



**DETERMINATION OF TARIFF ADJUSTMENT FACTORS FOR THE FOURTH  
QUARTER OF 2015  
(OCTOBER TO DECEMBER 2015)**

**OCTOBER 2015  
KAMPALA, UGANDA**

## 1. INTRODUCTION

In January 2014, the Electricity Regulatory Authority (ERA) approved and published in the Uganda Gazette the Quarterly Tariff Review Methodology. The methodology was implemented effective 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), and;
- (iii) Fuel prices at the International World Market leading to Fuel Price Adjustment Factor (FPAF)

The tariff review for the fourth quarter (Q4) of 2015 has been undertaken in accordance with the approved Quarterly Tariff Review Methodology and the licenses issued to Umeme Limited, Uganda Electricity Transmission Company Limited (UETCL), and Eskom Uganda Limited.

This review has taken into account changes in the consumer price index, exchange rate of the Uganda Shilling against the United States Dollar, international fuel prices, and the energy supply mix as well as reconciliation on account of investments by Umeme Limited. Specifically, these factors have manifested as follows:

- (i) The Uganda Shilling has depreciated by 31.6% against the US Dollar, from US\$ 2,779.9/US\$ in November 2014 to US\$ 3,658.4/US\$ at the end of August 2015.
- (ii) Inflation has increased by 4.7% from the consumer price index (CPI) of 212.9 registered in November 2014, to 223.0 registered in August 2015.
- (iii) The international price for crude oil as at the end of August 2015 was US\$ 45.70 per barrel compared to US\$ 80 per barrel used in the determination of the 2015 Base Tariffs.
- (iv) Investments by Umeme Limited that qualify for inclusion in the Regulatory Asset Base have been reconciled from US\$ 25,168,546 to US\$ 22,439,092.11 for the year 2012 and from US\$ 45,546,606 to US\$ 37,146,880.87 for the year 2013.

The detailed assumptions that form the background of the tariff review for the fourth quarter of 2015 are contained in the subsequent sections of this report.

## 2. ELECTRICITY END-USER 2015 BASE TARIFFS

In accordance with the Quarterly Tariff Review Methodology, the Authority at its 242<sup>nd</sup> meeting held in January 2015 approved the 2015 Base Tariffs shown in Table 1. The quarterly adjustment factors are therefore applied to these approved Base Tariffs to determine the applicable end-user retail tariffs for each of the quarters.

**Table 1: Base Electricity End-User Tariffs for 2015**

	Retail End-User Electricity Tariffs (USh/kWh)					
	Domestic	Commercial	Medium Industrial	Large Industrial	Street-lights	Weighted average
<b>2015 Base Tariff</b>	531.5	484.6	461.6	315.6	502.5	419.2

During the determination of the Base Tariffs, the Authority approved the Base Macroeconomic Parameters for 2015, which are presented in the second column of Table 2.

**Table 2: Macroeconomic Parameters Used in Determination of 2015 Base Tariffs and the Adjustment Factors for Q4 2015.**

Macroeconomic Parameters	Q1 2015	Q2 2015	Q3 2015	Q4 2015	%age Change Q1 to Q4 2015	%age Change Q1 to Q3 2015	%age Change Q1 to Q2 2015
	Base Parameters						
Exchange rate US Dollar (US\$ /US Dollar)	2,779.9	2,894.2	3,054.3	3,658.4	31.6%	9.87%	4.11%
Exchange rate EURO (US\$/Euro)	3,469.7	3,245.5	3,354.6	4,103.3	18.3%	-3.32%	-6.46%
Core Consumer Price Index (CPI)	212.9	214.9	218.8	223.0	4.7%	2.76%	0.94%
US Producer Price Index (US PPI)	189.8	191.1	191.8	192.4	1.4%	1.05%	0.68%
International Prices of Fuel (US\$ per barrel)	80.0	55.0	55.0	45.7	-42.9%	-31.25%	-31.25%

**Source:** Bank of Uganda for Exchange Rate, Uganda Bureau of Statistics for CPI, US Bureau of Labour Statistics for US PPI, and Organization of Petroleum Exporting Countries.

**Note:** The exchange rate is the average buying and selling rate on the last day of the second last month to the new quarter. That is November 2014 for Q1 2015, February 2015 for Q2 2015, May 2015 for Q3 2015 and August 2015 for Q4 2015.

