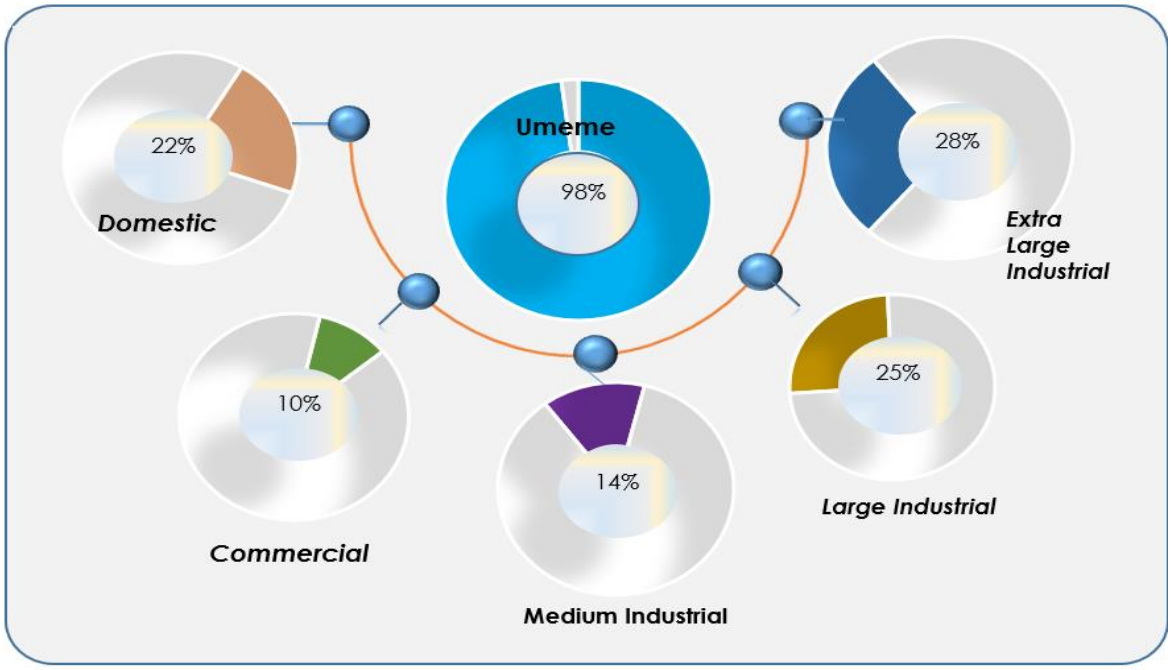
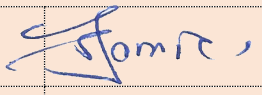
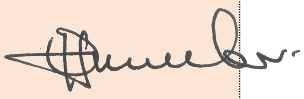
ELECTRICITY REGULATORY AUTHORITY

ELECTRICITY SUPPLY INDUSTRY PERFORMANCE REPORT FOR THE YEAR 2020



Title:	**Electricity Supply Industry Performance Report for the Year 2020**
Ref	**REP/83-114/57/021/016**
Version:	**1**
Date:	**2021-01-07**

Document Control

Reference No.	**REP/83-114/57/021/016**		
Document Title	**Electricity Supply Industry Performance Report for the Year 2020**		
Document Author	**Mike Mbaziira** Senior Statistician	**Signature**	
Reviewed by	**Isaac V. Kinhonhi** Manager Planning and Research	**Signature**	
Reviewed by	**Julius Wandera** Director Corporate and Consumer Affairs	**Signature**	
Reviewed by	**Dr. Geofrey Okoboi** Director Economic Regulation	**Signature**	
Approved By	**Eng. Ziria Tibalwa Waako** Chief Executive Officer	**Signature**	
Document Version	1.0SXZ	**Document Status**	
Date Released	2021-01-07		
File Name	**ElectricitySupplyIndustryPerformanceReport2020.pdf**		

