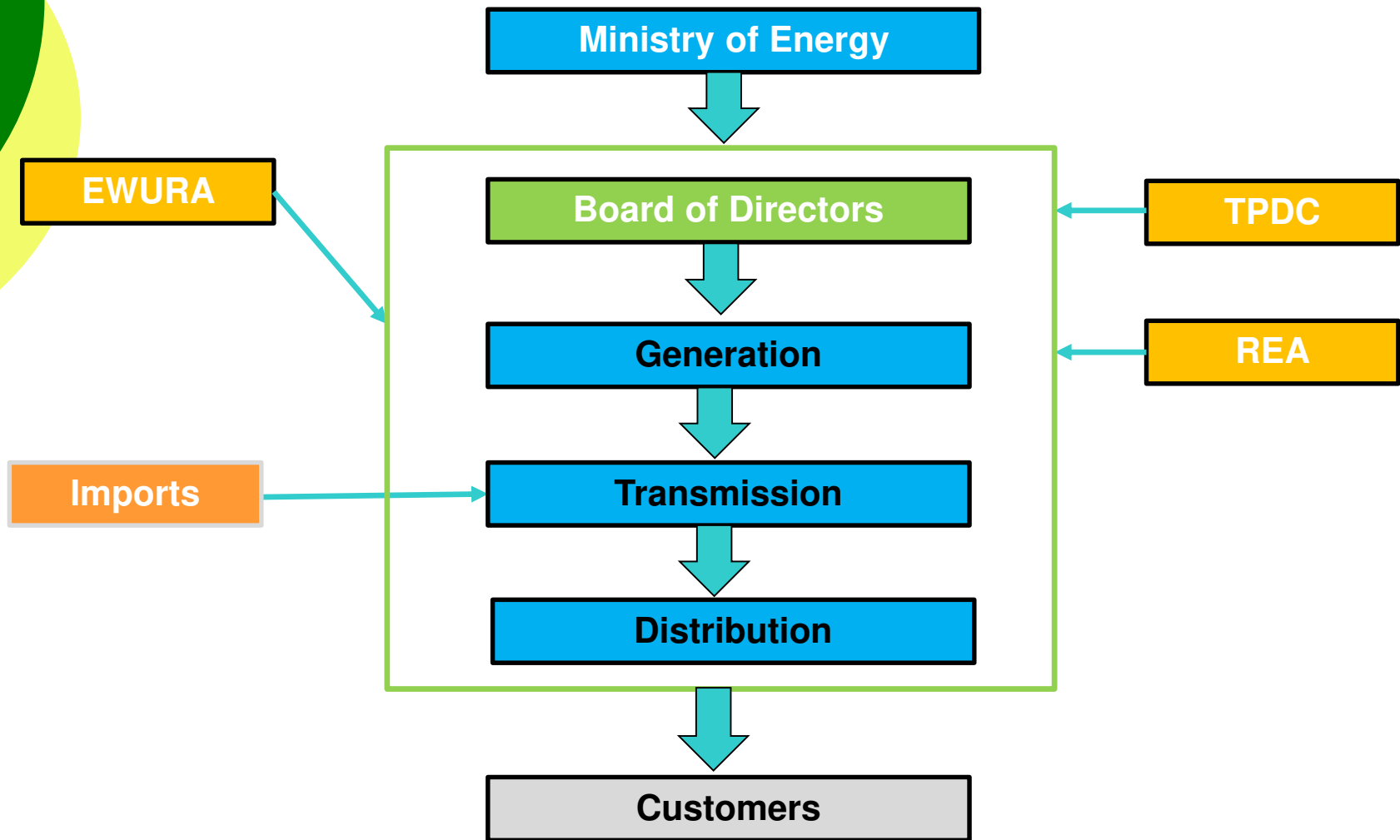
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PRESENTATION OUTLINE

1. Tanzania Country Overview
2. Overview of Electricity Sub-sector In Tanzania
3. Institutional, Legal and Regulatory Frame work in Tanzania
4. Energy Situation In Tanzania
5. Energy Resources in Tanzania
6. Investment Opportunities in Tanzania.
7. Short and Medium Term Plan
8. Challenges of Energy Sector
9. Conclusion