The base macroeconomic factors stated in Table 2, which were the basis for the 2015 Base Tariffs are for the month of November 2014 in accordance with the respective licenses issued to the operators. As of August 2015, these parameters had changed as shown in column 5 of Table 2. The detailed analysis of each of the macroeconomic factors is contained in the respective sections.

### **3. DETERMINATION OF THE ADJUSTMENT FACTORS FOR Q4 2015**

#### **3.1 Foreign Exchange Rate Adjustment Factor (FERAF)**

The movement in the exchange rate of the Uganda Shilling (USh) against major currencies directly affects the costs for companies involved in the Electricity Supply Industry because a significant portion of costs for these companies are incurred in foreign currency yet the retail tariff is charged and revenue collected in Uganda Shillings. The fluctuation of the Uganda Shilling against the United States Dollar has been the single major factor affecting the financial sustainability of the Electricity Supply Industry over the last one year.

In determining the Base Tariffs for 2015, the Authority approved the foreign currency content of the Operation & Maintenance Costs of 39.5% for Eskom Uganda Limited, 25.0% for Uganda Electricity Transmission Company Ltd (UETCL), and 33.0% for Umeme Limited. UETCL also incurs over 98% of the power purchase costs in foreign currency. In addition, the investment costs for Umeme Limited including the capital recovery and return on Investment are in United States Dollars and the depreciation of the Uganda Shilling against the United States Dollar increases the shilling equivalent of the investment costs.

In the period under review, the Shilling continued the depreciation trend registered in quarter two 2015. The Shilling depreciated against the United States Dollar from the Base Exchange rate of USh 2,779.9 to USh 3,658.4<sup>1</sup> as at end of August 2015. This represents a depreciation of 31.6% in just nine months. The trend of the exchange rate of the Shilling against the US Dollar is shown in Table 3.

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**Table 3: Movement in USh/USD Exchange Rate**

	USh/USD	Nominal Depreciation (USh)	Percentage Depreciation
29 <sup>th</sup> August 2014	2,617.0		
28 <sup>th</sup> November 2014	2,779.9	163.0	6.2%
27 <sup>th</sup> February 2015	2,894.2	114.2	4.1%
30 <sup>th</sup> June 2015	3,301.8	407.6	14.1%
30 <sup>th</sup> August 2015	3,658.4	356.6	10.8%

**Source: Bank of Uganda**

The depreciation of the Uganda shilling is largely attributed two key factors. That is:

- a) Unfavorable Balance of Trade. The major sources of foreign exchange for Uganda - exports, workers' remittances and foreign direct investment are growing at a slow rate because of the stagnation in most industrialized economies of the world. For example, the EURO has come under intense depreciation pressures against the US Dollar driven by the weak economic growth prospects and institutional challenges in the EURO area. The weakening of the EURO, which is a major trading partner for Uganda, has had intense depreciation pressures on the Uganda shilling and other currencies. In addition, the commodity market prices have been unstable which has affected the exports.

In contrast, Uganda's demand for imports has not significantly changed in the same period creating a weaker Balance of Trade position.

- b) Investment flows to less risky assets. Over the last months, the world economy and financial markets have suffered a period of tremendous turbulence with large falls on stock markets. In periods of global market volatility, international investors tend to run away from assets which they perceive as being risky and instead invest in very safe assets. As a result, countries such as Uganda, which attract modest amounts of

short-term portfolio capital from abroad, have registered capital outflows which have put further pressure on the Shilling.

The depreciation of the Uganda shilling therefore has a major impact on Electricity Supply Industry costs and consequently the end-user tariffs. Our review indicates that the depreciation of the Shilling has increased the Electricity Supply Industry annualized revenue requirement thus increasing the end-user tariffs by a weighted average of US\$ 115.6/kWh as shown in Table 4.

**Table 4: Foreign Exchange Rate Adjustment Factor (FERAF)**

	Retail End-User Electricity Tariffs (US\$/kWh)					
	Domestic	Commercial	Medium Industrial	Large Industrial	Street-lights	Weighted Adjustment Factor
<b>FERAF</b>	156.9	134.6	126.5	85.4	141.4	115.6

### **3.2 Inflation Rate Adjustment Factor (IRAF)**

The inflation adjustment is applied only to the local currency component of the operation and maintenance costs for Eskom Uganda, Uganda Electricity Transmission Company Ltd (UETCL), and Umeme Limited. This is based on the local currency content approved by the Authority at the time of determination of 2015 Base Tariffs (i.e. 60.5% for Eskom, 75.0% for UETCL and 67.0% for Umeme Limited).

