

COUNTRY REPORT TANZANIA

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1.0 GENERAL INFORMATION

Country Profile

- ❑ The United Republic of Tanzania (Tanzania), is located in the Eastern Africa.
- ❑ It is bordered by Kenya and Uganda to the North, Rwanda, Burundi and the Democratic Republic of the Congo to the West.
- ❑ To the South is bordered by Zambia, Malawi and Mozambique.
- ❑ To the East it is bordered by the Indian Ocean which has a coastline of 1,424 kilometers.

Area, Population, Culture and Administrative Regions

- ❑ Tanzania has a total area of 945,087 square kilometers which includes 61,000 square kilometers of inland water.
- ❑ According to the Population and Housing Census (PHC) that was carried in Tanzania in 2022, the country has a population of 61,741,120 of which 59,851,347 is on Tanzania Mainland and 1,889,773 is in Zanzibar.
- ❑ Most diverse countries in Africa, reflected in the fact that there are more than 120 local languages spoken in the country. Swahili is the national language and English is the official language of education, administration and business.
- ❑ The official capital of Tanzania is Dodoma, and Dar es Salaam is the country's commercial capital and is also the major seaport for the country serving its landlocked neighbors.
- ❑
- ❑ The Government of Tanzania is composed of 31 administrative regions: 26 on the Mainland and 5 in Zanzibar.

Economic Indicators

- The GDP of Tanzania was 188,588,052 million Tanzania Shillings in 2023, equivalent to a growth of 10.4 percent compared to 170,820,032 million Tanzania Shillings recorded in 2022.
- GDP per capita was equivalent to USD 1,275.45 (Tanzanian Shillings 3,055,606) in 2023 compared to USD 1,233.12 (Tanzania Shillings 2,854,072) in 2022.
- Inflation rate was averaged at 3.8% in 2023 compared to 4.3% recorded in 2022.
- Electricity generation, transmission and distribution activity recorded a growth of 7.6% in 2022 compared to 10.0% in 2021.
- The share of electricity activity to GDP was 0.1% in 2022 compared to 0.2% in 2021

2.0 ORGANIZATIONAL STRUCTURE

- ▶ The Ministry of Energy that was established on 07th October, 2017 and is mandated to develop and manage energy resources in Tanzania. The Ministry executes its mandates through four Divisions and eight Units as follows:
 - i. Electricity and Renewable Energy Division;
 - ii. Petroleum and Gas Division;
 - iii. Human Resources Management and Administration Division;
 - iv. Policy and Planning Division;
 - v. Finance and Accounts Unit;
 - vi. Legal Services Unit;
 - vii. Monitoring and Evaluation Unit
 - viii. Internal Audit Unit;
 - ix. Procurement Management Unit;
 - x. Government Communication Unit;
 - xi. Environmental Management Unit; and
 - xii. Information and Communication Technology Unit.

Institutions Under the Ministry

- i. Tanzania Electric Supply Company Limited (TANESCO) which generates, purchases, transmits, distributes, and sells electricity in Tanzania;
- ii. Petroleum Development Corporation (TPDC), which is mandated to, among others, advise the government on petroleum related issues; market and sell natural gas under PSA arrangement; develop and produce oil and gas; promote and monitor the exploration for oil and gas; and undertake trading in petroleum products;
- iii. Rural Energy Agency (REA), which promotes and facilitates improved access to modern energy services in rural areas;
- iv. Petroleum Upstream Regulatory Authority (PURA), which regulates and monitor petroleum upstream operations;
- v. Energy and Water Utilities Regulatory Authority (EWURA), which is responsible for technical and economic regulation of electricity, petroleum, natural gas and water sectors in Tanzania; and
- vi. Petroleum Bulk Procurement Agency (PBPA) which administers and manage the importation of petroleum products in the country.

3.0 PAST ENERGY DEMAND AND SUPPLY

- ▶ The Tanzanian power system (National Grid) comprises of hydro and other sources of energy generated by TANESCO and IPP's with a total installed capacity of 2,138 MW (as of April, 2024) representing an increase of 14.2 percent compared to 1,872.1 MW of May, 2023.
- ▶ Tanzania through TANESCO also imports a total of 31 MW from Uganda (21 MW) and Zambia (10 MW) for the regions of Kagera and Rukwa respectively, but efforts are under way to connect the regions with the national grid.

