GOVERNMENT NOTICE No. ……..Published on ……

THE ELECTRICITY ACT
(CAP 131)

The Electricity (Tariff Setting) Rules, 2016

(Made under section 45)

ARRANGEMENT OF RULES

SCHEDULES

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THE ELECTRICITY ACT
(CAP 131)

THE ELECTRICITY (TARIFF SETTING) RULES, 2016

(Made under section 45)

PART I
PRELIMINARY PROVISIONS

Citation

1. These rules may be cited as the Electricity (Tariff Setting) Rules, 2016.

Application

2. These rules shall govern matters related to setting and approval of electricity tariffs for generation, transmission, distribution and System Operation services in Tanzania but shall not be applicable to small power projects.

Interpretation

3. In these rules, unless the context otherwise requires:

Cap. 131

"Act" means the Electricity Act;

Cap 414

"Authority" means the Energy and Water Utilities Regulatory Authority established under the provisions of the EWURA Act;

"capital expenditure" means the actual costs prudently incurred by a utility in procuring and restoring assets and investment costs such as planning, development, financing, design, engineering, procurement, supply, construction, installation, completion, testing, commissioning and insurance;

"customer" means a person who purchases or receives electricity for own use or sale;

"customer class" means a category of persons who purchase or receive electricity and are specified according to the use or sale;

"distribution licensee" means the holder of an electricity distribution licence;

"distribution system" means facilities and equipment belonging to a licensee, designed to distribute electric energy at the voltage of 33 kV, that includes overhead lines, ground cables, feeders, transformers, control stations and metering equipment;

"energy demand" means the need for energy to power homes, businesses,

industry, transportation, electricity generation and other vital services;

Cap. 414 "EWURA Act" means the Energy and Water Utilities Regulatory Authority Act;

"generation licensee" means a holder of an electricity generation licence and shall include any entity that is exempted pursuant to section 8 of the Act to obtain an electricity generation licence;

"generation services" means electricity generation services and the term generation activity shall be construed accordingly;

"licensee" means a holder of a generation, transmission, distribution or supply licence, and shall include any entity that is exempted from obtaining a licence pursuant to section 8 of the Act;

"licensed activity" means any activity that is ordinary and necessary to the provision of electricity generation, transmission, distribution or supply services;

"operating expenditure" means a category of expenditure that a business incurs as a result of performing its normal business operations;

"postage stamp" means a fixed charge per unit of energy transmitted within a particular zone, regardless of the distance that the energy travels;

"rate of return" means the nominal rate of return per annum as determined by using nominal post-tax weighted average cost of capital;

"rate setting methodology" means a methodology approved by the Authority that a licensee uses to determine a tariff;

"reference utility" means an ideal or hypothetical efficient utility that is used to benchmark a licensee for estimation of operational costs of providing regulated services under the same conditions;

"regulated asset base" means the total cost to be considered by the Authority for tariff calculations, and which is used to determine the company's return. The regulated asset base is depreciated over the term of the asset and includes the capital costs, financial fees and commissions, interest during construction, working capital value, development costs and any tax applied and grossed up on interest paid to the lender;

"small power project" means a power plant using a renewable energy source or waste heat, or cogeneration of heat and electricity, with an export capacity of up to ten MW;

"System Operator" means a person licensed by the Authority to provide system operation services;

“supply licensee” means the holder of an electricity supply licence;

“tariff” means any charge, fee, price or rate charged for the provision of generation, transmission, distribution and supply services as shall be approved by the Authority;

“Tariff Application Guidelines” means the guidelines issued by the Authority to regulate the procedure on applying for a tariff;

"Transmission System Operator" means the transmission licensee holding a license issued by the Authority and responsible to transmit electrical energy at 50 Hz by means of high voltage lines at voltage levels of 66 kV and above;

Cap. 285

“Tribunal” means the Fair Competition Tribunal established under the provisions of the Fair Competition Act; and

“weighted average cost of generation” means the average of benchmark total cost of each generator as weighted by each generator’s contribution to meet system demand.

PART II
TARIFF SETTING PROCEDURE

Tariff application procedure

4. An applicant of a tariff shall apply to the Authority for the said tariff pursuant to these rules and the Tariff Application Guidelines.

Principles of tariff setting

5. – (1) The Authority shall, in setting the tariffs, apply the following principles:

(a) cost of efficient business operation;
(b) recovery of a fair return on the investment, provided that such investment has been approved by the Authority;
(c) cost covered by tax exemptions, subsidies or grants provided by the Government or donor agencies shall not be reflected in the costs of business operation;
(d) tariff stability;
(e) access charges for the use of a transmission or distribution system shall be based upon comparable charges for comparable use;
(f) no customer class shall pay more to a licensee than is justified by the costs it imposes upon such a licensee; and
(g) enhancement on efficiency in electricity consumption and encouragement of adequate supply to satisfy demand.

Evaluation of tariff application

6. – (1) The Authority shall, after receipt of the application under rule 4, evaluate and decides on such application pursuant to the Act, EWURA Act, these rules and the Tariff Application Guidelines.