Document Change History

Version	Date	Author	Edits
1		Mike Mbaziira	Final Draft

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

BEL	Bujagali Energy Limited
Bn	Billion
BoU	Bank of Uganda
CPI	Consumer Price Index
ECP	Electricity Connections Policy
EPRC	Economic Policy Research Center
ERA	Electricity Regulatory Authority
ESI	Electricity Supply Industry
GoU	Government of Uganda
GWh	Gigawatt Hours
KCCL	Kasese Cobalt Company Limited
KIL	Kilembe Investments Limited
KRECS	Kyegegwa Rural Electricity Cooperative Society Ltd
kWh	Kilowatt Hours
kV	Kilovolt
Ltd	Limited
Mn	Million
MoFPED	Ministry of Finance, Planning and Economic Development
OPEC	Organization of the Petroleum Exporting Countries
PACMECS	Pader-Abim Community Multi-purpose Electric Cooperative Society
PPI	Producer Price Inflation
PV	Photovoltaic
RETF	Rural Electrification Trust Fund
SAIL	Sugar and Allied Uganda Limited
Shs	Uganda Shilling
UBOS	Uganda Bureau of Statistics
UEDCL	Uganda Electricity Distribution Company Limited
UEGCL	Uganda Electricity Generation Company Limited
UETCL	Uganda Electricity Transmission Company Limited
USD	United States Dollar
WENRECo	West Nile Rural Electrification Company

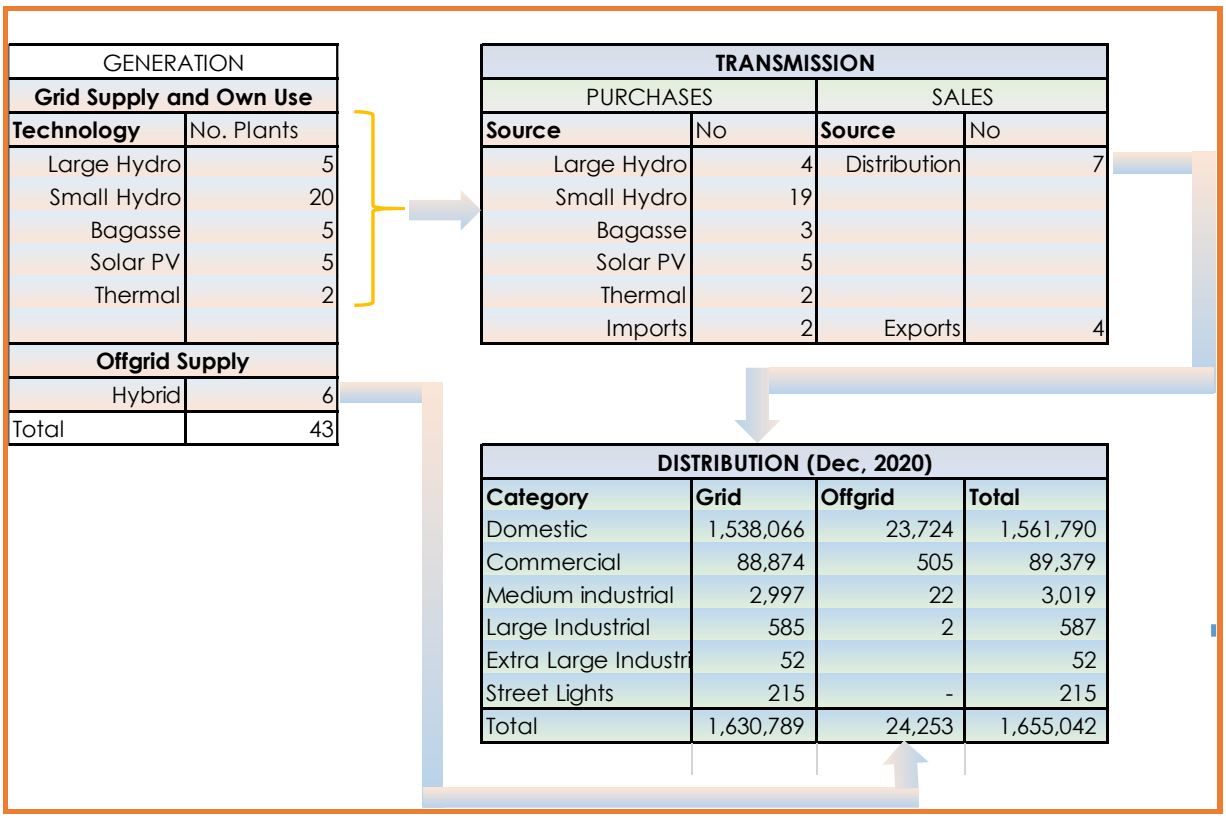
2020 ESI PERFORMANCE AT A GLANCE

1. A total of **16.5 MW** was added to the Total Installed Capacity bringing the Total Capacity to **1,269.1 MW.**
2. The Annual Maximum Peak Demand in 2020 (Domestic + Exports) was **723.8 MW.**
3. The Annual Maximum Domestic Peak Demand was **661.1 MW.**
4. The Sector Performance grew though at a Decreasing Rate compared to 2019, majorly due to the effects of the COVID-19 Pandemic.

