

DEC.2021

EREPC REPORT

ELECTRICITY & RENEWABLE ENERGY PORTFOLIO COMMITTEE REPORT



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8th Floor, NSSF Mafao House, Old Moshi Road

P.O. Box 1669, Arusha, Tanzania

Website: <http://www.energyregulators.org>

Tel: +255 27 2520 170/1

This work is the product of the Electricity & Renewable Energy Portfolio Committee (EREPC) of the Energy Regulators Association of East Africa. The findings and conclusions expressed in this work reflect the views of EREA Secretariat, the Executive Council and the General Assembly.

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P.O. Box 1669, Arusha, Tanzania: email: EREAhub@energyregulators.org

1.0 Introduction

The Electricity & Renewable Energy Portfolio Committee (EREPC) is one of the main working groups of the Association. It is mainly formed to support the Association's Secretariat by considering and deliberating on electricity & Renewable energy regulatory matters within the EREA member states.

The main objective of the Electricity & Renewable Energy Committee is to deliberate and deal with issues relating to but not limited to generation, transmission, distribution and supply of energy in terms of quality, safety, standards, energy systems integration, security and reliability of supply and promotion of renewable energy. The specific objectives of EREPC include the following among others:

- (i) To develop regulatory benchmarks for the electricity and renewable energy in East Africa;
- (ii) To develop and recommend the implementation of best practices for monitoring and enforcing technical compliance by EREA member institutions;
- (iii) To optimize capacity building in EREA member institutions to enhance monitoring of regional electricity and renewable energy projects; and
- (iv) To harmonise standards and recommend best regulatory practices to enhance quality, safety, security, reliability of energy supply, energy efficiency and promote the development of sustainable renewable energy sources within the East African Region.

The 1st EREPC meeting was held from 2nd to 4th December 2021 at the Headquarters of EREA Secretariat in Arusha, Tanzania.

2.0 Constitution of Bureau

Participants present:

- (i) EPRA;
- (ii) RURA;
- (iii) EWURA;

(iv) AREEN

(v) ZURA

The Secretary received apologies from ERA.

It was confirmed that members present complied with the requirement to form quorum and the bureau was fully constituted. The meeting was chaired by **AREEN** and **RURA** was appointed as secretary as ERA was absent. The list of participants is on Annex 1.

3.0 Adoption of the Agenda

The proposed Agenda is as listed below:

- (i) Introduction
- (ii) Constitution of Bureau
- (iii) Adoption of the Agenda
- (iv) Matters arising:
 - (a) Review of the Resolutions of the 13th AGA of 18th June 2021 via zoom video conferencing platform.
 - (b) Review of the Resolutions of the 21st EXCO of 17th June 2021 via zoom online platform;
- (v) Review of activities under the EREPC Work Plan for the FY 2021/22.
- (vi) Review of the draft updated Strategic Plan 2017/18 - 2021/22
- (vii) Any Other Business.

The Agenda was proposed by EPRA, seconded by RURA, and adopted for discussions.

4.0 Matters arising

4.1 Matters arising from the 13th AGA

The EREPC considered the matters arising from the 13th AGA and noted that there was no specific resolution that requires EREPC action.

4.2 Matters arising from the 21th EXCO

The EREPC considered the matters arising from the 19th EXCO and noted that there was no specific resolution that requires EREPC action.

5.0 Review of activities under the EREPC Work Plan for the FY 2021/22

A review of the Work Plan under the EREPC was done, focusing on the progress achieved to date as summarised in **Annex 2**.

5.1 Compile and share information on existing and draft regulations under development in electricity, energy efficiency and renewable energy in the NRI home country

The EREPC reviewed the NRIs existing as well draft regulations in electricity, energy efficiency and renewable energy. The review identified the existing regulations in each NRIs and identified the best practices that could be borrowed by NRIs when drafting or reviewing their regulations. The detailed comparator report is attached as **Annex 3**.

EREPC invites the EXCO to take note of the report.

5.2 Evaluate the regulatory frameworks for isolated mini-grids in the NRIs

EREPC members reviewed the existing framework for off-grid (mini-grid) for each NRI and provided recommendations. The review showed that Rwanda, Tanzania and Uganda have a specific regulation for isolated-grids while Kenya has a draft that is waiting for approval and publication. In addition, it was found that not all NRIs have set tariffs for mini-grids projects but rather approve the tariffs on case-by-case basis.