(2) The tariff set by the Authority under sub-rule (1) shall be published in the Government *Gazette* and subject to the provisions of sub-rule (3), be in use for a period of three years.

(3) Notwithstanding the provision of sub-rule (2), the Authority may review the tariff before the period of three years where it discovers that the tariff set is contrary to the provisions of the Act and these rules.

Tariff adjustments

7. – (1) The Authority shall,

(a) on quarterly basis, review and adjust the tariffs for costs associated with fuel and exchange rate fluctuation;
(b) on half yearly basis adjust the tariffs for costs associated with inflation;
(c) on annual basis, review and adjust the tariffs based on performance of the planned projects; and
(d) adjust the tariff accordingly, whenever the licensee receives a tax exemption, grant or a subsidy from the Government.

(2) The tariff adjustments for costs associated with fuel, exchange rate fluctuations and inflation shall be done in accordance with the formula provided for in the First Schedule.

(3) The Authority shall, on quarterly, half yearly and annual basis as the case may be, publish the adjusted tariffs under sub-rule (1), in newspapers of wide circulation.

Appeal

8. Any person who is aggrieved by the decision of the Authority made under rule 6 may appeal to the Tribunal pursuant to the provisions of the Fair Competition Act.

Offence

9. Any person who:

(a) after the Authority sets a tariff pursuant to these rules, offers for sale or sells electricity at a tariff that exceeds the approved tariff;
(b) either individually or jointly with another person creates an artificial power shortage; or
(c) refuses or fails to conduct its licensed activity in the absence of an authorization to do so by the Authority,

commits an offence and shall be liable on conviction to a fine of not less than three million shillings or imprisonment for a term of not less than five years or to both.

PART III
TARIFF SETTING METHODOLOGY

Generation tariff setting methodology

10. - (1) The determination of a wholesale electricity generation tariff shall be based on the weighted average cost of generation of the system.

(2) The weighted average cost of generation shall include the following elements:

(a) benchmark variable costs per generator calculated by the Authority, which shall include:
  (i) variable O&M costs;
  (ii) fuel costs (for generation and for startups);
  (iii) depreciation cost; and
  (iv) external costs where applicable;
(b) automatic tariff adjustment for pass through cost items, which are outside the control of the licensee; and
(c) capacity payments.

(3) The methodology for determination of the wholesale electricity generation tariff shall be as provided in the Second Schedule.

Transmission tariff setting methodology

11. - (1) The determination of an electricity transmission tariff shall be based on postage stamp methodology.

(2) The postage stamp methodology shall include the following elements:

(a) capital expenditure;
(b) operating expenditure;
(c) system operator and market operator costs;
(d) return on regulatory asset base; and
(e) network losses.

(3) The methodology for determination of the transmission tariff shall be as provided in the Third Schedule.

System and market operations rate setting methodologies

12. The methodologies for determination of rates in system operations and market operations shall be as provided in the Fourth and Fifth Schedules, respectively.

Distribution and supply tariff setting methodology

13. - (1) The determination of the distribution and supply tariff shall consider the following cost elements:

(a) prudent capital expenditure;
(b) return on regulated asset base;

(c) operating expenditure;
(d) depreciation on contributed assets; and
(e) energy losses.

(2) The operating expenditure shall include the following:

(a) overhead cost of the utility which shall include:

(i) salaries;
(ii) vehicles;
(iii) PCs and peripherals;
(iv) various costs such as office renting costs;
(v) cleaning and security services;
(vi) costs associated with corporate services, administration, distribution and planning engineering, commercial planning and customer service strategy, and finance services typically located in the central headquarters; and
(vii) cost of regional offices that shall include technical staff and commercial staff required to provide adequate operation of the network and adequate customer related services;

(b) cost of operation and maintenance activities, which shall include:

(i) the costs of personnel; and
(ii) the cost of the spare parts;

(c) cost of the commercial cycle, which shall cover the costs associated with activities of meter reading, billing, reconciliation and revenue collection; and
(d) cost of establishing or maintaining call centre services.

(4) The methodology for determination of the distribution tariff shall be as provided in the Sixth Schedule.

PART IV
GENERAL PROVISIONS

Summoning process

14. – (1) The Authority may summon any person it believes to be capable of supplying information necessary to assist it in fulfill its obligations.

(2) A summon made under sub-rule (1) may require a person to:

(a) furnish information in writing;
(b) produce any document to the Authority; or
(c) appear before the Authority to give evidence.

Offence

15. Any person who without lawful excuse refuses or fails to comply with a summons to provide information commits an offence and shall, on conviction,

be liable to a fine of not less than three million shillings or imprisonment for a term of not less than five years or to both.

General penalty

16. Any person who breaches any provisions of these rules for which no specific penalty is prescribed shall be liable to a fine of not less than three million shillings.

Penalty for continued breach

17. Any person who is in continuous breach of these rules shall be liable to a fine of three million shillings for everyday on which the breach continues or recurs.

Revocation of GN.....

