



**STATISTICS IN ELECTRICITY SUB-SECTOR AS OF
DECEMBER OF THE YEAR 2017**

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SUMMARY

This report relates to electricity statistics for the period starting from October to December of the year 2017. The total number of on-grid subscribers increased from 683,817 customers recorded in the third quarter 2017 to 718,311 customers recorded in the fourth quarter of the year 2017 representing an increase of 5.0%. Residential customers connected to the national grid have the largest share of 85.3% followed by the non-residential customers with the share of 14.5%

The number of off-grid customers increased from 142,194 customers recorded in the third quarter 2017 to 162,154 customers in the fourth quarter of the year 2017 representing an increase of 14.0%.

In this quarter, national electricity generation increased by 1.6% from 173,810.07 MWh recorded in the third quarter 2017 to 176,526.96 MWh recorded in the fourth quarter of the year 2017.

The imported electricity decreased by 7.5% from 19,246.8 MWh for the third quarter of the year 2017 to 17,812.6 MWh for the fourth quarter of the year 2017.

Exported electricity in this quarter under review increased by 2.2% from 1,043.6 MWh recorded in the third quarter 2017 to 1,066.8 MWh recorded in the fourth quarter 2017.

1. ELECTRICTY SUBSCRIPTIONS

1.1. On-grid system subscribers

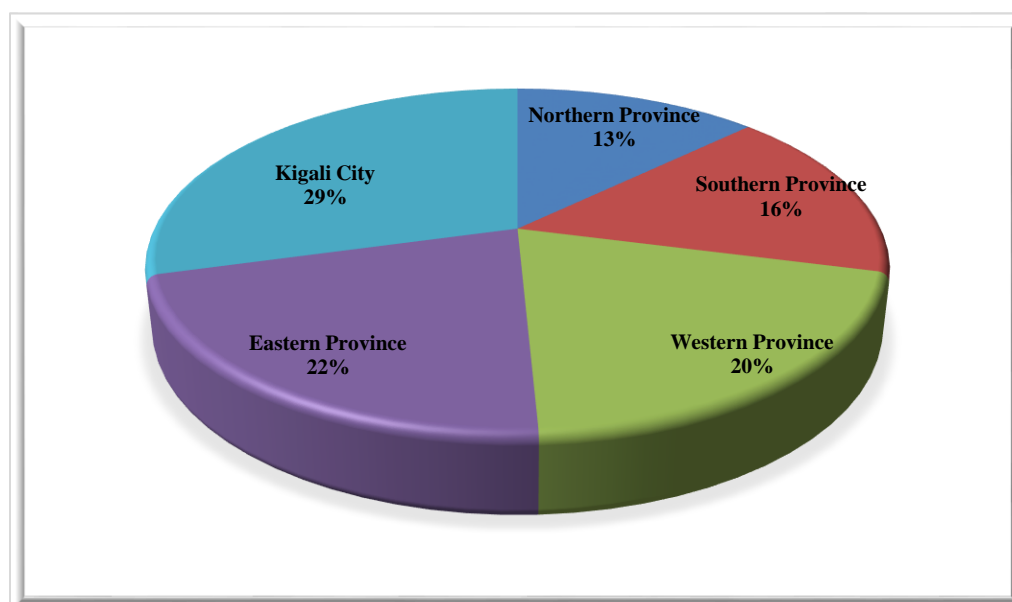
Table 1: Trend of on-grid subscribers by customer category as of the fourth quarter 2017

Customer Class	Q1 2017	Q2 2017	Q3 2017	Q4 2017
Domestic/Residential	529,970	559,419	580,705	612,405
Non-Residential	96,476	99,088	101,340	104,114
Special customers:				
Water Pumping Station	194	202	209	209
Water Treatment Plant	18	18	18	18
Telecom towers	1,090	1,117	1,140	1,157
Hotels	200	205	205	207
Industrial	191	196	200	201
Total	628,139	660,245	683,817	718,311

Source: EUCL-REG, December 2017

Electricity subscribers connected to the national grid have increased from 683,817 customers recorded in the third quarter to 718,311 customers recorded in the fourth quarter of the year 2017 representing an increase of 5.0%. The residential customers have the largest share of 85.3% followed by the non-residential customers that occupy 14.5%.

Figure 1: Distribution of on-grid customers across provinces and Kigali City as of Dec-2017



Source: EUCL-REG, December 2017

The 29% of customers connected to the grid system are located in Kigali City, 22% in Eastern province, 20% in Western province, 16% in Southern province, and 13% in Northern province.

