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Energy and Water Utilities Regulatory Authority

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REGULATORY PERFORMANCE REPORT ON ELECTRICITY SUB-SECTOR

for the year ended 30th June 2017

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CHAIRMAN'S STATEMENT

On behalf of the Board of Directors of the Energy and Water Utilities Regulatory Authority (EWURA), I am pleased to give a brief overview of regulatory performance on Electricity Sub-Sector for the financial year ending 30th June 2017. Over the last 10 years EWURA has seen a steady growth in electricity sub-sector in terms of quality of service which was enhanced by regulatory interventions. The Board of Directors will continue to oversee the regulatory functions in various aspects of the Electricity Supply Industry to ensure that electricity customers and the general public are supplied with electricity of the desired quality and reliability.

This being the second Regulatory Performance Report on Electricity Sub-Sector to be prepared by the Authority, I am convinced that the readers will find it useful and the information contained herein will assist in planning for improved performance in the subsequent years.

I wish to express my sincere thanks to the Government of the United Republic of Tanzania and other stakeholders for creating a conducive environment which enabled the Authority to conduct its functions effectively and efficiently. Furthermore, I wish to extend my special appreciation to the Minister for Water and Irrigation and Minister for Energy for supporting the Authority in achieving its intended goals.

Finally, let me take this opportunity to thank my fellow members of the Board of Directors for the cooperation I received from them, the Management and Staff of EWURA for their commitment, dedication and hardworking during the year under review.

Eng. Prof. Jamidu H.Y. Katima

Chairman, EWURA Board of Directors

February 2018

FOREWORD

The Energy and Water Utilities Regulatory Authority (EWURA) is committed to good governance and dedication to oversee continuous improvement of its services to all stakeholders in all sectors under its purview, including the electricity sub-sector.

The Electricity Act, Cap 131 and EWURA Act, Cap 414 mandate the Authority to regulate the electricity sub-sector in Tanzania Mainland. Under these Acts, EWURA is mandated to undertake technical and economic regulatory functions in the electricity sub-sector. Among the regulatory functions that are implemented by EWURA in the electricity sub-sector are geared towards: efficient and safe operation of the Electricity Supply Industry (ESI), protection of interests of consumers, the Government and other stakeholders, and attraction of investments into the sub-sector.

EWURA understands that electricity is crucial for social and economic development and it also supports the country's Vision 2025 which envisages Tanzania to become a middle income country by the year 2025. Based on this understanding, EWURA is determined to continue improving the regulatory environment surrounding the electricity sub-sector in line with the Government desire to reform the ESI and to achieve the best institutional and regulatory setup that will attract the much-needed investments in the sub-sector.

This annual performance report for electricity sub-sector presents regulatory activities carried out by EWURA and performance of licensees in the ESI in Tanzania Mainland during the period from July 2016 to June 2017.

During the fiscal year 2016/17 EWURA achieved some mileage in the ESI by successively accomplishing a number of its objectives including enacting subsidiary legislations, compliance monitoring, approval of initiation of procurement of power projects and issuance of licences. The success is a result of hard work and cooperation from all EWURA Staff and the Board of Directors, hence I would like to take this opportunity to extend my sincere thanks to all Staff, Management and the entire Board of Directors of EWURA.

Nzinyangwa E. Mchany

ACTING DIRECTOR GENERAL

February 2018

ABBREVIATIONS AND ACRONYMS

AHEPO	:	Andoya Hydro Electric Power Limited
CAP.	:	Chapter
EMC	:	Electromagnetic Compatibility
ESI	:	Electricity Supply Industry
ESIRSR	:	Electricity Supply Industry Reform Strategy and Roadmap
EWURA	:	Energy and Water Utilities Regulatory Authority
GN	:	Government Notice
GO	:	Gas Oil
GW	:	Giga Watt
GWh	:	Gigawatt-hour
HFO	:	Heavy Fuel Oil
HSE	:	Health, Safety and Environment
IDO	:	Industrial Diesel Oil
IMO	:	Independent Market Operator
IPP	:	Independent Power Producer
IPTL	:	Independent Power Tanzania Limited
ISO	:	Independent System Operator
km	:	Kilometre
kV	:	Kilo Volt
LV	:	Low Voltage
MOE	:	Ministry of Energy

MV	:	Medium Voltage
MVA	:	Mega Volt Ampere
MW	:	Mega Watt
MWh	:	MegaWatt-hour
PPA	:	Power Purchase Agreement
REA	:	Rural Energy Agency
RPDL	:	Rural Power Development Limited
SPP	:	Small Power Producer
SPPA	:	Standardized Power Purchase Agreement
SPPT	:	Standardized Small Power Projects Tariff
TANESCO	:	Tanzania Electric Supply Company Limited
TANWAT	:	Tanganyika Wattle Company Limited
TBS	:	Tanzania Bureau of Standards
TGP	:	Tegeta Power Plant
TPC	:	Tanganyika Planting Company
UGP2	:	Ubungo Gas Plant 2
ZECO	:	Zanzibar Electricity Corporation

EXECUTIVE SUMMARY

The Electricity Act, Cap. 131 gives EWURA mandates to perform both technical and economic regulation of the Electricity Supply Industry (ESI) in Tanzania Mainland pursuant to Section 5 and 6 of the Act. This report presents the performance of the Electricity sub-sector during the period from 1st July 2016 to 30th June 2017.

During the period under review:

- nine (9) sets of legislative tools were reviewed and prepared;
- The Authority continued to monitor quality of services provided by licensees to ensure compliance with the provisions of the Act, regulations, rules and standards. It also conducted performance monitoring of electricity infrastructure;
- TANESCO was engaged in electricity generation, transmission, distribution, supply and cross border trade activities. Songas Limited, Independent Power Tanzania Limited (IPTL), Tanzania Plantation Company Limited (TPC), Mwenga Hydro Limited, Tulila Hydro, Yovi Hydro Power Company Limited, Tanganyika Wattle Company Limited (TANWAT), Ngombeni Power Limited and Darakuta were engaged in electricity generation. Rural Power Development Limited (RPDL) and Andoya Hydro Electric Power Company (AHEPO) were engaged in distribution and supply activities;
- Installed capacity was 1,457.16MW of which 1,366.60MW was for main grid and 90.56MW was for isolated mini grids);
- Transmission network comprised of: 66kV (578.7km), 132kV (1,628.79km), 220kV (2,748km) and 400kV (670km) transmission lines as well as 49 grid substations (3,533.20MVA). Transmission losses were 406.55GWh equal to 6%;
- Electricity distribution was being operated through distribution lines of 33kV (35,895km for TANESCO and 170km for RPDL), 11kV (6,183km for TANESCO and 10.5 for AHEPO) and 0.4kV (97,956km for TANESCO, 70km for LPDL and 13km for AHEPO). Distribution technical losses were 583.67GWh equal to 8.79% for TANESCO, 0.828GWh equal to 4% for RPDL and 0.16GWh equal to 6% for AHEPO;
- Two approvals for initiation of procurement of power projects were issued for 14MW Kikagati Power Company Limited (KPCL) and 200-350MW Combined Cycle Gas Power Project at Somanga Fungu in Kilwa District;

- 16 generation licences with a potential generation capacity of 150MW and 656 electrical installation licences were issued. Furthermore, two projects operating below 1MW were registered; and

- Standardised Small Power Purchase Tariff was approved effective from 1st April 2017, for Small Power Projects (SPPs) that will continue to use year 2008 avoided cost tariff setting methodology. Also tariffs applicable to solar and wind projects with a capacity of up to 1MW were approved.

Key Authority's achievements during the period under review include:

- increased level of awareness resulting to increased applications and approval of electrical installation licensees as a result the Authority issued 656 electrical installation licences and 16 generation licences as compared to 227 electrical installation licences and nine (9) generation licences issued during 2015/2016;

- preparation of nine (9) regulatory tools; and

- inspected utility's distribution infrastructure and submitted the findings to Licensees for corrective actions.

The challenges faced by the Authority under the review period and the way forward include:

- unreliable electricity supply due to infrastructure related problems and lack of generation reserves of which the Authority is carrying out regular inspections and has continued to direct TANESCO and other Licensees to take corrective measures to improve their networks;

- delays of TANESCO and other Licensees in attending inspection findings of which the Authority is continuing to engage them and when delays persist compliance order will be served; and

- even though the Authority has developed regulatory tools to attract private investments in the electricity sub sector, the pace of investment is not sufficient to meet the rapid growing demand. The Authority, in collaboration with the Government and other stakeholders is working on strategies to increase electrification including seeking guidance from MOE on implementation of the competitive bidding framework.

1.0 INTRODUCTION

Energy and particularly electricity plays a critical and vital role in the socio-economic development of any country. Availability, affordability, reliability and access to electricity services are key ingredients towards achieving desired socio-economic development in Tanzania.

According to the National Bureau of Statistics (NBS), the population of Tanzania in 2015 was 48.8 million with 70.4% living in rural areas. For this reason, the Government through REA has embarked on accelerating rural electrification to increase access to electricity. Also, EWURA formulated the SPP framework to encourage investment in small power projects (100kW to 10MW) to speed up electrification, particularly in rural areas. These efforts, provide opportunities to invest in the electricity sub-sector to harness the abundant energy resources available in the country.

Currently the ESI is still dominated by TANESCO, a vertically integrated utility, 100% owned by the Government. To increase efficiency of the utility and to allow private sector participation, the Government formulated the ESIRSR to be implemented from 2014 to 2025.

The Authority's activities in relation to electricity sub-sector include: protecting customer interests through the promotion of competition; promoting access to, and affordability of electricity services particularly in rural areas; promoting least-cost investment and the security of supply for the benefit of customers; promoting improvement in the operational and economic efficiency of the electricity supply industry and efficiency use of electricity; promotes appropriate standards of quality, reliability and affordability of electricity supply; take into account the effect of the activities of the electricity supply industry on the environment; protecting the public from the dangers arising from the activities of the electricity supply industry; and promoting the health and safety of the persons in the working environment employed in the electricity supply industry.

This report presents the performance of key players in the electricity sub-sector, particularly the performance of electricity generation licensees as well as those licenced to carry out transmission, distribution, supply and cross border trade. It also, presents the overall performance of regulatory activities accomplished, achievements attained, and challenges faced during the period under review.

The Authority therefore expects that this report will provide useful information or data to stakeholders and readers as far as the electricity sub sector is concerned. Moreover, at the same time, the Authority is looking forward to receiving constructive and candid suggestions on improvement, so that the future similar reports meet stakeholders' expectations and satisfaction.

2.0 REGULATORY TOOLS AND STANDARDS

To execute its regulatory functions, the Authority uses various regulatory tools. Section 40 of the EWURA Act Cap 414 and Section 45 of the Electricity Act 2008 give mandate to the Authority to make subsidiary regulatory tools (rules, codes, guidelines, manuals and declarations) in respect of all matters considered necessary or desirable to give effect to the Acts. For the period ended 30th June 2017, the Authority reviewed and prepared nine (9) legislative tools as shown hereunder:

a) The Electricity (Development of Small Power Projects) Rules 2016, Government Notice No. 217 published on 8th July 2016;

b) The Electricity (Licensing Fees) Rules 2016, Government Notice No. 287 published on 7th October 2016;

c) Electricity (System Operations Services) Rules 2016, Government Notice No. 324 published on 23rd December 2016;

d) The Electricity (Market Operations Services) Rules 2016, Government Notice No. 325 published on 23rd December 2016;

e) The Electricity (Supply Services) Rules, 2017, Government Notice No. 4 published on 13th January 2017;

f) The Electricity (Procurement of Power Projects and Approval of Power Purchase Agreements) Rules 2017, Government Notice No. 245 published on 14th July 2017;

g) The Electricity (Development of Small Power Projects) Rules, 2017, Government Notice No. 440 published on 27th October 2017;

h) The Electricity (Net Metering) Rules, 2017, Government Notice No. 441 published on 27th October 2017; and

i) The Electricity (Grid and Distribution Codes) Rules, 2017, Government Notice No. 451 published on 17th November 2017.

Other existing regulatory tools are as shown in Annex 1.

3.0 PERFORMANCE MONITORING

Pursuant to Section 15(4) of the Electricity Act, 2008, every electricity service provider is required to submit to the Authority, data and information relating to performance of its functions.

3.1 Reporting System

During the period under review, the Authority continued to receive and maintain periodic data submitted by licensed power utilities and suppliers directly and through the daily system reports submitted by TANESCO through email distribution list.

3.2 Monitoring and Inspection

During the period under review the Authority conducted routine inspections on Low Voltage (LV) and Medium Voltage (MV) distribution networks. The inspections were conducted in 19 TANESCO regions namely Mara, Lindi, Mwanza, Kigoma, Morogoro, Dodoma, Singida, Kagera, Arusha, Geita, Tabora, Mbeya, Kilimanjaro, Ruvuma, Tanga, Manyara, Shinyanga, Iringa, and Njombe. Among the defects found during these inspections were rotten poles, leaning insulators, transformer oil leakages and unrated fuse wires. Also, some areas were observed to have low voltage caused by lines extended beyond the standard limit and overloaded transformers. The Authority directed TANESCO to rectify the anomalies as detailed in the inspection reports given to them.

Following the above referred inspections, the Authority conducted meetings with TANESCO Zonal Managers to discuss the inspection finding and emphasized on implementation of EWURA recommendations towards rectification of the defects and anomalies observed during inspections.

The Authority conducted eleven pre-licensing inspections for Kilombero Sugar Company Limited; Yovi Hydropower Company Limited; Darakuta Hydropower Development Company Limited; Kagera Sugar Limited; Mtibwa Sugar Estate Limited; Tanga Cement PLC; Maweni Limestone Limited; Geita Gold Mining Limited; Fondazione ACRA- CCS; Ludewa Clean Energy Limited; and East Coast Oils and Fats Limited. Among the tasks performed during pre- licensing inspection include verification of documents submitted and conducting licensing awareness.

3.3 Quality and Standard of Services

The Authority continued to monitor quality of service through the set standards with a focus on system disturbances such as low frequency, high frequency, low voltage, power outages and load shedding. It was revealed that the system experienced frequent voltages and frequencies fluctuations because of aged equipment and lack of adequate

maintenance. Furthermore, the Authority monitored activities conducted by utilities which included generation capacity, generation mix, customers connected with electricity and outages in order to advise licensed Utilities on areas which require improvement.

3.4 Health, Safety and Environmental Matters

The Authority continued to sensitize electricity service providers on the need to keep their power supply facilities and workplaces at the highest level of safety. The service providers were reminded to disseminate information to the public on the safe use of electricity and abide with HSE when conducting their operations.

To ensure compliance to HSE the Authority carried out inspection of power supply facilities, including power stations, substations and distribution lines. Several shortfalls were noted, including old equipment, low hanging distribution lines, unprotected transformers, transformers mounted below the minimum standard height required of 2.5m from the ground level and inadequate clearance of electricity conductors from building structures thus posing risks of electrocution to the public. The findings of the Authority during inspections were formally communicated to the service providers with instructions to rectify the observed anomalies.

During the period under review accidents increased due to awareness of accident reporting and expansion of the infrastructure network. The Authority will continue to monitor to ensure that accidents are minimised towards zero accident. 82 accidents were reported by TANESCO as compared to 50 reported in the year ended June 2016. One (1) accident was reported by both RPDL and AHEPO.

4.0 REGULATORY APPROVALS

Pursuant to Section 5 of the Electricity Act, 2008, the Authority has mandate to award licences to entities undertaking or seeking to undertake licenced activities, approve and enforce tariff and fees charged by licensees, approve licence terms and conditions of electricity supply, approve the initiation of the procurement of new installation of the electricity supply. Also, pursuant to Section 25 of the Electricity Act, the Authority has mandate to approve PPAs.

4.1 Initiation of Procurement of Power Projects

During the year under review, the Authority approved initiation of procurement of two power projects, namely Kikagati Power Company Limited (KPCL) for development of a 14MW hydropower project located at the border townships of Kikagati in Uganda and Murongo in Kyerwa District of Tanzania and 200-350MW Combined Cycle Gas Power Project to be implemented by TANESCO at Somanga Fungu in Kilwa District.

4.2 Power Purchase Agreements (PPA)

During the year under review, the Authority approved a PPA between KPCL (14MW) and TANESCO.

4.3 Rates and Charges

Section 23 of the Electricity Act, Cap. 131 mandates the Authority to approve and enforce tariffs and charges.

EWURA conducted tariff adjustment review for TANESCO during the second Quarter of the financial year 2016/17. The Authority, on December 2016, approved an increase in tariff of 8.5% effective from 1st January 2017 but the same was not implemented following directives issued by the Government. Therefore, the Authority continued to monitor implementation of the Tariff Order conditions previously approved. For the year 2015/2016, EWURA conducted tariff adjustment review for TANESCO and on 29th March 2016 it approved a decrease in tariff within the range of 1.5% to 2.4% effectively from 1st April 2016.

The Authority approved Standardised Small Power Purchase Tariff effective 1st April 2017, for Small Power Projects (SPPs) that are continuing to use year 2008 avoided cost tariff setting methodology as shown in Tables 1(a) and (b).

Table 1(a): Main Grid Connection using Avoided Cost Tariff

Description		2016 Tariff (TZS/kWh)	2017 Approved Tariff (TZS/kWh)	Percentage Change
Standardized Small Power Purchase Tariff		190.46	**203.11**	6.64%
Seasonally adjusted Standardized SPPT Payable in	Dry season	228.58	**243.73**	6.64%
	Wet season	171.42	**182.80**	6.64%

Source: EWURA

Table 1(b): Mini Grid Connection using Avoided Cost Tariff

Description	2015 Tariff (TZS/kWh)	2016 Approved Tariff (TZS/kWh)	Percentage Change
Standardized SPP Tariff	477.16	499.25	4.84%

Source: EWURA

The Authority also determined tariffs that will be applicable to solar and wind projects with a capacity of up to 1MW as depicted in Table 1(c).