OVERVIEW OF THE ELECTRICITY SUB-SECTOR IN TANZANIA





3. INSTITUTIONAL, LEGAL AND REGULATORY FRAMEWORK GOVERNING THE POWER SECTOR IN TANZANIA

Institutional

- ❑ **TANESCO:** Responsible for power generation, transmission and distribution
- ❑ **REA:** Responsible for provision of modern energy to rural areas
- ❑ **TPDC:** National Oil Company
- ❑ **EWURA:** Energy and Water Utilities regulator
- ❑ **PURA:** Petroleum Upstream Regulator
- ❑ **PBPA:** Petroleum Bulk importation Coordinator
- ❑ **TGDC:** Geothermal promotion company

Legal and Regulatory

- ❑ The National Energy Policy, 2015
- ❑ The Model Power Purchase Agreement, 2015
- ❑ The Petroleum Act, 2015;
- ❑ The Model Production Sharing Agreement, 2013;
- ❑ The Standardized Power Purchase Agreement and Tariffs (<10MW) (2008);
- ❑ The Electricity Act, 2008;
- ❑ The EWURA Act, 2001;
- ❑ The Rural Energy Act, 2005;
- ❑ The Electricity Supply Reform Strategy and Roadmap 2014 - 2015
- ❑ The Electricity (Market Reorganization and Promotion of Competition) Regulations, 2016

4. ENERGY SITUATION IN TANZANIA

INDICATOR	MEASURE
Total Population (million - EST)	~ 53M (growth 2.7%)
GDP (USD Billion)	48 (growth 7%)
GDP Per Capita (USD)	1,038
Total Grid Installed Capacity	1,319.54 MW
Total Off- grid Installed Capacity	84.24 MW
Generation mix (% Hydro/Gas/Liquid fuel/Biomass)	43/51/5.3/0.7
Electricity Consumption per capita	137 kWh
Maximum Power Demand (as of 30th November 2018)	1,110.73 MW
Power Demand Growth	10% - 15%
Total Customers Connected with electricity services	~ 2M
Electricity Access level (Urban 97.3%: Rural 49.5%)	67.5%
Electricity Connection level (Urban 65.3%: Rural 16.9%)	32.8%
Villages Electrified	4,395/12,268
Electricity Imports - Zambia/Uganda/Kenya	8.5/18/1 MW
Electricity Bulk Supply - Zanzibar/Pemba	71/10 MW