18. - (1) The Electricity (Tariff Setting) Rules, 2013 are hereby revoked.

(2) Notwithstanding the revocation of the Electricity (Tariff Setting) Rules, 2013, all orders, exemptions or directives made or issued or deemed to have been made or issued under those rules shall be deemed to have been made under these rules, and shall remain in force until revoked or otherwise expire or cease to have effect.

Authority to Supplement Procedures

19. The Authority may, in the event procedures are not provided for under these rules, do whatever is necessary and permitted by the Act, the EWURA Act and relevant laws to enable it to effectively and completely adjudicate on any matter before it.

FIRST SCHEDULE

(Made under Rule 7 (2))

AUTOMATIC ADJUSTMENT AND PASS THROUGH COSTS

Fuel Cost Adjustment

(1) All Tariff for electrical energy specified under the Second, Third and Fourth Schedules shall be liable to Fuel Cost Adjustment which shall be calculated in accordance with the following formula:

Fuel Cost Charge in TZS cents/Unit calculated to the nearest **one cent:**

$$= \frac{1}{1-L} \text{X} \left\{ \frac{\sum C_i \, G_i S_i + \sum P_i}{G} \right\} \text{X100}$$

Where:

C_i *means* actual price in TZS/litre or TZS/mmBTU paid by the Utility or Electric Power Producers for fuel consumed by Plant i, where i= 1, 2, … n, during the quarter preceding the first month of the following quarter at all existing thermal plants on the Interconnected System and the Off-Grid System, as the case may be. This shall also include other thermal power plants to be constructed and in respect of which the distribution or supply licensee shall enter into Power Purchase Agreements with Electric Power Producers for the supply of electricity;

G_i *means* all units generated and or purchased by the utility from Electric Power Producers' Plant i, where i= 1, 2, …, n, during the quarter preceding the first month of the following quarter at each existing thermal plant on the Interconnected System and the Off-Grid System, and imports/exports from Uganda Electricity Transmission Company Limited, Zambia Electric Company, Kenya Power Lighting Company adjusted for system losses as the case may be. This shall also include other thermal power plant(s) to be constructed and in respect of which the distribution or supply licensee shall enter into Power Purchase Agreement(s) with Electric Power

Producer(s) for the supply of electricity;

G *means* total of all units generated by the utility, purchased by the utility from Electric Power Producer(s), and net imports during the quarter preceding the first month of the following quarter, including Off-Grid power stations and imports;

Si *means* Specific fuel consumption in litre/kWh or mmBTU/kWh for any thermal plants;

P_i *means* sum of fuel displacement costs and other pass through charges based on power purchased from Power Plant i, where i =1, 2 ... n., Emergency Power Plants and other power plants to be constructed in respect of which a generation licensee shall enter into a Power Purchase Agreement with Electric Power Producers for the supply of electricity to a distribution or supply licensee.

All fuel displacement and pass through costs shall be converted to Tanzania Shillings using the BOT mean exchange rate of the quarter preceding the first month of the following quarter; and

L *means* the target System loss factor in transmission and distribution system.

2. **Foreign Exchange Rate Fluctuation Adjustment**

(a) All Tariffs for electrical energy specified above shall be liable to Foreign Exchange Rate Fluctuation Adjustment which shall be calculated in accordance with the following formula:

Foreign Exchange Rate Fluctuation Adjustment in TZS/kWh calculated to the nearest **one cent:**

$$FERFA = \frac{1}{1-L}\{(\frac{(\sum(F_{t-1} \times Z_t) \times X_0)) + (\sum(P_{t-1} \times Z_t) \times X_0))}{G}\} \times 100$$

Where:

F_{t-1} Sum of the foreign currency costs on non fuel cost items incurred by a licensee in the quarter preceding the first month

of the following quarter;

P_{t-1} Sum of the foreign currency on non fuel cost items paid by a distribution or supply licensee to Electric Power Producers in the quarter preceding the first month of the following quarter;

G means Total of all Units purchased by a distribution or supply licensee from Electric Power Producer(s), generated by a generation licensee and net imports during the quarter preceding the first month of the following quarter, including Off-Grid power stations and imports;

L means the Target System loss factor in transmission and distribution systems; and

Z_t The factor $Z_t$is the proportionate change in the exchange rate (Xt) in the current Billing Period t from the Base Exchange rate (Xo) in the base period and shall be determined according to the following formula:

$$Z_t = \frac{X_t - X_0}{X_0}$$

A. Where;

X_t BOT mean exchange rate for the quarter preceding the first month of the following quarter;

X_o BOT mean exchange rate for the base quarter as shall be determined by the Authority;

3. **Inflation Adjustment**

(a) All Tariffs for electrical energy specified above shall be liable to an Automatic adjustment for inflation at the end of every six month period starting from the date to be specified by the Authority.