The key recommendations are as followed:

- To put in place a simplified or light handed licensing framework for off-grid (mini-grids) to accelerate rural electrification
- To address the risk of interconnectivity between the main grid and the mini-grids, NRIs need to put in place specific regulatory provisions to address this risk.
- To avoid redundant assets in the event that the off-grid is to be connected to the main-grid, off-grids should be developed to the same standards as the main-grid.

The detailed report is attached as **Annex 4**.

EREPC invites the EXCO to take note of the report.

5.3 Compare and share information on electricity generation, transmission, and distribution status and projects in the pipeline;

The member states are implementing various generation and transmission interconnection and distribution projects. The EREPC reviewed the status as well as the progress of ongoing projects, with a special focus on regional interconnection projects. The detailed report is attached as **Annex 5.**

EREPC invites EXCO to note the progress of the implementation of these projects.

5.4 Prepare a status report on the quality of services (electricity reliability indicators.

EREPC collated electricity reliability indicators from NRIs as attached in **Annex 6.**

The indicators are used to compare among the NRIs and other international standard in order to harmonise them and propose indicators for EAC as well as to learn the best practices that can be used by NRIs to improve their respective network reliability.

It was recommended for each NRIs to avail definitions and/or standards used in deriving reliability indicators for the next PC meeting.

EREPC invites the EXCO to take note of the shared information.

6.0 Review of the USAID comments on the Strategic Plan

The EREPC reviewed the comments provided by USAID on the EREA 5-year strategic plan 2017/18- 2021/2022 and found most of them relevant. The EREPC recommends to the Secretariat and the team working on the strategic plan to take into the consideration the relevant comments provided by NRIs and USAID in developing a new strategic plan for the association as the current one will end in June 2022.

7.0 Any Other Business (AOB)

There being no other business, the meeting was adjourned on 4th December 2021 at 1300Hrs.

Signed:

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Chairperson

Secretary

ANNEX 2: ATTENDANCE LIST FOR THE TECHNICAL PORTFOLIO COMMITTEE MEETING

No.	Name	NRI	Telephone Contact	e-mail contact
1.	Jeremie SINZINKAYO	AREEN	+25779327431	jeremiesinzinkayo@gmail.com
2.	Caroline KIMATHI	EPRA	+254720594810	caroline.kimathi@epra.go.ke
3.	Alexis MUTWARE	RURA	+250788758071	alexis.mutware@rura.rw
4.	Victor LABAA	EWURA	+255713564904	victor.labaa@ewura.go.tz
5.	Khamis Ali Khamis	ZURA	+255774510251	khamis@zura.go.tz

ANNEX 3: EREPC ACTION PLAN 2020/21

ANNEX 2: EREPC ACTION PLAN 2021/22

No.	Key Result Area (KRA) from Strategic Plan (2017/2018 – 2021/2022)	Proposed Activities	OUTPUT	TIMELINE	Progress
1.	KRA-1: Review NRI Regulatory framework – regulations, standards, procedures, and processes.	1.0 Compile and share information on: Existing and draft regulations under development in electricity, energy efficiency and renewable energy in the NRI home country	1. Comparator Report	Q1 and Q2	Completed and ready for presentation
2.	KRA-3: Research and information sharing	<p>2.0 Evaluate the regulatory frameworks for isolated mini-grids in the NRIs;</p> <p>3.0 Compile and share information on (Electricity Subsector):</p> <ul style="list-style-type: none"> i. Electricity generation, transmission, and distribution status and projects in the pipeline; and ii. Prepare a status report on the quality of services and identify best practices. 	1. Electricity and Renewables Data	<p>Q1, Q2</p> <p>Q1, Q2, Q3 & Q4</p>	<p>Completed and ready for presentation</p> <p>Information for Q1 and Q2 shared (continuous exercise)</p>

Annex 3: Existing and draft regulations in electricity, renewable energy and energy efficiency in NRI home country