- UETCL's Energy Purchases and Sales recorded a Growth Rate of less than 0.5%.
- The Annual Peak Demand grew by 2% compared to the 12% growth recorded in 2019 (compared to 2018).
- The Transmission Losses were 3.8% compared to 3.6% reported in 2019; and were above the set target of 3.35% for the year.
- A total of 202 Kms were added to the Transmission Route Length, thereby increasing from 2,898.2 Kms (220 kV=1,008 Kms; 132 kV=1,855 Kms, 66 kV=35.2 Kms) as at the end of 2019 to 3,100.5 Kms (220 kV=1,008 Kms; 132 kV=2,057.3 Kms, 66 kV=35.2 Kms) as at the end of 2020.
- The Energy Sales of Umeme Limited, the leading Distribution Utility in Uganda increased by only 1% compared to the 6% recorded in 2019. By Customer Category, Commercial, Medium Industrial and Large Industrial Customers recorded a fall in consumption compared to 2019.
- Umeme Limited recorded an increase in Energy Losses (17.5%) compared to 2019 (16.4%).
- As at the end of 2020, there were 1,630,789 Customers on the National Grid, signifying a 3% growth from the 1,579,322 customers as at the end of 2019. Umeme Limited made only 59,623 new connections in 2020, a figure translating into only a third of the connections done by the company during the previous year

2019. The Figure below provides a summary of the major Industry Players in the Generation, Transmission and Distribution of Electricity in 2020.

Figure 1: Summary of the Key Players in the Generation, Transmission and Distribution Segments (2020)



GENERATION

Grid Supply and Own Use	
Technology	No. Plants
Large Hydro	5
Small Hydro	20
Bagasse	5
Solar PV	5
Thermal	2
Offgrid Supply	
Hybrid	6
Total	43

TRANSMISSION

PURCHASES		SALES	
Source	No	**Source**	No
Large Hydro	4	Distribution	7
Small Hydro	19		
Bagasse	3		
Solar PV	5		
Thermal	2		
Imports	2	Exports	4

DISTRIBUTION (Dec, 2020)

Category	Grid	Offgrid	Total
Domestic	1,538,066	23,724	1,561,790
Commercial	88,874	505	89,379
Medium industrial	2,997	22	3,019
Large Industrial	585	2	587
Extra Large Industri	52		52
Street Lights	215	-	215
Total	1,630,789	24,253	1,655,042

1.0 BACKGROUND

1.1 Introduction

The 2020 Electricity Supply Industry (ESI) Annual Performance Report describes the Performance of the Industry across the Electricity Supply Chain, including Electricity Generation, Transmission, Supply, Import, Export, and Distribution during the Year 2020. The Report is based on the sub-Sector Performance Indicators and Set Targets.