The effect of domestic and international inflation on cost of supply shall be calculated in accordance with the following formula:

$$INFA_t = \frac{1}{1-L} \times \left(\frac{INFA_{Gen} + INFA_{T\&D} + INFA_{IPP}}{Gp} \right) \times 100$$

Where,

INFAt = Total Inflation Adjustment in cents per Unit for the half year period t. The first adjustment shall be effected on the date to be specified by the Authority.

L = means the Target System loss factor in transmission and distribution systems.

G_p= Total Units generated and/or purchased by a distribution or supply licensee from Electric Power Producer(s), during the half-year Adjustment Period. This shall also include other power plants to be constructed and in respect of which a distribution or supply licensee shall enter into a Power Purchase Agreement with Electric Power Producers.

$INFA_{Gen}$ means a total of inflation adjustment relating to generation facilities of the licensee which shall be determined as follows:

$$INFA_{Gen} = \sum INFAKP_i$$

Where

INFAKPi means Specific Inflation Adjustment in half-year period, relating to generation licensee's contracted plant i, which shall be determined as follows:

$$\left((KP_i \times FOMCR_{bi}) + (GK_i \times VOMCR_{bi})\right) \times (0.7 \times 0.3)\left(\frac{CPIU_t}{CPIU_b} - 1\right) + 0.3\left(\frac{USCPI_t}{USCPI_b} - 1\right)$$

Where:

KP_i means contracted capacity for generation licensee's plant i in kW.

$FOMCR_{bi}$ means the base Fixed Operation and Maintenance Charge for generation licensee's plant i in TZS/kW/year, divided by two

Gki means Units purchased from licensee's plant i in kWh in the

half-year Adjustment Period.

$VOMCR_{bi}$ means the base Variable Operation and Maintenance Charge or variable energy charge rate as applicable, for generation licensee's plant i in TZS/kWh

CPIUt means the Underlying Consumer Price Index for the month of March for adjustments effected in the period July – December; and September for adjustments effected in the period January – June every year as posted by the Tanzania National Bureau of Statistics.

CPIUb means the Underlying Consumer Price Index for September of the previous year as posted by Tanzania National Bureau of Statistics.

USCPIt means the "Consumer Prices Index for all urban consumers (CPI - U) for the US city average for all items 1982 - 84 =100" as published by the United States Department of Labour Statistics index for the month of March for adjustments effected in the period July – December; and for September for adjustments effected in the period January – June every year.

USCPIb means the "Consumer Prices Index for all urban consumers (CPI - U) for the US city average for all items 1982 - 84 =100" as published by the United States Department of Labour Statistics index for September of the previous year.

$INFA_{IPP}$

Where,

INFAIPPi means Specific Inflation Adjustment in half-year period, relating to contracted Electric Power Producer's (including both Independent and Emergency Power Producers) Plant i, which shall be determined as follows:

$$INFA_{IPP} = \sum INFAIPP_t$$

Where,

$$INFAIPP_i = [IPP_i x CCR_{bi} + GIPP_i x ECR_{bi}] x \left| \frac{USCPI_t}{USCPI_b} - 1 \right| *$$

IPPi means contracted capacity for IPP or EPP Plant i in kW.

CCR_{bi} means base escalable capacity charge rate for IPP plant i in US$/kW/year, for September of the previous year, divided by two.

GIPPi means Units purchased from IPP plant i in kWh in the half-

year Adjustment Period.

ECR_{bi} means base escalable energy charge rate for IPP plant i in US$/kWh for September of the previous year.

USCPIb means The "Consumer Prices Index for all urban consumers (CPI - U) for the US city average for all items 1982 - 84 =100" as published by the United States Department of Labour Statistics index for September of the previous year.

USCPIt means The "Consumer Prices Index for all urban consumers (CPI - U) for the US city average for all items 1982 - 84 =100" as published by the United States Department of Labour Statistics index for the month of March for adjustments effected in the period July – December; and for September for adjustments effected in the period January – June every year.

*Note:

For Euro denominated costs

CCRbi means base escalable capacity charge rate for IPP plant i in US$/kW/year, for September of the previous year, divided by two.

ECRbi means base escalable energy charge rate for IPP plant i in US$/kWh for March 2008.

USCPIb means the Monetary Union Index of Consumer Prices for European Union as published by Eurostat for September of the previous year.

USCPIt means the Monetary Union Index of Consumer Prices for European Union as published by Eurostat for the month of March for adjustments effected in the period July-December; and for September for adjustment effected in the period January-June every year.

All inflation adjustment costs for IPPs shall be converted to Tanzania Shillings using the base exchange rates.

$INFA_{T\&D}$ Is the Specific Inflation Adjustment in half-year period, relating to the Company's transmission and distribution operation and maintenance costs, which shall be determined as follows:

$$INFA_{Tanesco} = TDOM_b \left[0.7x\ 0.3 \left(\frac{CPIU_t}{CPIU_b} - 1 \right) + 0.3 \left(\frac{USCPI_t}{USCPI_b} - 1 \right) \right]$$

Where,

$TDOM_b$ means the transmission and distribution network operation and maintenance costs excluding depreciation of assets and provision for bad debts in the previous year, divided by two.

