



TARIFF REVIEW REPORT FOR THE SECOND QUARTER (APRIL – JUNE) OF 2017

1: INTRODUCTION

1.1: Background

At the beginning of each quarter, the Electricity Regulatory Authority (“the Authority”) undertakes a Quarterly Tariff Review. The Quarterly Tariff Review is undertaken in accordance with the respective Licenses issued by the Authority (to Umeme Limited, Uganda Electricity Transmission Company Limited (UETCL) and Eskom Uganda Limited) and in accordance with the Quarterly Tariff Review Methodology approved and published in the Uganda Gazette in January 2014. The Quarterly Tariff Review Methodology provides for adjustment of the Electricity annual Base Tariffs for changes in the following:-

- (i) Inflation rate leading to Inflationary Adjustment Factor (IRAF)
- (ii) Exchange rate leading to Exchange Rate Adjustment Factor (FERAF)
- (iii) Fuel prices at the International Market leading to Fuel Price Adjustment Factor (FPAF)
- (iv) Changes in the Energy Generation Mix

The review for the second quarter took into account changes in; the Consumer Price Index, exchange rate of the Uganda Shilling (Ush) against the United States Dollar (US\$), international fuel prices, and the energy generation mix; from the assumptions used in the

determination of the 2017 Base Tariffs. The review also considered the adjustment of the 2017 annual budget for Uganda Electricity Generation Company Limited (UEGCL). More specifically;

- (i) The Uganda Shilling appreciated by 1.2% against the United States Dollar, from Ush 3,630.22/US\$ in November 2016 to Ush 3,586.69/US\$ as at 28th February 2017.
- (ii) The International fuel price for crude oil as at the end of February 2017 was US\$ 53.37 per barrel, compared to US\$ 51.90 per barrel used in the determination of the 2017 Base Tariffs. This represents an increase in the international fuel prices by 2.83% from the base period.
- (iii) The total quarterly energy purchased by UETCL increased from 860.02 GWh in the first quarter of 2016 to 982.17 GWh, expected during the first quarter of 2017.
- (iv) The water release at the Nalubaale/Kiira generation complex was projected at 900 Cubic meters per second (cumecs) for the second quarter of 2017, translating into an average generation capacity of 150 MW from Nalubaale/Kiira and 173.5 MW from Bujagali Energy Limited.
- (v) Adjustment of the 2017 annual Budget for Uganda Electricity Generation Company Limited.

The detailed assumptions that form the basis of the Tariff Review for the second quarter of 2017 are contained in the subsequent sections of this report.

1.2: Review Process

As part of the Q2 2017 Tariff Review process, the Authority undertook consultations with stakeholders including; the Ministry of Energy and Mineral Development, Uganda Manufacturers Association, licensees (Umeme Limited, Uganda Electricity Transmission Company Limited, and Eskom Uganda Limited) and the Media.

During the consultations, the Authority explained to stakeholders the drivers underlying the tariff determination for the Second Quarter of 2017, and how the drivers changed since the determination of the Base Tariffs for 2017.

1.3: Purpose of this Report

The purpose of this report is to present the results of the Authority's review of the Tariffs for the second quarter of 2017, and to set out the determinations and the reasons informing the resultant Tariffs.

1.4: Structure of the Report

This report is divided into six (6) sections. The first sections focus on:

- I. Review of the movement in the macro-economic factors;
- II. Determination of the adjustment factors for the second quarter of 2017; and,
- III. Review of the revenue requirement, and the resultant Tariffs.

2: ELECTRICITY END-USER 2017 BASE TARIFFS

In accordance with the Quarterly Tariff Review Methodology, the Authority at its 270th meeting held on 20th December 2016 approved the 2017 Base Tariffs shown in Table 1. The quarterly adjustment factors are applied to the approved Base Tariffs, to determine the applicable End-User (Retail) Tariffs for each of the quarters.

Table 1: 2017 Base Electricity End-User Tariffs

End-User (Retail) Electricity Tariffs (Ush/kWh)							
	Domestic	Commercial	Medium Industrial	Large Industrial	Extra Large industrial	Street-lights	weighted average
2017 Approved Base Tariffs	696.9	629.0	577.8	376.3	372.8	679.7	513.2

During the determination of the Base Tariffs, the Authority approved the Base Macroeconomic Parameters for 2017, which are presented in the second column in Table 2.

Table 2: Macroeconomic Parameters Used in Determination of the 2017 Base Tariffs and the Adjustment Parameters for Q2 2017

Macroeconomic Parameters	Q1 2017	Q2 2017	%age Change Q 1 to Q2 2017
	Base Parameters		
Exchange rate US\$/Ush	3,630.22	3,586.69	(1.20%)
<u>Core Consumer Price Index (CPI)[1]</u>	159.4	161.7	1.44%
US Producer Price Index	196.4	197.8	0.71%
International Price of Fuel (US\$ per barrel)	51.90	53.37	2.83%

Source: Bank of Uganda for Exchange Rate, Uganda Bureau of Statistics for Consumer Price Index, US Bureau of Labour Statistics for US Producer Price Index, and Organization of Petroleum Exporting Countries for International Fuel Prices.

Note: The Exchange Rate is the average rate of the buying and selling rates on the last day of the applicable month. That is November 2016 for Q1 2017, and February 2017 for the second quarter of 2017.

The base macroeconomic factors which were the basis for the 2017 Base Tariffs (for the month of November 2016) are stated in Table 2. As of February 2017, these parameters had changed as shown in column 4 of Table 2. The detailed analysis of each of the macroeconomic factors is contained in the subsequent section.

3: DETERMINATION OF THE ADJUSTMENT FACTORS FOR THE SECOND QUARTER OF 2017

3.1: Foreign Exchange Rate Adjustment Factor (FERAF)

The movement in the exchange rate of the Uganda Shilling against major currencies directly affects the costs for companies involved in the Electricity Supply Industry because, a significant portion of these companies' costs are incurred in foreign currency yet the retail tariffs are charged and revenues collected in Uganda Shillings.