	Burundi	Kenya	Rwanda	Tanzania	Uganda	Zanzibar
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Electricity	Existing	<p>Electricity Generation Services for Export and electricity importation decree, Regulations - 2016</p> <p>Electricity Licensing Generation Services for Own Use and trade decree, Regulations - 2016</p> <p>The Electricity Transmission, distribution and electricity trade decree, Regulations, 2016</p>	<p>i. Electricity licensing regulations - govern the licensing of power undertakings; generation, transmission, distribution and retail of electricity</p> <p>ii. Electrical installation work rules - govern the licensing of technicians and contractors carrying out electrical installations</p>	<p>i. Electricity licensing regulation (2013): set out the process and requirements, for issuing licenses</p> <p>ii. Electricity quality of service regulation: establish the requirements for ensuring that Licensees meet an adequate level of quality and reliability in the electricity service provided to customers</p> <p>iii. Guidelines on Right-of-way for power lines: provide the required minimum safety corridor</p>	<ul style="list-style-type: none"> • The Electricity (Market Re-Organization and Promotion of Competition) Regulations, 2016 • The Electricity (General) Regulations, 2020 GN. 945 Rules <p>i. Swahili Version of Rules No. v below -Kanuni za Umeme (Huduma za Ufungaji Mifumo ya Umeme) za Mwaka 2019 - GN 631</p> <p>ii. The EWURA Consumer Complaints Settlement Rules 2020 -GN 428</p> <p>iii. The Electricity (Procurement of Power Projects and Approval of Power Purchase Agreement) Rules 2019-GN</p>	<p>Electricity Isolated Grid System Regulations 2020- To provide to generating stations not exceeding 0.5megawatts and isolated grid systems not exceeding 2 megawatts.</p> <p>Electricity (code of Quality of Service) Regulations 2020 - improve the Quality of Service and to ensure continuity and reliability of power supply in the Electricity Service Industry</p> <p>Electricity (Primary Grid Code) Regulations</p>	<p>1.Electricity Generation Service regulation: apply to a person engages or intends to engage in the generation of electrical energy in Zanzibar. There are three categories which are Registration (From 1kW to 10kW), Permit received from (10kW to 250kW), and a licence (from 250kW and Above is given a licence).</p> <p>2.Electricity Transmission Service Regulation: govern the regulatory and licensing matters related to the provision of electricity transmission services in Zanzibar.</p> <p>3.Electricity Distribution Service Regulations: apply to the regulatory and licensing matters related to the provision of electricity distribution services in Zanzibar.</p> <p>4. Electricity Supply Service Regulations:</p>
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				<p>around power lines to limit the use within ROW to activities that are safe and compatible with the operation of the power lines</p> <p>iv. Simplified Licensing Regulation for rural electrification (2019): establish a light handed regulatory framework that will help to expedite licensing for rural electrification projects</p> <p>v. Electrical installations regulations: aim at restricting electrical installations works to</p>	<p>453. iv. The Electricity (Supply Services) Rules 2019 -GN 387 v. The Electricity (Electrical Installation Services) Rules, 2019 -GN 382 vi. The Electricity (Generation, Transmission and Distribution Activities) Rules, 2019 GN 287 vii. EWURA (Tariff Application and Rate Setting) Rules 2017, GN 452 viii. The Electricity (Grid and Distribution Codes) Rules 2017, GN 451 ix. The Electricity System Operations Services Rules 2016, GN 324 x. The Electricity Market</p>	<p>2003 - This Code provides the guidelines and procedures for the licensees of the electric power system to operate the Uganda power system.</p>	<p>Apply to the regulatory and licensing matters related to the provisions of electricity supply services in Zanzibar. Any person who want to supply Electricity in Zanzibar must obtain a licence from the Authority.</p>
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				competent and authorized practitioners	Operations Services Rules 2016, GN 325 xi. The Electricity (Grid & Distribution Codes) Rules, 2017 xii. EWURA (Tariff Application and Rate Setting) Rules 2017, GN 452		
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	Draft	Electricity Tariff Setting decree	<p>i) Electricity Licensing - revision of the 2012 regulations</p> <p>ii. Electricity Supply - to replace the electrical installation work rules</p> <p>iii. Reliability, Quality of Supply and Service - to provide standards of supply for electrical energy</p> <p>iv. Geothermal Resources - covers licensing of geothermal resources</p> <p>v. Incidents and Accidents Reporting - covers how electrical accidents are reported and investigated</p>	<p>i. Electrical installations regulations:</p> <p>revision of the 2012 regulations, especially the provisions related to the classes of permits, fees and administrative sanctions.</p>			
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Renewable Energy	Existing	No specific regulatory frameworks, it must comply with Electricity Law, 2015	<p>i. Solar Photovoltaic regulations 2012 - govern the licensing of manufacture, importation, design, installation, commissioning and maintenance of solar PV systems</p>	<p>i. The Electricity (Development of Small Power Projects) Rules, 2020-GN 491. Provides guidance for Small Power Projects (100kW to 10MW) which generates from renewable energy sources namely solar, wind, biomass and hydro.</p> <p>ii. The Electricity (Net -Metering) Rules, 2018, GN 76. Provides guidance for utility customers with small power generation plants such as rooftop solar PV to integrate their systems with utility grid systems by using bidirectional meters which</p>	<p>Renewable Energy Regulation: These Regulations shall apply to the regulatory and licensing matters related to the provisions of electricity Renewable Energy in Zanzibar. Any person who want to Generate Electricity in Zanzibar by using Renewable Energy must obtain a licence and follow the standards in Renewable Energy Generation</p>
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					records export and import energy as well as net energy.		
	Draft	Renewable Energy and Modern fuel Law	i. Solar PV regulations 2021 - to replace the 2012 regulations ii. Mini Grids regulations - govern the tariff application and licensing process for renewable energy mini grids	i. Regulation on distributed energy resources: set out the licensing requirements for captive power installations above 50kW			
1 Energy Efficiency	Existing	No specific regulatory frameworks, it must comply with Electricity Law, 2015	i. Energy Management Regulations 2012 - Govern the carrying out energy audits and licensing of energy auditors ii. Appliance Performance and Labelling regulations 2016 -				