Table 1(c): Solar and Wind Connection Tariff

Description	Approved Tariff (US$/kWh)
Standardized Small Power Purchase Tariff for Solar and Wind projects of up to 1MW connected to the Main Grid	0.165
Standardized Small Power Purchase Tariff for Solar and Wind projects of up to 1MW connected to the Mini Grid	0.181

Source: EWURA

4.4 Licensing

The Authority will continue promoting investment through different approaches including development of regulatory tools that promote investment as well as closely communicating with different stakeholders involved in different stages of issuing licences. Requirements for licensing and registration can be found in respective regulatory tools and is well summarised in the "Tanzania Electricity Regulatory Information Booklet" which can be downloaded from the EWURA website www.ewura.go.tz.

4.4.1 Power Supply Licensing

During the period under review the Authority approved a total of 16 generation licences; four (4) operational generation licences, three (3) generation for own use licences, and nine (9) provisional generation licences, with a potential generation capacity of 150MW, compared with nine (9) licences issued during the previous reporting period with a potential generation capacity of 627MW. There was one (1) provisional generation licence transferred from Tangulf Express Ltd to Tangulf Nakatuta Energy. The Authority did not issue any distribution licence nor transmission licence during the period under review. The total number of licence issued by the Authority is 87 as per Annex 2.

4.4.2 Power Supply Registration

Service providers of electricity services conducting generation and distribution activities with capacity and demand below 1 MW respectively are not required by law to be licensed, however, they must be registered by the Authority. During the period under review the Authority issued registration to two service providers namely Power Corner Tanzania Limited that is conducting generation and distribution activities with installed capacity of 15.6 kW at Orkejeloongishu Village in Kitumbeine Ward Longido District and Nasra Estates Co. Limited conducting generation activities with installed capacity of 800 kW in Dar es Salaam Region. The total number of service provider registered is 21 as shown in Annex 3.

4.4.3 Electrical Installation Licences

During the year under review, the Authority received a total of 816 licence applications for electrical installations as compared to 262 licence applications received in previous reporting period which show an increase of 211.45%. 656 licences were issued while 160 licence applications were not approved due to different reasons such as incomplete applications, forged certificates and insufficient qualifications. 28 applicants were not approved for forgery of certificates. Details of different classes of licences issued are shown in Table 1(d). The Authority in collaboration with other stakeholders continued to require electrical installation personnel to be licensed and refrain from doing work in breach of the law.

Table 1(d): Electrical Installation license applied and issued

S/No	Licence Class	LicencesIssued
1	A	10
2	B	64
3	C	215
4	D	266
5	W	99
6	S	2
7	L	0
TOTAL LICENCES ISSUED		**656**

Source: EWURA

4.5 Complaints and Dispute Resolutions

During the period under review, a total of 156 complaints were attended to by the Authority on various matters related to electricity raised by customers. Out of these, 62 complaints were resolved and ninety-four were in progress of being resolved at the end of the period under review.

Source: EWURA

5.0 TECHNICAL PERFOMANCE

5.1 Electricity Generation Performance

The Authority continued to monitor generation infrastructure performance and compliance with the Acts, regulations, rules, licence conditions, standards and tariff orders through inspections, reports and online operation system performance data to ensure adequate availability, utilization and energy dispatch adhering to least cost merit order dispatch.

5.1.1 Maximum Demand

During the period under review, Peak Maximum Demand for the main grid was 1,051.27MW as recorded on 14th February 2017 which is higher by 25.25MW as compared to year ended June 2016 which was 1,026.02MW as recorded on 15th March 2016.

5.1.2 Generation Mix

Electricity generation mix consisted of hydropower 39.34%, natural gas 43.94%, liquid fuel (HFO/IDO/GO) 15.92% and biomass 0.80% as shown in **Figure 1(a).**

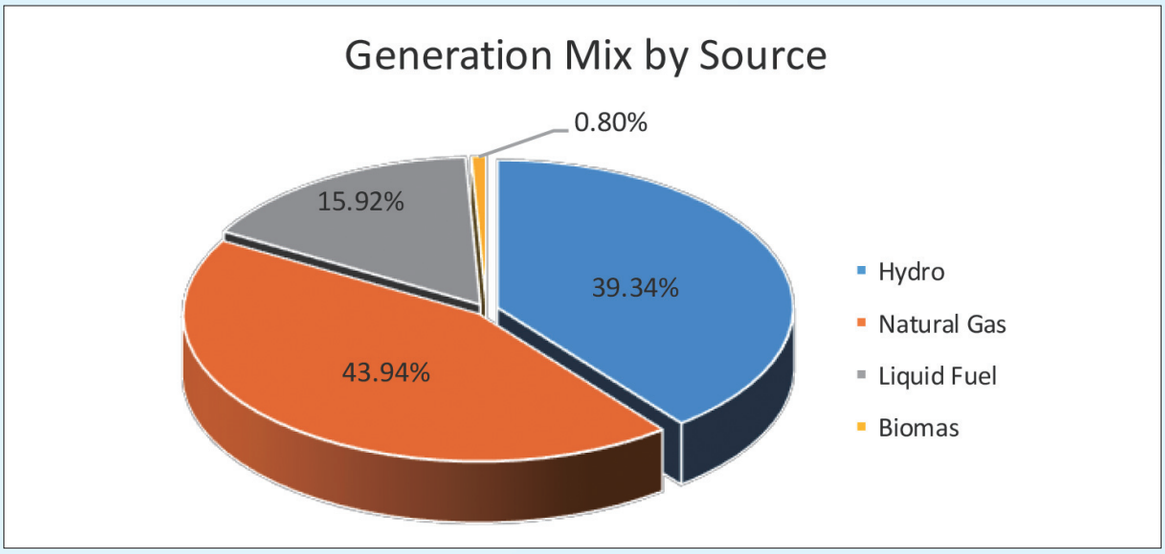


Figure 1(a): Electricity Generation Mix (%) by source

Source: TANESCO, Other Licensees & EWURA data analysis.

5.1.3 Installed Capacity

As of June 2017, the installed capacity was 1,457.16MW (1,366.60MW for main grid and 90.56MW for isolated mini grids) as shown in **Figure 1(b)**. This is an increase of 14.95MW as compared to the previous reporting period where installed capacity as of June 2016 was 1,442.21MW (1,358.01MW for main grid and 84.20MW for the isolated mini grids).

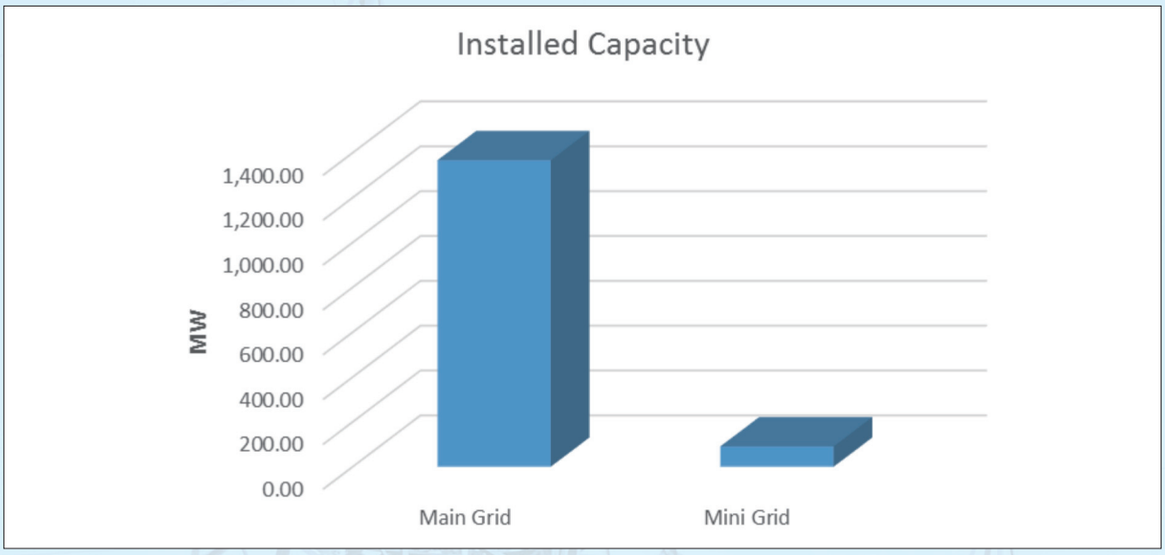


Figure 1(b): Installed Capacity of Power Generation Plants (MW)

Source: TANESCO, other Licensees & EWURA data analysis.

5.1.4 Power Generation Plants Availability

During the period under review, average availability of all power generation plants was 90%. The Authority is continuing monitoring all power plants to ensure that maintenance is done, and plants operate above the average and towards 95% availability as shown in **Figure 1(c)**.

Plants which operated below the average (90%) availability include: Kidatu (71%), Hale (50%), Ubungo Gas Plant 1 (82%), Tegeta Gas Plant (75%), Zuzu (78%), Nyakato Plant (57%), Uwemba (67%), Ngombeni (48%), Songea (56%), Mpanda (48%), Biharamulo (82%), Ngara (84%), Mafia (75%), Tunduru (65%), Ludewa (0%) and Somanga (47%).

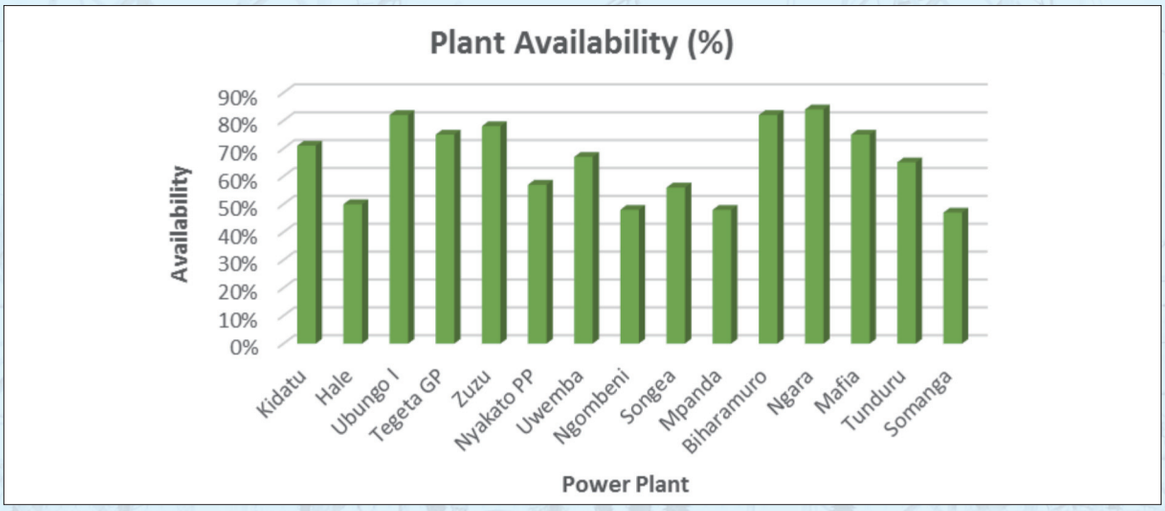


Figure 1(c): Average Plant Availability below 90%

Source: TANESCO, other Licensees & EWURA.

5.1.5 Plant Utilisation

During the period under review, average utilisation of all power generation plants was 64%. The Authority is continuing monitoring to ensure that all plants operate above the average except for HFO/IDO and GO plants without disputing dispatch merit order and move towards 75% utilisation as shown in **Figure 1(d)**.

Plants which operated below the average (64%) utilisation include: Kihansi (48%), Mtera (52%), N/P Fall (32%), Hale (44%), Nyakato (29%), Nyumba ya Mungu (30%), Uwemba (34%), Darakuta (47%), Tulila (26%), TANWAT (21%), TPC (26%), Ngombeni (7%), Ludewa, Loliondo and Somanga (47%).

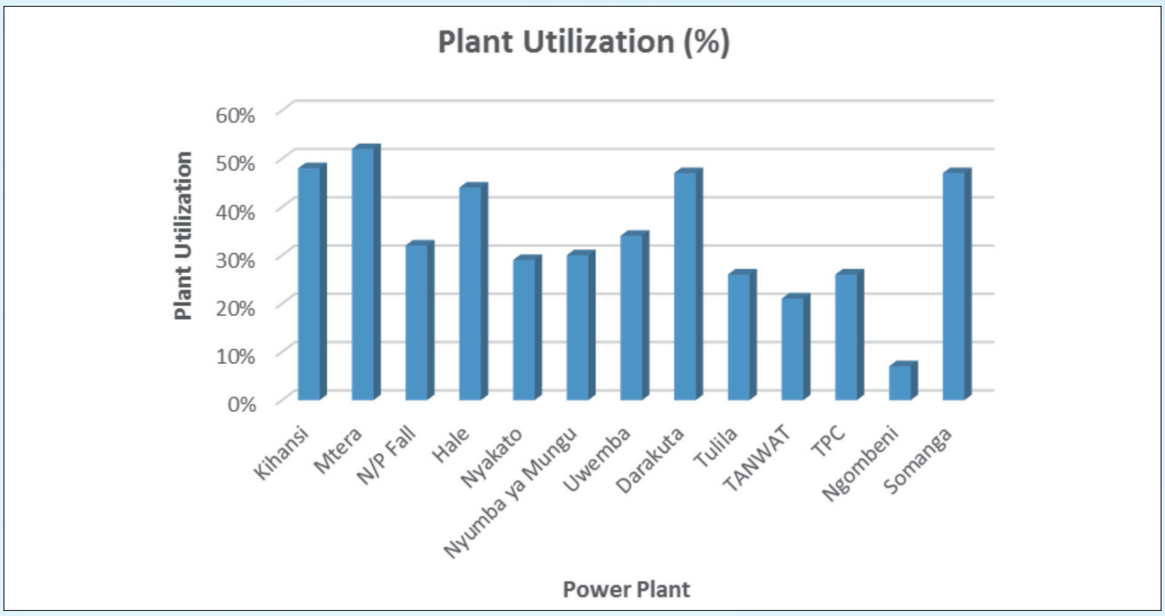


Figure 1(d): Average Plant Utilisation below 64%

Source: EWURA, TANESCO & other Licensees

5.1.6 Energy Dispatched

During the period under review, total energy dispatched was 7,052.67GWh of which 6,751.88GWh (95.74%) was dispatched to the main grid and 198.41GWh (2.81%) was dispatched to the off grid while 102.39GWh (1.45%) was cross border import as shown in **Figure 1(e)**.

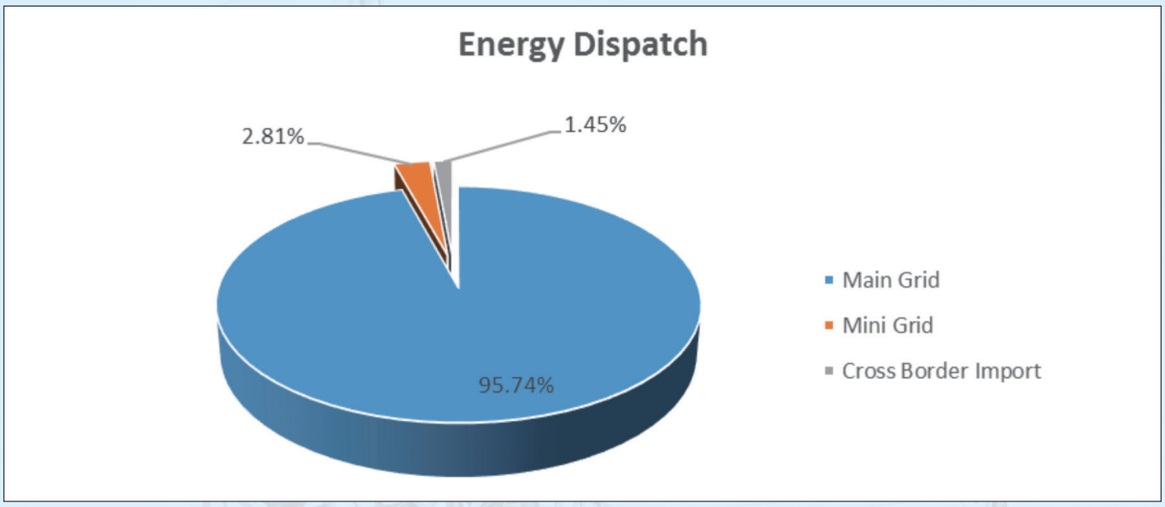


Figure 1(e): Energy Dispatched

Source: TANESCO, Licensees & EWURA data analysis

5.2 Electricity Transmission Performance

The Authority continued to monitor the transmission network performance and compliance to the Act, regulations, rules, licence conditions, standards and tariff orders through inspections and reports to ensure efficient availability, utilisation, reduction of losses and expansion of infrastructure. The Authority also continued to monitor implementation of infrastructure expansions aiming at improving performance of the transmission system including the 400kV back borne project. During the reporting period, only TANESCO had a transmission services licence.

