

# Energy Statistics

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# Electricity Tariffs in ECOWAS Region



AFRICAN DEVELOPMENT BANK GROUP

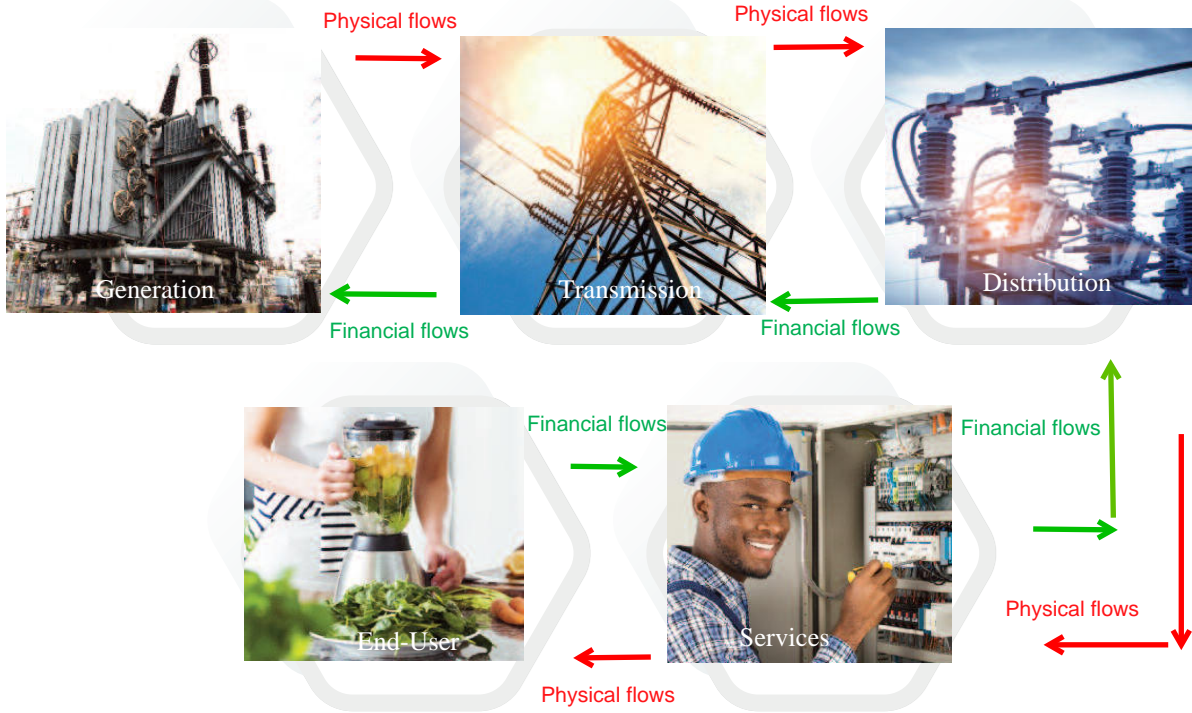
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# 1 Introduction

The End-User Tariff (EUT) is the final price of electricity paid by the final consumer. It is an aggregation of the various cost components across the electricity supply value chain; Generation, Transmission, Distribution; whereby supply includes Levies and Taxes.

$$EUT = BGC + TSC + DSC + SC + Levies + Taxes$$

BGC: Bulk Generation Charge;  
 TSC: Transmission Service Charge;  
 DSC: Distribution Service Charge; and  
 SC: Service or Supply Charge.