2.0 ELECTRICITY GENERATION

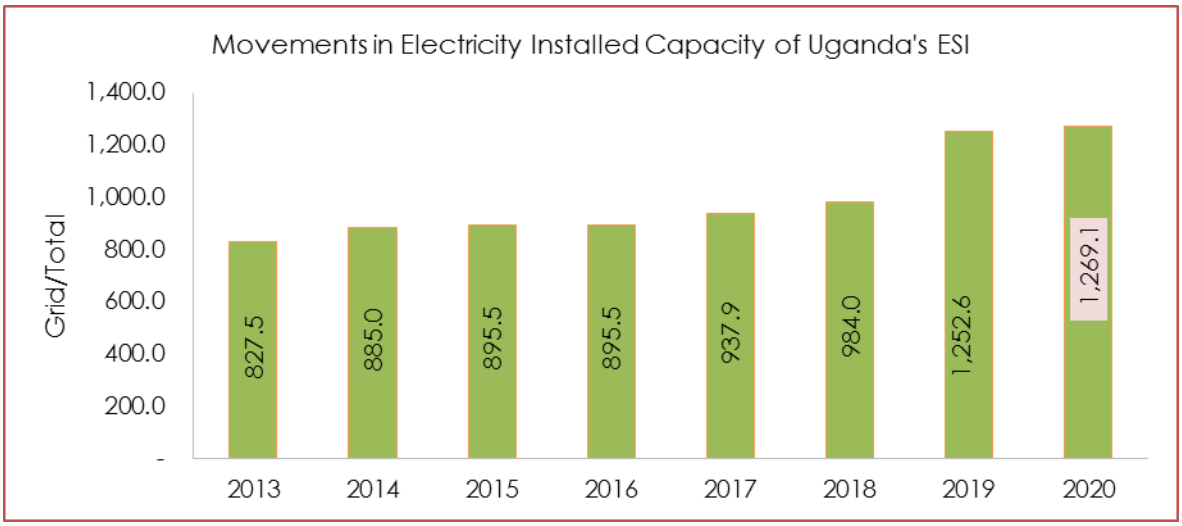
2.1 Installed Generation Capacity

A total of **16.5 MW** was added to the National Grid during the Year 2020; following the commissioning of Tororo Photovoltaic Power Plant (**10 MW**) and Timex Bukinda HPP (**6.5 MW**) in August and June 2020, respectively. In addition, the License Exempted Bukasa Off-Grid in Bukasa Island, Kalangala District with a Solar-Hybrid Installed Capacity of **0.1 MW** achieved Commercial Date of Operation during the Second Quarter of 2020.

By December 2020, Uganda had a Total Installed Capacity of **1,269.1 MW** of which **1,255.2 MW** supplied the Main Grid and **13.9 MW** Off the Main Grid[1]. The list of Operational Electricity Generation Plants in Uganda is presented in Appendix 1.

[1] The increase in Off-Grid Installed Capacity in 2020 is majorly due to reallocation of 8 MW of Electromaxx to the West Nile to supplement dispatch from Nyagak 1.

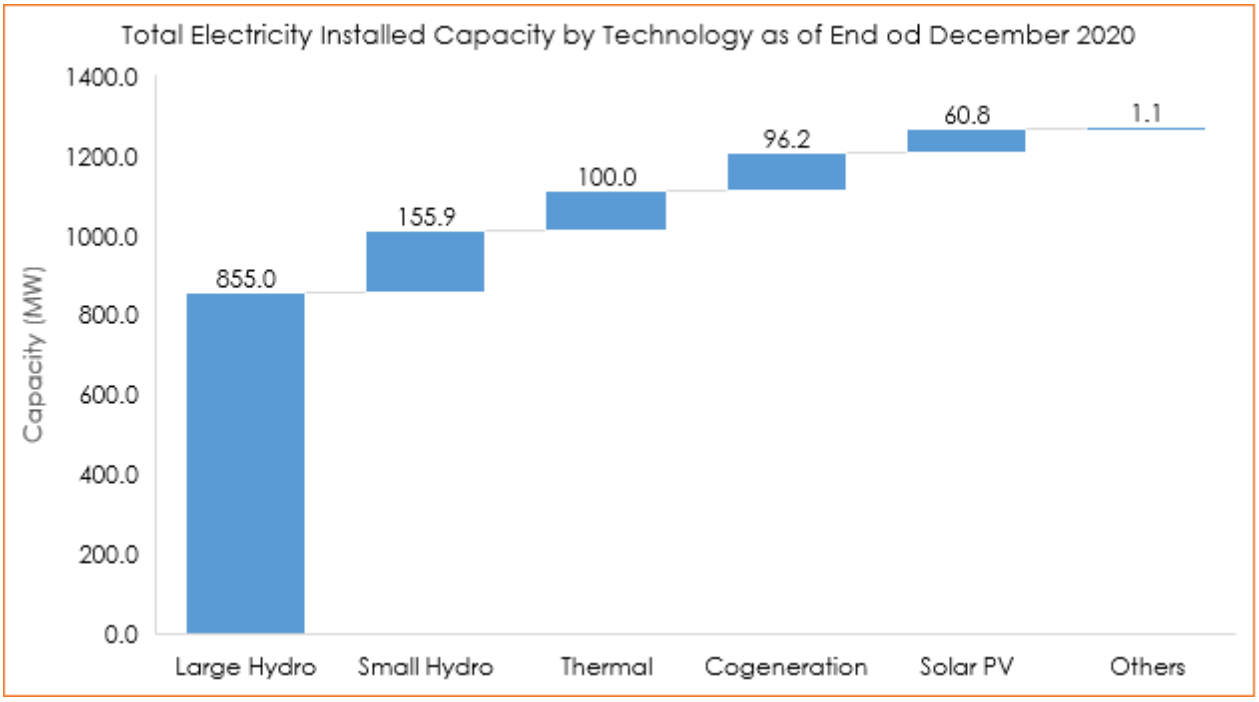
Figure 2: Generation Installed Capacity (MW)