5.2.1 Infrastructure and Customers

As of 30th June 2017, the transmission network comprised of: 66kV (578.7km), 132kV (1,628.79km), 220kV (2,748km) and 400kV (670km) transmission lines; 49 grid substations (3,533.20MVA) and the Grid Control Centre (GCC) for controlling the system for appropriate dispatch of power plants against demand. Six (6) customers were connected to the transmission system (Bulyanhulu and Buzwagi at 220kV as well as North Mara Gold Mine, ZECO, Twiga Cement, Simba Cement and Rhino Cement at 132kV) as of 30th June 2017 which is an increase of one (1) customer as compared to the year ended June 2016 and June 2015.

Source: TANESCO & EWURA data analysis

5.2.2 Outages

Total outage hours during the reporting period were 1263.17 hours (644.37 hours planned and 618.8 hours unplanned) of which 347 hours (125 hours planned and 222 unplanned) were for 220kV lines; 703 (481 hours planned and 222 hours unplanned) were for 132kV lines and 213 hours (39 hours planned and 174 hours unplanned) were for 66kV lines as shown in **Table 2(a)**. 132kV lines had the highest level of outage hours compared to the rest. Comparing to the previous reporting period, outages were 1692 hours which is a decrease of 429 hours. Note that the 400kV line is currently charged at 220kV

Table 2(a): Transmission line outage hours

Transmission Line Voltage	Planned Outages (Hrs)	Unplanned Outages (Hrs)	Total Outages (Hrs)
220kV	125	222	347
132kV	481	222	703
66kV	39	174	213

Source: TANESCO & EWURA data analysis

Total outage frequency during the period were 253 (77 planned and 176 unplanned) of which 81 (15 planned and 66 unplanned) were for 220kV lines; 152 (58 planned and 94 unplanned) were for 132kV lines and 20 (4 planned and 16 unplanned) were for 66kV lines as shown in **Table 2(b)**. 132kV lines had the highest level of outage frequency compared to the rest. Comparing to the previous reporting period whereby total outage frequency were 368 hours, a decrease of 115 events.

Table 2(b): Transmission line outage Frequency

Transmission Line Voltage	Planned Outages Frequency (Events)	Unplanned Outages Frequency (Events)	Total Outages Frequency (Events)
220kV	77	176	253
132kV	58	94	152
66kV	4	16	20

Source: TANESCO & EWURA data analysis

Total grid failure for the period ended June 2017 was 12.55 hours in 5 events. There is an increase of frequency by 2 events as compared to the year ended June 2016 and a decrease in duration by 14.27 hours.

Source: EWURA data analysis & TANESCO

5.2.3 Losses

During the period under review, total energy dispatched into main grid was 6,751.88GWh. Total Energy Received at Primary Substation for distribution was 6,341.87GWh and auxiliary grid substation use was 3.46GWh hence resulting to transmission loss of 406.55GWh equal to 6%.

Source: TANESCO & EWURA data analysis

5.3 Electricity Distribution Performance

The Authority continued to monitor the distribution network performance and compliance to the Act, regulations, rules, licence conditions, standards and tariff orders through inspections and reports to ensure efficient availability, utilisation, reduction of losses and expansion of the distribution infrastructure. The Authority also continued to monitor quality of service and implementation of infrastructure expansions aiming at improving performance of the distribution system. During the period ended 30th June 2017, three companies had licences for the electricity distribution activity namely, Tanzania Electricity Supply Company Limited (TANESCO), Rural Power Development Limited (RPDL) and Andoya Hydroelectric Power Company Limited (AHEPO).

5.3.1 Infrastructure and Customers

As of 30th June 2017, TANESCO distribution system comprised of: 33kV (35,895km); 11kV (6,183km); 0.4kV (97.956km); 17,118 distribution transformer and 1,999,890 customers which is an increase of 256,070 customers as compared with the year ended 30th June 2016 which was 1,743,820. RPDL distribution system comprised of 33kV (170km), 0.4kV (70km), 5 distribution transformer and 2,202 customers which is an increase of 380 customers as compared with the year ended 30th June 2016. AHEPO distribution system comprised of 11kV (10.5km), 0.4kV (13km), 6 distribution transformers and 230 customers which is an increase of 30 customers as compared with the year ended 30th June 2016.

Source: TANESCO, RPDL, AHEPO and EWURA data analysis

5.3.2 Outages

During the period under review, TANESCO total outage hours in all Regions were 28,224.29 (18,464.70 hours planned and 9,759.59 hours unplanned) which is a decrease of 23,570.36 hours as compared with the year ended 30th June 2016 which was 51,794.65 hours (37,284.72 hours planned and 14,509.93 hours unplanned). Total outage frequency was 106,803.61 (66,753.00 planned and 40,050.61unplanned) which is an increase of 55,598.65 as compared with the year ended 30th June 2016 which was 51,204.96 (10,213.00 planned and 40,991.96 unplanned).

Source: TANESCO and EWURA data analysis

RPDL total outage hours were 403 (193 hours planned and 210 hours unplanned) which is a decrease of 33 hours as compared to the year ended 30th June 2016 which was 436 hours (189 hours planned and 247 hours unplanned). Total outage frequency was 194 (9 planned and 185 unplanned) which is an increase of 78 as compared with the year ended 30th June 2016 which was 116 (7 planned and 109 unplanned).

Source: RPDL and EWURA data analysis

AHEPO total outage hours were 92 (42 hours planned and 150 hours unplanned) which is a decrease of 123 hours as compared to the year ended 30th June 2016 which was 215 hours (48 hours planned and 167 hours unplanned). Total outage frequency was 15 (6 planned and 9 unplanned) which is a decrease of 3 as compared with the year ended 30th June 2016 which was 18 (4 planned and 14 unplanned).

Source: AHEPO and EWURA data analysis

5.3.3 Distribution Losses

TANESCO total Energy distributed to customers was 6,642.67GWh of which 6,341.87 (95.47%) was from main grid power plants, 198.41GWh (2.99%) was from off grid (mini grid) power plants and 102.39GWh (1.54%) was from cross border import as shown in **Figure 2(a)**. Total Energy sales to TANESCO customers was 6,056.39GWh. Total distribution losses were 586.28GWh (8.83%) which is lower than the year ended June 2016 which was 10%.

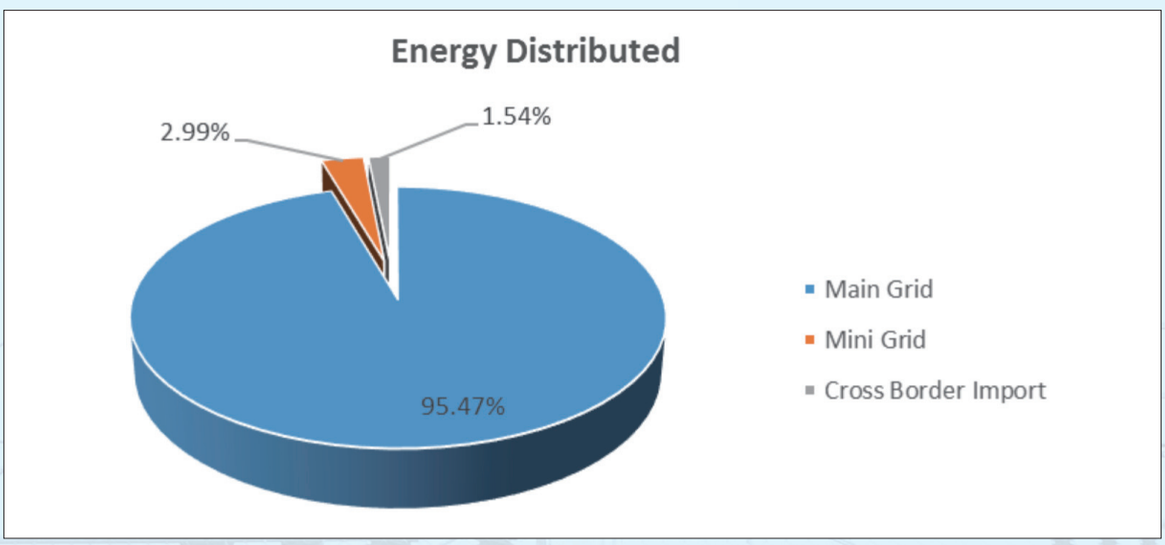


Figure 2(a): Energy Distributed

Source: TANESCO and EWURA data analysis

RPDL total Energy distributed to customers was 20.55GWh, total Energy sales to customers was 19.72GWh and distribution losses were 0.828GWh (4%) which is the same as the year ended 30th June 2016.

Source: RPDL and EWURA data analysis

AHEPO total Energy distributed to AHEPO customers was 2.75GWh, total Energy sales to customers was 2.59GWh and distribution losses were 0.16GWh (6%) which is the same as the year ended 30th June 2016.

Source: ANDOYA and EWURA data analysis

5.3.4 Application for Power Connection

During the period under review, TANESCO's number of applications for new customer's connections were 325,164 of which 221,554 customers were connected and 103,610.00 (32%) were not connected. RPDL number of applications for new customer's connections were 387 and 380 customers were connected. AHEPO number of applications for new customer's connections were 64 of which 20 were connected and 44(69%) were not connected.

Source: TANESCO, RPDL, AHEPO and EWURA data analysis

5.3.5 Complaints Handling

During the period under review, 88,495 complaints were received by TANESCO of which 72,309 (82%) were responded to within 3 days as required by their Customer Service Charter and 16,186 (18%) were not responded. No complaint was received for RPDL, AHEPO received 12 complaints of which 9 (75%) were responded to, while 3 (25%) were not.

Source: TANESCO, RPDL, AHEPO and EWURA data analysis

5.3.6 Handling Temporary Breakdowns (TBs)

During the period under review, 422,146 TBs were reported to TANESCO of which 422,545 TBs were attended to meaning that some of the TB were attended without being reported. 755 TBs were reported to RPDL of which 850 were attended to. 2,747 TBs were reported to AHEPO of which 2,587 (94%) were attended to and 160 TBs (6%) were not.

Source: TANESCO, RPDL, AHEPO & EWURA data analysis

6.0 FINANCIAL PERFORMANCE

Currently, there are three licensed electricity distribution utilities namely TANESCO, AHEPO and RPDL. Considering the size of the coverage of the utilities, this section presents the financial performance of TANESCO only, which provides distributions services in all Tanzania mainland regions.

For the year ended on 30th June 2015, the financial statements of TANESCO were prepared covering a period of 18 months following a change in the utility's financial year. For comparison purposes, the financials for the year ended 30th June 2015 have been prorated to cover 12 months only.

6.1 Revenue Generation

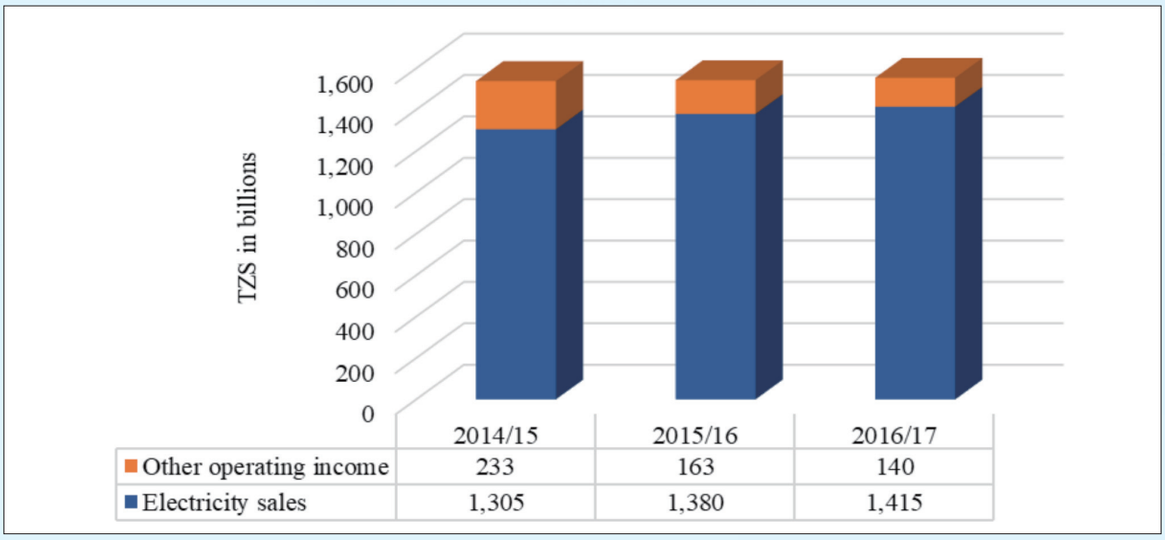


Figure 3: Total Revenue Generation

The main source of revenue for TANESCO is electricity sales. Total revenue in FY 2015/16 amounted to TZS 1,543 billion having increased by 0.3% from a revenue of TZS 1,538 billion generated in FY 2014/15. In FY 2016/17[1], revenues increased further by 0.7% to a reported revenue of TZS 1,554 billion.

The contribution of electricity sales in total revenue has been increasing year on year having contributed 85% in FY 2014/15, 89% in FY 2015/16 and 91% in FY 2016/17. Other operating income comprises mainly of Government contributions on electricity generation and purchases, customer contributions on work orders, amortization of deferred capital grants, rental income and interest on overdue electricity bills.

The contribution of other income in total revenue has been declining year on year from a contribution of 15% in FY 2014/15 to a contribution of 11% in FY 2015/16 and 9% in

1 Financial Statement for 2016/17 is provisional

FY 2016/17. The decrease in other income contribution is mainly due to a decrease in Government contributions to the payment of capacity charges and fuel cost of purchased electricity.

Electricity sales amounted to TZS 1,415 billion in FY 2016/17 which is a 3% increase from TZS 1,380 billion generated in FY 2015/16. As shown in **Figure 4** most of the sales are generated from the general usage customers followed by customers supplied with electricity from the high voltage supply. Sales income from all customer categories have increased except for those from low usage customers which declined by 19%.

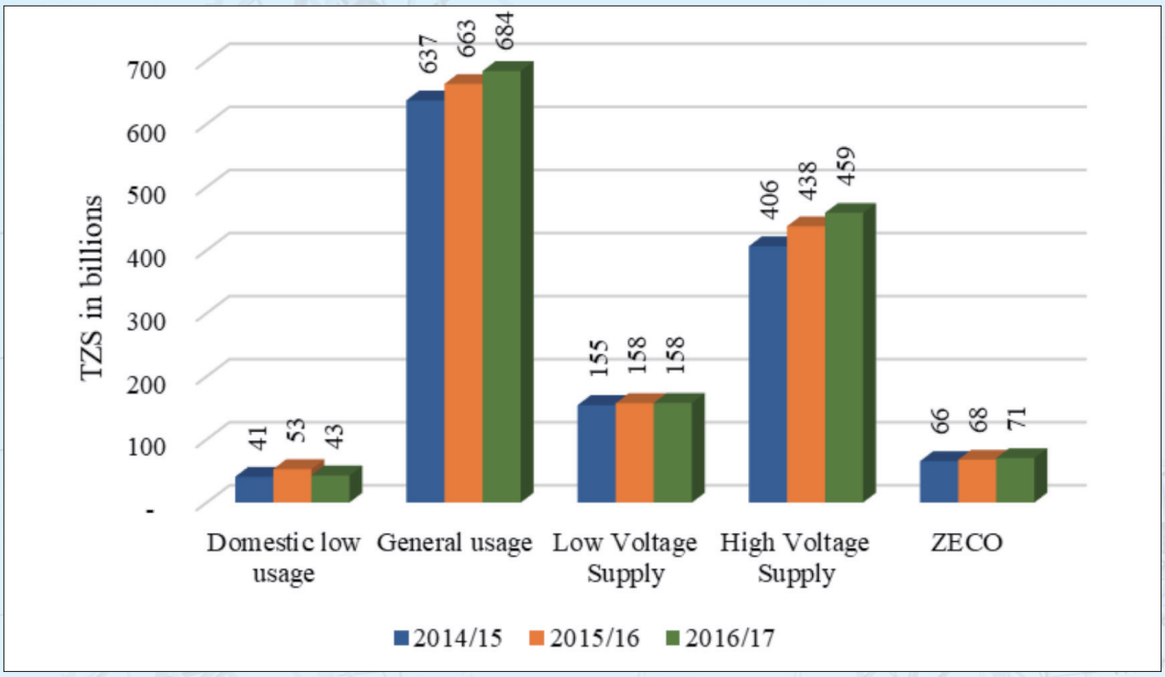


Figure 4: Electricity Sales by Customer Category

On average, most of the sales income is generated from sales to general usage customers who account for 48% of total electricity sales followed by sales to high voltage customers accounting for 32% of the total electricity sales as seen in **Figure 5.** However, as can be seen in **Figure 6,** higher consumers of electricity are those connected to the high voltage supply level.