1.2. Off-grid subscribers

The most cost effective means for increasing access to electricity is through the use of off-grid systems that have a wide range of technologies such as a basic solar lantern that can charge a phone or radio to a solar home system that can light up entire house and power some homes appliances.

Table 2: Trend of off-grid subscribers as of the fourth quarter 2017

Quarter	Customers
Q ₁ 2017	61,721
Q ₂ 2017	85,379
Q ₃ 2017	142,194
Q ₄ 2017	162,154

Source: EUCL-REG, December 2017

The number of off-grid customers increased from 142,194 customers recorded in the third quarter 2017 to 162,154 customers in the fourth quarter of the year 2017.

2. ELECTRICITY PRODUCTION

2.1. Domestic generation

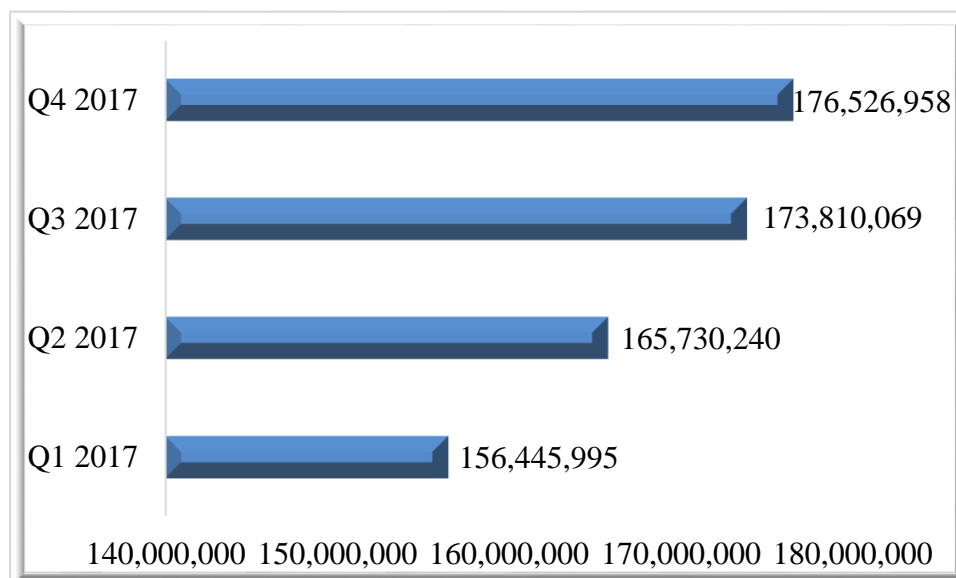
Table 3: Trend of domestic electricity generation per plant(kWh) for the last four quarters

Plant Name	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Total
Agatobwe	37,414	35,780	29,078	22,078	124,350
CIMERWA	4,357	-	-	-	4,357
Gaseke	145,875	366,527	191,506	378,205	1,082,113
Giciye 1	2,849,706	3,389,505	2,262,852	3,122,848	11,624,911
Giciye 2	2,793,765	3,259,942	2,283,825	3,289,540	11,627,072
Giga Watt	3,437,520	3,598,820	3,369,120	3,361,040	13,766,500
Gihira	2,297,835	1,604,118	422,386	1,155,376	5,479,715
Gisenyi	1,841,253	1,923,519	685,170	-	4,449,942
Gishoma	3,381,760	6,975,120	15,002,075	-	25,358,955
Jabana	888,530	985,940	3,753,730	4,862,800	10,491,000
Jabana II	19,787,204	18,350,928	26,973,568	28,807,856	93,919,556
Jali Solaire	42,880	44,009	42,864	41,707	171,461
Janja	56,680	-	-	-	56,680
Keya	1,539,560	2,017,982	1,168,944	1,131,128	5,857,614
Kimbiri	149,709	141,711	11,586	-	303,006
Kivu Watt	47,654,557	50,284,074	51,749,364	52,246,089	201,934,084
KSEZ	11,262,660	1,571,173	-	-	12,833,833
Mazimeru	670,567	599,534	465,843	493,979	2,229,923
Mukungwa	8,708,071	14,880,969	18,362,332	13,535,853	55,487,225
Mukungwa II	2,817,150	4,128,967	4,584,922	3,906,606	15,437,645
Murunda	127,759	147,136	91,912	117,207	484,014
Musarara	444,711	177,324	-	304,776	926,810
Mutobo	291,725	365,942	312,373	320,026	1,290,066
Nkora	406,246	102,915	219,984	395,227	1,124,372
Nshiri	-	-	194,760	366,044	560,804
Ntaruka	2,521,000	7,163,000	13,169,000	5,998,000	28,851,000
Nyabahanga	201,744	134,668	76,356	223,200	635,968
Nyabarongo	29,414,400	30,379,800	13,688,800	29,851,900	103,334,900
Rugezi	-	1,209,951	1,434,093	2,340,560	4,984,604
Rukarara	9,380,800	9,133,700	6,638,421	9,653,900	34,806,821
Rukarara II	3,290,557	2,707,785	3,121,511	3,094,474	12,214,327
SO Energy Masoro	-	-	1,583,470	2,574,200	4,157,670
SO Energy Mukungwa	-	49,400	1,920,224	4,932,340	6,901,964
Total	156,445,995	165,730,240	173,810,069	176,526,958	672,513,262