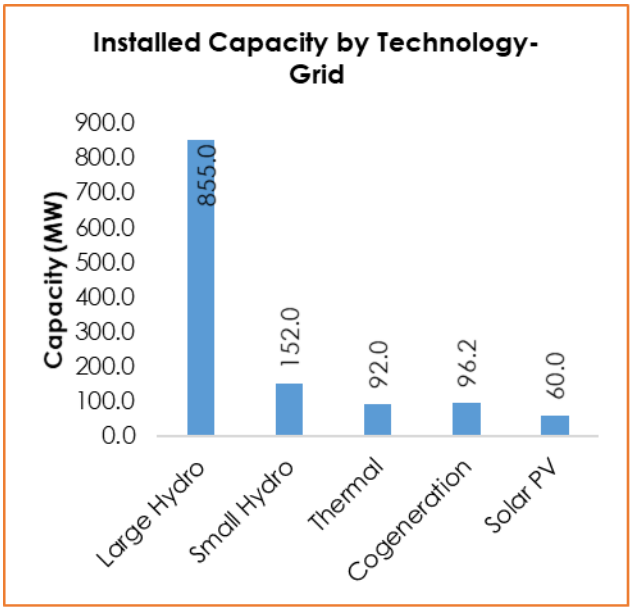


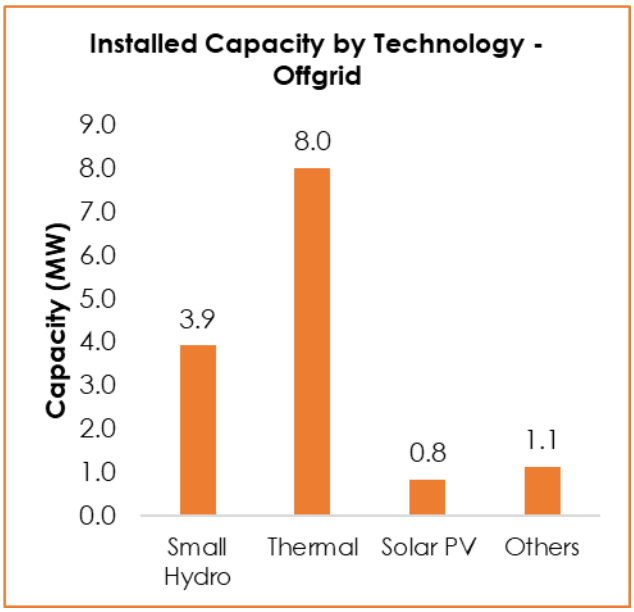
2.1.1 Current Installed Capacity by Technology

Uganda majorly generates its Electricity from Renewable Energy sources. Figure 3 shows that **1,010.9 MW** (80%) of the total Installed Capacity is Hydro (**155.9 MW** is from Small Hydropower Plants **(<20 MW)** and **855.0 MW** is from Large Hydropower Plants). The other Technologies contributing to Uganda's Installed Capacity include Thermal **(100 MW)**, Solar Photovoltaic **(60.8 MW)**, Bagasse/Cogeneration **(96.2 MW)**, and other Technologies **(1.1 MW).**

Figure 3: Generation Installed Capacity by Technology (December 2020)