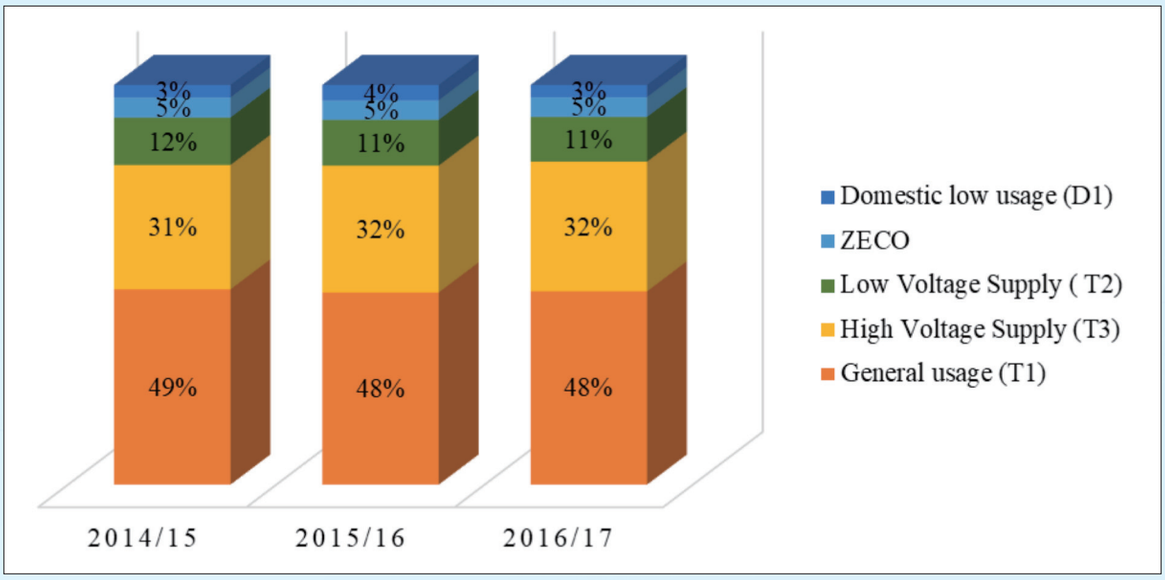


Figure 5: Sales Income Contribution by Customer Category

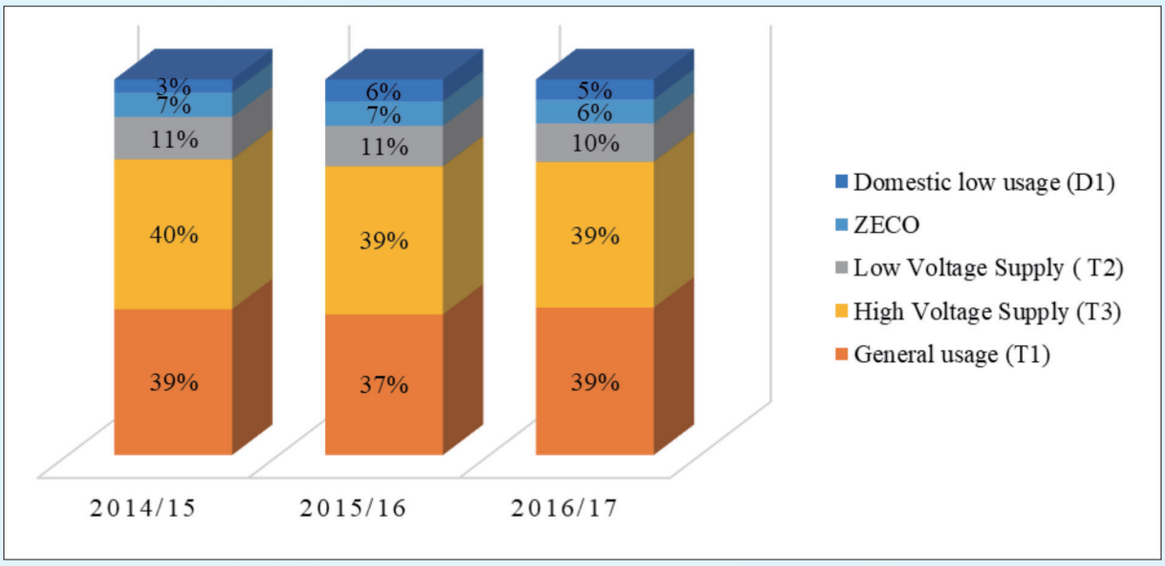
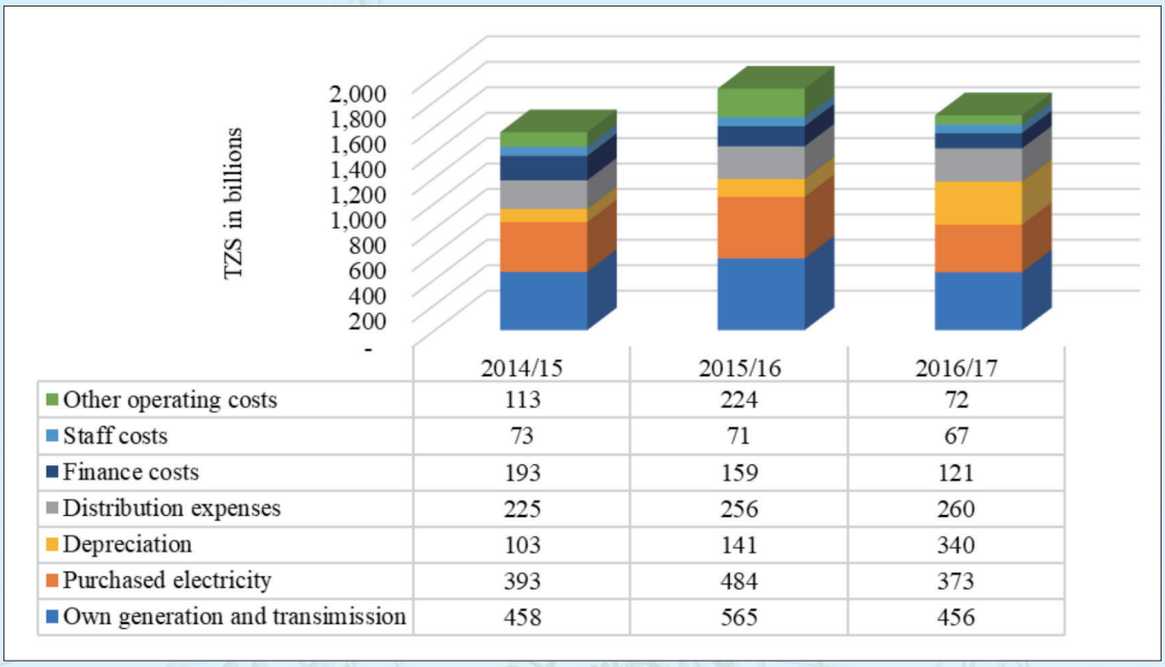


Figure 6: Electricity Consumption by Customer Category

6.2 Total Cost of Service

In the provision of electricity service, the major costs incurred by TANESCO include those related to generation, transmission and distribution as well as costs of purchased electricity as shown in **Figure 7**. Other costs are those related to operations or administration and maintenance which include, staff costs, depreciation, legal expenses and transport and travel expenses.



	2014/15	2015/16	2016/17
Other operating costs	113	224	72
Staff costs	73	71	67
Finance costs	193	159	121
Distribution expenses	225	256	260
Depreciation	103	141	340
Purchased electricity	393	484	373
Own generation and transimission	458	565	456

Figure 7: Total Cost

The contribution of each cost item in total cost is shown in **Figure 8,** followed by a discussion of those costs in the subsequent paragraphs.

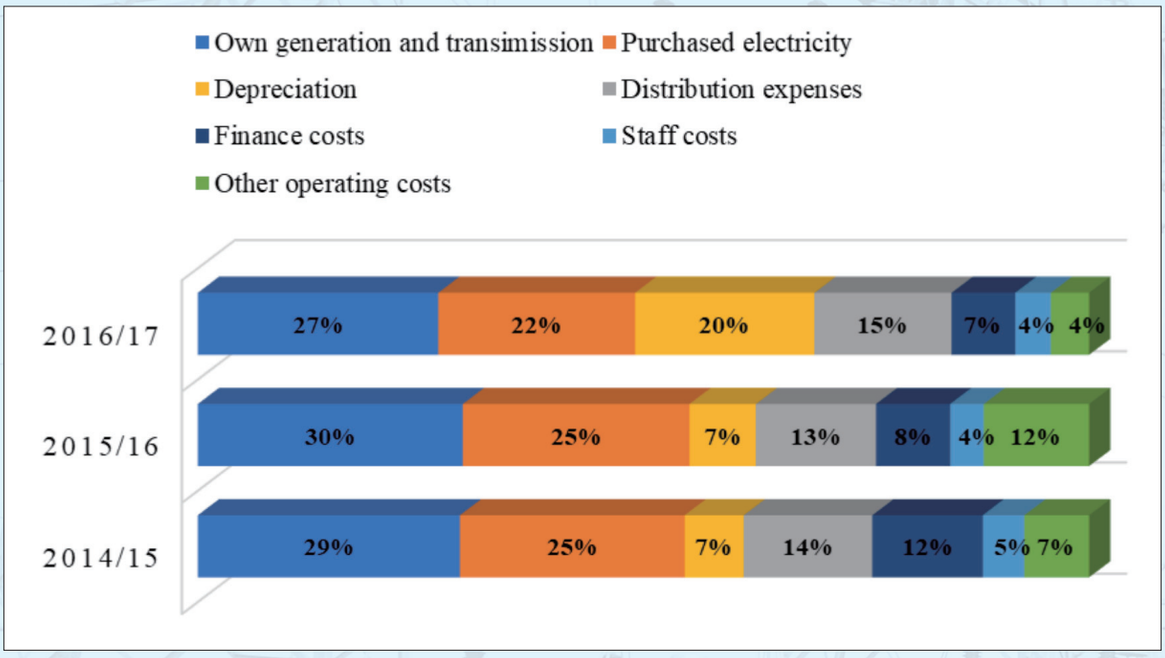


Figure 8: Total Cost Composition

6.3 Cost of Sales

6.3.1 Own Generation and Transmission Cost

During the period under review, the cost of own generation and transmission (excluding depreciation) has been the major cost accounting for an average of 27% of the total cost with its contribution in each year shown in **Figure 8.** In FY 2014/15 the cost of electricity generated from TANESCO's own power plants and the cost of transmitting the generated and purchased electricity amounted to TZS 458 billion. The cost increased by 23% in FY 2015/16 to TZS 565 billion mainly due to commencement of generation from Kinyerezi I power plant. As shown in **Figure 9**, in FY 2016/17, the cost decreased by 19% to TZS 456 billion mainly due to a 51% decrease in electricity generation from the grid connected liquid fuel power plants particularly the Mwanza HFO power plant.

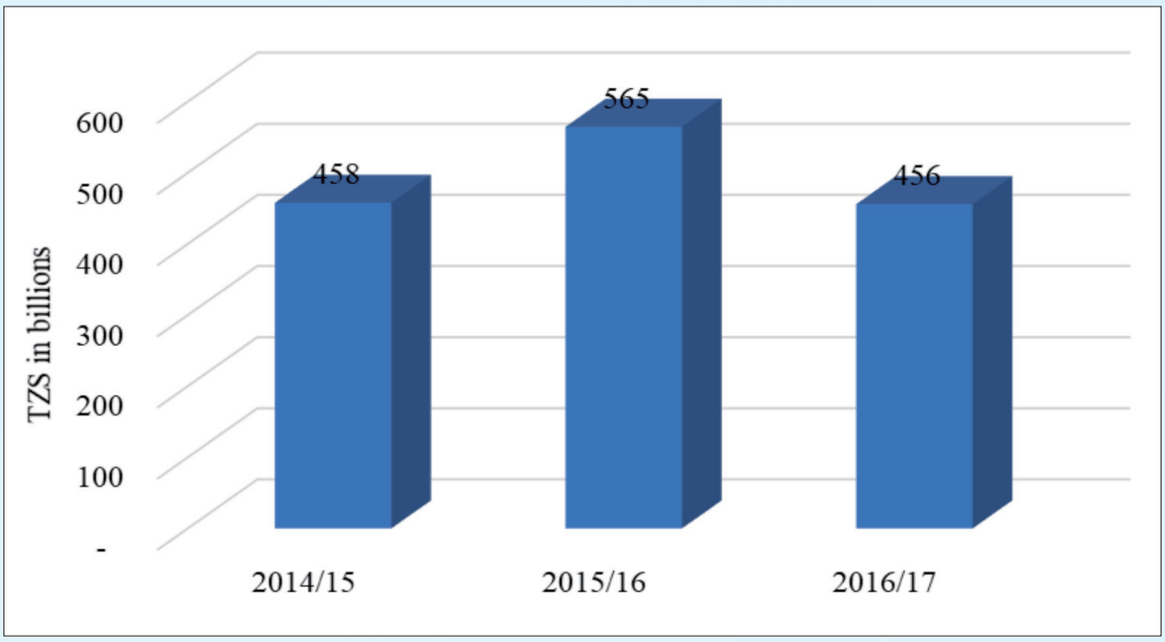


Figure 9: Costs of Own Generation and Transmission

In FY 2016/17, own generation and transmission costs (inclusive of depreciation) per unit of electricity generated amounted to TZS 110.81 per kWh generated, decreasing from TZS 150.14 per kWh reported in FY 2015/16.

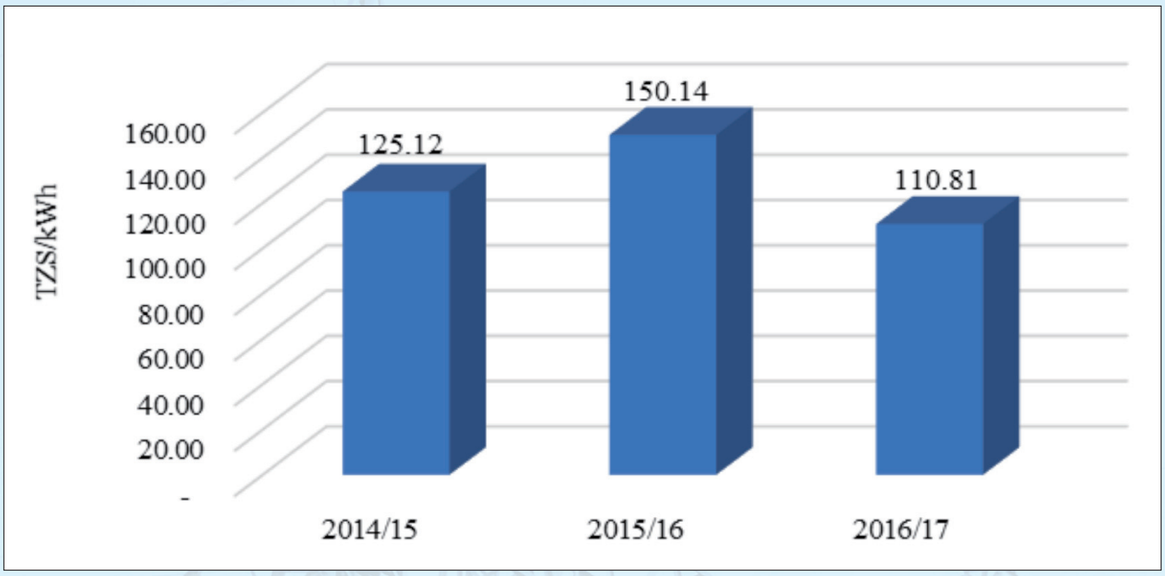


Figure 10: Costs of Own Generation and Transmission per unit of Electricity Generated

6.3.2 Cost of Purchased Electricity

During the period under review, the cost of purchased electricity accounted for an average of 22% of the total cost with its contribution in each year shown in **Figure 8.** In FY 2014/15 the cost of purchased electricity amounted to TZS 393 billion increasing by 23% to TZS 484 billion in FY 2015/16. As shown in **Figure 11**, in FY 2016/17, the cost decreased by 23% to TZS 373 billion due to no electricity purchases from Symbion and the end of power purchase agreements with Aggreko.

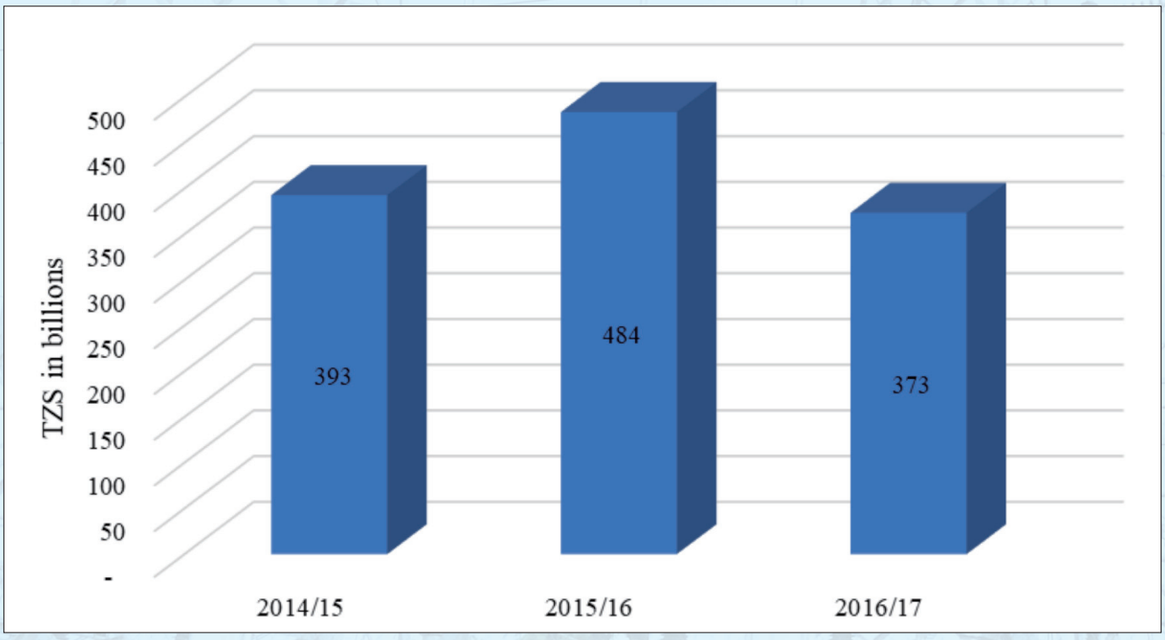


Figure 11: Costs of Purchased Electricity

In terms of the unit cost of purchased electricity, in FY 2016/17, the cost amounted to TZS 213.29 per kWh purchased, having increased from TZS 190.65 per kWh reported in FY 2015/16.