CPIUb means the Underlying Consumer Price Index for September of the previous year as posted by Tanzania National Bureau of Statistics.

CPIUt means the Underlying Consumer Price Index for the month of

March for adjustments effected in the period July – December; and September for adjustments effected in the period January – June every year as posted by the Tanzania National Bureau of Statistics .

USCPIb means the "Consumer Prices Index for all urban consumers (CPI - U) for the US city average for all items 1982 - 84 =100" as published by the United States Department of Labour Statistics index for September 2012, being 231.407.

USCPIt means the "Consumer Prices Index for all urban consumers (CPI - U) for the US city average for all items 1982 - 84 =100" as published by the United States Department of Labour Statistics index for the month of March for adjustments effected in the period July – December; and for September for adjustments effected in the period January – June every year.

Note:

Any difference between the total inflation costs and the actual billed amount for a given half year adjustment period shall be adjusted for in the following half year period.

4. **Taxes and Levies**

The consumer shall pay any tax, levy or duty imposed from time to time by the Authority and the Government.

SECOND SCHEDULE

(Made under Rule 10 (3))

GENERATION RATE SETTING METHODOLOGY

Generation Service Charge

1. - (1) Generation Service Charge (GSC) shall include the Weighted Average Cost of Generation and Capacity Payment as determined under sub-paragraph (2).

Weighted Average Cost of Generation

(2) The Weighted Average Cost of Generation (WACG) shall be determined as follows:

$$WAGC\left(\frac{\$}{MWh}\right) = \frac{\sum_{i=1}^{n} G_i X_i + (BCC * PD)}{\sum_{i=1}^{n} X_i}$$

Whereas-

X_i means forecast total units planned to be generated by generator *i* in year t and expressed in MWh;

G_i means benchmark generation costs of generator *i* and shall include all known variable costs ;

BCC_t means benchmark capacity costs (TZS/MW) as determined in sub-paragraph (4) of this schedule; and

PD_t means peak demand in year *t* expressed in MW**.**

(3) The Capacity Payment shall be based on the system peaking plant (i.e. gas turbine);

(4) Fixed costs for generation shall include the cost of investment annuity (the fixed assets multiplied by the weighted average cost of capital plus depreciation) and the fixed operation and maintenance costs as follows:

$$Fixed\ Cost\left(\frac{\$}{year}\right) = (FA * WACC) + DP + Fixed\ O\&M$$

(5) Whereas-

FA means Fixed Assets;

WACC means the Weighted Average Cost of Capital as determined in paragraph 1(6) of this schedule;

PG_t means planned generation expressed in MWh; and

DP means the Regulatory Depreciation, in which the salvage (scrap or residual) value of the asset is estimated strictly following the "Principle of Used and Useful Asset" shall be calculated using the Straight Line Depreciation Method.

(6) The Weighted Average Cost of Capital (WACC) after tax, applicable to the Regulatory Asset Base (RAB) shall be determined using the formula:

$$WACC = \left(\frac{E}{D+E} \times K_e\right) + \left[\frac{D}{D+E} \times K_d \times (1 - T_c)\right]$$

Whereas-

WACC" means the rate of return, expressed as percentage, required by the providers of capital (both debt and equity) which is approved by the Authority;

"E" means the market value of equity expressed in TZS;

"D" means the market value of debt expressed in TZS;

"E+D" market value of the Regulated Licensee expressed in TZS;

"K_e" means the weighted average cost of equity expressed as a percentage as determined in accordance with sub- paragraph (7) of this schedule;

"K_d" means the weighted average cost of debt expressed as percentage; and

"T_c" means applicable statutory corporate tax rate expressed in percentage.

(7) The cost of equity capital shall be calculated using the Capital Asset Pricing Model (CAPM) as given hereunder:

$$Re = Rf + \beta e \times [Rm - Rf]$$

Whereas-

Re means the return on equity capital;

Rf means the risk free rate of return;

βe means the equity beta as determined in sub-paragraph (8); and

[Rm-Rf] means the return over the risk free rate that investors would expect in order to invest in a well-diversified portfolio of equities (otherwise referred to as the equity or market risk premium).

(8) The equity beta shall be determined using the following formula:

$$\beta e = \beta a \times \left(1 + \left(\frac{D}{E}\right)\right)$$

Whereas-

βe means the return on equity capital;

βa means the asset beta; and

D/E means the debt to equity ratio.

(9) The cost of debt capital shall be calculated by the following formula:

$$Rd = Rf + DRP$$

Whereas-

R_d means the cost of debt;

R_f means the risk free rate of return; and

DRP means the debt premium, that is, the increment above the risk free rate that reflect the additional risk of borrowing compared with Government bonds.