Table 1: Electricity Generation Capacity by Source

Source	Installed Generation Capacity		Actual Capacity	
	MW	Percentage	MW	Percentage
Hydro	836.3	39.1	755.5	43.1
Natural Gas	1,198.8	56.1	935.1	53.2
Fuel	92.4	4.3	65.8	3.7
Biomass	10.5	0.5	-	-
Total	2,138.0	100	1,756.4	100

4.0 OUTLOOK OF ENERGY DEMAND AND SUPPLY

- ❑ The government of Tanzania through its Vision 2025 and the National Five Year Development Plan (FYDP III, 2021/22–2025/26) plans to implement various strategies for industrial development, agriculture transformation including value addition to agricultural produce as well as development of the service sectors.
- ❑ The government is constructing a Standard Gauge Railway and targets to ensure 100 percent universal access to modern energy by 2030.
- ❑ The government of Tanzania has also been promoting investment in extractive industry as well as undertaking various policy and regulatory frameworks that aim at improving business and investment climate in the country.
- ❑ The government has also prepared and launched National Clean Cooking Strategy (2024–2034), whose main objective is to enable at least 80 percent of Tanzanians to be using clean energy for cooking by 2034 so as to address environmental degradation and health challenges related to the use of dirty energy for cooking. The number of Tanzanians using clean energy for cooking stood at 6.9 in 2021.

OUTLOOK OF ENERGY DEMAND AND SUPPLY

- ❑ The implementation of these strategies and initiatives will continue to increase new potential energy customers, from household, industrial, agriculture, services and other sectors of the economy.
- ❑ In order to meet the future energy demand, the Tanzania's Power System Master Plan (PSMP 2020) indicates the country requires a total installed generation capacity of 3,966 MW in the short term (2020–2024), 12,257 MW in the medium (2025–2034) and 20,200.6 MW in the long term (2025–2034). The Plan indicates power generation mix which varies over the planning period and by 2044 the generation mix will consist of 5,690.4 MW (28.15%) of hydro; 6,700 MW (33.18%) of natural gas; 5,300 MW (26.24%) of coal; 800 MW (3.96%) of wind; 715 MW (3.54%) of solar; and 995 MW (4.93%) of geothermal.

Table No. 2: Peak Demand and Electricity Sales Forecast

Year	Sum of Peak Demand (MW)	Sales Forecast (GWh)
2019	1,120.12	6,875
2020	1,435.00	7,358
2021	1,629.00	7,872
2022	1,809.00	8,430
2023	2,036.00	9,035
2024	2,329.00	9,661
2025	2,677.00	10,310
2026	3,053.00	11,002
2027	3,439.00	11,749
2028	3,850.00	12,547
2029	4,323.00	13,411
2030	4,878.00	14,321
2031	5,488.00	15,279
2032	6,177.00	16,284
2033	6,951.00	17,340

Peak Demand and Electricity Sales Forecast

Year	Sum of Peak Demand (MW)	Sales Forecast (GWh)
2034	7,851.00	18,428
2035	8,554.00	19,547
2036	9,309.00	20,732
2037	10,116.00	21,990
2038	10,968.00	23,324
2039	11,885.00	24,738
2040	12,854.00	26,238
2041	13,897.00	27,829
2042	15,042.00	29,515
2043	16,283.00	31,305
2044	17,611.00	33,202

5.0 THE ENERGY POLICY

- ❑ The National Energy Policy, 2015 provides overall guidance in the energy sector while recognizing specific policies in the sector.
- ❑ The Vision of the Policy is to have a vibrant Energy Sector that contributes significantly to economic growth and improved quality of life of Tanzanians.
- ❑ The mission is to provide reliable, affordable, safe, efficient and environment friendly modern energy services to all while ensuring effective participation of Tanzanians in the sector.
- ❑ The policy recognizes various sources of electricity generation available in Tanzania including hydro, natural gas, coal, uranium, renewable energies (solar, wind, biomass and geothermal) and provides policy direction for their development in collaboration with stakeholders.