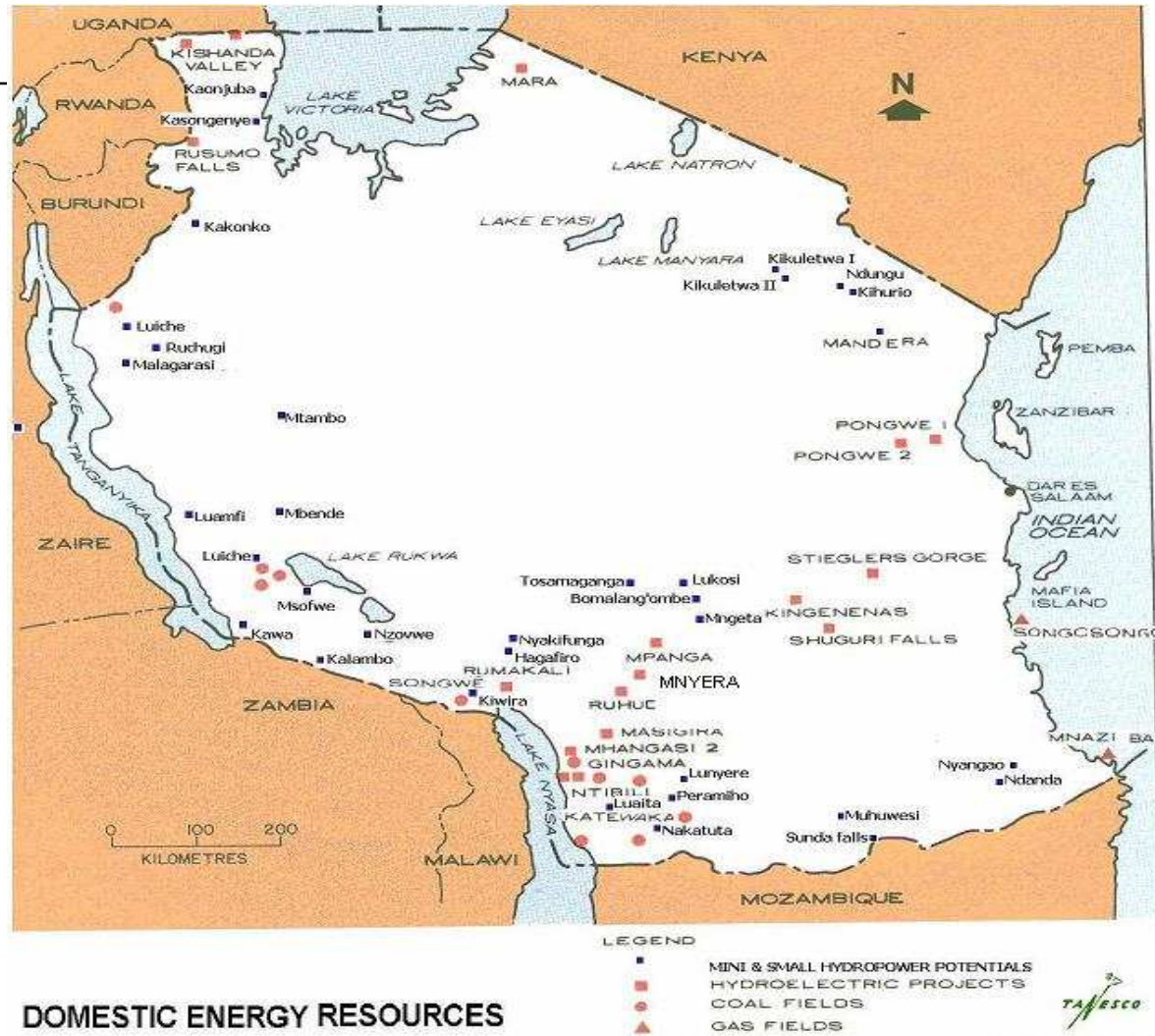
5. Energy Resources Potential

ENERGY SOURCE	POTENTIAL	DEVELOPED TO POWER
Coal: Kiwira, Mchuchuma, Liganga, Ngaka, Rukwa, and around Lake Victoria	1.9 billion tones and 25% proven reserve	None
Natural Gas: Songo songo, Mnazi Bay, Ntorya, Ruvu	57.55 Tcf discovered	670.94 MW
Geothermal: 58 sites including: Songwe (mbeya), Luhoi (Rufiji), Manyara, Lake Natron and Kisaki.	5,000 MW of electricity	None
Hydro: Various sites	4.7GW of electricity	567.70 MW

Energy Resources Potential.....

ENERGY SOURCE	POTENTIAL	DEVELOPED TO POWER
Wind: Makambako, Singida, Litembe (Mtwara), Mkumbara (Tanga), Gomvu (Dar), Karatu (Manyara) and Mafia	Average wind speed 3.8-9.8m/s on shore	None
Biomass: woodfuel and agricultural waste	Potential to generate 500MW	35 MW from bagasse and woody residue
Solar: Several sites.	Average daily solar insolation of 4.6/kWh/m ²	About 6M W