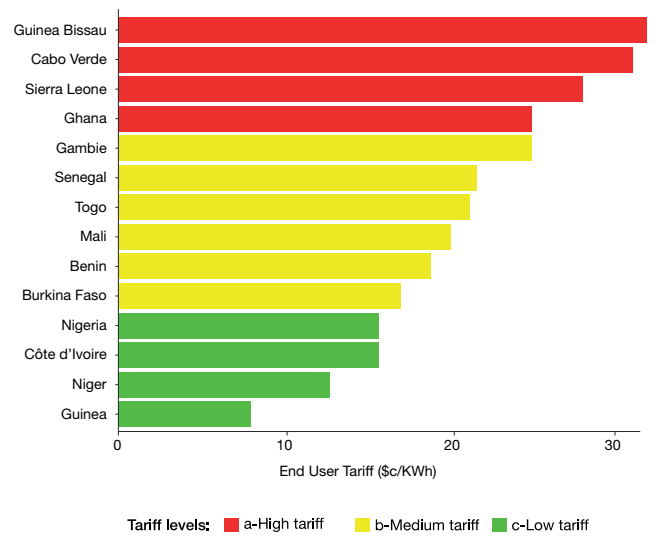


## 2 Tariff Comparison in the ECOWAS Region

### 2.1 Average EUT

An analysis of tax inclusive EUT<sup>1</sup> of Fourteen (14)<sup>2</sup> utilities in as many ECOWAS countries shows significant tariff variation in the ECOWAS region across countries and consumer categories. The average EUT in the ECOWAS region for all customer categories, ranged from a minimum of **US\$ 7.70/kWh** (for customers of EDG of Guinea<sup>3</sup>) to a maximum of **US\$ 31.62/kWh** (for customers of EAGB of Guinea Bissau<sup>4</sup>), averaging **US\$ 20.74/kWh** for the ECOWAS region. Both Guinea and Guinea Bissau have not reviewed their tariffs for over 10 years. Of the countries with more recent (less than 2 years) reviews of tariff with established regulatory regimes, ELECTRA S.A.R.L of Cape Verde had the highest tariff in the region (**US\$ 30.82/kWh**), with ECG of Ghana, CIE of Cote d'Ivoire and Abuja Disco of Nigeria respectively having **US**

**Figure 2.1** Average Lifeline Tariff in ECOWAS Countries



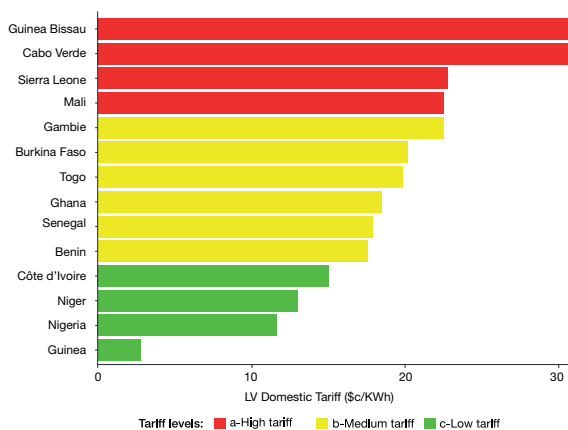
Source: Authors based on ERERA Tariff Data, 2018

<sup>1</sup> Tax inclusive 2016 Tariffs  
<sup>2</sup> Excluding Liberia  
<sup>3</sup> The EUT of Guinea had not been reviewed for over 10 years with no regulator existing at the time of compiling this data  
<sup>4</sup> Has no functional Regulator in place.

## 2.3 Domestic LV Consumers

Above the Lifeline consumer class are Domestic LV consumer class comprising of all other individual consumers who use significant quantity of electricity for all purposes other than commercial. Guinea Bissau and Cape Verde have the highest tariff in this consumer category with average tariffs of US\$**36.08/kWh** and US\$**33.60/kWh** respectively. Guinea has the lowest of US\$**2.29/kWh** and the regional average domestic LV consumer tariff is US\$**20.23/kWh**.

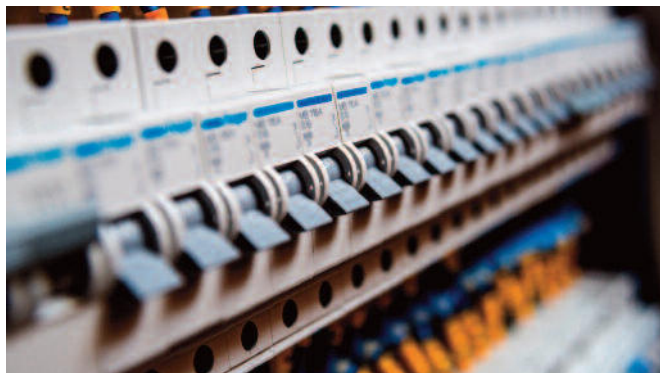
**Figure 2.3** Average LV Domestic tariff in ECOWAS Countries