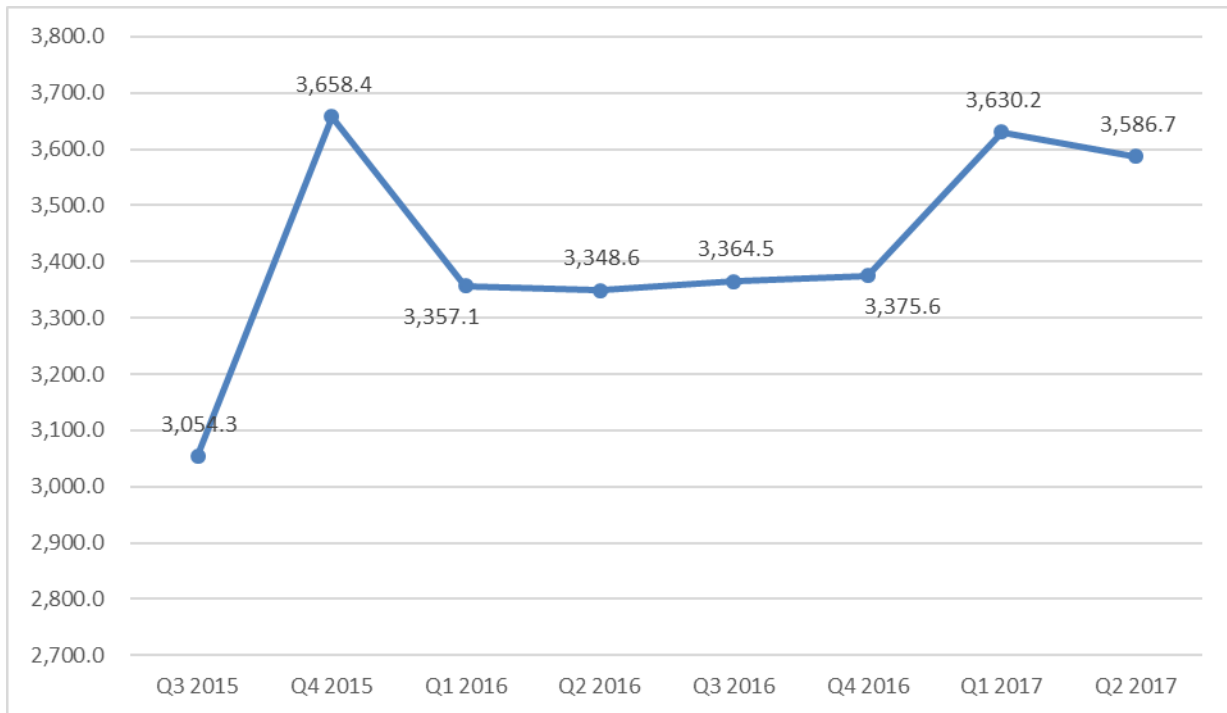
During the first quarter of 2017, there has been a reduction in the Uganda Shilling equivalent of the cost incurred in foreign currency on account of the appreciation of the Uganda Shilling against the United States Dollar.

During the determination of the 2017 Base Retail Tariffs, the Authority approved the foreign currency content of the Operation and Maintenance (O&M) Costs of 38.71% for Eskom Uganda Limited, 28.0% for UETCL, and 33.0% for Umeme Limited. UETCL also incurs over 99% of the power purchase costs in foreign currency as Power Purchase Agreements are either executed in United States Dollars or are pegged to the United States Dollar, except the Power Purchase Agreement for Tibet Hima Mining Co. Limited. In addition, the investment costs for Umeme Limited including; capital recovery, income taxes, and Return on Investment are recovered in United States Dollars. Therefore, the appreciation of the Uganda Shilling against the United States Dollar reduces the Shilling equivalent of the Electricity Industry costs required in foreign currency.

Between the fourth quarter of 2016 and the first quarter of 2017, the Uganda Shilling remained relatively stable compared to the period June to October 2016. The Exchange Rate used in determination of the Second Quarter of 2017 Tariffs is Ush. 3,586.69 per US\$ compared to Ush. 3,630.22¹, at the end of November 2016, which was used in the determination of the Base Tariffs. This represents an appreciation of 1.2%. The trend of the Exchange Rate of the Uganda Shilling against the United States Dollar is shown in Figure 1.

¹ https://www.bou.or.ug/bou/rates_statistics/statistics.html

Figure 1: Movement in Ush/US\$ Exchange Rate up to February 2017



Like many other emerging and frontier markets, the fall in the export commodity prices and the low demand in the key export markets weakened many currencies against the United States Dollar. The increase in the Interest rates in March 2017 by the United States of America Federal Reserve will still pose a downward risk to the stability of the Uganda Shilling Exchange Rate against the United States Dollar in the medium term i.e. the next six months.

The appreciation of the Uganda Shilling has a substantial impact on Electricity Supply Industry costs and consequently the End-User Tariffs. The Electricity Regulatory Authority's review indicates that the appreciation of the Uganda Shilling in the second quarter of 2017 decreased the sector annualized revenue requirement by Ush 16,743 Million and subsequently decreased the End-User Tariffs by a weighted average of Ush 2.6/kWh as shown in Table 3.

Table 3: Foreign Exchange Rate Adjustment Factor (FERAF)

Impact on the End-User Retail Electricity Tariffs (Ush/kWh)							
	Domestic	Commercial	Medium Industrial	Large Industrial	Extra Large	Street-lights	Weighted average
Exchange Rate Adjustment Factor (FERAF)	(4.7)	(4.0)	(4.1)	(1.5)	(1.6)	(4.4)	(2.6)

3.1.1: Inflation Rate Adjustment Factor (IRAF)

The annual Consumer Price Index (CPI) for the month ending February 2017 was 161.7 compared to 159.4 in November 2016. According to Bank of Uganda, the Consumer Price Index, higher inflation for food crops as well as electricity, fuel and utilities pushed up the annual headline inflation for January 2017 to 5.9% from 5.7% in December 2016. In contrast, annual core inflation declined to 5.3% in January 2017 from 5.9% in December 2016, reflecting declining inflation in most of the service sectors.

3.1.2: Effect of Inflation on the Tariff

The inflation adjustment is applied only to the local currency component of the Operation and Maintenance costs for Eskom Uganda Limited, UETCL, and Umeme Limited. This adjustment is based on the local currency content approved by the Authority at the time of determination of the 2017 Base Tariffs (i.e. 61.29% for Eskom Uganda Limited, 72.0% for UETCL and 67.0% for Umeme Limited).

The IRAF is based on the composite Consumer Price Index (CPI) for the second month in the preceding quarter to which the Tariff adjustment factors relate to as published by the Uganda Bureau of Statistics. For the Second Quarter of 2017, the applicable CPI is 161.7 (February 2017) representing an increase of 1.44% compared to the CPI of November 2016, of 159.4.

The United States (US) Producer Price Index (PPI) is used to adjust the Operation and Maintenance costs denominated in United States Dollars (US\$) to cater for changes in prices of imported supplies. In the period under review, the US PPI increased from 196.4 in November

2016 (Base US PPI) to 197.8 in February 2017, representing an increase of 0.71%.

The movement in the Consumer Price Index and the United States Producer Price Index increased the sector annualized revenue requirement by Ush 2,777 Million and subsequently, the increase in the Electricity Retail Tariffs is Ush 0.8/kWh on a weighted average basis across consumer categories as indicated in Table 4.

Table 4: Inflation Rate Adjustment Factor (IRAF)

Impact on the End-User Retail Electricity Tariffs (Ush/kWh)							
	Domestic	Commercial	Medium Industrial	Large Industrial	Extra Large	Street-lights	Weighted average
Inflationary Adjustment Factor (IRAF)	1.5	1.2	1.3	0.6	0.6	1.3	0.8

3.2: Fuel Price Adjustment Factor (FPAF)

The Fuel Price Adjustment Factor includes adjustment for changes in the International Fuel Prices and changes in the Generation Mix from the assumptions used in the determination of the Base Tariffs.

Movement in Fuel Prices at the International market affects the cost of generation for the thermal generation plants; Jacobsen Uganda Power Plant Company Limited and Electro-Maxx Uganda Limited. This in turn affects the power purchase costs incurred by UETCL.