5.1 Objectives of the Policy

- ❑ Improving security of supply through effective use of energy resources and cross-border trading;
- ❑ Enhancing power reliability and coverage of transmission and distribution networks;
- ❑ Enhancing utilisation of renewable energy resources so as to increase its contribution in electricity generation mix;
- ❑ Accelerating rural electrification to foster socioeconomic transformations;
- ❑ Increasing private sector participation in electricity supply industry;
- ❑ Optimizing and effectively managing petroleum resource base;
- ❑ Developing and maintaining an efficient petroleum data and information system;

Objectives of the Policy

- ❑ Ensuring timely announcement and optimal development of petroleum commercial discoveries;
- ❑ Maximizing revenue to the Government while ensuring investors recover prudently incurred costs and appropriate share of profit;
- ❑ Enhancing availability of reliable and affordable supply of petroleum to the domestic market and its use in a sustainable manner;
- ❑ Developing petroleum infrastructure for refining, processing, liquefaction, transportation, storage and distribution;
- ❑ Developing a competitive and efficient domestic and export market for oil and natural gas; and
- ❑ Promoting linkages with other sectors of the economy and rational use of the petroleum resource.

5.2 Energy Financing and Roles of Different Stakeholders

- ❑ The policy recognizes inadequate funding has been the major constraint in the development of the Energy Sector.
- ❑ To address the challenge, the policy aims at continuing to improve investment climate to attract private capital in the Energy Sector as well as ensuring fair and reasonable returns on investment through cost-reflective energy pricing.
- ❑ The policy further highlights the roles of different stakeholders including the Government, Regulatory Authorities, National Oil Company, Tanzania Electric Supply Company Limited (TANESCO), Rural Energy Agency (REA) and the Private Sector in the development of Energy Sector in Tanzania.

5.3

Major

Bottlenecks / Challenges

- ❑ Low generation levels. The target is 5,000 MW by 2025, 10,000 MW by 2035. Currently generation stands at 2,138 MW.
- ❑ Low access to electricity. Currently access stands at 79.5%, target is 92% by 2025 and 100% by 2035. Connectivity currently is 44%, the target is 50 by 2025 and 70% by 2035.
- ❑ Private Sector participation in the energy sector is still limited despite presence of conducive policies and laws including (PPP) Act. Opportunities exist in generation, transmission and distribution networks (to high profit customers like industries and mines)
- ❑ Low contribution (less than 1% in the national grid) of renewable energy (geothermal, wind, solar, biomass, etc) in the energy mix despite the available potential
- ❑ Limited research and data to inform the policy formulation.

**THANK YOU FOR
LISTENING**

ENERGY-RELATED INVESTMENT FOR DOMESTIC AND OVERSEAS

Wind Potential Sites in Tanzania

S/N	Region	District	Average Wind Speed at 10m (m/s)	Average Wind Speed at 30m (m/s)
1.	Singida	Singida (Kititimo)	8.2	9.4
2.	Njombe	Njombe (Makambako)	7.6	8.7
3.	Iringa	Mufindi (Usokami)	7.5	>7.5
4.	Kilimanjaro	Mwanga (Mgagao)	3.75	4.85
5.	Tanga	Korogwe (Mkumbara)	4.14	4.9
6.	Arusha	Karatu	4.9	5.5
7.	Dar es Salaam	Kigamboni (Gomvu)	3.56	4.28
8.	Mtwara	Mtwara (Litembe)	3.21	4.47
9.	Mwanza	Ukerewe	3.55	4.9