Source: EUCL-REG, December 2017

The total domestic electricity generation increased by 1.6% from the third quarter to the fourth quarter of the year 2017.

Figure 2: Trend of domestic electricity generation (kWh) for the last four quarters



Source: EUCL-REG, December 2017

2.2. Energy mix

The electricity used in Rwanda is generated from hydro, thermal (heavy fuel oil and light fuel oil running generators, methane gas power plant, and peat power plant), solar photovoltaic power plants, and some are imported.

Table 4: Trend of energy mix in power consumption (kWh) for the last of four quarters 2017

Energy mix per quarter	Q ₁ 2017	Q ₂ 2017	Q ₃ 2017	Q ₄ 2017	Total
Hydro	88,995,390	102,490,830	87,618,849	96,446,775	375,551,845
Thermal	82,979,068	78,216,635	100,982,431	93,423,285	355,601,419
Solar	3,480,400	3,642,829	3,411,984	3,402,747	13,937,961
Total	175,454,859	184,350,295	192,013,264	193,272,806	745,091,224

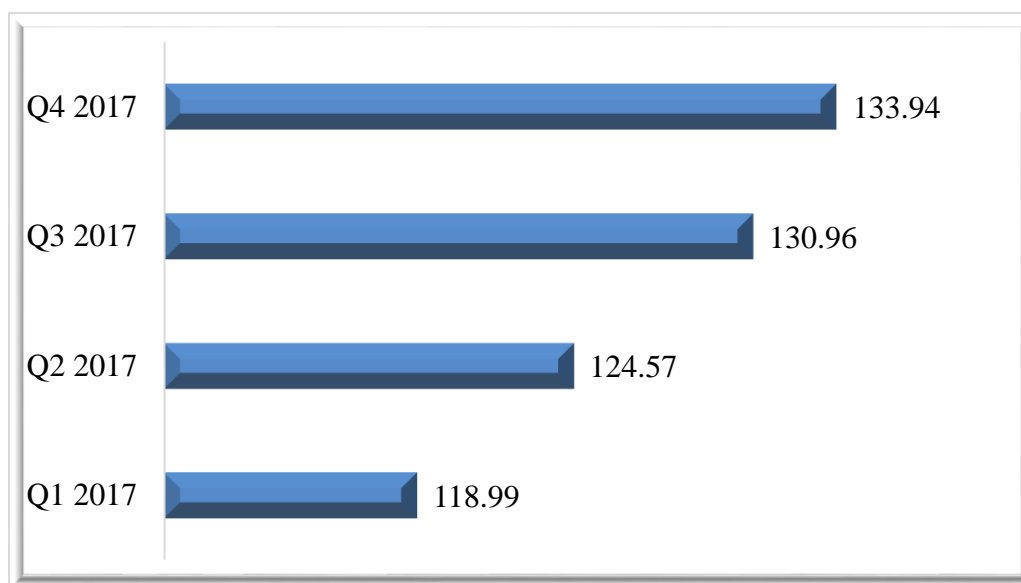
Source: EUCL-REG, December 2017

The 50.4% of the total generated electricity during 2017 are from Hydro power plants, 47.7% from Thermal plants while the 1.9% are from solar energy. This means that renewable energy generated during 2017 is greater than non-renewable energy.

2.3. System peak demand

The highest peak demand that occurred over 2017 was 133.94 MW as presented in this Figure 3.

Figure 3: Trend of system peak demand for the last of four quarters 2017



Source: EUCL-REG, December 2017

The power demand has progressively increased from the first to the fourth quarter of the 2017 mostly due to the new connections.