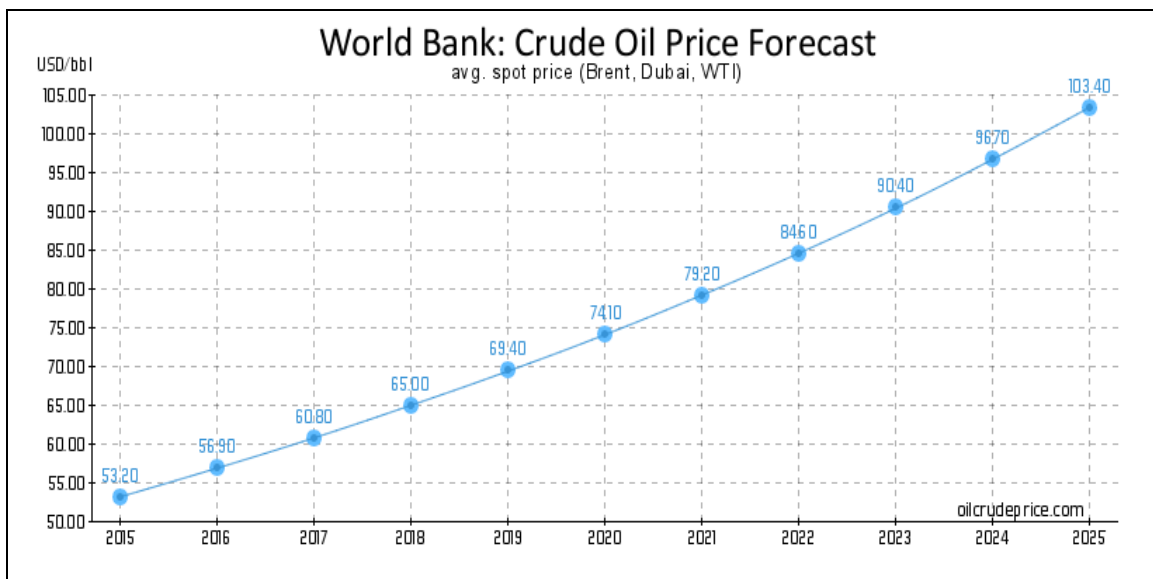
Similarly, the changes in the Generation Mix from the assumptions used in determination of the Base Tariffs affect UETCL's power purchase costs and therefore the revenue requirement.

In the 2017 Base Tariffs, the cost of fuel assumed in the Tariff determination was US\$ 51.90 per barrel. According to the Organization of Petroleum Exporting Countries (OPEC); as at the end of February 2017, the international price of Heavy Fuel Oil (HFO) was US\$ 53.37 per barrel. For purposes of the Second Quarter of 2017 Tariff adjustment, the price of Heavy Fuel Oil used for electricity generation in Uganda, is assumed to be US\$ 397.1 per metric ton (US\$ 53.37 per

barrel) compared to Ush 386.2 per Metric ton used in the 2017 Base Tariffs.

The increase in oil prices has been attributed to regulated/controlled supply by OPEC. As shown in Figure 2, the international oil prices are expected to follow an upward trend to December 2025. According to the National Association of Securities Dealers Automated Quotations (NASDAQ), crude oil prices are expected to increase in the short to medium term due to expected reduction in production.

Figure 2: Trend of crude oil prices 2015 to 2025



Source

e: <http://www.nasdaq.com/markets/crude-oil.aspx?timeframe=1y>

The increase in the International price of fuel used for the Q2 2017 Tariffs compared to the Q1 2017 Tariffs, resulted in an increase in the projected power purchase costs for UETCL from Thermal plants in the Second Quarter of 2017. This leads to a weighted average fuel adjustment factor of Ush 0.1 /kWh for the Second Quarter of 2017 as shown in Table 5.

Table 5: Fuel Price Adjustment Factor (FPAF)

Impact on the End-User Retail Electricity Tariffs (Ush/kWh)							
	Domestic	Commercial	Medium Industrial	Large Industrial	Extra Large	Street-lights	Weighted average
Fuel Price Adjustment Factor (FPAF)	0.1	0.1	0.1	0.1	0.1	0.1	0.1

3.3: Generation Mix

The Fuel Adjustment Factor includes the adjustment for changes in the dispatch of the generation plants or the generation mix relative to the assumptions made in the determination of the Base Tariffs. The changes in the generation mix affect energy generated from the respective generation plants and the respective costs.

3.3.1: DEMAND ASSUMPTIONS

3.3.1.1: Maximum Demand

The registered Peak System Demand in February 2017 (including export of 14.77 MW to Tanzania and 54.17 MW Export to Kenya) stood at 596.06 MW (compared to 592.10 MW for January 2017). The Uganda Peak Domestic Demand in February 2017, stood at 531.31 MW (compared to 546.42 MW for January 2017). Shoulder Peak system Demand was recorded at 562.11 MW (compared to 546.02 MW for January 2017) and an Off-Peak maximum system demand of 456.77 MW (compared to 462.89 MW for January 2017). The lowest system load registered during Q1 2017 was 338.06 MW.

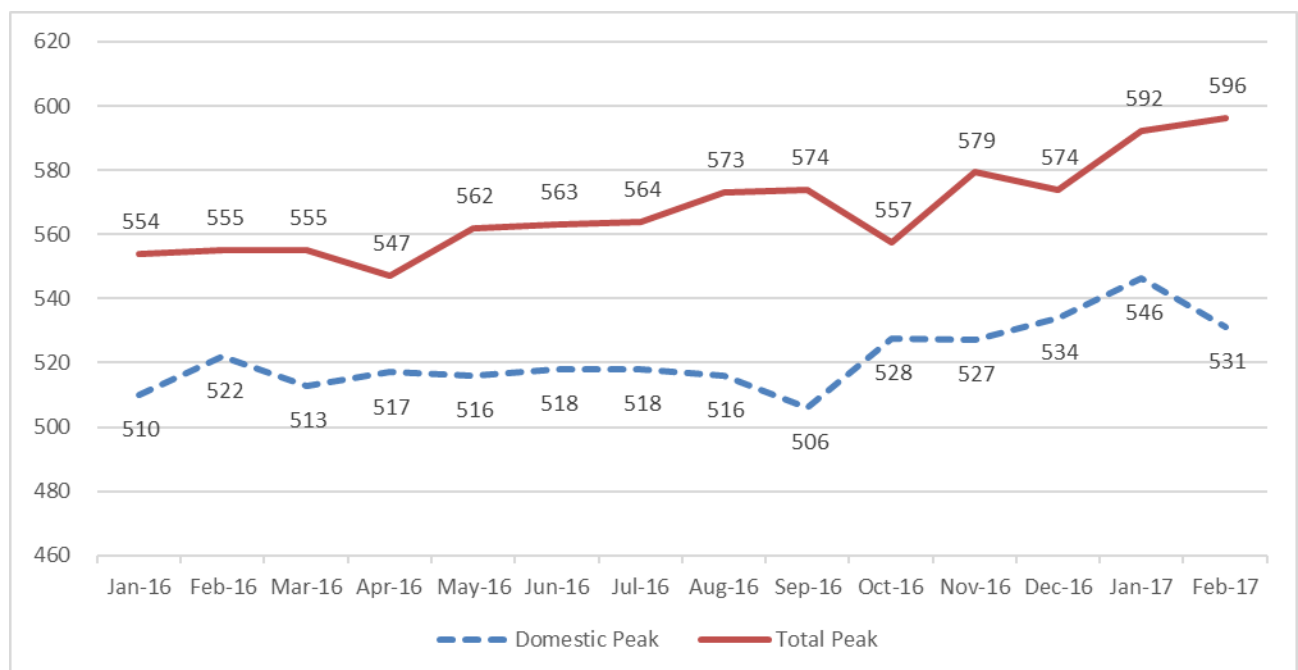
In Q2 2017, demand projections put the combined Peak Domestic Demand and export to Tanzania at 563 MW, a maximum of 505 MW during the Shoulder and a maximum demand of 419 MW during the Off-Peak period.