The IRAF is based on the composite Consumer Price Index (CPI) for the second last month preceding the quarter to which the tariff adjustment relates as published by the Uganda Bureau of Statistics. For Q4 2015, the applicable CPI is 223.0 (August 2015) representing an increase of 4.7% compared to the CPI of November 2014, of 212.9.

According to Bank of Uganda, the outlook of inflation generally has a number of risks including the future path of the exchange rate, which is influenced by

external factors. The movement in inflation will thus depend on the extent to which the depreciation of the Shilling filters into the economy.

The US Producer Price Index ( US PPI) is used to adjust the operation and maintenance costs of utilities that are incurred in United States Dollars to cater for changes in prices of imported supplies. In the period under review, the US PPI increased by 1.37% from 189.8% in November 2014, to 192.4% in August 2015. According to the US Bureau of Labour Statistics, the slight increase in the US PPI is attributed to the increase in prices of unprocessed energy materials.

The impact of the movement in inflation on the electricity retail tariffs is US\$ 2.4/kWh on a weighted average basis across consumer categories as indicated in Table 5.

**Table 5: Inflation Rate Adjustment Factor (IRAF)**

	<b>Retail End-User Electricity Tariffs (US\$/kWh)</b>					
	<b>Domestic</b>	<b>Commercial</b>	<b>Medium Industrial</b>	<b>Large Industrial</b>	<b>Street-lights</b>	<b>Weighted Adjustment Factor</b>
<b>IRAF</b>	4.7	6.1	1.6	0.6	7.3	2.4

### **3.3 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 assumption used in the determination of the Base Tariffs.

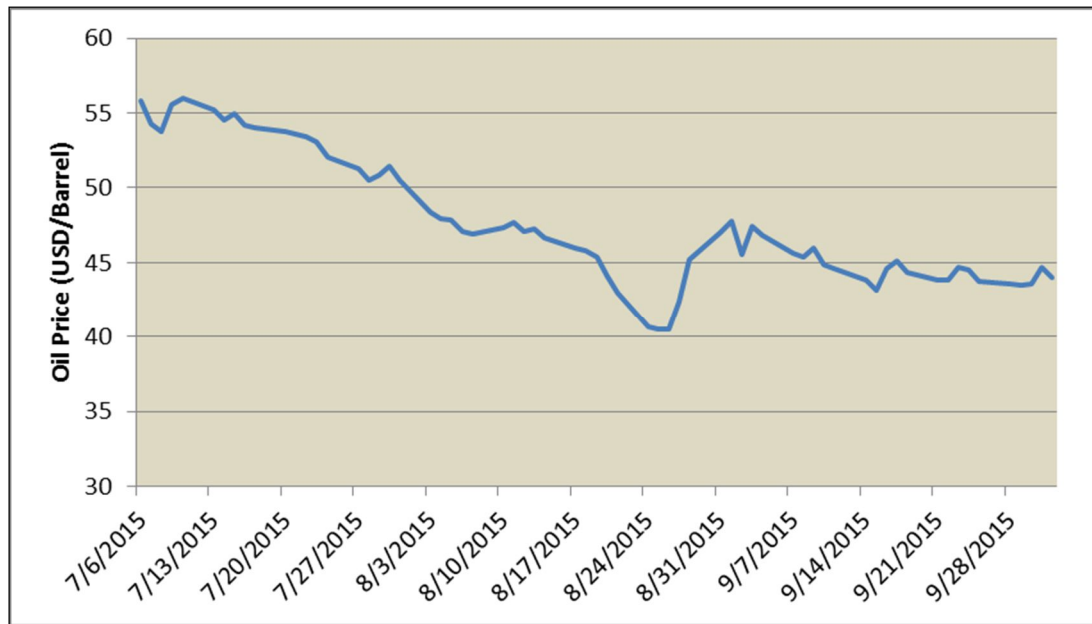
Movement in fuel prices at the International market affects the cost of generation for thermal generation plants - Jacobsen Uganda Power Plant Company Limited and Electro-Maxx Uganda Limited. This in turn affects the power purchase costs by UETCL.

The changes in the generation mix relative to the assumptions used in determination of the Base tariffs affects UETCL's revenue requirement.



In the Base Tariffs of 2015, the cost of crude oil assumed in the tariff determination was US\$ 80 per barrel. According to Organization of Petroleum Exporting Countries, as at end of August 2015, the international price of crude oil was US\$ 45.7 per barrel as shown in Figure 1. Oil prices have been on a down ward trend since June 2015.