THIRD SCHEDULE

(Made under Rule 11(3))

TRANSMISSION SYSTEM OPERATOR RATE SETTING METHODOLOGY

Transmission Pricing

1. Transmission tariff shall be determined using a postage stamp methodology.

Determination of Revenue Requirement

2. The Revenue Requirement of the Transmission System Operator shall be determined using the following methodology:

RR = (RAB*WACC) + D + O&M - R

where,
RR means the Revenue Requirement,
RAB means the average Regulatory Asset Base
WACC means Weighted Average Cost of Capital which shall be determined as per Rule...;
D means the regulatory depreciation which shall be determined by the straight line method;
O&M means the operation and maintenance costs which shall be prudently incurred for the provision of service by the Transmission System Operator in accordance with the technical standards used in Tanzania and applicable legal regulations.
Rmeans other revenues related to the regulated activity including the net amount (revenues - expenditures) realised through the cross-border trade.

Regulated Asset Base

3. The Regulatory Asset Base (RAB) shall be determined using the following methodology:

$$RAB = \frac{(RABt + RABt-1)}{2}$$

Where
RAB_t Regulatory Asset Base at the end of year t (current year)
RAB_{t-1} Regulatory Asset Base at the end of year t-1

4. The Regulatory Asset Base at the end of year t shall be determined by the following formula:

$$RAB_t = RAB_{t-1} + CAPEX_t - S_t - D_t + \Delta WC_t$$

where

RAB_t means Regulatory Asset Base on year t (current year)
RAB_{t-1} means Regulatory Asset Base in year t-1
CAPEXt means capital additions during year t,
St means asset disposals during year t
Dt means depreciation in the reporting year, and
ΔWC_t means change in the working capital in the reporting year.

Cost of Capital

5. The Weighted Average Cost of Capital (WACC) after tax, applicable to the Regulatory Asset Base (RAB) shall be determined using the following formula-

$$WACC = \left(\frac{E}{D+E} \times R_e\right) + \left[\frac{D}{D+E} \times R_d \times (1 - T_c)\right]$$

Whereas;-

WACC" means the rate of return, expressed as percentage, required by the providers of capital (both debt and equity) which is approved by the Authority;

"E" means the market value of equity expressed in TZS;

"D" means the market value of debt expressed in TZS;

"E+D" market value of the Regulated Licensee expressed in TZS;

"R_e" means the weighted average cost of equity expressed as a percentage as determined in accordance with sub- paragraph (7) of this schedule;

"R_d" means the weighted average cost of debt expressed as percentage as determined pursuant to item sub- paragraph (9) of this schedule;

"T_c" means applicable statutory corporate tax rate expressed in percentage;

6. The cost of equity capital shall be calculated using the Capital Asset Pricing Model (CAPM) as given hereunder:

$$Re = Rf + \beta e \times [Rm - Rf]$$

Whereas:

Re means the return on equity capital;

Rf means the risk free rate of return;

βe means the equity beta as determined in sub - paragraph(8); and

[Rm-Rf] means the return over the risk free rate that investors would expect in order to invest in a well-diversified portfolio of

equities (otherwise referred to as the equity or market risk premium).

7. The equity beta shall be determined using the following formula:

$$\beta e = \beta a \times (1 + \left(\frac{D}{E}\right))$$

Whereas:-

βe means the return on equity capital;

βa means the asset beta; and

D/E means the debt to equity ratio.

8. The cost of debt capital shall be calculated by the following formula:

$$Rd = Rf + DRP$$

Whereas:-

R_d means the cost of debt;

R_f means the risk free rate of return; and

DRP means the debt premium, that is, the increment above the risk free rate that reflect the additional risk of borrowing compared with Government bonds.

Determination of Transmission Tariff

9. The transmission tariff shall comprise the transmission tariff paid by customers and producers and shall be determined in accordance with the following methodology;

$$T = \frac{(Rc + Rg)}{kWh}$$

Where,

T *means* the Average Transmission Tariff

R_C means Revenue Requirement in respect of customers which shall be determined as per Rule 11;

Rg means Revenue Requirement in respect of generators which shall be determined as per Rule 12;

kWh means annual units transmitted through the transmission line

10. The transmission tariff paid by customers shall consist of energy and capital related components and shall be determined by the following methodology...

$$Tc = \frac{(Re + Rc)}{kWhc}$$

Where

T_C means tariff paid by customers;
Re means Revenue Requirement from energy related costs;
Rc means Revenue Requirement from capital related costs;and
kWh_c means units consumed by customers.

11. The transmission tariff paid by generators shall consist of energy and capital related components and shall be determined by the following methodology...

$$TG = \frac{(Re + Rc)}{kWhg}$$

Where:

T_G means tariff paid by generators;
Re means Revenue Requirement from energy related costs;
Rc means Revenue Requirement from capital related costs.
kWh_g means units supplied by generators

FOURTH SCHEDULE

(Made under Rule 12)

SYSTEM OPERATOR RATE SETTING METHODOLOGY

System Operation Pricing

1. System Operation fee shall be charged to customers that are connected to the voltage levels of 400 kV, 220 kV, 132 kV and 66 kV and shall include the following elements:

(a) Active electric energy injected in the transmission network by generators connected to the transmission network;
(b) Take-off of active electric energy; and
(c) Ancillary services including excessive take-off of reactive electric energy.