The optimization of available generation supply shall cover the projected Domestic demand plus exports to Kenya, with secondary reserve capacity at about 29 MW. The reserve capacity and export to Kenya shall dwindle to about 11 MW and 30 MW, respectively at Off

Peak and Peak Demand periods, during the period when Unit 3 at Bujagali Energy Limited shall be shut down for maintenance.

In line with Bank of Uganda's (BOU) policy statement², Domestic Demand in the last twelve months has been relatively low. This further affected the overall demand for electricity. The outlook for 2017, however, points at a relative recovery in domestic demand following BOU's reduction in the Central Bank Rate (CBR) in February 2017 by 0.5 percent to 11.5 percent. The movement in maximum demand from January 2016 to February 2017 is shown in Figure 3.

Figure 3: Maximum Demand, January 2016 – February 2017



3.3.1.2: Energy purchases by UETCL

During the Fourth Quarter of 2016, UETCL purchased 910.08 GWh from the generation plants and through imports. In the First Quarter of 2017, UETCL purchased 982.17 GWh, representing a growth of about 7.9%. In Q2 2017, UETCL is expected to purchase 956.72 GWh, on account of expected reduction in exports to Kenya.

² BOU policy statement is available at www.bou.org/

The demand is expected to grow faster in the later part of 2017, after implementation of investments by Umeme Limited geared towards unlocking the industrial demand especially in Mukono Industrial Park. The change in the dispatch for each of the generation plants from the base assumptions is shown in Figure 4 and Figure 5. Details of the dispatch of generation plants are presented in Annex 1.

Figure 4: Energy Purchases by UETCL from Large hydro plants

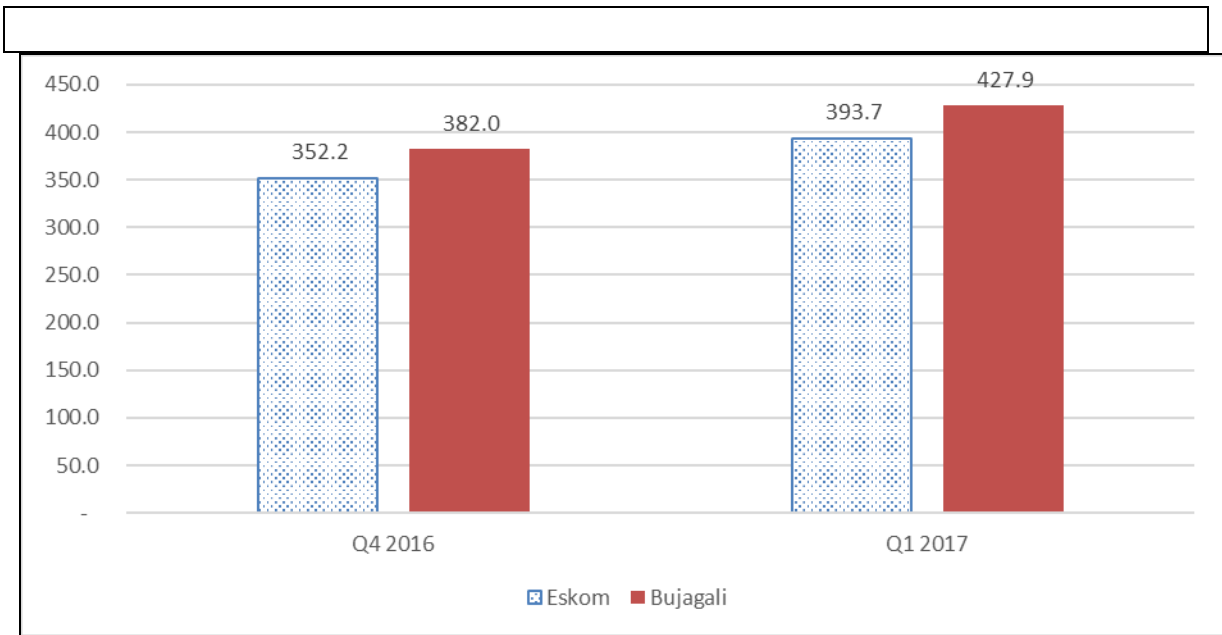
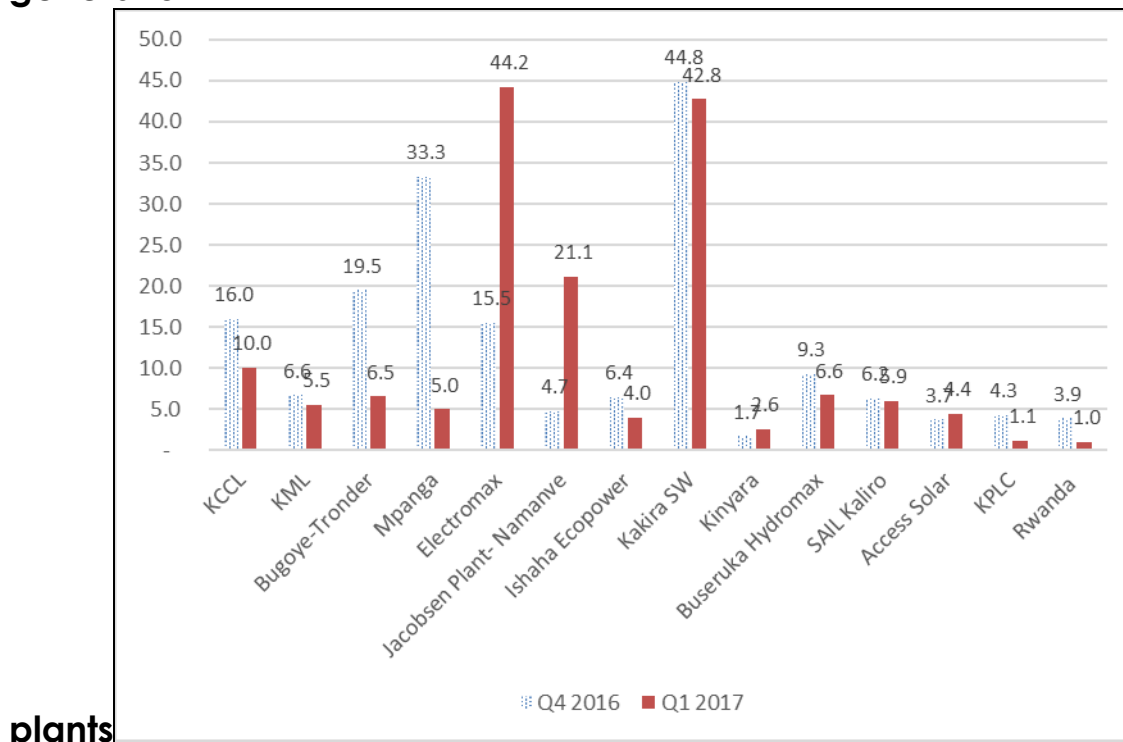


Figure 5: Energy Purchases by UETCL from Small Hydros, Thermal and Co-generation



The variance between the forecast in the generation mix and the outturn for the First Quarter of 2017 is attributed mainly to;

- (i) The changes in hydrological conditions which affected generation from Mini Hydro power plants.
- (ii) Decreased generation from co-generation bagasse plants on account of decreased supply of cane from out-growers. The reduction in supply from out-growers had affected generation from Kakira Sugar Limited and Sugar and Allied Industries in the First Quarter of 2017.
- (iii) Increased dispatch from Large Hydro power plants to bridge the deficit created by reduced dispatch from Mini-Hydro plants and co-generation bagasse plants.