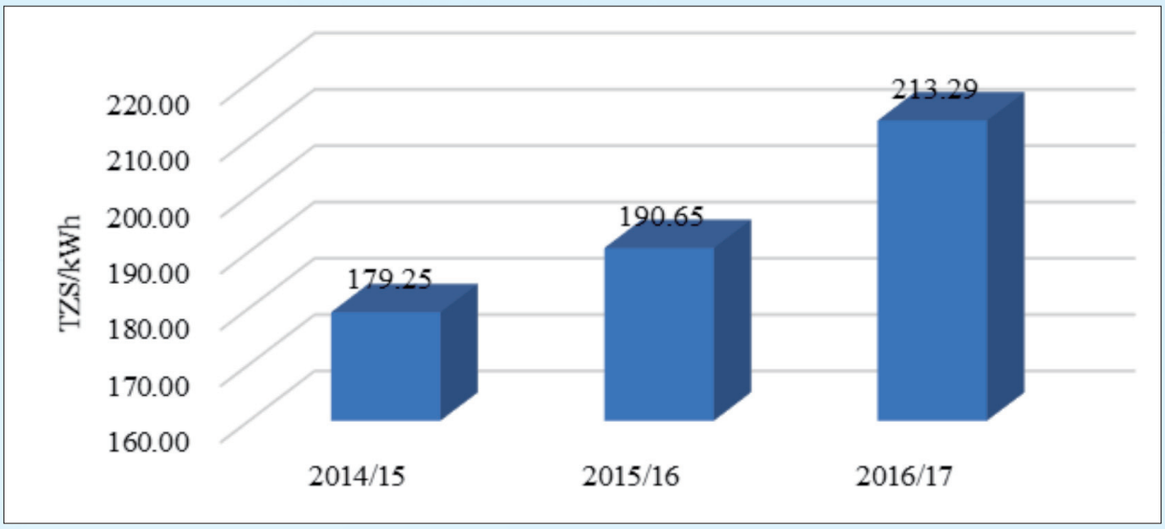


Figure 12: Costs of Purchased Electricity per unit of Purchased Electricity

6.3.3 Distribution Expenses

During the period under review, distribution expenses (excluding depreciation) accounted for an average of 15% of the total cost with its contribution in each year shown in **Figure 8.** In FY 2014/15, distribution expenses amounted to TZS 225 billion increasing by 14% to TZS 256 billion in FY 2015/16 and increasing further by 2% to TZS 260 billion in FY 2016/17.

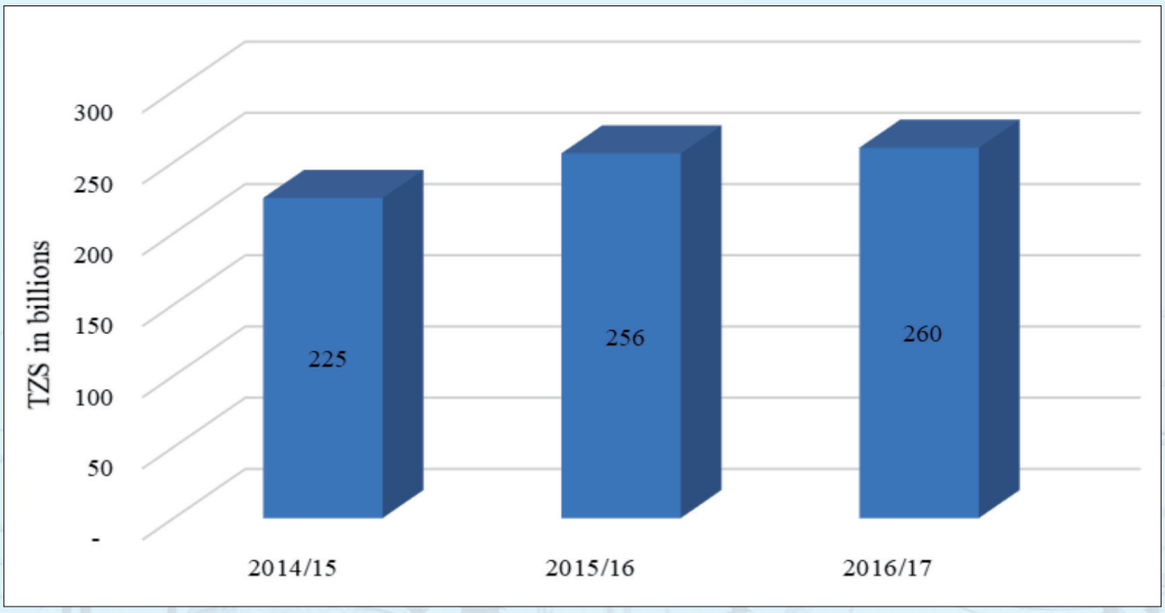


Figure 13: Distribution Expenses

In FY 2016/17, distribution expenses (including depreciation) were recorded to be TZS 73.32 per kWh sold, having increased from TZS 57.20 per kWh and TZS 49.78 per kWh reported in FY 2015/16 and FY 2014/15 respectively as shown in **Figure 14**. The continued increase in distribution expenses is mainly due to continuous receipt of a large distribution network handled over from REA with a small increase in electricity sold.

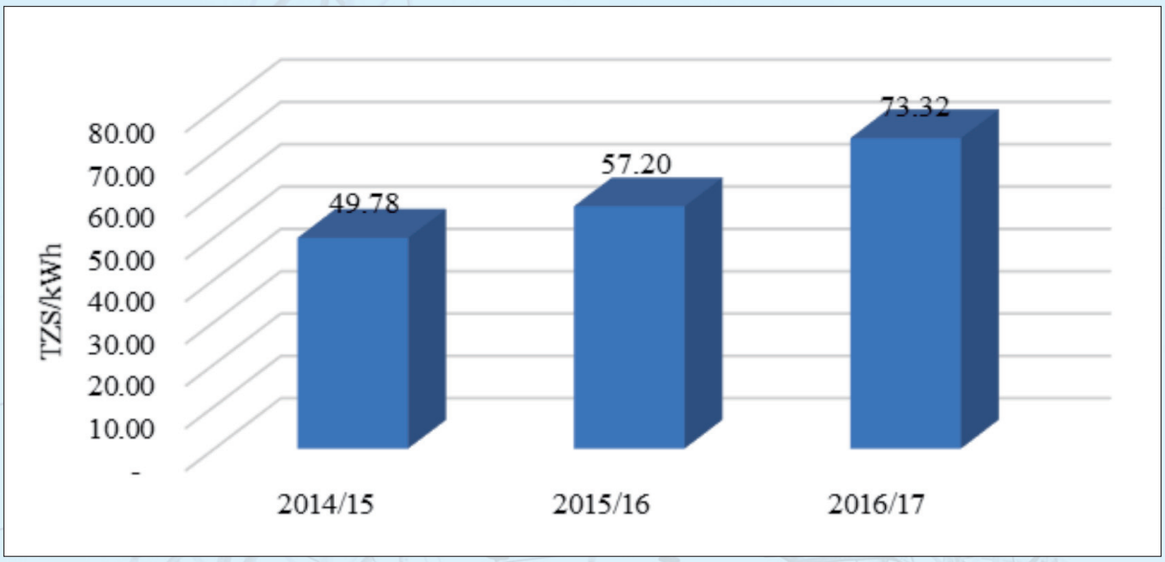


Figure 14: Distribution Expense per unit of Electricity Sold

6.4 Operating Costs

6.4.1 Staff Costs

During the period under review, operational staff costs contributed an average of 4% to the total cost with its contribution in each year shown in **Figure 8.** Operational **s**taff costs as shown in **Figure 15** have been decreasing continuously from TZS 73 billion reported in FY 2014/15 to TZS 71 billion in FY 2015/16 (equivalent to 2% decrease) and TZS 67 billion in FY 2016/17 (equivalent to 6% decrease).

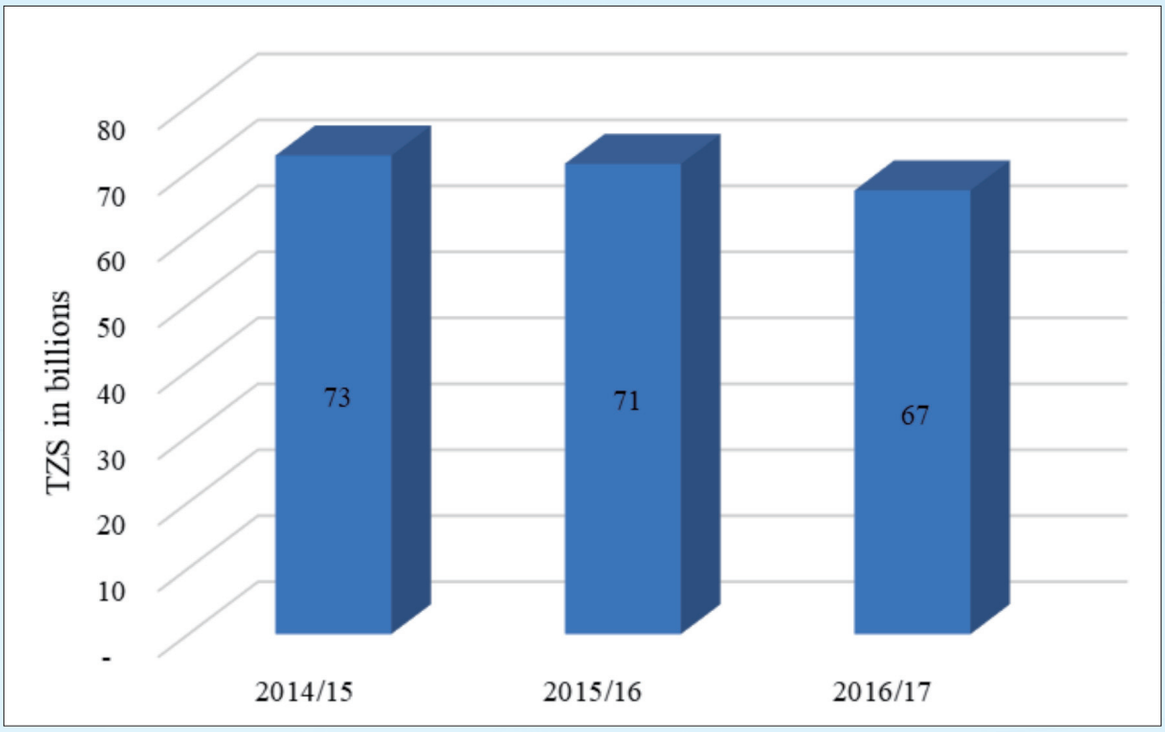


Figure 15: Staff Costs

6.4.2 Other Operating Costs

During the period under review, other operating costs accounted for an average of 4% to the total cost with its contribution in each year shown in **Figure 8.** Other operating costs as shown in **Figure 16** increased from TZS 113 billion reported in FY 2014/15 to TZS 224 billion in FY 2015/16 before decreasing to TZS 72 billion in FY 2016/17. The increase in cost in FY 2015/16 was mainly due to a loss from revaluation of the property, plant and equipment as well as an increase in the provision for impairment of other receivables. The decrease in the cost in FY 2016/17 is mainly due to the decrease in foreign exchange differences and significant decrease or no provisions made for impairment of trade and other receivables.

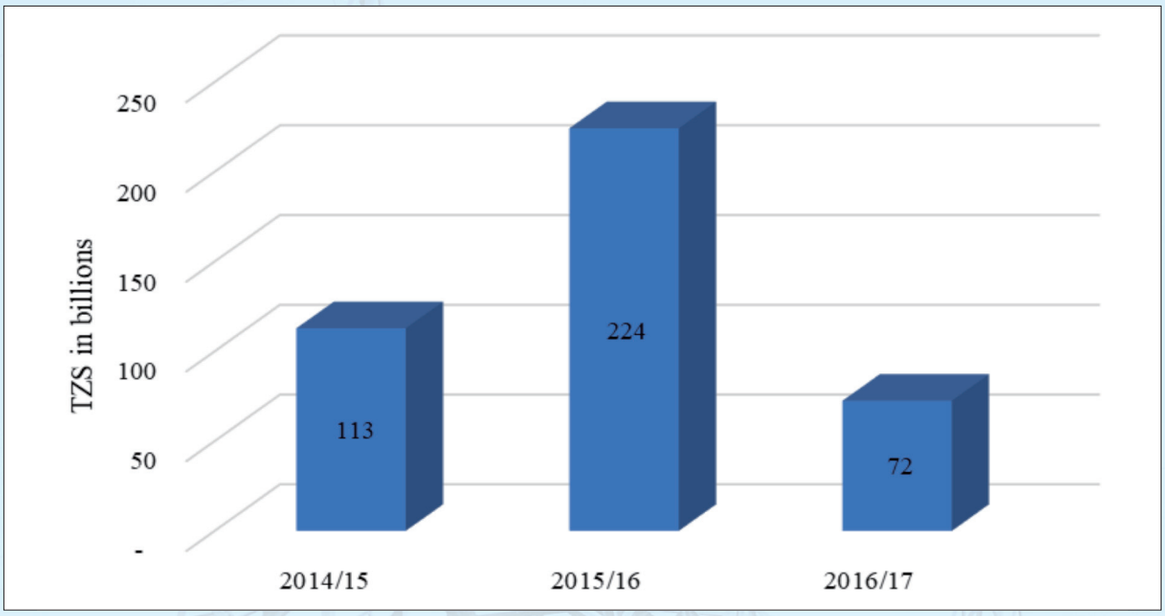


Figure 16: Other Operating Costs

6.5 Finance Costs

As shown in **Figure 17,** finance costs have been declining year after year mainly due to the decrease of foreign exchange loss on borrowings following the reduced balance of borrowings. While foreign exchange loss on borrowing accounted for 50% of the finance costs in FY 2014/15 with interest expense accounting for only 35% of the finance cost; in FY 2016/17, interest expenses constituted the most part of finance costs accounting for 58% of the cost while foreign exchange loss on borrowings accounted for only 11% of the finance costs.

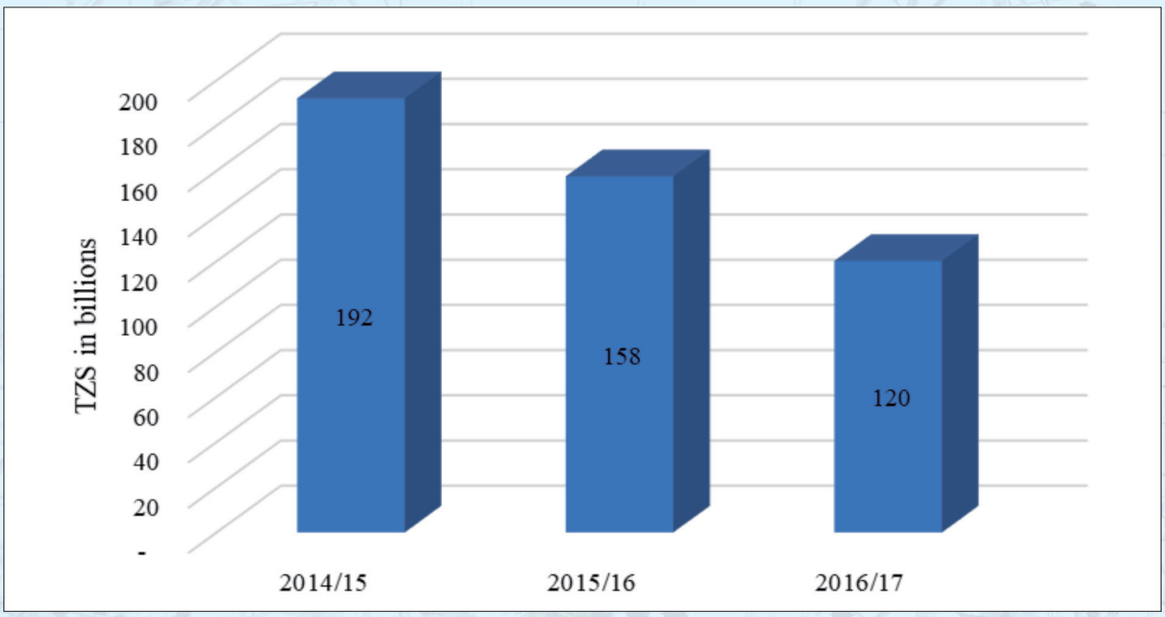
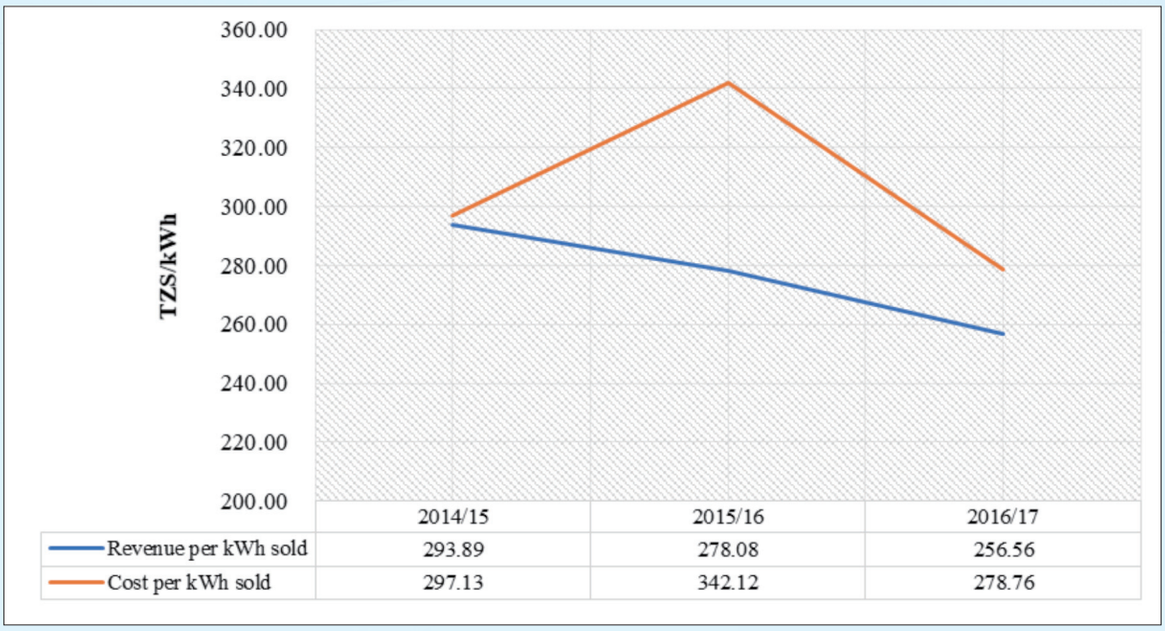


Figure 17: Finance Costs

6.6 Revenue Generation Against Total Cost

During the period under review, the cost per unit sold has always been higher than the revenue generated from the sold unit with the cost and revenue gap widening in FY 2015/16 mainly due to the increased generation costs coupled with a higher increase in units sold to domestic low usage customers and a reduced tariff in April 2015 and April 2016. The cost and revenue gap lessened in FY 2016/17 mainly due to reduced cost of service particularly the decrease in cost of generation and purchased electricity.