			implement the Minimum Energy Performance Standards (MEPS) for select appliances				
	Draft		Energy Management Regulations 2021 - to replace the 2012 regulations				

Annex 4: Regulatory frameworks for isolated mini-grids in the NRIs

	BURUNDI	KENYA	RWANDA	TANZANIA	UGANDA	ZANZIBAR
Year of adoption	No specific regulatory frameworks for isolated mini-grids in Burundi, it must comply with Electricity Law, 2015	Draft	2016 (revised in 2019)	2017 (Revised in 2018, 2019 and 2020), the current version is the Electricity (Development of Small Power Projects) Rules 2020	2020 (Electricity Isolated Grid System Regulations 2020)	No specific regulation for mini-grids. Mini-grids regulation is included in the electricity Generation and distribution service regulations
Licensing		Provides for the licensing process and requirements for mini grid developers	The regulation provides the licensing process and requirements for minigrids developers - Licences issued for minigrids with a capacity above 50kW - Registration for minigrids below 50kW	Projects of installed capacities less than 1MW are exempted from licensing requirements in Tanzania. Only registration is required.	Licences issued for mini- grids with a capacity not exceeding 2MW - License will be issued based on the Rural electrification planning and confirmation from REA and the DISCO in the area	

Technical standards		Regulations sets the Performance Standards, Reliability, Quality of Supply and Quality of Service as well as reporting requirements	Standards are the same as for the main grid for minigrids as it is expected that they will be interconnected with the grid in the future. - 50% of the generation should come from renewable energy	There are Specific Technical Standards, which were developed for mini grids. They meet minimum required technical standards unlike the one for main grid network, which meet maximum required technical Standards. - The reason for choosing technical standard, which meets minimum standard, was to enhance affordability of end users.	Standards are the same as for the main grid for mini-grid that intend to be interconnected with the grid in the future.	
Tariff setting		Regulations provide for the tariff approval process, requirements and duration	The principles are set out in the tariff methodology for minigrids. Tariffs are approved prior to the commencement of construction activities	The principles are set in the tariff determination methodology. - Before commencement of power business, the mini-grid operators are required to submit their retail tariff application to EWURA online through the Licensing and Order Information System (LOIS); - Then application is reviewed and tariffs	The principles of tariff computation under the Electricity Act - Tariff for mini-grids are approved by ERA prior to construction	Tariff setting and approval Regulations: apply to all matters related to the setting and approval of electricity tariffs in Zanzibar. A licensee shall apply to the Authority for tariffs pursuant to these Regulations and the Tariff Setting Guidelines prepared by the