3.0 ELECTRICITY TRANSMISSION SEGMENT

3.1 Introduction

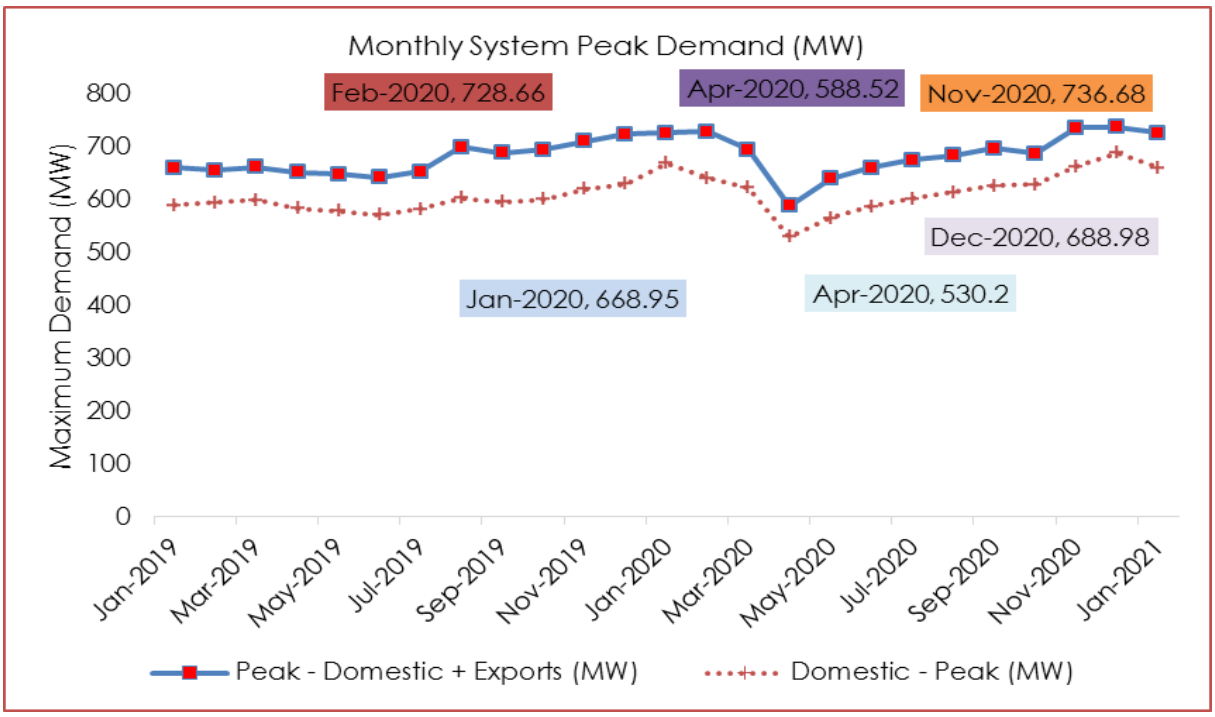
Uganda operates a Single Bulk Supplier Model in Electricity Transmission. The Uganda Electricity Transmission Company Limited (UETCL) has a Licence for Bulk Power Supply, Import, and Export of Electricity as well as a System Operator. UETCL's Energy Purchases are driven by demand. This Section presents the Peak Demand and UETCL Energy Purchases and Sales during the Reporting Period.

3.2 The Electricity Demand and Supply Nexus

The Annual Peak Demand in 2020 occurred in December, standing at **736.7 MW** compared to **723.8 MW** observed in December 2019, giving an Annual Growth of about 2% (see **Figure 4**). The Peak Demand increased but at a decreasing rate compared to the 12% growth recorded in 2019 (compared to 2018).

Monthly movements show a recession between March and April 2020 followed by recovery in the subsequent month periods following the easing of the lockdown due to COVID-19.