Determination of Revenue Requirement

2. The Revenue Requirement of the System Operator shall be determined using the following methodology:

$$RR_{ISO} = O\&M + D - R$$

where,

RR_{ISO} means total Revenue Requirement to be generated from customers (Rc_{ISO}) and generators (Rg_{ISO}),
D means the regulatory depreciation which shall be determined by the straight line method;
O&M means the operation and maintenance costs which shall be prudently incurred for the provision of service by the System Operator in accordance with the technical standards used in Tanzania and applicable legal regulations.
R means other revenues related to the regulated activity including the net amount (revenues - expenditures) realised through the cross-border trade.

Determination of System Operator's Fee

3. The System Operator's fee shall be paid by customers and generators and shall be determined in accordance with the following methodology;

$$T_{iso} = \frac{Rc_{iso} + Rg_{iso}}{kWh}$$

Where,

T_{iso} means the Average System Operator's Fee

Rc_{iso} means Revenue Requirement in respect of customers which shall consist of energy charge (Re_{ISO}) and capital related charge (Rc_{ISO})

Rg_{iso} means Revenue Requirement in respect of generators which shall be determined as per Rule...

kWh means annual active electric energy taken over by customers

4. The System Operator's fee paid by customers shall consist of energy and capital related components and shall be determined by the following methodology...

$$Tc_{iso} = \frac{Re_{iso} + Rc_{iso}}{kWhc}$$

Where

Rc_{iso}= means a portion of ISO's Total Revenue Requirement to be collected from customers and is based on energy consumption (Re_{ISO}) and capacity + (Rc_{ISO})

Tc_{iso} means tariff paid by customers;
Re_{iso} means Revenue Requirement from energy related costs;
Rc_{iso} means Revenue Requirement from capital related costs.
kWh_c means units consumed by customers

5. The System Operator's fee paid by generators shall consist of energy and capital related components and shall be determined by the following methodology...

$$Tg_{iso} = \frac{Re_{iso} + Rc_{iso}}{kWhg}$$

Where:

Tg means tariff paid by generators;
Re_{iso} means Revenue Requirement from energy related costs;
Rc_{iso} means Revenue Requirement from capital related costs.
kWh_g means units transmitted by customers

FIFTH SCHEDULE

(Made under Rule 12)

MARKET OPERATOR RATE SETTING METHODOLOGY

Transmission Pricing

1. Market Operation Tariff shall be charged in respect of market operation services offered to customers connected to voltage levels of 400 kV, 220 kV, 132 kV and 66 kV.

Determination of Revenue Requirement

2. The Revenue Requirement of the System Operator shall be determined using the following methodology:

$RR_{IMO} = O\&M + D - R$

where,

RR_{IMO} means the Revenue Requirement,

D means the regulatory depreciation which shall be determined by the straight line method;

O&M means the operation and maintenance costs which shall be prudently incurred for the provision of market services by the Market Operation gulations.

Rmeans other revenues related to the regulated activity including the net amount (revenues - expenditures) realised through the cross-border trade.

Determination of Market Operator's Fee

3. The Market Operator's fee shall be charged to customers and generators and shall be determined in accordance with the following methodology;

$$T_{imo} = \frac{Rc_{imo} + Rg_{imo}}{kWh}$$

Where,

T_{imo} means the Average Market Operator's Tariff

Rc_{imo} means Revenue Requirement in respect of customers which shall be determined as per Rule...

Rg_{imo} means Revenue Requirement in respect of generators which shall be determined as per Rule...

kWh means annual active electric energy taken over by customers

4. The Market Operator's tariff paid by customers shall consist of energy and capital related components and shall be determined by the following methodology.

$$Tc_{imo} = \frac{Re_{imo} + Rc_{imo}}{kWhc}$$

Where

Tc_{imo} means market operation fee paid by customers;
Re_{imo} means Revenue Requirement from energy related costs;
Rc_{imo} means Revenue Requirement from capital related costs.
kWh_c means units consumed by customers

5. TheMarket Operator's tariff paid by generators shall consist of energy and capital related components and shall be determined by the following methodology...

$$Tg_{imo} = \frac{Re_{imo} + Rc_{imo}}{kWhg}$$

Where:

Tg_{imo} means tariff paid by customers;
Re_{imo} means Revenue Requirement from energy related costs;
Rc_{imo} means Revenue Requirement from capital related costs.
kWh_g means units transmitted by customers

SIXTH SCHEDULE

(Made under Rule 13 (4))

DISTRIBUTION AND SUPPLY TARIFF SETTING METHODOLOGY

Distribution and Supply Cost

1. - (1) Distribution and Supply cost shall be determined using the following formula:-

D&S = CE + O&M + (WACC*RAB) + RD + NL
Whereas:-

"D&S" means the Distribution and Supply cost expressed in TZS;
"CE" means the Capital Expenditure required to supply the future growth in demand expressed in TZS as determined in sub-rule 3;
"O&M" means Operation and maintenance Costs;
"RD" means the Depreciation as determined in sub-rule...;
"WACC" means the rate of return, expressed as percentage, as determined in the second schedule;
"RAB" means the Regulatory Asset Base (RAB) determined by New Replacement Value;
"NL" means Capital and O&M expenditure required to reduce Network Losses

(2) The costs in sub-rule (1) shall be approved by the Authority based on efficiency in the sense of cost and technically compliant, sufficient to meet demand and quality to meet supply.