Source: TANESCO

Geothermal Potential Sites in Tanzania

S/N	GEOHERMAL SETTINGS / SYSTEMS	SITE	ESTIMATED CAPACITY (MW)	TOTAL CAPACITY (MW)
1.	South-Western and Northern Volcanic Provinces (Mbeya, Songwe, Arusha, Manyara and Kilimanjaro).	Ngozi	1,000	2,300
		Kiejo-Mbaka	300	
		Songwe	100	
		Natron	250	
		Meru	250	
		Manyara	200	
		Eyasi	200	
2.	Coastal basin geothermal systems (Coast Region, Morogoro, Tanga).	Kisaki	300	1,200
		Luhoi	300	
		Tagalala	200	
		Mtende	200	
		Utete	200	
3.	Intra-cratonic geothermal systems (Mara, Shinyanga, Singida, Dodoma).	Takwa/Gonga	200	800
		Ibadakuli	100	
		Maji Moto-Mara	300	
		Kondoa	100	
		Msule/Mpondi	100	

4.	Western rift geothermal systems (Kagera, Rukwa, Katavi).	Mtagata	200	700
		Maji moto-Rukwa	200	
		Mapyo	150	
		Kanazi	150	
TOTAL			5,000	5,000

Source: Tanzania Geothermal Development Company (TGDC)

Geothermal Project Candidates

Forecasts Generation from 2025 - 2045						
S/N	Geothermal Projects	Capacity (MW) by 2025	Capacity (MW) by 2030	Capacity (MW) by 2035	Capacity (MW) by 2040	Capacity (MW) by 2045
1.	(i) Ngozi phase I	30				
	(ii) Ngozi phase II	40				
	(iii) Ngozi phase III		30			
	(iv) Ngozi phase IV			30		
	(v) Ngozi phase V				30	
	(vi) Ngozi phase VI					30
2.	Songwe	5		5	15	20
3.	Kiejo- Mbaka	60		40	30	25
4.	Luhoi	5		10	20	10
5.	Natron	60	50	40	30	30
6.	Kisaki		60	25	30	30
7.	Meru		50	40	20	35
8.	Ibadakuli		5	10	10	35
	Total	200	195	200	185	215

Source: Tanzania Geothermal Development Company (TGDC)

Uranium Resources in Tanzania

Name	Region	Size (ton)/Status
Mkuju	Ruvuma	58,500
Kianju Mbuga	Singida	Study is ongoing
Ndala Mbuga	Tabora	Study is ongoing
Bahi Swamp	Dodoma	Study is ongoing

Source: Geological Survey of Tanzania (GST)

Hydropower Project Candidates

S/N	Project Name	Capacity (MW)	Average energy (GWh)	Firm energy (GWh)	River
1.	Ruhudji	358.0	2,000.0	1,333.0	Ruhudji
2.	Ikondo Mnyera	340.0	1,832.0	1,316.0	Mnyera
3.	Kikonge	300.0	1,268.0	883.8	Ruhuhu

4.	Rumakali	222.0	1,322.0	1,075.9	Rumakali
5.	Mpanga	160.0	1,061.1	717.8	Mpanga
6.	Songwe Sofre (163.2 MW)*	81.6	382.5	237.0	Songwe
7.	Iringa Kilolo	150.0	994.8	672.9	Lukosi
8.	Songwe Manolo (180.2 MW)*	90.1	471.7	295.1	Songwe
9.	Mnyera Taveta	145.0	850.0	622.0	Mnyera
10.	Mnyera Kwanini	143.9	693.8	617.3	Rufiji
11.	Mnyera Mnyera	137.4	662.3	589.4	Rufiji
12.	Mnyera Pumbwe	122.9	592.2	527.2	Rufiji
13.	Upper Kihansi	120.0	69.0	99.0	Rufiji
14.	Mnyera Kisingo	119.8	577.3	513.9	Rufiji
15.	Masigira	118.0	664.0	492.0	Ruhuhu
16.	Kakono	87.0	573.0	335.0	Kagera
17.	Mnyera Ruaha	60.3	290.8	258.7	Rufiji
18.	Iringa (Nginayo)	52.0	262.8	223.1	Rufiji
19.	Mbarali	38.5	199.0	107.9	Kimani Falls
20.	Iringa (Ibosa)	36.0	186.1	106.9	Little Ruaha
21.	Songwe Bupigu (34 MW)*	17.0	76.5	50.5	Songwe
22.	Njombe	32.0	165.4	123.9	Ruhuhu -1
23.	Mhanga	26.6	252.9	74.6	Lukosi
24.	Songea	15.0	142.4	82.4	Ruhudji
25.	Nakatuta (Liparamba)	15.0	140.8	29.7	Ruvuma
26.	Kikuletwa	11.0	103.3	30.8	Kikuletwa
27.	Kikagati (14 MW)*	7.0	43.8	33.0	Kagera
	Total	3,006.1	15,877.5	11,448.8	