Map for Energy Resource Potential





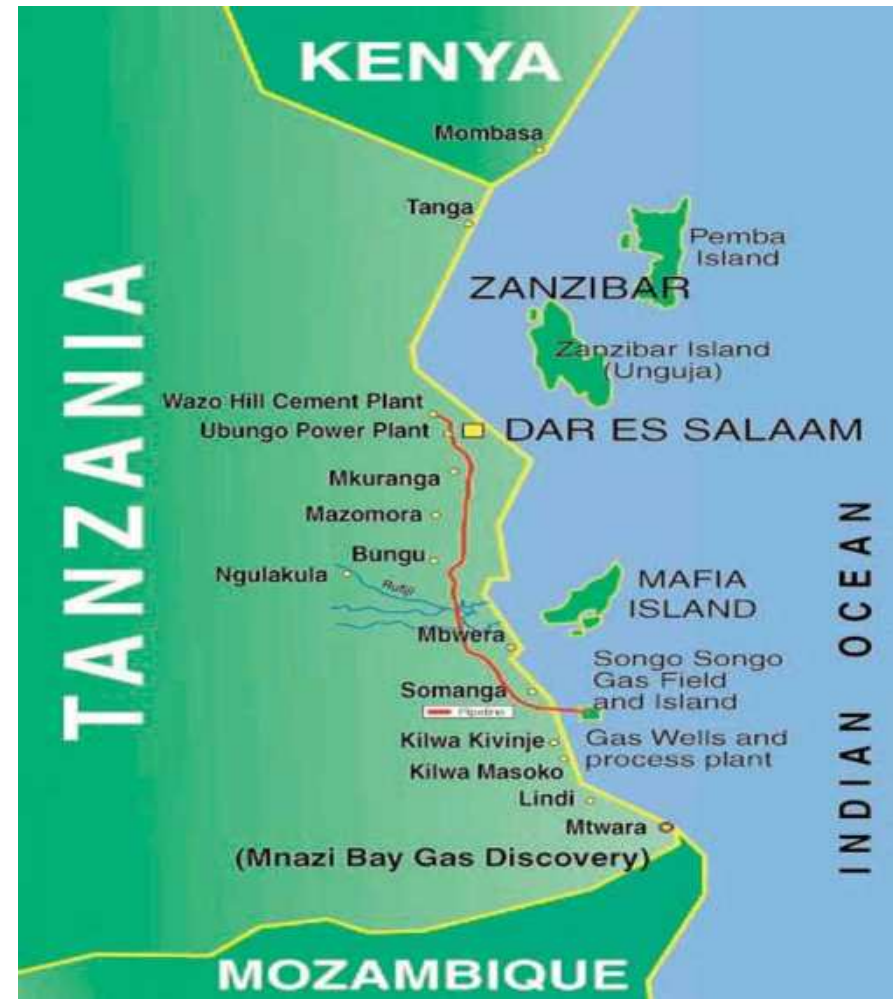
Natural Gas Discoveries

- Mkuranga 2007 (0.2 TCF)
- Kiliwani 2008 (0.07 TCF)
- Songo Songo 1974 (2.5 TCF)
- Mnazi Bay 1982 (5 TCF)
- Ntorya 2012 (0.478 TCF)

Total GIIP Offshore = 10.47 TCF

Deep Sea : 47.08 TCF

TOTAL GIIP: 57.55 TCF
(Developed – 670.94 MW)



6. PRIORITIES AND OPPORTUNITIES OF ENERGY SECTOR IN TANZANIA

- The Government through support of Japan has finalized the Power System Master Plan (PSMP) that covers both short term and long term investment plan
- The PSMP is a guiding tool for Power System Investments basing on a least cost merit.
- Timely implementation of the recommended projects will ensure availability of adequate and reliable power.
- Under this plan, both generation and transmission projects are ranked in least cost order and interested investor are invited to venture

7. Short and Medium Term Plan 2018 – 2025

Project Name	Description		
	Type	MW	Remarks
Kakono	Hydro	53	Committed
Malagarasi	Hydro	45	Committed
Rusumo	Hydro	27	In progress
Somanga Fungu	gas	330	Committed
Mtwara	Gas	300	Committed
Ruhudji Hydro Project	Hydro	358	Not Yet
Rumakali Project	Hydro	222	Not yet
Stieglers Gorge	Hydro	2,100	In progress
Coal power projects	Coal	600	Tender released
Solar power projects	solar	150	Tender released
Wind power projects	wind	200	Tender released

Short and Medium Term Planscont.