Capital Expenditure

(3) The Capital Expenditure shall be calculated by a parametric model called Reference Utility over a period of 10 years on yearly basis.

Operation and Maintenance Expenses

(4) Operation and Maintenance Expenses shall be determined using the Reference Utility Model.

Regulatory Asset Base

(5) The Regulatory Asset Base (RAB) shall be based on New Replacement Value.

(6) The Regulatory Asset Base shall be determined by using the New Replacement Value (NRV) approach. With this approach, Regulatory Cash Flow and Free Cash Flows shall be determined in accordance with sub-paragraph (7) and (8) respectively.

(7) The Regulatory Cash Flow shall be determined by the following formula:

$$TSC_t * \frac{Annuity + OPEX_0 * (1 - G)^t}{System\ Peak\ Demand_0}$$

Where;-

$$Annuity = \frac{NRV_0}{[\left(\frac{1}{WACC}\right) - \left(\frac{1}{WACC * (1 + WACC)^{ni}}\right)]}$$

For the purpose of this item-

WACC means the Weighted Average Cost of Capital determined pursuant to rule 9 of this schedule ;

n_i means the Useful life of equipment;

$OPEX_0$ means the base year operating expenditure;

G means a factor that is adjusted to ensure that the business receives its return on capital invested;

t means the regulatory year;

System Peak $Demand_0$ means the system peak demand in the base year (MW).

(8) Free cash flows (used in determining the G-factor - are computed using the following equation:

$$Free\ CF_t = Revenue_t - OPEX_t - CAPEX_t \pm Asset\ Payment_t$$

Where:

$Revenue_t$ means TSC_t multiplied by System Peak $Demand_t$;

$OPEX_t$ means actual business projections for the forecast period

$CAPEX_t$ means actual business projections for the forecast period;

Asset Payment t means Asset Payment in the base year equals NRV_0, which is the amount the licensee would need to pay in order to receive control of the business at its new replacement value, and Asset Payment at time t equals NRVt and represents the amount that should be paid at the end of the period to compensate the licensee for its investments less accumulated depreciation.

(9) The Weighted Average Cost of Capital (WACC) after tax, applicable to the Regulatory Asset Base (RAB) shall be determined using the following formula:

$$WACC = \left(\frac{E}{D+E} \times R_e\right) + [\frac{D}{D+E} \times R_d \times (1 - T_c)]$$

For the purpose of this schedule:

WACC" means the rate of return, expressed as percentage, required by the providers of capital (both debt and equity) which is approved by the Authority;

"E" means the market value of equity expressed in TZS;

"D" means the market value of debt expressed in TZS;

"E+D" market value of the Regulated Licensee expressed in TZS;

"R_e" means the weighted average cost of equity expressed as a percentage as determined in accordance with sub paragraph (10);

"R_d" means the weighted average cost of debt expressed as percentage; and

"T_c" means applicable statutory corporate tax rate expressed in percentage.

(10) The cost of equity capital shall be determined by using the Capital Asset Pricing Model (CAPM) as given hereunder:

$$Re = Rf + \beta e \times [Rm - Rf]$$

Whereas-

Re means the return on equity capital;

Rf means the risk free rate of return;

βe means the equity beta ;and

[Rm-Rf] means the return over the risk free rate that investors would expect in order to invest in a well-diversified portfolio of equities (otherwise referred to as the equity or market risk premium).

(11) The equity beta shall be determined using the following formula-

$$\beta e = \beta a \times (1 + \left(\frac{D}{E}\right))$$

Whereas:-

βe means the return on equity capital;

βa means the asset beta; and

D/E means the debt to equity ratio.

(12) The weighted average cost of debt capital shall be calculated by the following formula:

$$Rd = Rf + DRP$$

For the purpose of this paragraph:-

R_d means the cost of debt;

R_f means the risk free rate of return; and

DRP means the debt premium, that is, the increment above the risk free rate that reflect the additional risk of borrowing compared with Government bonds.

Regulatory Depreciation

(13) The Regulatory Depreciation, in which the salvage (scrap or residual) value of the asset is estimated strictly following the "Principle of Used and Useful Asset" shall be calculated using the Straight Line Depreciation Method.

Capital Contribution

(14) Asset acquired through Government/consumer contribution shall be considered in the calculation of depreciation but shall be excluded from the calculation of Rate of Return.

Network Losses

(15) Cost associated with Network Losses shall be included in distribution costs. The Authority shall determine such costs on an annual basis.

Commercial Losses

(16) The allowed cost associated with commercial losses shall be included in distribution costs. The Authority shall determine such costs on an annual basis.

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Felix Ngamlagosi
Director General