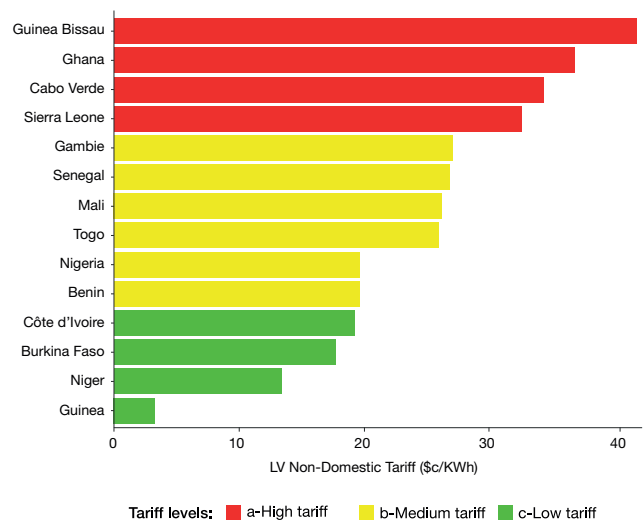
Source: Authors based on ERERA Tariff Data, 2018

## 2.4 Non-Domestic LV Consumers

The non-domestic LV consumers are the commercial entities mostly the small and medium scale enterprises. Guinea Bissau and Ghana have the highest tariff for this category of consumers in the region with average tariffs of US\$**39.05/kWh** and US\$**34.11/kWh** respectively. Guinea and Niger have the lowest of US\$**3.24/kWh** and US\$**12.65/kWh** respectively and the regional average Non-Domestic LV consumer tariff is US\$**23.00/kWh**.



**Figure 2.4** Average LV Non-Domestic tariff in ECOWAS Countries



Source: Authors based on ERERA Tariff Data, 2018

## 3. Are Electricity tariffs affordable in the ECOWAS Region?

Affordability of tariff cannot be determined on the face of absolute values of the tariffs. It has to be situated within the context of an economy. A household's expenditure on electricity against its income is an indicator of the affordability of electricity. The general rule of thumb is that, a household is considered fuel<sup>5</sup> (energy) poor if more than 10% of the household income is spent on fuel to maintain adequate level of comfort. We used the Gross National Income per capita and the average number of persons per household of the various countries to analyze affordability of electricity.

Domestic LV consumers (households) in the ECOWAS region on the average spends about **17%**<sup>6</sup> of their income



<sup>5</sup> Includes electricity, gas, and other forms of fuels used to keep a home comfortable

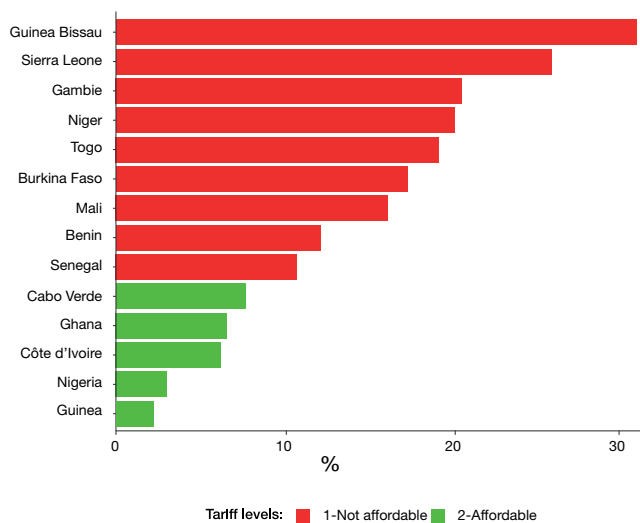
<sup>6</sup> Based on 2016 GNI per Capita and EUT and assumption that, four persons live in a household