**Figure 1: Trend of oil prices July to September 2015**



**Source: OPEC**

The drop in oil prices has been attributed to excess supply in the market by Russia despite the reduction in production by the US based Shale oil producers. The glut in the market has been worsened by the slowdown of China's economy and commodity market. No significant recovery in the world oil prices is expected in the near future.

In respect of the above realities, for Q4 2015 tariff adjustment, the cost of US\$ 45.7 per barrel of crude oil has been applied. Specifically, for the Heavy Fuel Oil (HFO) that is used for electricity generation in Uganda, the price of US\$ 340.05 per metric ton is used in Q4 2015 tariff adjustment.

The low International price of fuel for Q4 2015 compared to Q1 2015 has resulted in a decrease in the UETCL power purchase costs from thermal plants in Q4 2015. This low International fuel prices are however undermined (offset)

by the depreciation of the Ugandan Shilling against the United States Dollar as International Fuel Prices are denominated in United States Dollars. This leads to a weighted average fuel adjustment factor of minus US\$ 1.5/kWh for the fourth quarter of 2015 as shown in Table 6.

**Table 6: Fuel Price Adjustment Factor (FPAF)**

	Retail End-User Electricity Tariffs (US\$/kWh)					
	Domestic	Commercial	Medium Industrial	Large Industrial	Street-lights	Weighted Adjustment Factor
<b>(FPAF)</b>	(1.7)	(1.4)	(1.5)	(1.4)	(1.4)	(1.5)

### **3.4 Power Supply Mix**

The fuel adjustment factor includes the adjustment for changes in the dispatch of the generation plants or the power supply mix relative to the assumptions made in the determination of the Base Tariffs. The changes in the power supply mix affect the quantum of energy dispatched from generation plants as well as the power purchase costs. The change in the dispatch for each of the generation plants from the base assumptions is shown in Table 7. Details on the generation assumptions for each plant are provided in Annex 1.

**Table 7: Energy Purchases by UETCL**

Generation Plant	Energy (GWh)	Cost (US\$ bn)	Energy (GWh)	Cost (US\$ bn)	Energy (GWh)	Cost (US\$ bn)	Energy (GWh)	Cost (US\$ bn)
	2015 Base Tariffs Assumptions		Outturn Q1 2015		Outturn Q2 2015		Outturn Q3 2015	
Eskom	338.7	10.7	311	11.4	316.58	13.31	334.89	16.51
Bujagali	339.9	110.1	357.5	121.3	359.69	133.28	379.43	144.91
KCCL	15.8	2.4	9.7	1.3	18.08	3.27	15.06	2.96
KML	5.5	0.5	6.1	0.6	6.11	0.52	6.27	0.55
Bugoye-Tronder	20.2	4.8	10.5	2.6	23.77	6.59	17.03	5.35
Mpanga	16.3	4.1	4.9	1.3	27.78	8.18	13.52	4.45
Electro-Maxx	15.4	10	15.1	8.4	15.21	9.63	15.22	9.53
Jacobsen Plant	15.5	9.7	15.2	11.7	-	-	-	-
Ishasha Ecopower	7.3	1.5	5.2	1.2	6.83	1.75	5.58	1.48
Kakira SW	50.9	13.2	66	19.3	24.91	6.39	49.48	17.41
Kinyara	2.9	0.6	2.9	0.7	2.94	1.16	1.79	0.85
Sugar & Allied	4.4	1	-	-	-	-	-	-
Buseruka Hydromax	8.8	2.3	6.2	1.8	7.47	2.92	9.09	3.16
Import from KPLC –Kenya	12.1	7.7	11.6	7.8	11.48	8.50	11.41	10.16
Import from Rwanda	0.9	0.2	0.9	0.2	0.99	0.21	0.91	0.27
<b>Total</b>	<b>854.60</b>	<b>178.80</b>	<b>822.80</b>	<b>189.60</b>	<b>821.84</b>	<b>195.71</b>	<b>859.68</b>	<b>217.60</b>

The variance between the forecast in the generation mix and the outturn for Q3 2015 is attributed mainly to the changes in hydrological conditions, which affected generation from hydro power plants. The detailed discussion is presented in Annex 1 to this report.

The impact of the changes in the power supply mix is a downward adjustment of the electricity end-user tariffs by a weighted average of USh 20.6/KWh relative to the Base Tariffs as shown in Table 8.