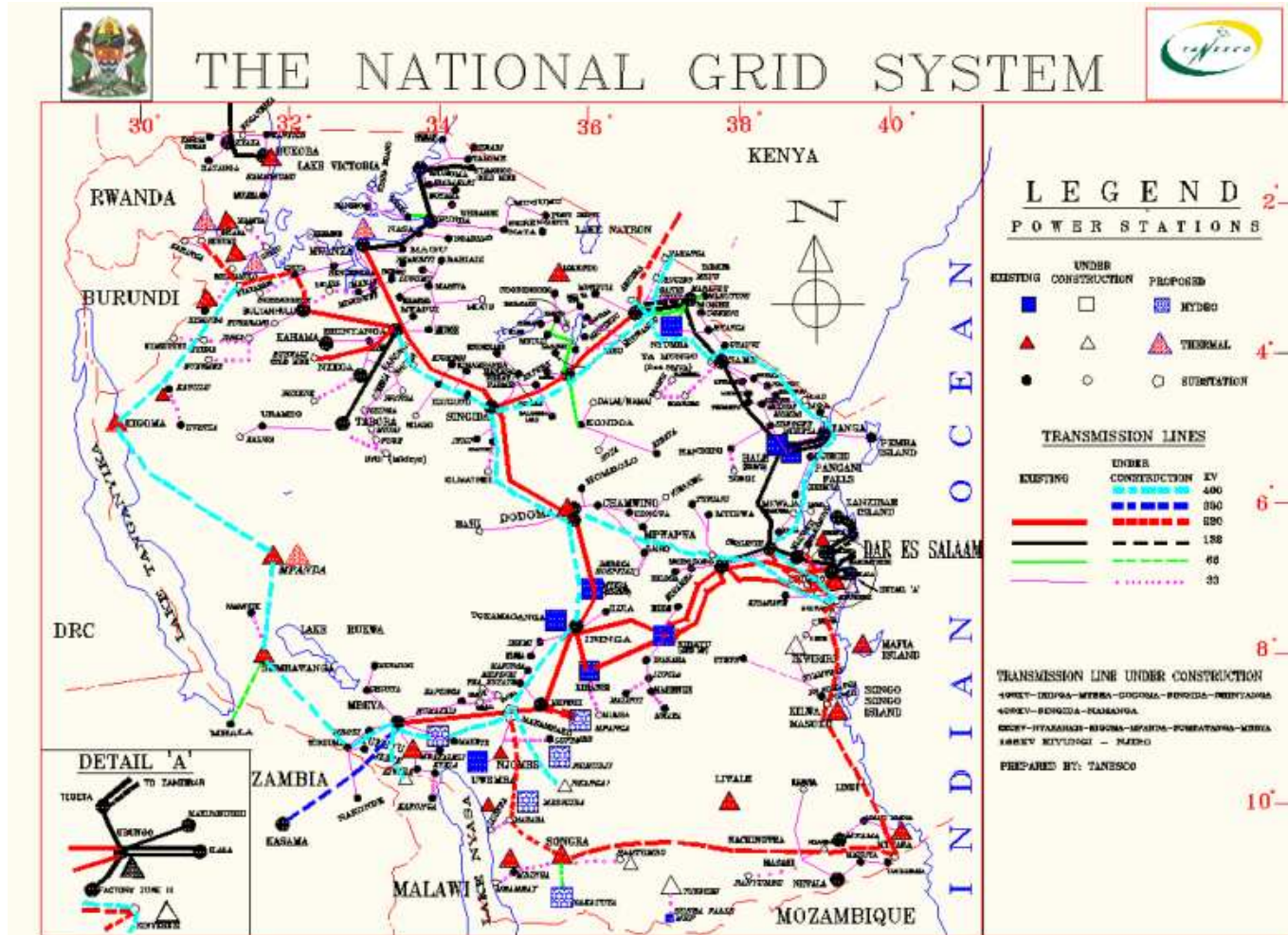
Transmission Projects	Distance (km)	Remarks
400kV Singida – Arusha - Namanga	414	In progress
400kV Rufiji – Chalinze-Dodoma	512	Not Yet
400kV Iringa - Mbeya – Tunduma	540	Committed
400kV Kinyerezi – Chalinze	100	Not Yet
220kV Geita – Nyakanazi – Rusumo	228	In progress
400 kV Somanga– Kinyerezi	198	Not Yet
220kV Chalinze – Hale-Tanga	350	Not Yet
400kV Somanga – Lindi - Mtwara	358	Committed
220kV Chalinze - Bagamoyo	40	Not Yet
400kV Nyakanazi – Kigoma - Sumbawanga	808	Committed
400kV Mchuchuma - Makambako	200	Not Yet
220kV Rumakali – Makambako	200	Not Yet

Short and Medium Term Plan Cont

Renewable Energy Projects

Project Name	Description		
	Type	MW	Year
Makambako	Wind	100	Tender released
Singida project 1	Wind	100	Tender released
Shinyanga	Solar	150	50MW committed
Dodoma	Solar	50	Tender released
Iringa	Solar	50	Tender released
Singida	Solar	50	Tender released
Singida project 2	Wind	100	Not yet (competition)