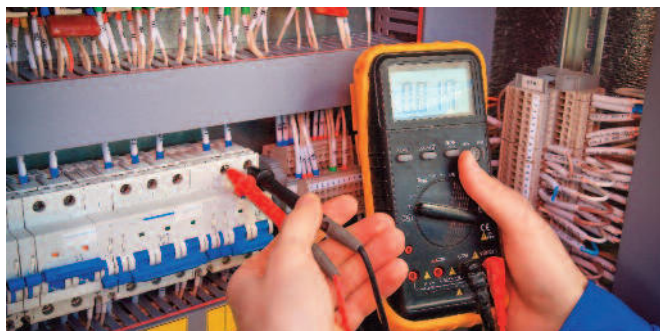
on electricity. This percentage would be higher if the analysis is extended to include expenditure on other supplementary fuel sources such as gas (LPG), charcoal and wood fuels. Electricity is most affordable to domestic consumers Guinea (spend 3% of their income on tariff) and most expensive to domestic consumers of Guinea Bissau (spend 37% of their income on tariff). Domestic LV consumers in Nigeria, Cote d'Ivoire and Ghana respectively spend 4%, 7%, and 8% of their income on electricity. Even though Cape Verde has one of the highest tariff for domestic LV consumers in the region, the tariff is affordable within the context of the Income Per Capita of the country.

Electricity is a bit more affordable to Lifeline consumers in the region as they spend on the average about 1.74% of their Income<sup>7</sup> on electricity. Lifeline Tariff is the least affordable to consumers of NAWEC of The Gambia and EDSA of Sierra Leone who have to spend up to 3.5% and 3.2% respectively of their income on electricity tariff. Lifeline tariffs are most affordable to Lifeline consumers of EDG of Guinea, Abuja Disco of Nigeria, CIE of Cote d'Ivoire and ECG of Ghana who have to spend less than 1% of their income on electricity.

**Figure 3.1** Share of Income Spent on Domestic Low Voltage Electricity



Source: Authors based on ERETA Tariff Data, 2018



## 4. Do tariffs in the ECOWAS Region support industrialization?

Most Industrial consumers are in the Medium Voltage (MV) consumer class while some of the Small and Medium Scale Enterprises are in the Non-Domestic LV consumer class. Without the existence of any subsidization or cross-subsidization, tariffs for all industrial customers should be either lower than or the same as that of domestic consumer. This is because, the cost of serving non-domestic LV consumers (SMEs) is the same as that of the domestic LV consumer while it costs even less to serve MV consumers because the need for further voltage transformation is eliminated.

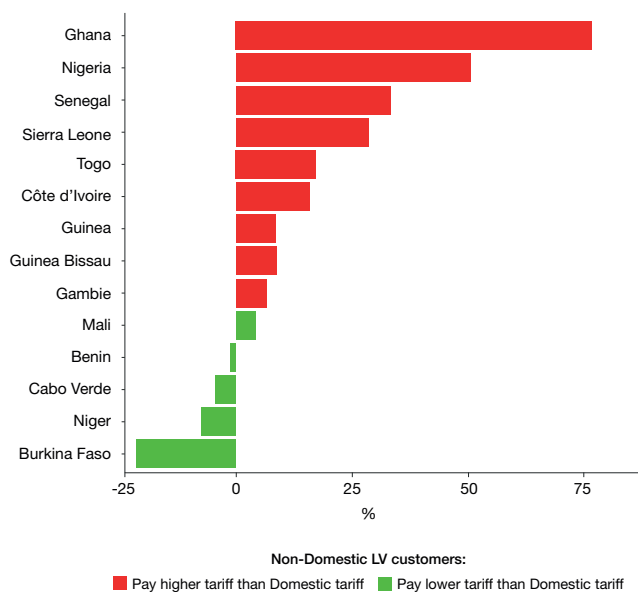
### 4.1 Non-Domestic LV Consumers in ECOWAS Region

In ten (10) ECOWAS countries representing 71% of the countries under consideration in the region, Non-Domestic LV consumers (who use electricity for commercial activities) pay higher tariffs than the Domestic LV Consumers who use electricity for non-commercial activities. On the average, the Non-Domestic consumers in the region pay 15% higher tariff than the Domestic consumers. In Ghana, Nigeria and Cote d'Ivoire, the Non-Domestic consumer tariffs are respectively 77%, 55% and 16% higher than the Domestic LV consumer tariffs while the same consumer class in Burkina Faso on the contrary pay 22% less. This tariff difference between the two classes is an indication of subsidization or cross-subsidization mostly in favour of domestic consumers.