The detailed discussion is presented in **Annex 1** of this report.

3.3.1.3: Energy Sales by UETCL

The energy purchases by UETCL are adjusted for Transmission Losses and sold to different distribution companies or exported. Based on the forecast, UETCL will sell 93.23 percent of the energy to Umeme Limited as shown in Table 6. UETCL is expected to export 5.10% percent of energy and the rest (1.67) will be sold to the small distribution companies in the country.

Table 6: Energy Sales by UETCL in Q1 2017 and Q2 2017

Distribution Licensee/export	Q1 2017 Annualized Energy Sales by UETCL (GWh)	%tage sales - Q1 2017	Q2 2017 Annualized Energy Sales by UETCL (GWh)	%tage sales - Q2 2017
Umeme Limited	3,305.60	87.63%	3,372.62	93.23%
UEDCL	46.10	1.22%	46.08	1.27%
KIL	5.20	0.14%	5.24	0.14%
BECS	3.30	0.09%	3.24	0.09%
PACMECS	2.40	0.06%	2.40	0.07%
KRECS	3.30	0.09%	3.24	0.09%
EXPORT	406.50	10.78%	184.64	5.10%
TOTAL	3,772.40	100.00%	3,617.46	100.00%

In February 2017, the energy interchange between Uganda and Kenya was a net export of 31,571,470 kWh from UETCL to Kenya Power and Lighting Company Limited as compared to net export of 20,155,830 kWh in January 2017. The observed increase in exports registered in the month of February 2017 was due to additional requests for power support by Kenya Power Lighting Company Limited. Kenya Power Lighting Company faces a transmission capacity constraint limiting transfer of power from other parts to Western Kenya where the on-going dry season has caused a reduction in generation from Hydro Power Plants.

The impact of the change in the generation mix is a downward adjustment of the Electricity End-User Tariffs by a weighted average of -4.4 Ush /KWh relative to the Base Tariffs as shown in Table 7.

Table 7: Generation Mix/Dispatch Adjustment Factor

End-User Retail Electricity Tariffs (Ush/kWh)							
	Domestic	Commercial	Medium Industrial	Large Industrial	Extra Large	Street-lights	Weighted average
Generation Mix/Dispatch Adjustment Factor	(6.7)	(5.4)	(5.4)	(5.3)	(5.0)	(5.5)	(4.4)

3.4: Overall Tariff Adjustment Factor

The applicable Tariff Adjustment for Q2 2017 is the sum of the Exchange Rate Adjustment Factor, Inflation Adjustment Factor and Fuel Price Adjustment Factor. The adjustment factors for Q2 2017 are as shown in Table 8.

Table 8: Approved Total Tariff Adjustment Factors for Q2 2017

Tariff Adjustment Factors (USh/kWh)							
	Domestic	Commercial	Medium Industrial	Large Industrial	Extra Large	Street-lights	Weighted average
Inflation Rate Adjustment Factor (IRAF)	1.5	1.2	1.3	0.6	0.6	1.3	0.8
Exchange Rate Adjustment Factor (FERFAF)	(4.7)	(4.0)	(4.1)	(1.5)	(1.6)	(4.4)	(2.6)
Fuel Price Adjustment Factor (FPAF) = (A+B)	(6.6)	(5.3)	(5.3)	(5.2)	(4.9)	(5.4)	(4.3)
Fuel Price Adjustment Factor - A	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Energy Mix Adjustment Factor - B	(6.7)	(5.4)	(5.4)	(5.3)	(5.0)	(5.5)	(4.4)
Total Tariff Adjustment	(9.8)	(8.1)	(8.1)	(6.1)	(5.9)	(8.5)	(6.1)

4: REVENUE REQUIREMENT, TARIFF AND SUBSIDY IMPLICATIONS

4.1: Revenue Requirement Implications

The annualized revenue requirement for the Electricity Industry is shown in Table 9.

Table 9: Summary of Revenue Requirement

	Eskom Generation				Transmission				Other power purchases	Export revenues	Distribution			
	Total	Asset related	O&M	Lease fee	Total	Asset related	O&M	Levies & Funds	Total	Total	Total	Asset related	O&M	Lease fee
	USh mill	USh mill	USh mill	USh mill	USh mill	USh mill	USh mill	USh mill	USh mill	USh mill	USh mill	USh mill	USh mill	USh mill
Q1 2017	54,440	13,011	34,860	6,569	126,122	-	93,600	32,522	960,044	73,212	558,445	394,147	158,383	5,915
Q2 2017	65,779	12,855	34,962	17,962	125,407	-	94,092	31,315	958,709	106,502	554,716	389,421	159,452	5,844

In the determination of Tariffs for Q2 2017, the annualized revenue requirement for Eskom Uganda Limited is projected to increase to Ush 65,779 million in Q2 2017 from Ush 54,440 million in Q1 2017. The increase is largely driven by;

- (i) Adjustment for Consumer Price Index leading to an increase in the local content of the Operation and Maintenance costs, and
- (ii) Adjustment of the 2017 annual budget for Uganda Electricity Generation Company Limited, leading to increase in Concession Fees.

The appreciation of the Uganda Shilling against the United States Dollar cushioned the increase in the Uganda Shilling equivalent asset-related costs.

Due to the changes in the generation mix mainly attributed to the reduction in dispatch from Mini-hydro Power Plants, being compensated by capacity plants (Eskom and Bujagali), the decrease dispatch from Kakira Sugar Limited and the increase in the International oil prices in Q1 2017, the annualized power acquisition costs (excluding the capacity payments to all Thermal generators)

reduced from Ush 960,044 million in Q1 2017 to Ush 958,709 million in Q2 2017.

The annualized revenue requirement for Umeme Limited decreased from Ush 558,445 million, provided for in the Tariff for Q1 2017 to Ush 554,716 million in Q2 of 2017, mainly on account of appreciation of the Uganda Shilling against the United States Dollar.

There was an increase in the Operation and Maintenance cost component of Umeme Limited on account of adjustment for Consumer Price Index for the local content of the Operation and Maintenance Costs.

The decrease in the annualized asset-related costs for Umeme Limited from Ush 394,147 million in Q1 2017 to Ush 389,421 million in Q1 2017 on account of the appreciation of the Uganda Shilling against the United States Dollar during the first quarter of 2017.