	2014/15	2015/16	2016/17
Revenue per kWh sold	293.89	278.08	256.56
Cost per kWh sold	297.13	342.12	278.76

Figure 18: Revenue vs Cost per unit of Sold Electricity

6.7 Ratio Analysis

6.7.1 Profitability Ratios

Generally, profitability ratios show the extent to which management of an organisation/ company utilises its resources in generating profit. Two indicators commonly used to assess profitability are Return on Assets (ROA) and Return on Equity (ROE) are discussed hereunder.

6.7.2 Return on Assets (ROA)

The ROA is a measure of efficiency that is used to assess the effectiveness of management of assets in generating profit. To have a meaningful assessment, operating asset is assessed against operating income when establishing a return from operations, and investment assets are assessed against investment income earned when determining a return on the investment assets.

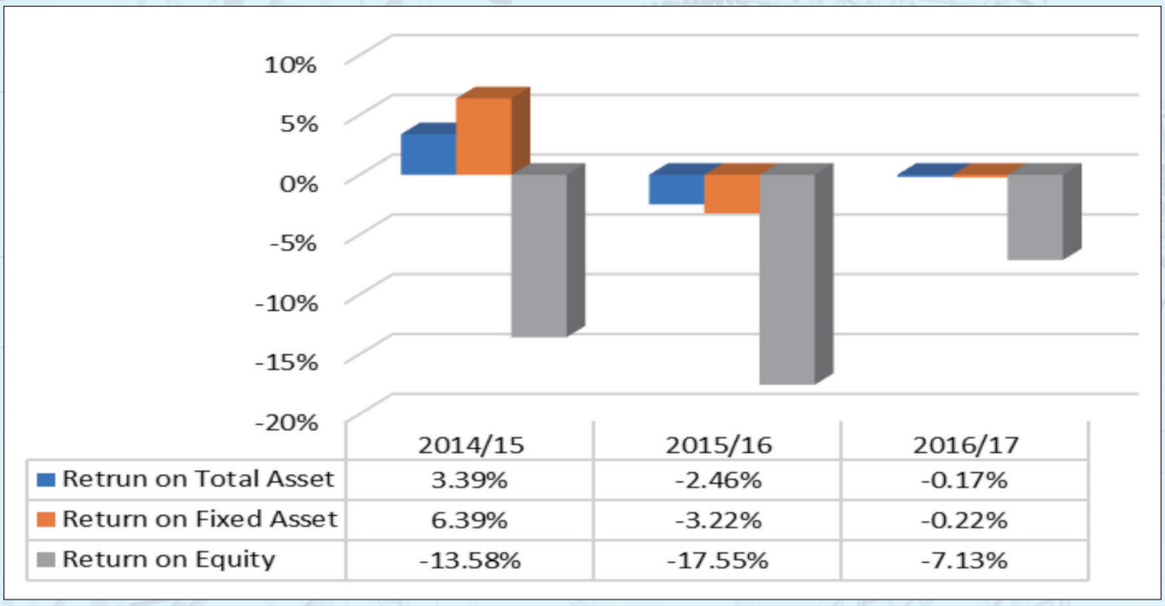
TANESCO made losses on assets (negative ROA) in the tune of -2.46% and -0.17% in 2016 and 2017, respectively. The loss has been attributed by the operational losses which occurred during the years under review. The results show that, TANESCO assets are not efficiently utilised to generate profit, although compared to FY 2015/16 the percentage change has decreased by 93%.

6.7.3 Return on Equity (ROE)

ROE is a well-known yardstick in assessing financial performance. It is used to evaluate the efficiency with which shareholders' equity is employed in generating a reasonable return. It is determined by dividing net profit by equity.

During the FY 2016/17, TANESCO performed poorly by having a negative ROE of -7.13% (-17.55% FY 2015/16) which is a decrease of 59% compared to FY 2015/16.

According to the analysis, TANESCO has failed on rewarding its shareholders on employed shareholders' funds. Shareholders are interested on returns, as this indicates that the company is using its shareholder's funds effectively.



	2014/15	2015/16	2016/17
Retrun on Total Asset	3.39%	-2.46%	-0.17%
Return on Fixed Asset	6.39%	-3.22%	-0.22%
Return on Equity	-13.58%	-17.55%	-7.13%

Figure 19: TANESCO's ROA and ROE

6.7.4 Debt Management Ratios

Debt to equity ratio and interest covering ratio are two commonly used indicators to assess the efficiency of an organisation to manage its debts.

6.7.5 Debt to Equity Ratio (Debt or Gearing Ratio)

Debt to equity ratio measures a firm's degree of indebtedness by assessing the proportion of the firm's assets that are financed by debt relative to the proportion financed by equity. The ratio can be ascertained by dividing long term liabilities by shareholder's equity or total liabilities by shareholder's equity, depending on accounting policies adopted. The higher the ratio / percentage the higher is the debt dependence in financing the company's resources and vice versa.

During FY 2015/16, TANESCO was debt financed by 31% of the total equity compared to 58% recorded in FY 2014/15. In 2016/17 the ratio decreased by 27% to 0.37 as shown in Figure 20.

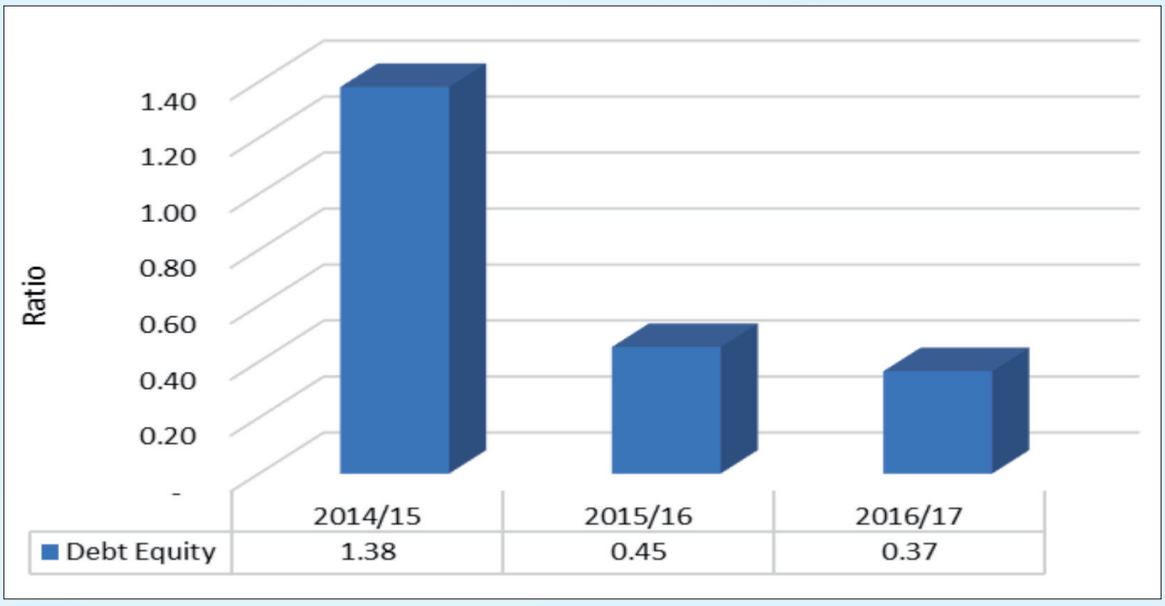


Figure 20: Debt to Equity Ratio

6.7.6 Interest Cover Ratio (Times Interest Earned)

Interest cover ratio assesses the company's ability to honour its interest charges as they fall due and is ascertained by dividing earnings before interest and taxes (operating profit) by interest expenses. The ratio obtained shows the number of times funds generated from operating activities can service the interest charges. The higher the ratio, the stronger the company's ability to honour its interest charges, and vice versa.

TANESCO's ability to service its maturing obligations is not promising, the ratio is -1.25 for FY 2015/16 and -0.12 for FY 2016/17. This suggests that, TANESCO will not be able to fulfil their obligation as it should be. It was observed that during the years under review TANESCO recorded operating losses.

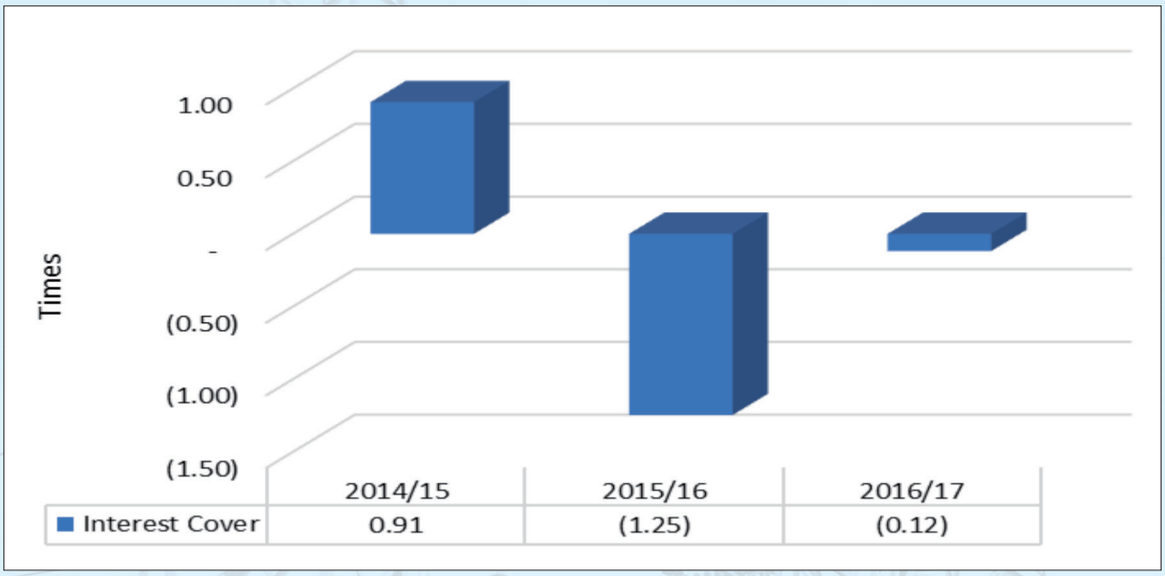


Figure 21: Interest Coverage Ratio

6.7.7 Asset Management Ratios (Activity or Efficiency) Ratios

Asset management ratios determine the extent to which the organisation utilises its assets effectively and efficiently, in generating sales that ultimately increase owners' wealth. The ratios show the extent to which one TZS invested in assets was employed in generating sales. That is, the value of assets is compared to the sales generated by those assets. Total asset turnover and fixed asset turnover have been considered in the analysis in an attempt to assesses TANESCO's asset management in generating sales.

6.7.8 Asset turnover

TANESCO's total asset turnover has been determined by dividing sales generated in each year under consideration by total assets in the respective year. Likewise, fixed asset turnover has been ascertained by dividing sales by fixed assets. The higher the sales volume, the higher will be the number of times a given asset category was utilised to generate sales and vice versa, *ceteris paribus*. The analysis shows that for every Shilling invested in TANESCO's asset in 2015/16 generated TZS 0.19 operating revenues and thereafter, decreased to TZS 0.18 in 2016/17.

Moreover, fixed asset turnover was recorded at 0.43 in 2014/15 and decreased to 0.17 in 2015/16, and the same was maintained in 2016/17. **Figure 22** shows TANESCO's total asset and fixed asset turnover (times) for years under review.

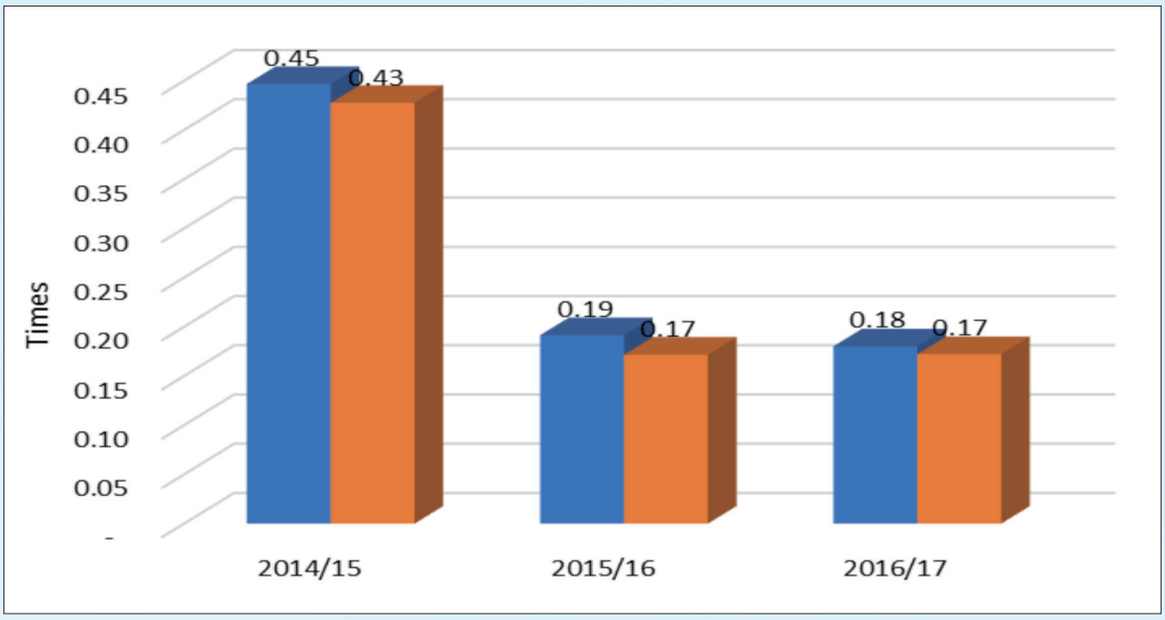


Figure 22: Total Assets and Fixed Assets Turnover

6.7.9 Solvency and Liquidity Ratios

A firm is said to be solvent if it has the ability to honour its debts. This is assessed by comparing its assets and liabilities. If the assets of such a company are more than / exceed its liabilities, then it is said to be solvent. However, the value of assets given in the balance sheet might not be realised at the fullest and consequently it may become impossible to honour all the debts. That is, the fact that a company may have more assets than liabilities does not necessarily provide assurance that it can pay all its liabilities if the need should arise.

In contrary, liquidity ratios show the ability of a firm to honour its maturing debts as they fall due. Unlike solvency, liquidity refers to all assets that are in the usable form to settle debts as they fall due, that is, assets in the form of cash or assets that can easily be converted into cash. Two commonly used liquidity indicators are *current asset ratio* and *quick asset ratio* as discussed below.

6.7.10 Current asset ratio

Current asset ratio (simply called current ratio) is determined by dividing current assets by current liabilities. Garrison and Noreen (1997: 803) note that a ratio that is widely used as a "rule of thumb" (described to be healthy) and to which reference should be made when assessing *current asset ratio* is 2:1. Thus, any ratio below one indicates the inability of a firm to pay those of its debts that fell due within the respective year of operation. The higher the ratio the healthier will be the company in meeting its maturing obligations/debts and vice versa.

As shown in **Figure 23**, TANESCO has generally experienced poor levels of *current ratios*. The ratios have been below 2:1 throughout the years under consideration. The current ratios recorded in FY 2015/16 to 2016/17 are below one, implicating it to financial difficulties when maturing obligations became due and payable. This means that in FY 2015/16, TANESCO managed to honour 24% of its maturing financial obligations and 25% in FY 2016/17. This is a poor indicator as failure to meet maturing debts could attract interest or penalty charges at the expense of the utility.