**Table 8: Generation Mix / Dispatch Adjustment Factor**

	Retail End-User Electricity Tariffs (USh/kWh)					Weighted Adjustment Factor
	Domestic	Commercial	Medium Industrial	Large Industrial	Street-lights	
<b>Power supply Mix</b>	(24.0)	(19.3)	(20.9)	(19.2)	(19.7)	(20.6)

### 3.5 Other Adjustments

#### 3.5.1 Umeme Limited Investments for 2012 and 2013

On 8<sup>th</sup> January, the Authority approved provisional investments of US\$ 25,168,546 for 2012 and US\$ 45,546,606 for 2013 for Umeme Limited to earn a return pending reconciliation. The Authority at its 247<sup>th</sup> meeting held on 27<sup>th</sup> May 2015 considered and approved a total of US\$ 22,439,092.11 and US\$ 37,146,880.87 worth of investments that qualify for a return for 2012 and 2013 respectively. The revised amounts have been considered in the determination of Q4 2015 tariff adjustment.

#### 3.5.2 PSP Reconciliation Q4 2015

PSP reconciliation ( $R_q$ ) is defined as;- *the cumulative amount required to reconcile power supply costs and related revenues equal to;- (a) power supply costs incurred by Licensee from UETCL or any other suppliers and self-generation (including related wheeling charges) less (b) revenues billed to retail customers by applying the power supply price to retail Kilowatt-hour sales, as such amounts are recorded in the Licensee's accounts over the period commencing on the Transfer date and ending on the last day of the month for which actual data is available prior to any quarter "q".*

On 1<sup>st</sup> December 2014, Umeme Limited submitted the computation of the Power Supply Price (PSP) reconciliation claiming USD 27.7 million after deducting USD 4 Million that was previously allowed in the 2013 tariff year. In accordance with Umeme Limited's Power Supply License No. 048, the Power Supply Price (PSP) of any quarter should include the amount per kilowatt-hour required to reconcile cumulative amounts of actual power supply costs and related billed revenues.

On 15<sup>th</sup> June 2015, the Authority asked Umeme Limited to submit additional information to justify the above claim and on 16<sup>th</sup> June 2015, Umeme submitted a revised PSP reconciliation amounting to USD 13 Million for consideration in the determination of the tariffs for Q3 2015 tariff. In its submission, Umeme Limited did not provide adequate justification of the revised claim and therefore on June 19<sup>th</sup> 2015, the Authority requested Umeme limited to provide the additional information regarding the revised PSP amount.

On 14<sup>th</sup> September 2015, Umeme Limited submitted the requested information and thereafter ERA Management and Umeme Limited held meetings in respect of the matter. The submission is still under review by both parties and as a result, the PSP reconciliation was not considered in the Q4 2015 tariff derivation.

### **3.5.3 Uganda Electricity Generation Company Limited**

In the 2015 Base Tariffs, US\$ 1,676,700 was provided in the budget of Uganda Electricity Generation Company Limited in respect of license fees for Karuma, Isimba, Muzizi and Nyagak III Hydropower Projects. There is no indication that the company is going to pay license fees for the projects. As such an adjustment in the provisioned license fees has only been done for the computation of Q4 2015 tariffs through the adjustment of the capacity price for ESKOM Uganda Limited.

## **3.6 Overall Tariff Adjustment Factor**

In light of the above report therefore, the applicable tariff adjustment for Q4 2015 is the sum of the Exchange Rate Adjustment Factor, and Inflation Adjustment Factor and Fuel Price Adjustment Factor. The adjustment factors for Q4 2015 are as shown in Table 9.

Table 9: Total Tariff Adjustment Factors Q4 2015 (USh/KWh)