4.1.1: Capacity Price for Eskom Uganda Limited

The Capacity Price for Eskom Uganda Limited increased from Ush 43,112 per MW per hour in Q1 2017 to Ush 52,092 per MW per hour in Q2 2017, as shown in Table 10. The increase is attributed to increased costs on account of adjustment of local content Operation and Maintenance costs for Consumer Price Index, and adjustment to the 2017 annual budget for Uganda Electricity Generation Company Limited.

Table 10: Eskom Capacity Price for Q1 2017

	Average Capacity Price	Total costs	Investment component	Capital recovery charges	Return on investment	Net accumulated investment	Income taxes payable	O&M component	USh-portion of O&M	US\$-portion of O&M	Concession fee
	CP y,q	USh mill	USh mill	US\$ thous	US\$ thous	US\$ thous	US\$ thous	Ush mill	Ush mill	Ush mill	US\$ thous
	Ushs/ MW										
Q1 2017	43,112	54,440	13,011	1,098	1,740	14,500	746	34,860	18,145	13,049	6,569
Q2 2017	52,092	65,779	12,855	1,098	1,740	14,500	746	34,962	18,403	12,893	17,962

4.1.2: Bulk Supply Tariff (BST)

The annualized bulk supply costs reduced from Ush 1,118,908 million in Q1 2017 to Ush 1,112,520 million in Q2 2017. The sales to distributor (Umeme Limited) reduced from 3,413 GWh in Q1 2017 to 3,373 GWh in Q2 2017. As a result, the Bulk Supply Tariffs reduced from Ush 379.9/kWh, Ush 292.2/kWh, and Ush 184.1/kWh at Peak, Shoulder and Off-peak periods respectively, to Ush 373.5/kWh, Ush 287.3/kWh, and Ush 181.1/kWh for the respective Time of Use periods in Q2 2017, as shown in Table 11.

Table 11: BULK SUPPLY COSTS AND RESULTANT BULK SUPPLY TARIFFS (BST)

	Peak price	Shoulder price	Off-peak price	Sales to distributors	Total costs	Power Purchase Costs	Transmission costs	Total asset related costs	Total O&M component	Other
	USh/kWh	USh/kWh	USh/kWh	GWh	USh mill	USh mill	USh mill	Ush mill	Ush mill	Ush mill
Q1 2017	379.9	292.2	184.1	3,413	1,118,908	992,786	126,122	6,412	87,188	32,522
Q2 2017	373.5	287.3	181.1	3,373	1,112,520	987,113	125,407	6,336	87,756	31,315

The reduction in the Bulk Supply Tariff is on account of increased dispatch of capacity plants³. The annualized bulk supply costs before off-setting exports decreased by 0.57% between Q1 2017 and Q2 2017 and the sales to distributors increased by 0.6% over the same period, leading to reduction in the Bulk Supply Tariff.

5: RETAIL TARIFFS

In accordance with Amendment No. 2 of the Umeme Limited Licence No. 48 for Supply of Electricity, the Retail Tariff charges for electric service shall be subject to and liable for automatic Fuel Cost adjustment, Foreign Exchange Rate fluctuation adjustment, and an automatic adjustment for inflation that will be calculated in accordance with such formulae as determined by the Authority.

The quarterly adjustment factors and the resulting End-User Tariffs across the customer categories for Q2 2017 are as shown in Table 12.

³ Increased dispatch from capacity plants reduces the weighted average unit cost of generation given that more energy is dispatched at proportionately lower (to zero) unit cost.

Table 12: Q2 2017 Approved Adjustment Factors and resultant End-User Tariffs

End-User Retail Electricity Tariffs (Ush/kWh)							
	Domestic	Commercial	Medium Industrial	Large Industrial	Extra Large	Street-lights	Weighted average
2017 Approved Base Tariffs	696.9	629.0	577.8	376.3	372.8	679.7	513.2
Tariff Adjustment Factors (Ush/kWh) for Q2 2017							
Inflation Rate Adjustment Factor (IRAF)	1.5	1.2	1.3	0.6	0.6	1.3	0.8
Exchange Rate Adjustment Factor (FERFAF)	(4.7)	(4.0)	(4.1)	(1.5)	(1.6)	(4.4)	(2.6)
Fuel Price Adjustment Factor (FPAF) = (A+B)	(6.6)	(5.3)	(5.3)	(5.2)	(4.9)	(5.4)	(4.3)
(A) - Fuel Price Adjustment Factor	0.1	0.1	0.1	0.1	0.1	0.1	0.1
(B) - Energy Mix Adjustment factor	(6.7)	(5.4)	(5.4)	(5.3)	(5.0)	(5.5)	(4.4)
Total Tariff Adjustment	(9.8)	(8.1)	(8.1)	(6.1)	(5.9)	(8.5)	(6.1)
Approved Q2 2017 Tariff	687.1	620.9	569.7	370.2	366.9	671.2	505.7
Percentage Change from Q1 2017	-1.4%	-1.3%	-1.4%	-1.6%	-1.6%	-1.3%	-1.5%

The approved resultant Tariff at the different Time of Use periods is shown below:

End-User Retail Electricity Tariffs (Ush/kWh)						
	Domestic	Commercial	Medium Industrial	Large Industrial	Extra Large	Street-lights
2017 Base Tariffs - Ush/kWh						
Average	696.9	629.0	577.8	376.3	372.8	679.7
Peak		815.9	747.9	498.2	493.1	
Shoulder		628.1	575.7	383.5	379.6	
Off peak		391.5	355.6	244.5	243.3	
Tariff Adjustment Factors (Ush/kWh) for Q2 2017						
Inflation Rate Adjustment Factor (IRAF)	1.5	1.2	1.3	0.6	0.6	1.3
Exchange Rate Adjustment Factor (FERFAF)	(4.7)	(4.0)	(4.1)	(1.5)	(1.6)	(4.4)
Fuel Price Adjustment Factor (FPAF) = (A+B)	(6.6)	(5.3)	(5.3)	(5.2)	(4.9)	(5.4)
(A) - Fuel Price Adjustment Factor	0.1	0.1	0.1	0.1	0.1	0.1
(B) - Energy Mix Adjustment factor	(6.7)	(5.4)	(5.4)	(5.3)	(5.0)	(5.5)
Total Tariff Adjustment	(9.8)	(8.1)	(8.1)	(6.1)	(5.9)	(8.5)
Approved Q2 2017 End-user Tariff in Ush/kWh						
Average	687.1	620.9	569.7	370.2	366.9	671.2
Peak		807.8	739.8	492.1	487.2	
Shoulder		620.0	567.6	377.4	373.7	
Off peak		383.4	347.5	238.4	237.4	

ANNEX 1: ENERGY DISPATCH AND GENERATION MIX

I. Eskom Uganda Ltd (380 MW)

At the time of determination of the Base Tariffs for 2017, it was assumed that the water release at the Kiira-Naluubale complex would be 900 Cumecs for the greater part of the year. In order to cover for the shortfall arising from reduced dispatch from the Mini-hydro plants, the water release was increased to 1,000 Cumecs in Q1 2017. The current 1,000 Cumecs Water Release Permit expires on 17th May 2017. It is expected that the 1,000 Cumecs water release will be renewed based on the current lake levels.

At a water release of 1,000 cumecs, Eskom Uganda Limited is expected to generate 393.7 GWh in Q1 2017 compared to 341.0 GWh used in the determination of the 2017 Base Tariffs. For the Second Quarter of 2017, Eskom Uganda Limited is expected to generate and sell 354.2 GWh to UETCL.