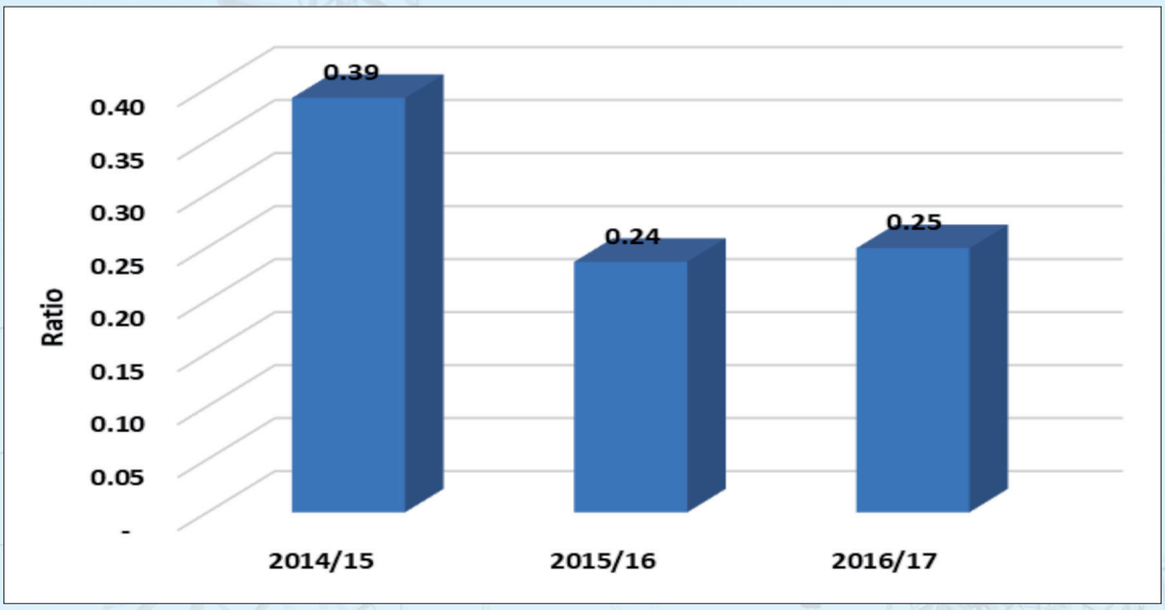


Figure 23: Current ratios

6.7.11 Cost Structure Ratios

Figure 24 shows Total Expenses ratio which is obtained by dividing Total Operating Expenses by Net Sales. In 2015 the ratio was 1.04, slightly rose to 1.26 in 2016 before falling to 1.11 in 2017. TANESCO's performance has been deteriorating as its Net Sales could not cover its Operating expenses.

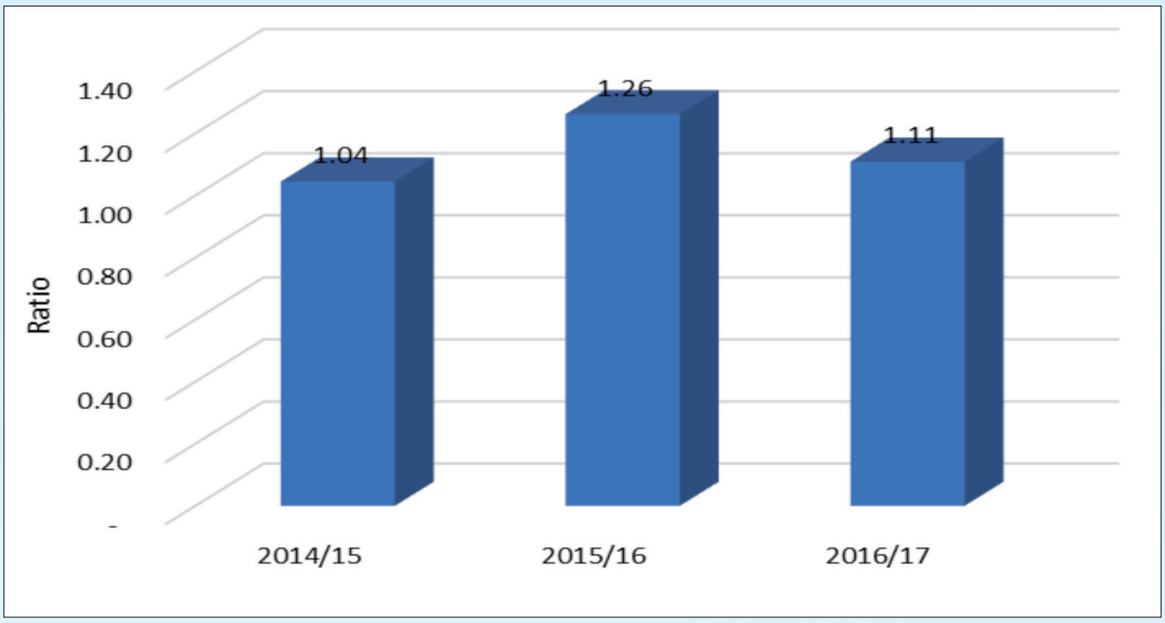


Figure 24: Total Expenses Ratio

7.0 ACHIEVEMENTS AND CHALLENGES

7.1 Achievements

The achievements made by the Authority during the period under review include the following:

a) increased level of awareness to electrical installation licensees due to the awareness programs, inspections and meetings with stakeholders conducted by the Authority which resulted into increased number of electricity installation personnel applying for licences;

b) issued 656 electrical installation licences which increased the number of licenced electrical personnel which ensures safety practices in the electrical installation services to customers;

c) issued 16 generation licences with a potential generation capacity of 150MW of which: four (4) operational licences for sale to TANESCO, three (3) operational licences for own use, eight (8) provisional licences for sale to TANESCO and one (1) provision licences for own use;

d) prepared regulatory tools for regulation of small power projects, system and market operations, supply services, procurement and approval of large power projects, net metering as well as transmission and distribution services;

e) inspected utility's infrastructure and submitted the findings to licensees for corrective actions in order to improve the performance of licensees;

f) Increased awareness which has led to increased demand of the regulatory intervention to matters regarding licensing, consumer complaints resolution and electricity accident investigation;

g) Increased participation by private sector mainly in power generation for sale and own use.

7.2 Challenges and Way Forward

Despite the achievements attained by the Authority, there were some challenges that were encountered by the Authority in its functions related to the electricity business in Tanzania. Some of the major challenges the Authority faced during the year under review:

a) delays of licensees to provide implementation action plans of inspection findings within the required time. The Authority will continue to engage them and in case of persistence, Compliance Orders shall be served;

b) even though the Authority has developed regulatory tools to attract private investments in electricity sub-sector the pace of investment is not sufficient to meet the rapid growing demand. The Authority will continue collaborating with the Government and other stakeholders in order to ensure implementation of the established tools to attract private investment; and

c) timely availability of data from licensees. The Authority will continue demanding timely submission of reports and in case of persistence, Compliance Orders shall be served.

8.0 CONCLUSION

During the year under review, the Authority strived to improve its performance in the electricity sub-sector. The Authority delivered its key fundamental deliverables of protecting the interests of stakeholders including the Government, service providers and consumers as per the Annual Plan. In performing its function, the Authority will continue to pay attention in the following areas:

a) monitoring implementation of the framework for regulating mini and micro grids (bellow 1MW);

b) monitoring implementation of the net metering framework to give customers incentive to invest in renewable energy particularly solar on the rooftop of customers premises;

c) monitoring provision of quality of services to customers from service providers.

d) developing online data collection tools for gathering data from licensees and other stakeholders;

e) ensuring online licence application mechanism to ease the process of licence applications;

f) monitoring implementation of planned maintenance measures to increase the plant availability of electricity generation with low availability such as Hale Hydro Power Plant; and

g) promoting small power projects investment through incentive regulation in off-grids where there are still HFO/DO & GO power plants.

Annex 1: Regulatory Tools and Standards

Annex 1(a): Regulatory Tools

- ✓ EWURA Act, 2001;
- ✓ The Electricity Act, 2008;
- ✓ National Energy Policy, 2003 (up to December 2015);
- ✓ National Energy Policy, 2015;
- ✓ The Electricity (General) Regulations GN 63;
- ✓ The Electricity (Electrical Installation Services) Rules, 2015. GN. 404/2015;
- ✓ The Electricity (Development of Small Power Projects) Rules, 2016. GN. 217/2016;
- ✓ Model Power Purchase Agreements for seven technologies (i.e. Hydro, Natural Gas, Oil, Coal, Geothermal, Solar and Wind);
- ✓ The Electricity (Initiation of Procurement of Power Projects) Rules, 2014. GN. 110/2014;
- ✓ The Electricity (Licensing Fees) Rules, 2012. GN. 11/2013;
- ✓ The Electricity (Transmission Services) Rules, 2011. GN. 320/2012;
- ✓ The Electricity (Distribution Services) Rules, 2011. GN. 322/2012;
- ✓ The Electricity (Generation Services) Rules, 2011. GN. 321/2012;
- ✓ The Energy and Water Utilities Regulatory Authority (Fees and Levies Collection Procedure) Rules, 2010. GN. 193/2010;
- ✓ Guidelines for Tariff Application, 2009;
- ✓ Manual for Inspection of Electricity Infrastructure;
- ✓ Guidelines for SPP Grid Interconnections, 2011; Tanzania Grid Code, 2014.
- ✓ The Electricity (Electrical Installation Services) Rules, 2015;
- ✓ Electricity System Operations Cooperation (Establishment Order), 2016;

- ✓ Electricity (System Operations Services) Rules, 2016;
- ✓ Electricity (Market Operation Services) Rules, 2016;
- ✓ Electricity (Tariff Setting) Rules, 2016;
- ✓ Small Power Producers Tariff Order; and
- ✓ Standardized Power Purchase Agreement.

Annex 1(b): Standards

- ✓ TZS 1373:2011 – Power Quality - Quality of supply;
- ✓ TZS 1374:2011 – Power Quality - Quality of service and reliability;
- ✓ TZS 1375:2011 – Electromagnetic Compatibility (EMC) – Limits for voltage change, voltage fluctuation and flickers in public low voltage supply system for equipment with rated current ≤ 16A per phase and not subject to conditional connection;
- ✓ TZS 1376:2011 – Electromagnetic Compatibility (EMC) – Limits for voltage change, voltage fluctuation and flickers in public low voltage supply system for equipment with rated current ≤ 75A per phase and subject to conditional connection;
- ✓ TZS 1377:2011 Electromagnetic compatibility (EMC) – Limits for harmonic current emissions for equipment with input current ≤ 16 A per phase;
- ✓ TZS 1378:2011 Electromagnetic compatibility (EMC) – Limits for harmonic current emissions for equipment with input current > 16 A per phase;
- ✓ TZS 1379:2011 Electromagnetic compatibility (EMC) – Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems;
- ✓ TZS1380:2011 Electromagnetic compatibility (EMC) – Compatibility levels for low frequency conducted disturbances and signalling in public medium voltage power supply systems;
- ✓ TZS 1381:2011 Electromagnetic compatibility (EMC) – Compatibility levels in industrial plant for low-frequency conducted disturbances; and
- ✓ TZS1382:2011 Electromagnetic compatibility (EMC) – Power quality measurement methods.

Annex 2: Service Providers Licences

	a) Electicity Generation Licences							
No.	**Licencee**	**Project Area**	**Capacity (MW)**	**Type of licence**	**Duration**	**Licence No.**	**Date of Issue**	**Date of Expiry**
1	Aggreko International Projects	Dar es Salaam	40	Generation	6 Months	EGS-2007-002	13/Mar/07	12/Sep/07
2	APR Energy LLC	Mwanza	40	Generation	12 Months	EGS-2007-003	23/Jul/07	22/Jul/08
3	AG&P Power Projects Ltd	Mtwara	18	Generation	6 Months	EGS-2007-001	12/Feb/07	11/Aug/07
4	Dowans Tanzania Limited	Dar es Salaam	100	Generation	2 Years	EGS-2007-012	19/Oct/07	18/Oct/09
5	TPC Limited	Moshi	20	Generation	1 Years	EGL-2010-002	25/Jun/10	24/Jun/11
6	Wentworth Power Ltd	Mtwara	18	Generation	12 Months	EGL-2011-002	14/Sep/2011	13/Sep/2012
7	Symbion Power Ltd	Dar es Salaam	112.5	Generation	24 Months	EGL-2011-004	19/Sep/11	18/Sep/13
8	Aggreko International Projects Ltd	Ubungo and Tegeta Yard	113	Generation	12 Months	EGL-2011-005	26/Oct/11	25/Oct/12
9	Songas	Ubungo	189	Generation	33 Years	*	11/Oct/01	10/Oct/34
10	IPTL	Tegeta	100	Generation	21 Years	*	16/Jul/96	15/Jul/17
11	TANESCO	Mainland TZ		Generation	20 Years	EGL-2013-001	1/Mar/13	28/Feb/33
12	Aggreko International Projects Limited	Dar es Salaam	70	Generation	12 Months	EGL-2015-001	5/Jul/15	4/Jul/16
13	TPC Ltd	Moshi	20	Generation	13 Years	EGL-2012-006	18/Jun/12	17/Jun/25
14	Tanganyika Wattle Company Ltd	Njombe	2.75	Generation	13 Years	EGL-2012-005	18/Jun/12	17/Jun/25
15	Aggreko International Projects Ltd	Ubungo and Tegeta Yard	100	Generation	12 Months	EGL-2013-005	26/Oct/13	1/Aug/15
16	Mwenga Hydro Ltd	Mufindi	3.36	Generation	15 Years	EGL-2013-001	1/Mar/13	28/Feb/28
17	Symbion Power Tanzania Ltd	Ubungo	112	Generation	15 years	EGL-2015-002	7/Dec/15	6/Dec/30
18	Tulila Hydro Electric Plant Co. Ltd	Songea	5+2.5	Generation	20 Years	EGL-2016-001	3/Aug/16	2/Aug/30
19	Andoya Hydro Electric Power Co. Ltd	Mbinga	0.5+0.5	Generation	15 Years	EGL-2016-002	22/Aug/16	21/Aug/31
20	Ngombeni Power Limited	Mafia	1.4	Generation	15 Years	EGL-2016-003	7/Sep/16	6/Sep/31
21	Jinan Diesel Engine Company Limited	Mtwara	60	Generation	6 Months	EGL – 2016 - 004	29/Dec/16	28/Jun/17
	Total Capacity (MW) excluding TANESCO		**1,128.51**					

* *Licence issued before EWURA was established.*

	b) Electricity Distribution, Supply, Transmission And Cross Border Trade						
No.	**Licencee**	**Project Area**	**Type of licence**	**Duration**	**Licence No.**	**Date of Issue**	**Date of Expiry**
1	TANESCO	Mainland Tanzania	Supply	20 years	ESL-2013-001	1/Mar/13	28/Feb/33
2	TANESCO	Mainland Tanzania	Tx and Cross Border Trade	20 Years	ETSOC - 2013-001	1/Mar/13	28/Feb/33
3	TANESCO	Mainland Tanzania	EDCBTL	20 Years	PEL-2013-002	1/Mar/13	28/Feb/33
4	Mwenga Hydro Ltd - Transferred to Rural Power Development Limited	Mufindi	Distribution	15 Years	EDL-2013-005	30/Apr/13	29/Apr/28

	c) Electricity Generation Licences - Own Use							
No.	**Licencee**	**Project Area**	**Capacity (MW)**	**Type of licence**	**Duration**	**Licence No.**	**Date of Issue**	**Date of Expiry**
1	Tanzania Cigarette Company Ltd (TCC)	Dar es Salaam	1.8	Generation	5 Years	SEGL-2013-001	1/Mar/13	28/Feb/18
2	Ashanti Goldfields T Ltd	Geita	31	Generatio (Baseload Own Use)	25 Years	P/G 1134	3/Dec/99	2/Dec/24
3	Bulyanhulu Goldmine Ltd	Kahama	24.5	Generation	5 Years	SEGL-2013-002	1/Mar/13	28/Feb/18
4	North Mara Goldmine Ltd	Nyamongo - Tarime	18	Generation	5 Years	SEGL-2013-003	1/Mar/13	28/Feb/18
5	Pangea Minerals Ltd - Tulawaka Goldmine	Tulawaka - Biharamulo	6	Generation (Baseload Own Use)	5 Years	SEGL-2013-001	1/Mar/13	28/Feb/18
6	Shanta Mine Co. Ltd	Chunya	4.2	Generation	15 Years	BEGL-2013-001	6/Sep/13	5/Sep/28
7	Mufindi Paper Mills	Mufindi	10.415	Generation Own Use (Base Load)	5 Years	BEGL-2013-002	18/Nov/13	17/Nov/18
8	Lake Cement Limited	Kimbiji Village, Temeke	15.4	Generation Own Use (Base Load & Standby)	15 years	BEGL-2016-001	29/Mar/16	28/Mar/31
9	Tanga Cement Public Limited Company	Tanga	11.48	Generation Own Use (Standby)	15 Years	SEGL-2016-001	4/Oct/16	3/Oct/31
10	Kilombero Sugar Company Limited	Kidatu - Morogoro	12.552	Generation Own Use (Base Load & Standby)	15 years	BEGL-2017-001	18/Apr/17	17/Apr/32