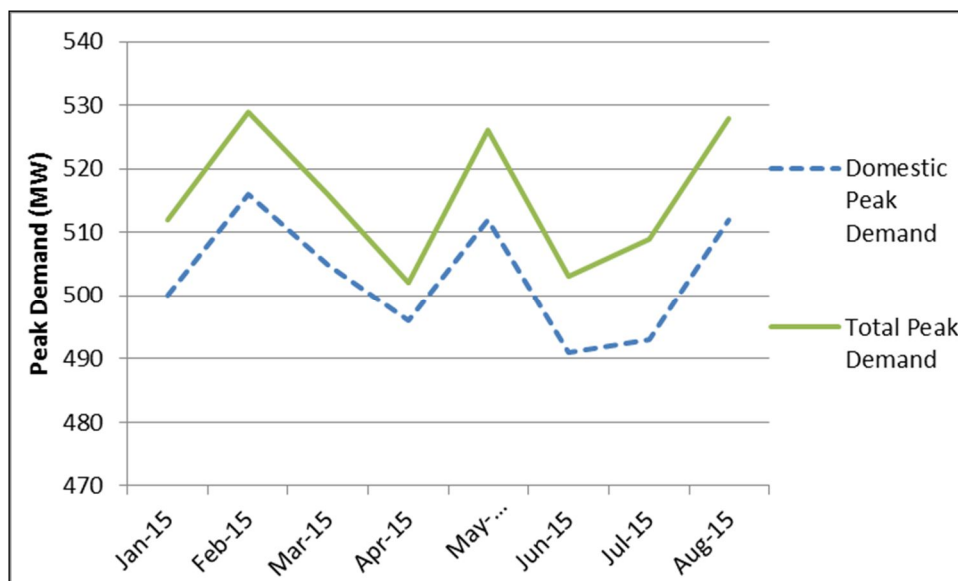
	Domestic	Commercial	Medium Industrial	Large Industrial	Street-lights	Weighted average
Inflation Rate Adjustment Factor (IRAF)	4.7	6.1	1.6	0.6	7.3	2.4
Exchange Rate Adjustment Factor (FERFAF)	156.9	134.6	126.5	85.4	141.4	115.6
Fuel Price Adjustment Factor (FPAF)	(25.7)	(20.7)	(22.4)	(20.5)	(21.1)	(22.1)
Fuel Price Adjustment Factor	(1.7)	(1.4)	(1.5)	(1.4)	(1.4)	(1.5)
Energy Mix Adjustment factor	(24.0)	(19.3)	(20.9)	(19.2)	(19.7)	(20.6)
<b>Total Tariff Adjustment</b>	135.9	120.1	105.7	65.5	127.6	95.9

### 3.7 Demand Assumptions

In 2015, the maximum demand has been relatively stable with a marginal increase from 526MW in Q1 2015 to 528MW in Q3 as shown in Figure 2. A growth rate of 2.5% per quarter was earlier projected at the derivation of the 2015 base tariffs. However, this lower growth can be attributed to:

- a) The adjustment of the Time of Use weighting factor from 120% to 130% at the time of setting 2015 Base Tariffs;
- b) Demand side initiatives such as the giving out of free LED bulbs by Umeme limited on behalf of Government and ERA; and
- c) Lower than anticipated industrial / manufacturing activity in the same period.

**Figure 2: Maximum Demand for 2015**



Source: UETCL System Report

## **4 REVENUE REQUIREMENT, TARIFF AND SUBSIDY IMPLICATIONS**

### **4.1 Revenue Requirement Implications**

During the quarter under review, the annualized revenue requirement of Eskom Uganda Limited increased from US\$ 50,347 million in Q3 2015 to US\$ 50,924 million in Q4 2015. The increase is largely driven by the depreciation of the shilling which has led to increase in the shilling value of investments as well as operation and maintenance costs.

The annualized power acquisition costs (excluding the capacity payments to all thermal generators) increased from US\$ 748,410 million in Q3 2015 to US\$ 838,744 million in Q4 2015. The increase in the power purchase costs in Q4 2015 is mainly on account of the depreciation of the Uganda shilling given that most of the power purchase contracts are in US Dollars.

The annualized revenue requirement for Umeme Limited increased from US\$ 379,182 million in Q3 2015 to US\$ 440,026 million in Q4 of 2015 mainly on account of adjustment for exchange rate and inflation.

**Table 11: 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
Q3 2015	50,347	9,152	27,939	13,256	101,152	9,666	63,013	28,472	748,410	53,317	379,182	243,576	129,658	5,949
Q4 2015	50,924	10,962	30,218	9,744	112,368	10,710	67,084	34,573	838,744	58,417	440,026	291,752	141,149	7,125

**4.1.1 Capacity Price for Eskom (U) Limited**

The Capacity Price for Eskom (U) Limited has increased from USh 43,436 per MW per hour in Q3 to USh 43,933 per MW per hour in Q4 2015. The increase is attributed to increased costs on account of depreciation of the Uganda Shilling against the United States Dollar.