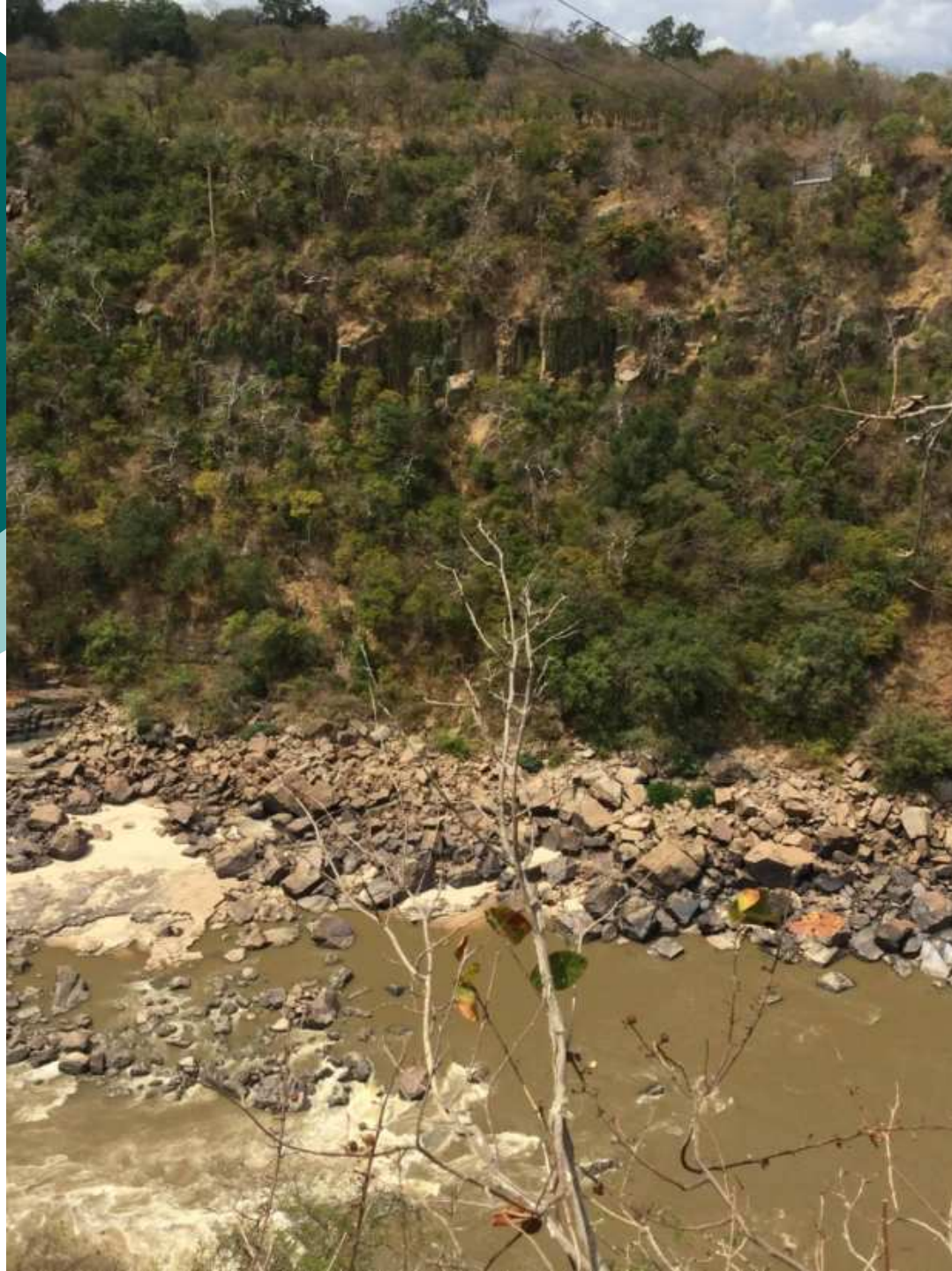
8. Future Grid Map by 2035



9. STRATEGIC PROJECTS

Rufiji Basin Hydro Power Project – Stieglers Gorge

- 2,100 MW capacity
- Tender floated
- Evaluation completed
- Under negotiation
- On completion, the project Will:
 - Double the country's generation capacity
 - Lower cost of electricity
 - Allow the country to export



New Projects Inauguration

H.E President John Pombe Joseph Magufuli with Japanese Ambassador H.E Takamura Masaharu during the laying down foundation stone of Kinyerezi II.



KINYEREZI II GAS FIRED POWER PLANT – 240MW



KINYEREZI I GAS FIRED POWER PLANT – 150 MW





Gas processing facility in Madimba – Mtwara

8. CHALLENGES

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- Financial resource constraints for infrastructure expansion
 - Attracting more private sector investment to the energy sector
 - Expanding electricity accessibility and connectivity
 - Making electricity affordable to Tanzanians
 - Substituting wood fuel for cooking with cleaner energy sources e.g. LPG and Natural Gas
 - Reducing Technical and Non-technical losses

9. CONCLUSION

- Tanzania has significant potential of energy resources
- The current situation and future electricity demand in the country calls for immediate intensive investment in generation, transmission and distribution.
- Several investment opportunities exist in the energy sector for private sector participation.
- The Government of the United Republic of Tanzania (URT) will continue to expedite implementation of priority energy projects and attract private investment
- The Government of URT will continue to maintain its social and political stability



ASANTE SANA
Thank you very much