The power purchase costs for Eskom Uganda Limited are expected to increase from Ush 13.6 Billion in the first quarter of 2017 to Ush 16.4 Billion in 2017. The increase is mainly on account of the adjustment of the annual budget for UEGCL in Q2 2017.

II. Bujagali Energy Limited (250 MW)

The generation and dispatch from Bujagali Energy Limited is a direct result of the water release at the complex which is around 112% more efficient than the Kiira-Nalubaale power generation complex operated by Eskom Uganda Limited. Bujagali Energy Limited is expected to conduct routine maintenance shutdowns/outages in the Second Quarter of 2017, at the rate of one unit each month. The first unit will be shut down for twelve (12) days from 3rd April 2017 to 14th April 2017. The second unit will be shut down for twelve (12) days from 19th June 2017 to 30th June 2017. This implies that 50 MW will not be available for 24 days during the Second Quarter of 2017.

Considering the plant maintenance schedule and expected water release, Bujagali Energy Limited is expected to generate 388.0 GWh in the second quarter of 2017.

UETCL is expected to incur Ush 142.6 Billion Shillings in the Second Quarter of 2017 on account of purchasing energy from Bujagali Energy Limited.

III. Africa EMS Mpanga Ltd (18 MW)

In Q1 2017, Uganda has been experienced unfavorable hydrology conditions. These conditions are likely to improve in Q2 2017 and therefore, we estimate that the plant will generate 15.7 GWh in Q2 2017 compared to 4.97 GWh in Q1 2017.

The Authority approved a phased Tariff for Africa EMS Mpanga of US Cents 9/KWh for the first six years and US cents 6.66/KWh for the rest of the License period. The Power plant achieved Commercial Operations Date in March 2011. In March 2017, the Power Plant was expected to switch to Phase two of the Tariff Structure. The weighted average Tariff for Africa EMS Mpanga in 2017 is US cents 7.24/KWh.

The power purchase costs are expected to increase from Ush 5.1 Billion in Base Tariffs to Ush 4.1 Billion in Q2 2017.

IV. Bugoye Power Ltd – Bugoye (13 MW)

Bugoye Power Limited is expected to generate 6.63 GWh by the end of Q1 2017. The lower generation is as a result of the unfavorable weather conditions that affected the hydrology. The plant also experienced mechanical breakdown when the penstock burst.

Bugoye Power Plant was switched off on 13th February 2017 to enable the company address the mechanical breakdown. The repairs on the penstock are expected to be completed in July 2017. Bugoye Power Plant is therefore not expected to generate power in the Second Quarter of 2017.

Accordingly, the power purchase costs for Bugoye Power plant are expected to decrease from Ush 6.4 billion in the Base Tariff to Ush 0 in 2017.

V. Kasese Cobalt Company Ltd - KCCL (10.5 MW)

The power plant was expected to generate 10 GWh in Q1 2017 compared to 15.77 GWh used in the determination of the 2017 Base Tariffs. This low generation was on account of the poor hydrology. KCCL is projected to generate 14.3 GWh in Q2 2017.

UETCL power purchase costs for KCCL energy are expected to reduce from Ush 3.3 Billion in the Base Tariff to Ush 3.0 Billion in Q2 2017.

VI. Tibet Hima Mining Company Limited – THMCL (5 MW)

Mobuku 1 Hydropower Plant operated by Tibet Hima Limited Mining Company (formerly Kilembe Mines Limited) has an installed capacity of 5 MW. The power plant was not adversely affected by the drought conditions (because of the different catchment area) and is expected to generate 5.49 GWh in Q1 2017 compared to 5.48 GWh assumed in the determination of the 2017 Base Tariffs. It is expected that the power plant will generate 5.48 GWh in Q2 2017.

UETCL power purchase costs for THMCL are expected to remain unchanged at Ush 0.48 Billion in Q2 2017. The tariff of THMCL is in Uganda Shillings and therefore the power purchase costs are not subjected to changes in the Exchange Rate.

VII. Eco Power-Ishasha (6.5 MW)

Eco Power Ishasha Power Plant is estimated to generate 3.98 GWh by the end of Q1 2017. In 2015, the plant experienced power evacuation challenges due to constraints in the Umeme network. Umeme in 2016, rehabilitated lines from Mbarara North substation to both Kabale and Rukungiri Districts. We, therefore, expect that the plant will not experience major evacuation challenges arising from grid instability in 2017. The plant is projected to dispatch 6.4 GWh in Q2 2017.

The power purchase costs are expected to reduce from Ush 1.9 Billion in the Base Tariff to Ush 1.7 Billion in Q2 2017. The increase in power purchase costs is on account of increased generation.

VIII. Hydromax Limited - Buseruka (9 MW)

The plant is expected to dispatch 6.65 GWh by the end of Q1 2017. This is as a result of lower hydrology as well as constraints in the power evacuation line. UETCL is expected to commission the Hoima substation in July 2017, which will help in the evacuation of the plant. It is therefore projected that the plant will dispatch 12.1 GWh.

The Power Purchase costs for Hydromax are expected to reduce from Ush 4.8 Billion in the Base Tariff to Ush 4.2 Billion in Q2 2017.

IX. Muvumbe Hydro Power Plant (6.5 MW)

The project started construction in the Fourth Quarter of 2015. Muvumbe Hydro power plant achieved Commercial Operations Date on 18th March 2017 after inspection and tests carried out by UETCL and Umeme Limited.

Muvumbe Hydro Power Plant is expected to generate 23.1 GWh in the year 2017. The low expected generation is because the plant was commissioned in March 2017 and therefore not generating for the whole of 2017.

UETCL is expected to incur power purchase costs amounting to Ush 2.0 Billion in the Second Quarter of 2017 arising from energy purchases from Muvumbe Hydro Power Plant based on a generation tariff of US Cents 9.4/Kwh as approved by the Authority.

X. Siti 1 Hydro Power Plant (5 MW)

Siti 1 Hydro Power Plant started construction in the 3rd of 2015. To date, 97% of the works have been completed. It is expected to be commissioned in April 2017. In 2017, 19.8 GWh of energy is expected to be supplied to the grid. The energy to be generated is based on the installed capacity, the plant factor and expected days of generation in 2017.

UETCL is expected to incur power purchase costs amounting to Ush 7.2 Billion for the Tariff Year 2017 arising from energy purchases from Siti 1 Hydro Power Plant based on a generation Tariff of US Cents 10.0/Kwh as approved by the Authority.

XI. Nyamwamba Hydro Power Plant (9 MW)

Nyamwamba Hydro Power Plant is expected to be commissioned in October 2017. The plant is expected to generate 10.2 GWh in 2017 based on the installed capacity, the plant factor and expected days of generation in 2017.

Nyamwamba Hydro Power Plant is expected to sell energy to UETCL at US Cents 8.5/Kwh. This therefore, implies that UETCL will incur power purchase costs of Ush 3.2 billion for the whole Tariff Year 2017.

XII. Rwimi Hydro Power Plant (5.5 MW)

Rwimi Hydro Power Plant is expected to be commissioned in October 2017. The plant is expected to generate 6.0 GWh in 2017 based on the installed capacity, the plant factor and expected days of generation in 2017.