Sources:

1. Small Hydro Mapping Report, "Renewable Energy Resource Mapping: Small Hydro – Tanzania" (2018) – REA/ the World Bank.
2. World Small Hydropower Development Report, UNIDO (2016).
3. Review of studies conducted for the potential sites.
4. Team survey to the potential sites, data collection, and compilation, (2019).

Renewable Energy Project Candidates

S/N	Plant Name	Location	Fuel Type	Capacity (MW/MWp)
SOLAR PROJECTS				
1.	Shinyanga I (Kishapu)	Kishapu	Solar	150
2.	Dodoma I	UDOM	Solar	55
3.	Dodoma II	Michese	Solar	60
4.	Manyoni	Monyoni	Solar	100
5.	Same Kilimanjaro	Same	Solar	50
6.	Kigoma	Kigoma	Solar	5
7.	Singida	Singida	Solar	150

8.	Shinyanga II	Sinyanga	Solar	150
	Total Solar Projects			720
WIND PROJECTS				
1.	Singida I	Singida	Wind	100
2.	Makambako	Makambako	Wind	300
3.	Njombe I	Njombe	Wind	100
4.	Singida II	Singida	Wind	100
5.	Singida III	Singida	Wind	200
6.	Njombe II	Njombe	Wind	200
	Total Wind Projects			1,000
HYBRID PROJECTS				
1.	Loliondo Power Plant - TANESCO	Loliondo	Diesel-Solar	1
2.	Mafia	Mafia	Diesel-Solar-wind	7
	Total Hybrid Projects			8
	Total Renewable Projects			1,728

Source: TANESCO

FIRST SCHEDULE:

APPROVED TARIFFS

Customer Category	Component	Unit	Current Tariff	Proposed Tariff 2016	Approved Tariff 2016	% Change
D1	Service Charge	TZS/Month			-	
	Energy Charge (0 - 75 kWh)	TZS/kWh	100	100	100	0.0%
	Above 75 kWh	TZS/kWh	350	350	350	0.0%
T1	Service Charge	TZS/Month	5,520	-	-	-100.0%
	Energy Charge	TZS/kWh	298	295	292	-2.0%
	Maximum Demand Charge	TZS/kVA/Month	-	-	-	
T2	Service Charge	TZS/Month	14,233	14,233	14,233	
	Energy Charge	TZS/kWh	200	198	195	-2.3%
	Maximum Demand Charge	TZS/kVA/Month	15,004	15,004	15,004	
T3 - MV	Service Charge	TZS/Month	16,769	16,769	16,769	
	Energy Charge	TZS/kWh	159	157	157	-1.5%
	Maximum Demand Charge	TZS/kVA/Month	13,200	13,200	13,200	
T3 - HV	Service Charge	TZS/Month			-	
	Energy Charge	TZS/kWh	156	154	152	-2.4%
	Maximum Demand Charge	TZS/kVA/Month	16,550	16,550	16,550	

Key

D1: Low Usage Tariff for Domestic customers who on average consume less than 75 kWh per month. Any unit exceeding 75 kWh is charged a higher rate of TZS 350 per kWh. Under this category, power is supplied at a low voltage, single phase (230V).

T1: General Usage Tariff for customers including residential, small commercial and light industrial use, public lighting and billboards. Power is supplied at low voltage single phase (230V) as well as three phase (400V).

T2: Applicable to general use customers where power is metered at 400V and average consumption is more than 7,500 kWh per meter reading period and demand does not exceed 500kVA per meter reading period.

T3-MV: Applicable customers connected to medium voltage.

T3 - HV: Applicable to customers connected to High Voltage including ZECO, Bulyanhulu and Twiga Cement.