**Table 12: ESKOM Capacity Price, Q4 2015**

	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										
Q3 2015	43,436	50,347	9,152	883	1,479	12,328	634	27,939	16,225	9,212	13,256
Q4 2015	43,933	50,924	10,962	883	1,479	12,328	634	30,218	16,538	11,178	9,744

**4.1.2 Bulk Supply Tariff (BST)**

The annualized bulk supply costs increased from USh 738,107 million in Q3 2015 to USh 834,855 million in Q4 2015. As a result, the Bulk Supply Tariffs (BST) increased from USh 276.9/kWh, USh 230.8/kWh, and USh 171.2/kWh at Peak, Shoulder and Off-peak respectively, to USh 319.8/kWh, USh 266.5/kWh, and USh 197.7/kWh at Peak, Shoulder and Off-peak for the respective Time of Use periods in Q4 2015, as shown in Table 13.



**Table 13: Bulk Supply Costs and Resultant Bulk Supply Tariffs, Q4 2015**

	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
Q2 2015	276.9	230.8	171.2	3,010	928,980	738,107	94,125	9,666	48,841	28,472
Q4 2015	319.8	266.5	197.7	3,162	928,980	834,855	94,125	10,710	48,841	34,573

## 5 RETAIL TARIFFS

In accordance with the Amendment No. 2 of License No. 048 for Umeme Limited for Supply of electricity, the retail tariff charges for electric service shall be subject to; and liable for adjustment for fuel cost charges, adjustment for foreign exchange rate, and 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 tariff across the customer categories for Q4 2015 is as shown in the Table 14.

**Table 14: Q4 2015 Adjustment Factors and resultant cost reflective retail tariffs**

	End-User Retail Electricity Tariffs (Shs/kWh)					
	Domestic	Commercial	Medium Industrial	Large Industrial	Street-lights	Weighted average
2015 Base Tariff	531.5	484.6	461.6	315.6	502.5	419.2
Q2 2015 Approved Tariff	544.9	496.3	471.6	320.5	514.9	427.8
Q3 2015 Approved Tariff	558.4	508.6	483.2	328.7	527.6	432.2
	Tariff Adjustment Factors (Shs/kWh) for Q4 2015					
Inflation Rate Adjustment Factor (IRAF)	4.7	6.1	1.6	0.6	7.3	2.4
Exchange Rate Adjustment Factor (FERFAF)	156.9	134.6	126.5	85.4	141.4	115.6
Fuel Price Adjustment Factor (FPAF)	(25.7)	(20.7)	(22.4)	(20.5)	(21.1)	(22.1)
Fuel Price Adjustment Factor	(1.7)	(1.4)	(1.5)	(1.4)	(1.4)	(1.5)
Energy Mix Adjustment factor	(24.0)	(19.3)	(20.9)	(19.2)	(19.7)	(20.6)
<b>Total Tariff Adjustment</b>	<b>135.9</b>	<b>120.1</b>	<b>105.7</b>	<b>65.5</b>	<b>127.6</b>	<b>95.9</b>
<b>Approved Q4 2015 Tariff</b>	<b>667.4</b>	<b>604.7</b>	<b>567.3</b>	<b>381.1</b>	<b>630.1</b>	<b>507.0</b>
Percentage change relative to Q3 2015	19.5%	18.9%	17.4%	15.9%	19.4%	17.4%

As shown in Table 14 above, after considering the adjustment factors, the weighted average end-user tariffs for Q4 of 2015 will be USh 507.0/KWh compared to USh 432.2/KWh in Q3 2015. This represents an average increase of 17.4% relative to Q3 levels.

**ENERGY DISPATCH AND GENERATION MIX**

**a) Energy purchase**

A review of Q4 2015 energy purchase outturn indicates that Uganda Electricity Transmission Company Limited purchased 859.68 GWh compared to 821.84 GWh for Q2 2015 and 823.55 for Q1 2015. This represents an increase of 4.6% between Q2 2015 and Q3 2015. While deriving the 2015 base tariff, it was projected that the Q4 energy purchases would be 854.4GWh. The higher than projected energy purchases by UETCL is mainly attributed to increased consumption.

**b) Mini Hydro Generation**

The mini hydro power plants (Mpanga, Bugoye, KCCL, KML, Eco power, Hydromax) generated and sold a total of 66.56 GWh in Q3 2015 compared to 90.04GWh in Q2 2015. Generation from mini hydro plants was mainly affected by the unfavorable hydrology for the month of July and August 2015. Generation from Buseruka Hydro power plant however increased from 7.47GWh in Q2 2015 to 9.09GWh in Q3 2015. This improvement in generation from Buseruka hydro power plant is mainly on account of improved evacuation of the plant arising from Umeme limited refurbishing of Hoima-Busunju 33kV line.