				<p>obtained.</p> <ul style="list-style-type: none"> - Then last consultation is done with the mini-grids operators; - Consultation with Ministry of Energy before submitting the tariffs for publication into the Government Gazette. 		Authority
Options for grid encroachment		<p>Regulations provide two options for interconnection where the mini grid developer can become: i. a power producer selling to the Distribution Licensee ii. b. A Mini-Grid Developer purchasing power from the Grid in addition to its existing generation for sale to the Consumers. The Mini-Grid Developer shall enter into an Energy Supply Agreement with the Grid Operator;</p>	<p>The regulation provides for the following options:</p> <ul style="list-style-type: none"> - Small Power Producer selling all its power to the main grid through a long term power purchase agreement and sell its distribution assets to the main-grid - Relocate part or all assets (the cost of relocation is borne by the main grid operator - Assets are taken over by the main-grid operator and 	<p>The options are stipulated in Sub-Part IV of the Electricity (Development of Small Power Projects) Rules 2020 as follow:</p> <ul style="list-style-type: none"> - Become Small Power Producer, generating and selling power to the Distribution Network Operator (DNO); - Become a Small Power Distributor, that purchases electricity from the Distribution Network Operator connected to the main grid under a bulk supply 	<p>The mini- grid operator has the option to apply for a generation license in accordance with the Electricity Act to generate and see to the main grid</p>	

			<p>the latter provides compensation to the minigrid operators</p> <ul style="list-style-type: none"> - Becomes a Small Power Generation and Small Power Distributor - The compensation fee is determined based on the formula set out in the mini-grid regulation. RURA may determine the compensation fee if the parties fail to reach an agreement 	<p>tariff and resell some or all of that electricity to Small Power Distributor's retail customers; and</p> <ul style="list-style-type: none"> - Being compensated the distribution network by the DNO upon meeting some criteria as stipulated in the Rules. 		
Fees		The regulations stipulate the fees payable for the licenses.	The regulation provides for the fees payable by mini-grid developers. Fees are exempted for min-grids below 50kW	<p>Only application fee to register the project;</p> <ul style="list-style-type: none"> - The fee is per activity (i.e. for the mini-grid which carries out both generation and distribution activities, the fees will be for both generation and distribution activities. 		Licensing fees rules provides the fees applicable for isolated grid-combined generation activities

Annex 5: Electricity generation, transmission, and distribution status and projects in the pipeline