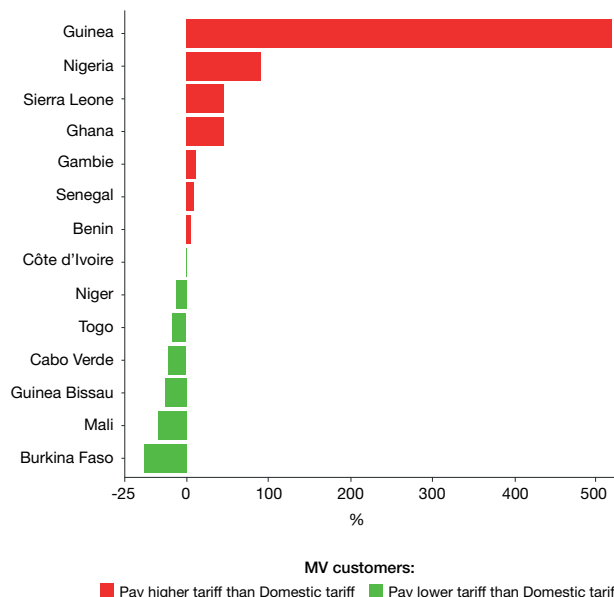
<sup>7</sup> The world Bank defines poor person as one living below USD1.90 per day

**Figure 4.1** Non-Domestic LV tariff in excess of Domestic LV tariff (Indication of subsidization or cross-subsidization between domestic and Non-domestic consumers)



Source: Authors based on ERETA Tariff Data, 2018

**Figure 4.2** MV tariff in excess of Domestic LV tariff (Indication of subsidization or cross-subsidization between domestic and MV consumers)



Source: Authors based on ERETA Tariff Data, 2018

The tariff in the ECOWAS region in this context generally does not incentivize productive use of electricity for and industrialization and commerce with the exception of a few countries like Burkina Faso.

## 4.2 MV Consumers in ECOWAS Region

The tariffs for MV consumers are lower than LV consumer tariffs in six (6) ECOWAS countries, which mirrors the relative cost of serving the two consumer groups. Significant among this group is Burkina Faso where MV tariff is **49%** lower than the tariff for LV consumers. In seven (7) ECOWAS countries however, the MV tariffs are higher. In Nigeria and Ghana respectively, MV consumer tariffs are 90% and **44%** higher than the tariff for Domestic LV consumer tariff. The MV consumer tariff and domestic LV consumer tariff in Cote d'Ivoire however remain the same. On the average, MV consumers in the region pay 40% higher tariff than the domestic LV consumers.

## 5. Conclusion

Tariffs vary across countries and consumer categories in the ECOWAS Region. Generally, from our analysis on the above information, it seems that tariffs in the ECOWAS region do not promote industrialization and commercial activities. Industrial and commercial entities pay between 40% and 15% higher tariffs than domestic consumers do, which suggests existence of subsidies or cross-subsidies. In spite of this attempt to subsidize domestic consumers, electricity is generally not affordable to the domestic LV consumers who on the average spend 17% of their income (GNI per capita) on electricity. However, tariffs in the ECOWAS region are friendly towards the poor through the lifeline tariffs with most. Lifeline consumers in most countries spend less than 1% of their income (poverty threshold) on electricity with regional average of 1.7%.

Cape Verde makes a strong case against absolute comparison of tariffs without harmonization. It has the highest higher EUT in absolute terms but affordable to consumers within the context of the income levels in the country. There is a need to understand the underlying factors for the tariff variations. A harmonized comparative tariff study in the region would allow to have more clarity on tariff setting approaches and factors.