**c) Large Hydro Generation**

Effective 19<sup>th</sup> May 2015, UETCL through Ministry of Energy and Mineral Development was granted permission for additional water discharge for Nalubaale/Kiira Power Plant in order to increase generation when Kakira Sugar was shut down for plant maintenance. Eskom increased its water release from 800cumecs to 950cumecs. This variation in the water release expired on 31<sup>st</sup> July 2015. The variation in water release to 950 Cumecs was reinstated in September 2015.

The deficit in generation created by the unfavorable hydrology for the mini hydro plants was partly bridged by generation from Eskom Uganda Limited and Bujagali Energy Limited. The generation from Eskom Uganda Limited increased from 316.58 GWh in Q2 2015 to 334.89 GWh in Q3 2015 while generation from Bujagali Energy Limited increased from 359.69 GWh in Q2 2015 to 379.43 GWh in Q3 2015.

In Q4 2015, Bujagali Energy Limited will be undertaking scheduled maintenance and one turbine is to be switched off for 10 to 12 days per month. This is expected to affect generation from the plant in Q4 2015.

#### **d) Co-generation**

Generation from Kakira Sugar Limited and Kinyara Sugar Limited co-generation power plants increased from 27.85 GWh in Q2 2015 to 51.2 GWh in Q3 2015. The generation in Q2 2015 was low because, Kakira Co-Generation Plant was shutdown for scheduled annual maintenance for 45 days. In Q3 2015, the maintenance and shut down was completed leading to increased generation.

#### **e) Thermal Generation**

The two HFO thermal plants, Jacobsen and Electro-Maxx were projected to dispatch the minimum of 15GWh each in the respective quarters of 2015. However, following the expiry of its license, there was no dispatch from Jacobsen in Q3 2015. Electro-Maxx therefore maintained the approved minimum capacity of 7 MW which translating into 15.22 GWh.

#### **f) Imported Power**

At the determination of the Base Tariffs, it was assumed that UETCL would import 12.1 GWh in per quarter of 2015. However, in Q3 2015, the actual energy imported by the transmission company was 12.3 GWh. This is generally close to the projected baseline imports largely intended for system balancing across Kenya and Uganda or tie line capacity.

**Table A1: Energy Purchases by UETCL**

Generation Plant	Energy (GWh)	Cost (US\$ bn)	Energy (GWh)	Cost (US\$ bn)	Energy (GWh)	Cost (US\$ bn)	Energy (GWh)	Cost (US\$ bn)
	2015 Base Tariffs Assumptions		Outturn Q1 2015		Outturn Q2 2015		Outturn Q3 2015	
Eskom	338.7	10.7	311	11.4	316.58	13.31	334.89	16.51
Bujagali	339.9	110.1	357.5	121.3	359.69	133.28	379.43	144.91
KCCL	15.8	2.4	9.7	1.3	18.08	3.27	15.06	2.96
KML	5.5	0.5	6.1	0.6	6.11	0.52	6.27	0.55
Bugoye-Tronder	20.2	4.8	10.5	2.6	23.77	6.59	17.03	5.35
Mpanga	16.3	4.1	4.9	1.3	27.78	8.18	13.52	4.45
Electro-Maxx	15.4	10	15.1	8.4	15.21	9.63	15.22	9.53
Jacobsen Plant	15.5	9.7	15.2	11.7	-	-	-	-
Ishasha Ecopower	7.3	1.5	5.2	1.2	6.83	1.75	5.58	1.48
Kakira SW	50.9	13.2	66	19.3	24.91	6.39	49.48	17.41
Kinyara	2.9	0.6	2.9	0.7	2.94	1.16	1.79	0.85
Sugar & Allied	4.4	1	-	-	-	-	-	-
Buseruka Hydromax	8.8	2.3	6.2	1.8	7.47	2.92	9.09	3.16
Import KPLC – Kenya	12.1	7.7	11.6	7.8	11.48	8.50	11.41	10.16
Import Rwanda	0.9	0.2	0.9	0.2	0.99	0.21	0.91	0.27
<b>Total</b>	<b>854.60</b>	<b>178.80</b>	<b>822.80</b>	<b>189.60</b>	<b>821.84</b>	<b>195.71</b>	<b>859.68</b>	<b>217.60</b>