	Burundi	Kenya	Rwanda	Tanzania	Uganda	Zanzibar
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<p>Generation (Installed Capacity, Energy Mix, Major ongoing projects)</p>	<p>Installed Capacity (+ imports): 98.48MW. Energy Mix: Hydro (34.79MW), Thermal (36.10MW), Biomass (4MW); Solar (8.09MW), Imports (15.5MW) Major Ongoing projects : Mpanda Hydro 10.2MW, Kabu Hydro 20MW, Jiji Mulembwe 49.5MW, Ruzibazi Hydro 15MW, Kirasa Jydro 16MW, Mule037 9MW, Peat Power Plant 6MW, Rusumo hydro 80mW (27MW Burundi share), Rusizi III 206MW (68MW Burundi share), Importation from Ethiopia 200MW</p>	<p>Installed capacity - 2943MW Generation Mix: Geothermal 29%, Hydro 29%, Solar 3%, Wind 14.5%, Thermal 24%, Biogas 0.5%</p>	<p>Installed capacity: 238MW Energy Mix: Hydro: 48.9% Imports: 2.6% Solar: 5.1% Peat: 6.3% Fuel Oil: 24.7% Methane gas: 12.5% Major ongoing projects:</p> <ul style="list-style-type: none"> • Peat power plant: 80MW (commissioning expected in December 2021) • Methane Gas Power Plant: 56MW (commissioning expected in June 2022) • 80MW Rusumo hydro Power Plant (26.6 MW Rwanda share) • 206 MW Rusizi III hydro power plant • 43.5MW Nyabarongo hydro power plant 	<p>Installed capacity: 1,608.46MW (of which 1,573.65MW was from main grid and 34.805MW from off-grids). The generation mix for the national grid consisted of natural gas 60.55%, hydropower 39.12%, heavy fuel oil 0.15% and biomass 0.18%. Major Ongoing generation projects:</p> <ul style="list-style-type: none"> - Mwalimu Julius Nyerere Hydro Power Project - 2115MW expected C.O.D on 2022 - Kinyerezi I Extension Gas Power Project - 185MW expected C.O.D on 2021 - Rusumo Hydro Power Project - 26.7MW expected C.O.D on 2021 	<p>Installed capacity- 1,331.5MW Energy Mix Hydro – 1057.7MW Thermal – 110MW Solar – 60.8MW Cogeneration – 111.7MW Major Ongoing Projects Karuma Hydro 600MW, Kikagati Hydro 14MW, Kinyara Bagasse 40MW, Hoima Bagasse 12MW, Mayuge Bagasse 23 MW, Rupa Wind 20MW</p>	<p>Installed Capacity: 100MW & 40MW for Unguja and 20MW for Pemba , Ongoing project 60KW and 80KW Solar Plants, 18MW solar at Makunduchi</p>
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<p>Transmission (Network length, Voltage levels, major ongoing projects</p>	<p>Transmission line 110kV: 229.9 km and 112Km of 70kV KAMANYORA-RUBIRIZI 77km (220kV AC) 2022, MUYINGA-RUSUMO 102 km (220kV AC) 2022, Kigoma – Gitega 143km (OHTL, 220kV) Associated substation works 2026, Expansion of 110kV by 129km</p>	<p>The transmission network in Kenya is approximately 82,500KM. Some of the key ongoing transmission projects include i. 96Km, 400kV Kenya Tanzania Interconnector ii. 127KM 400kV Lessos Tororo transmission line iii. 103KN 400Kv Nairobi ring transmission line and its associated sub stations</p>	<p>Network Length: 944.39 km (both 110kV and 220kV). Ongoing projects: § 220kV Single circuit TL: Rusumo – Bugesera-Shango and related substations (90% completion) § 220kv TL: Rwanda - Burundi TL-To connect Rwanda with Burundi, for future regional power trade (93% completion) § 220kV Rwanda-DRC power interconnection Substations (Rubavu, Bwishyura and Kibuye)</p>	<p>Transmission network comprised of 6,110.28km of transmission lines and 59 grid substations with a total capacity of 5,116MVA.</p> <p>Transmission lines are in voltage levels of 66kV, 132kV, 220kV and 400kV. However, currently the 400kV transmission lines are operating at 220kV because at the substation side installations are ongoing.</p> <p>Ongoing projects Geita – Nyakanazi 144Km of 220kV line; Nyakanazi – Rusumo 94Km of 220kV line; Singida – Arusha – Namanga 414Km of 400kV line; Morogoro (Msamvu) – Dodoma (Ihumwa) SGR 234Km of 220kV line; Dodoma (Ihumwa) – Morogoro (Makutopora) SGR 176Km of 220kV line;</p>	<p>Network length- 3,100.5Kms Voltage levels – 132kV</p> <p>Major ongoing projects Masaka-Mbarara, Lira-Gulu-Agago transmission project, Mirama-Kabale 132kV Transmission Project, Kampala Metropolitan Transmission System ,Sukulu transmission line, Phase II CAMCE, Kikagati-Nsongezi Transmission Line, Lira-Gulu-Nebbi to Arua Transmission Line, Karuma Interconnection Project, Kampala-Entebbe Transmission Project</p>	<p>Transmission network length 73km, 132KV</p>
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				<p>Tabora – Kigoma 381Km of 132kV line; Tabora – Katavi 395Km of 132kV line; and Julius Nyerere Hydro Power Project (JNHPP) – Chalinze 160Km of 400kV line.</p>		
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<p>Distribution (network length, major ongoing projects)</p>	<p>Distribution Network (MV): 15km of 35kV and 548.3km of 30kV</p>	<p>Distribution network is approximately 229,000KM. Expansion of the network is ongoing and is done by KPLC and RREC (rural and Renewable Energy Corporation)</p>	<p>The distribution MV network was about 9,944 km (as of June 2021)</p>	<p>The total distribution network length is 148, 983.23km. Out of these, TANESCO owned 148,544.23 km, while 439 km is owned by Mwenga Power Services Limited.</p> <p>There is also 596.34km from min grid operators registered to carry out electricity distribution activities</p>	<p>Network length – 3,398Kms</p> <p>Major ongoing projects</p> <p>Free electricity connections – EDB project</p>	<p>Unguja 33kV 621km, 11kV 119km, Pemba, 33kV 293km. 11kV 114km.</p> <p>Ongoing project 33kV line extension 30.1km.</p>
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Annex 6: Status report on the quality of services (electricity reliability indicators)

Indicator	Burundi	Kenya	Rwanda	Tanzania	Uganda	Zanzibar
SAIFI (Times/Year)	NA	32.28	44	373.00	79	73.2
SAIDI (Hours/Year)	NA	97.8	18.2	48.00	152.7	180
CAIDI (Hours)	NA	3.03	0.41	8.00	1.93	2.4