Rwimi Hydro Power Plant is expected to sell energy to UETCL at US cents 9.8/Kwh. This therefore implies that UETCL will incur power purchase costs of Ush 2.1 billion for the whole Tariff Year 2017.

XIII. Waki Hydro Power Plant (4.8 MW)

Waki Hydro Power Plant is expected to be commissioned in October 2017. The plant is expected to generate 6.6 GWh in 2017, based on the installed capacity, the plant factor and expected days of generation in 2017.

Waki Hydro Power Plant is expected to sell energy to UETCL at US Cents 10.1 /Kwh. This therefore, implies that UETCL will incur power purchase costs of Ush 2.4 billion for the whole Tariff Year 2017.

XIV. Kakira Sugar Limited (52 MW)

The plant is estimated to generate 42.78 GWh by the end of Q1 2017. The plant has experienced some challenges in terms of reduced access to cane/fuel. This has been as a result of development of a number of other sugar manufacturing Companies in the same area with limited expansion of sugar cane plantations.

In Q2 2017, Kakira Sugar Limited is expected to overcome the fuel/cane challenges and increase generation. The power plant will generate 54.8 GWh.

UETCL power purchase costs for Kakira Sugar Limited energy are expected to reduce from Ush 20.7 billion in the Base Tariff to Ush 19.3 billion in Q2 2017. The decrease in power purchase costs is on account of reduced generation from Kakira Sugar Limited.

XV. Kinyara Sugar Ltd (5.0 MW)

The plant is estimated to sell 2.56 GWh to the National Grid by the end of Q1 2017. Kinyara Sugar Limited has faced power evacuation challenges on the Hoima-Masindi 33KV line which are expected to be addressed in the later part of 2017. The plant is expected to increase generation to 3.5 GWh in Q2 2017.

The power purchase costs from Kinyara Sugar Limited are expected to decrease from Ush 1.1 billion in the Base Tariff of 2017 to USh 1.0 billion in Q2 2017 on account of increased generation from the power plant.

XVI. Sugar and Allied Industries Limited (SAIL)

Sugar and Allied Industries Limited was commissioned in 2013, generating power for own use. The plant was then connected to the Grid in 2015. The plant has an installed capacity of 11.5 MW with 6.5 MW committed to the National Grid. The plant, however, experienced constraints in cane supply and therefore supplied limited capacity to the National Grid.

SAIL is expected to supply 5.93 GWh to the National Grid by the end of Q1 2017. In Q2 2017, it is projected that the Plant will supply the National Grid with 9.7GWh of energy.

The Sugar and Allied Power Purchase costs are expected to decrease from Ush 3.9 billion in the Base Tariff 2017 to Ush 3.4 billion in 2017 on account of reduced generation from the Power Plant.

XVII. Electro-Maxx Ltd- Tororo (50 MW)

In February 2017, the Authority approved UETCL's request to dispatch the Thermal plants above the 7 MW minimum dispatch implemented by the Authority. The request by UETCL was premised on the requirement to export 50 MW to Kenya.

In Q1 2017, Electro-maxx is expected to generate 44.19 GWh. The generation from the Thermal plants is expected to change based on the power export requirement to Kenya. For the Second Quarter of 2017, we expect Electro-maxx to generate 22.52 GWh.

The power purchase costs are expected to increase from Ush 10.1 billion in the Base Tariff to Ush 14.9 billion in Q2 2017. The prices of fuel on the international market are expected to increase in Q2 2017.

XVIII. Jacobsen Uganda Power Plant Company Limited - Namanve (50 MW)

The License for Jacobsen Uganda Power Plant Company Limited expired on 14th September 2016. The company applied for renewal of its License. The Authority approved a one-year license renewal. The company commenced generation in the 4th quarter of 2016. In Q1 2017, the plant is expected to generate 21.09 GWh. In Q2 2017, Jacobsen Uganda Power Plant Company Limited is expected to generate 16.8 GWh at a cost of Ush 10.9 million.

XIX. Access Solar TSK (10 MWp)

The plant was procured through a competitive bidding process under the Global Energy Transfer Feed-in-Tariff (GETFIT) Program with a total capacity of 10 MWp, with a plant factor of 23%. Following the award

of a Licence by the Authority, construction started and the company achieved Commercial Operations on 12th December 2016.

In Q1 2017, the plant generated 4.39 GWh. In Q2 2017, Access Solar is expected to generate the same energy at a cost of Ush 2.0 Billion.

XX. Tororo Solar North (10 MWp)

The project was also procured under the GETFIT program, with 10MWp total capacity, and a plant factor of 23%. The project experienced some delays in achieving Financial Close but it is expected to be commissioned by the 4th quarter of 2017. A total of 5.1 GWh are expected to be generated from this plant in 2017, at a cost of Ush 2.1 billion.

Import and Export of Power

UETCL imports and exports power from Kenya and Rwanda mainly for tie line flow and not for commercial purposes.

In February 2017, Kenya experienced severe drought that adversely affected generation from hydro power sources. As a result, Kenya requested UETCL to supply about 50 MW. The export by UETCL to Kenya has increased from 28.46 GWh in Q4 2016 to the estimated outturn for Q1 2017 of 180.36 GWh. The Q1 2017 outturn is also higher than the 19.9 GWh that was used in the determination of the Base Tariffs for 2017.

In Q2 2017, the hydrology conditions in Kenya are expected to improve and it is projected that UETCL will export 24.0 GWh during the period and earn revenue of Ush 19.7 Billion.

In respect to power import, UETCL is expected to maintain the import levels at the tie-line flow of 9.3 GWh for both Kenya and Rwanda, at a cost of Ush 6.7 Billion.

The breakdown of the power purchase costs and energy dispatch from the generation sources is shown in Table 13.

Table 13: Projected Energy Purchases by UETCL

Generation Plant	Energy (GWh)	Cost (Ush bn)	Energy (GWh)	Cost (Ush bn)
	2017 Base		Q2 2017 Forecast	
Eskom	341.0	13.6	354.2	16.46
Bujagali	380.0	142.3	388.0	142.6
KCCCL	15.8	3.3	14.3	3.0
THMCL	5.5	0.5	5.5	0.5
Bugoye-Tronder	20.2	6.4	-	-
Mpanga	19.2	5.1	15.7	4.1
Electro-maxx	15.3	10.1	22.5	14.9
Jacobsen - Namanve	15.3	10.0	16.8	10.9
Ishaha Ecopower	7.2	1.9	6.4	1.7
Kakira SW	58.8	20.7	54.8	19.3
Kinyara Sugar Limited	3.9	1.1	3.5	1.0
Sugar & Allied	11.0	3.9	9.7	3.4
Tororo Solar	1.3	0.5	1.3	0.5
Access Solar	5.0	2.0	4.4	2.0
Muvumbe	5.8	2.0	5.8	2.0
Nyamwamba	2.5	0.8	2.5	0.8
Rwimi	1.5	0.5	1.5	0.5
Waki	1.7	0.6	1.7	0.6
Siti 1	5.0	1.8	5.0	1.8
Buseruka Hydromax	14.0	4.8	12.1	4.2
Import KPLC - Kenya	12.1	7.7	9.3	6.3
Import Rwanda	1.1	0.4	1.1	0.4
Total	942.9	240.0	936.0	237.0