3. IMPORTED AND EXPORTED ELECTRICITY

Table 5: Imported and exported electricity (kWh) as of the last four quarters 2017

Electricity	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Total
Imported	20,027,202	19,610,063	19,246,767	17,812,606	76,696,638
Exported	1,018,338	990,008	1,043,572	1,066,758	4,118,676

Source: EUCL-REG, December 2017

The total electricity imported in the fourth quarter showed a decline trend whereby they went downward from 19,246,767 kWh recorded in the third quarter of the year 2017 to 17,812,606 kWh recorded in the fourth quarter of the year 2017 representing a decrease of 7.5% whereas the exported electricity increased by 2.2% from the third quarter to the fourth quarter of the year 2017.

4. ELECTRICITY SUPPLIED, AND SOLD

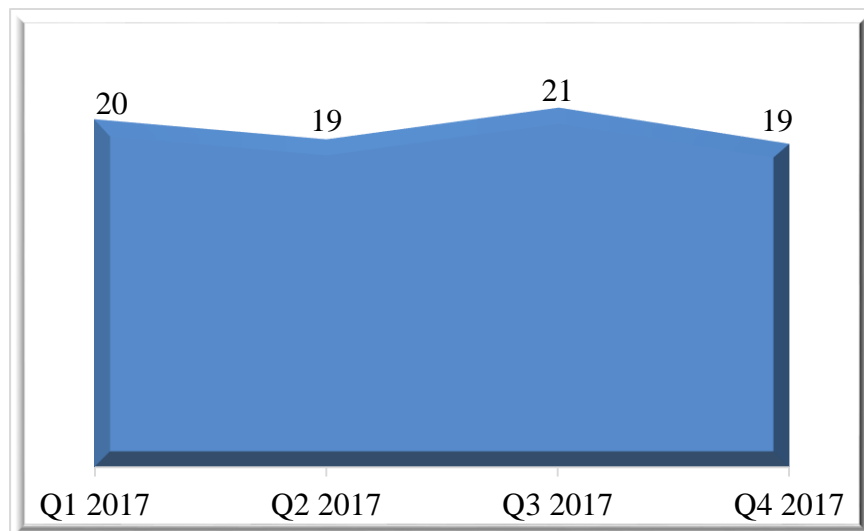
Table 6: Trend of electricity (kWh) supplied, and sold for the first four quarters 2017

Electricity	Q ₁ 2017	Q ₂ 2017	Q ₃ 2017	Q ₄ 2017
Electricity supplied	175,454,859	184,350,295	192,013,265	193,272,806
Electricity Sold	139,664,796	148,407,381	151,854,593	155,954,130
Technical losses	35,790,062	35,942,914	40,158,672	37,318,661

Source: EUCL-REG, December 2017

The total supplied electricity within the fourth quarter of 2017 was 193,272,806 kWh. The 80.7% of electricity supplied was sold during this quarter under review whereas 19.3% were recorded as technical and non-technical losses.

Figure 4: Trend of technical and non-technical losses (%) from Q₁ to Q₄ 2017



Source: EUCL-REG, December 2017

Table 7: Trend of electricity consumption (kWh) for the first four quarters 2017

Customer categories	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Share (Q4-2017) in %
Domestic/Residential	26,993,123	27,894,750	28,252,166	28,016,533	18.0
Non-Residential	49,039,061	50,504,396	53,401,942	52,541,234	33.7
Water Pumping Station	5,301,823	5,827,893	5,997,142	5,833,053	3.7
Water Treatment Plant	6,097,825	6,557,842	7,119,297	6,583,659	4.2
Telecom towers	11,298,780	11,833,113	11,946,721	11,823,491	7.6
Hotels	7,619,917	8,532,533	8,409,064	9,040,393	5.8
Industrial	33,314,268	37,256,855	36,728,262	42,116,455	27.0
Total	139,664,780	148,407,381	151,854,593	155,954,817	100

Source: EUCL-REG, December 2017

The 33.7% of electricity supplied by EUCL in the fourth quarter were used by non-residential customers, 27% by industries, and 18% by residential customers while the remaining (21.3%) were consumed by water pumping station, water treatment plan, telecom towers, and hotels.

5. LICENSEES IN ELECTRICITY SUB-SECTOR

Table 8: Number of licensed operators in electricity sector as of December 2017

SN	Category	Q3 2017	Q4 2017
1	IPPs with full license	15	17
2	IPPs with provisional license	13	12
3	Electricians	26	29
Total		54	58

Source: RURA database

There are 29 independent power producers in this quarter under review, 29 electricians both individuals and companies.