No.	Licencee	Project Area	Capacity (MW)	Type of licence	Duration	Licence No.	Date of Issue	Date of Expiry
11	Kagera Sugar Limited	Missenyi - Kagera	6.2	Generation Own Use (Base Load & Standby)	15 Years	BEGL-2017-002	18/Apr/17	17/Apr/32
12	Shanta Mine Co. Ltd	Songwe	8.2	Generation Own Use (Baseload)	15 years	BEGL-2018-001	2/Feb/18	1/Feb/33
	Total Installed Capacity (MW)		**149.747**					

d) Electricity Licences - Exemptions

No.	Name of Exempted Applicant	Project Area	Capacity (MW)	Type of Exemption	Duration	Exemption No. (if any)	Date of Issue	Date of Expiry	Remarks
1	Ji'nan Diesel Engine Company Limited	Mtwara	60	Generation	N/A	EWURA/41/96/Vol. III/12	10/ Nov/17	N/A	Exemption valid until Dangote Industries Limited starts generating its own power

e) Provisional Electricity Licences

No.	Licencee	Project Area	Capacity (MW)	Type of licence	Duration	Licence No.	Date of Issue	Date of Expiry
1	Mapembasi Hydropower Ltd	Njombe	10	Distribution (provisional)	30 Months	PEDL-2014-001	24/Feb/14	22/Aug/16
2	Mapembasi Hydropower Ltd	Njombe	10	Generation (Provisional)	36 Months	PEGL-2013-006	23/Sep/13	22/Aug/16
3	Armstones Company Ltd	Misenyi and Kyerwa		Distribution (provisional)	24 Months	PEDL-2011-002	14/Sep/13	13/Sep/15
4	Andoya Hydroelectric Power Company	Mbinga		Distribution (provisional)	30 Months	PEDL-2011-001	14/Apr/11	13/Oct/13
5	Lung'ali Natural Resources Company Ltd	Bishop House - Kihesa - Iringa	7.5	Distribution (provisional)	36 Months	PEDL-2012-003	9/May/12	8/May/15
6	Wind East Africa Power Project	Singida	100	Generation (provisional)	30 Months	PEL-2011-003	11/Nov/11	10/May/14
7	Kilwa Energy Company Ltd	Somanga Mtama Area - Kilwa	210	Generation (provisional)	30 Months	PEL-2013-001	1/Mar/2013	31/Jul/2015

No.	Licencee	Project Area	Capacity (MW)	Type of licence	Duration	Licence No.	Date of Issue	Date of Expiry
8	Geo Wind Power (T) Ltd	Singida	100	Generation (provisional)	30 Months	PEL-2012-009	20/ Dec/2012	20/ Jun/2015
9	Ngombeni Power Ltd	Mafia	0.5 phase I + 0.5 phase II	Generation (provisional)	30 Months	PEGL-2010-001	8/6/2010	7/12/2012
10	Kitonga Electric Power Co. Ltd	Kilolo District	150	Generation (provisional)	30 Months	PEGL-2013-004	24/Jul/13	31/Jul/16
11	Dangote Industries Ltd	Mtwara	75	Generation (provisional)	12 Months	PEL-2015-1	27/ Mar/2015	3/26/2016
12	East Coast Oils and Fats ltd	Kurasini	10	Generation (provisional)	30 Months	PEGL-2014-03	28/Nov/14	27/May/17
13	Tangulf Express Ltd	Ruvuma	10	Generation (provisional)	30 Months	PEL-2013-003	21/May/13	20/Nov/15
14	Lake Cement	Kimbiji	10	Generation (provisional)	30 Months	PEL-2013-002	21/May/13	20/Nov/15
15	TPCC Ltd (Twiga Cement)	Wazo Hill	5	Generation (provisional)	30 Months	PEGL-2014-001	24/Feb/14	23/Aug/16
16	Andoya Hydroelectric Power Company	Mbinga	0.5	Generation (provisional)	30 Months	PEGL-2011-001	14/Apr/11	13/Oct/13
17	East Africa Power Ltd	Dar es Salaam	10	Generation (provisional)	36 Months	PEL-2012-008	19/Sep/12	18/Sep/15
18	Lung'ali Natural Resources Company Ltd	Bishop House - Kihesa - Iringa	10	Generation (provisional)	36 Months	PEGL-2012-003	9/May/12	8/May/15
19	Mapembasi	Njombe	10	Generation (provisional)	30 Months	PEGL-2014-006	23/Sep/13	22/Sep/16
20	Bwelui Company Ltd	Ileje District	4.7	Generation (provisional)	30 Months	PEGL-2014-001	3/Jan/14	2/Jul/16
21	Ulaya Hydro and Windmill Technology Ltd	Katandala - Sumbawanga	2.902	Generation (provisional)	24 Months	PEGL-2014-002	23/May/14	22/May/16
22	Ulaya Hydro and Windmill Technology Ltd - Uzia Small Hydro Power	Uzia - Sumbawanga	1.12	Generation (provisional)	36 Months	PEGL-2015-004	16/Jun/15	15/Jun/18
23	Ulaya Hydro and Windmill Technology Ltd - Kalumbaleza Small Hydro Power	Kalumbaleza - Sumbawanga	1.2	Generation (provisional)	36 Months	PEGL-2015-003	16/Jun/15	15/Jun/18
24	TEXPOL Development Co. Ltd	Mbeya	6.2	Generation (provisional)	36 Months	PEL-2015-02	4/Jun/15	3/Jun/18

No.	Licencee	Project Area	Capacity (MW)	Type of licence	Duration	Licence No.	Date of Issue	Date of Expiry
25	Community Development Corporation Limited (Kikuletwa II)	Hai - Kilimanjaro	8	Generation (provisional)	36 Months	PEL-2012-001	30/Apr/12	29/Apr/15
26	NextGen Solawazi	Kigoma	5	Generation (provisional)	36 Months	PEL-2012-02	30/Apr/12	29/Apr/15
27	Sao Hill Energy Ltd	Mafinga	6	Generation (provisional)	24 Months	PEGL-2010-002	18/ Jun/2012	30/ Jan/2015
28	African Benedictine Sisters of St Agnes	Peramiho	7.5	Generation and Distribution (provisional)	36 Months	PEL-2012-007	9/Aug/2012	8/Aug/2015
29	EA-Power Ltd	Kiwira - Mbeya	10	Generation (provisional licence)	3 years	PEGL-2015-005	26/Jun/15	25/Jun/18
30	Kilwa Energy Company Ltd	Somanga Fungu - Kilwa	342	Generation (extension for provisional licence)	30 Months	PEGL-2015-006	1/Sep/15	1/Mar/18
31	Tangulf Express Ltd	Songea - Ruvuma	10	Generation (extension for provisional licence)	3 years	PEGL-2015-007	21/Nov/15	20/Nov/18
32	Tanzania Masigira Power Limited	Songea/Ludewa	71.78	Generation (Provisional Licence)	3 years	PEGL-2016-001	10/Feb/16	9/Feb/19
33	Fondazione Acra	Ludewa	1.7	Generation (Provisional Licence)	3 years	PEGL-2016-003	1/Jun/16	31/May/19
34	Fondazione Acra	Ludewa		Distribution (Provisional Licence)	3 years	PEDL-2016-001	1/Jun/16	31/May/19
35	Ludewa Clean Energy Limited	Ludewa	4.2	Generation (Provisional Licence)	3 years	PEGL-2016-002	1/Jun/16	31/May/19
36	Dangote Industries Ltd	Mtwara	75	Generation (Provisional Licence)	3 years	PEGL-2016-004	27/Mar/16	26/Mar/19
37	A-One Products and Bottlers Ltd	Dar es Salaam	7.8	Generation (Provisional Licence)	3 years	PEGL-2016-005	22/Aug/16	21/Aug/19
38	Royal Soap & Detergent Industries Limited	Dar es Salaam	1.33	Generation (Provisional Licence)	3 years	PEGL-2016-006	22/Aug/16	21/Aug/19
39	Tanga Cement Public Limited Company	Tanga	4.2	Generation (Provisional Licence)	3 years	PEGL-2016-007	4/Oct/16	3/Oct/19
40	Shanta Mining Co. Limited	Songwe	7.5	Generation (provisional licence)	3 years	PEGL-2016-008	7/Dec/16	6/Dec/19

No.	Licencee	Project Area	Capacity (MW)	Type of licence	Duration	Licence No.	Date of Issue	Date of Expiry
41	Luponde Hydro Limited	Njombe	2.9	Generation (Provisional Licence)	3 years	PEGL-2017-001	1/Mar/17	29/Feb/20
42	Suma Hydro Limited	Rungwe	1.5	Generation (Provisional Licence)	3 years	PEGL-2017-002	1/Mar/17	29/Feb/20
43	CEFA Registered Trustees	Njombe	6	Generation (provisional licence)	3 years	PEGL-2017-003	1/Mar/17	29/Feb/20
44	East Coast Oils and Fats ltd	Dar es Salaam	11.7	Generation (Provisional Licence)	1 year	PEGL-2017-004	28/May/17	27/May/18
45	Ludewa Capacity Building Association	Ludewa	10	Generation (provisional licence)	3 years	PEGL-2017-005	29/Aug/17	28/Aug/20
46	Dangote Cement Limited	Mtwara	60	Generation (provisional licence)	3 years	PEGL-2017-006	3/Nov/17	2/Nov/20
47	Mkonge Energy Systems Co. Ltd	Tanga - Mandera	9	Generation (provisional licence)	3 years	PEGL-2017-007	15/Dec/17	14/Dec/20
48	Mkonge Energy Systems Co. Ltd	Tanga - Ngombezi 1	2	Generation (Provisional Licence)	3 year	PEGL-2017-008	15/Dec/17	14/Dec/20
49	Ninety Two Limited	Ngorongoro	1.9	Generation (provisional licence)	3 years	PEGL-2018-001	2/Feb/18	1/Feb/21
	Total Capacity (MW)		**1412.132**					

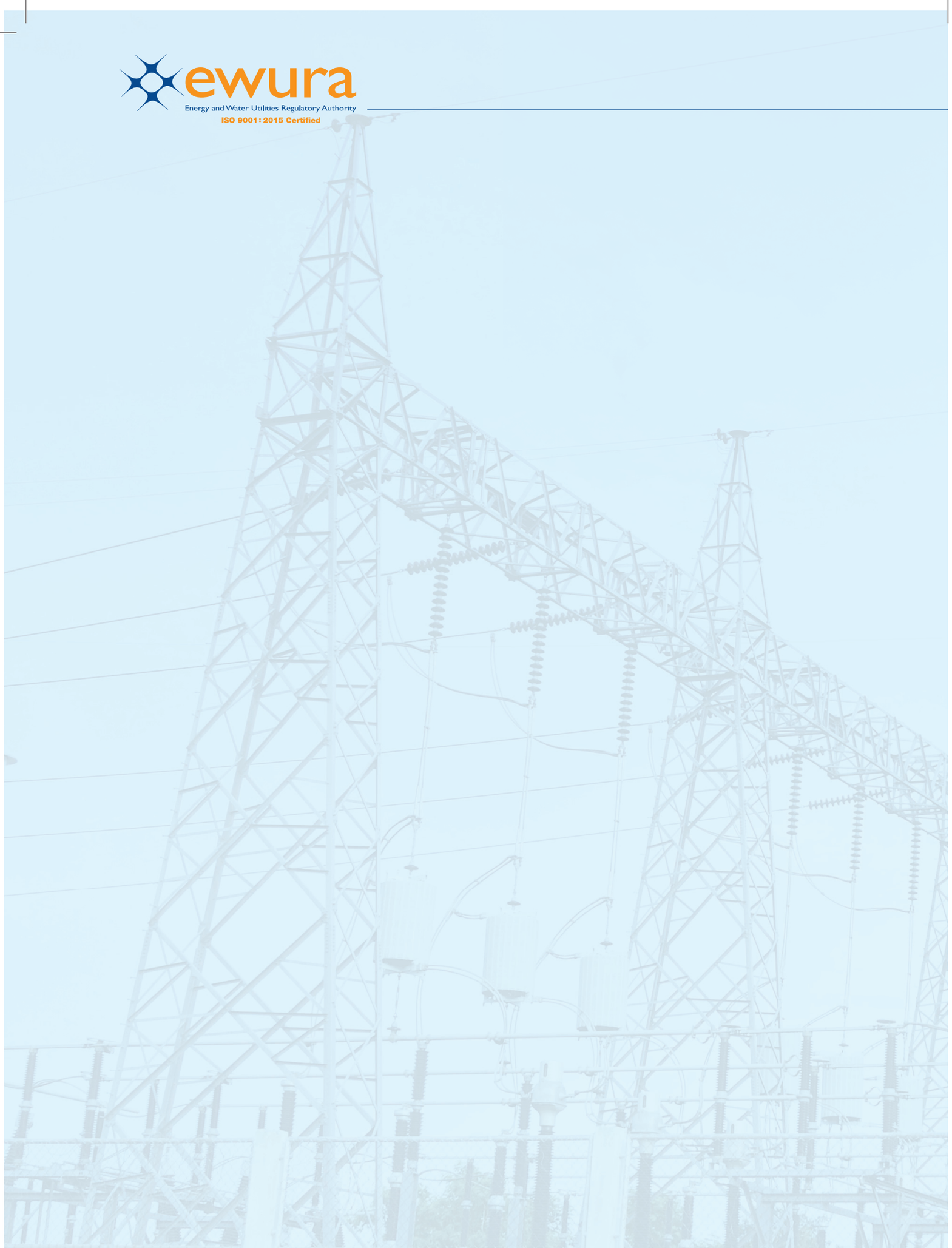
Annex 3: Registered Service Providers

	a) Registered Facilities Below One Megawatt							
No.	**Operator**	**Project Area**	**Capacity (kW)**	**Type of activity**	**Duration**	**Registration No.**	**Date of Issue**	**Date of Expiry**
1	Darakuta Hydropower Development Co. Limited - 41/72	Magugu - Babati	450	Generation	10 years	**	3/Jul/13	2/Jul/23
2	Jumeme Rural Power Supply Ltd - 41/108	Bwisya - Ukara Island	90	Generation and distribution	10 years	**	8/Apr/16	7/Apr/26
3	PowerCorner Tanzania Limited - 41/149	Orkejuloongishu Village in Ketumbeine Ward, Longido District	15.6	Generation	10 years	No. CRG – 2016 - 001	6/Oct/16	5/Oct/26
4	PowerCorner Tanzania Limited - 41/149	Orkejuloongishu Village in Ketumbeine Ward, Longido District	15.6	Distribution	10 years	No. CRD – 2016 - 001	19/Oct/16	18/Oct/26
5	Nasra Estates Co. Limited	Dar es Salaam	800	Generation (Own Use)		EWURA/40/1/3/108	20/Mar/17	
6	E.ON Off Grid Solution Gmbh	Ololosokwan Village, Ngorongoro District	6	Generation	10 years	No. CRG – 2017 - 001	21/Nov/17	20/Nov/27
7	E.ON Off Grid Solution Gmbh	Ololosokwan Village, Ngorongoro District	6	Distribution	10 years	No. CRD – 2017 - 001	21/Nov/17	20/Nov/27
8	E.ON Off Grid Solution Gmbh	Soitsambu Village, Ngorongoro District	6	Generation	10 years	No. CRG – 2017 - 002	21/ Nov/2017	20/Nov/2027
9	E.ON Off Grid Solution Gmbh	Soitsambu Village, Ngorongoro District	6	Distribution	10 years	No. CRD – 2017 - 002	21/ Nov/2017	20/Nov/2027
10	E.ON Off Grid Solution Gmbh	Digodigo Village, Ngorongoro District	6	Generation	10 years	No. CRG – 2017 - 003	11/21/2017	11/20/2027
11	E.ON Off Grid Solution Gmbh	Digodigo Village, Ngorongoro District	6	Distribution	10 years	No. CRD – 2017 - 003	21/Nov/17	20/Nov/27
12	E.ON Off Grid Solution Gmbh	Malambo Village, Ngorongoro District	13.14	Generation	10 years	No. CRG – 2017 - 004	21/ Nov/2017	11/20/2027
13	E.ON Off Grid Solution Gmbh	Malambo Village, Ngorongoro District	13.14	Distribution	10 years	No. CRD – 2017 - 004	21/ Nov/2017	20/Nov/2027

No.	Operator	Project Area	Capacity (kW)	Type of activity	Duration	Registration No.	Date of Issue	Date of Expiry
14	E.ON Off Grid Solution Gmbh	Itaswi Village, Chemba District	6.39	Generation	10 years	No. CRG – 2017 - 005	19/Dec/17	18/Dec/27
15	E.ON Off Grid Solution Gmbh	Itaswi Village, Chemba District	6.39	Distribution	10 years	No. CRD – 2017 - 005	19/Dec/17	18/Dec/27
16	E.ON Off Grid Solution Gmbh	Kwa Mtoro Village, Kondoa District	9.5	Generation	10 years	No. CRG – 2017 - 006	19/Dec/17	18/Dec/27
17	E.ON Off Grid Solution Gmbh	Kwa Mtoro Village, Kondoa District	9.5	Distribution	10 years	No. CRD – 2017 - 006	19/Dec/17	18/Dec/27
18	Ruaha Energy Co. Ltd	Zombo Village, Kilosa District	128	Generation	10 years	No. CRG – 2017 - 007	19/Dec/17	18/Dec/27
19	Ruaha Energy Co. Ltd	Zombo Ward, Kilosa District	128/	Distribution	10 years	No. CRD – 2017 - 007	19/Dec/17	18/Dec/27
	Total capacity (MW)		**1721.26**					

*** Registered before starting the numbering procedure*

	b) Provisional Registration Of Projects Below 1mw				
No.	**Operator**	**Project Area**	**Capacity (kW)**	**Type of activity**	**Date of Registration**
1	Husk Power Systems Limited	Malangali - Kilosa	48	Generation and distribution	19/12/2017
2	Sustainable Energy Services Company Limited	Kibindu - Chalinze	24	Generation and distribution	19/12/2017
	Total capacity (kW)		**72**		



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