Figure 4: Monthly System Peak Demand from January 2019 to December 2020

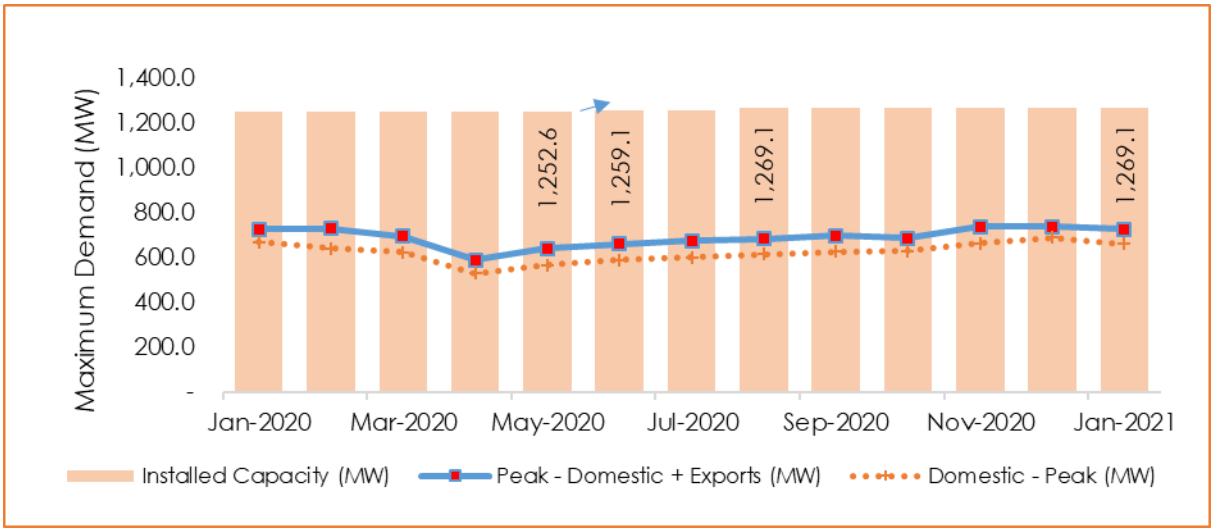


Uganda's Installed Capacity in comparison with the Peak Demand shows a surplus (see **Figure 4**). It is expected that the recovery of the overall global and local economy will directly influence the recovery of the Electricity Supply Industry and Electricity Demand, comparative to the available supply. Major interventions to grow demand include the establishment of Industrial Parks as well as enhancing Industrial Consumption, and Household connection through the Electricity Connections Policy (ECP).

During the Year 2020, UETCL commissioned substations in Mbale, Mukono, and Iganga Industrial Parks. UETCL in partnership with the Development Partners and the Ministry of Energy and Mineral Development is in the advanced stages of developing the Luzira and Namanve Industrial Parks. It is estimated that each of the Parks will have a demand of up to **200 MW** when fully developed.

In December 2019, the President commissioned the Kapeeka Liao Shen Industrial Park after the completion of the substation.

Figure 5: Installed Capacity Comparative to Monthly System Peak Demand (MW) in 2020

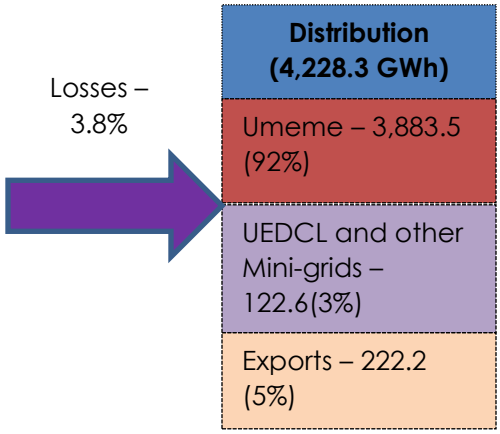


3.3 UETCL Energy Purchases and Sales

UETCL Energy Purchases and Sales in 2020 are presented in **Figure 6**. UETCL purchased power from the local Electricity Generation Plants and Neighboring Countries. Overall, UETCL purchased 4,391.1 GWh in 2020 with Energy Purchases from 35 different sources including Large and Small Hydropower Plants, Thermal Power Plants, Solar PV, Cogeneration, and import from the Neighboring Countries (Kenya and Rwanda).

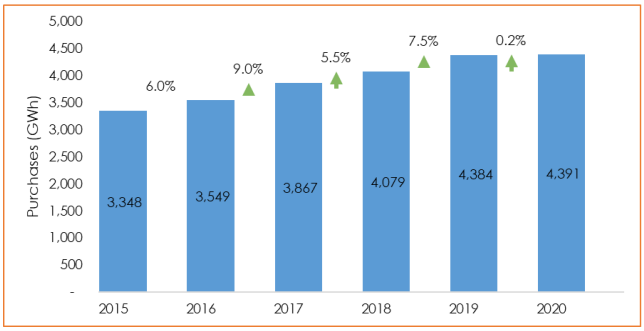
Figure 6: Sources of UETCL Energy Purchases and Sales in 2020

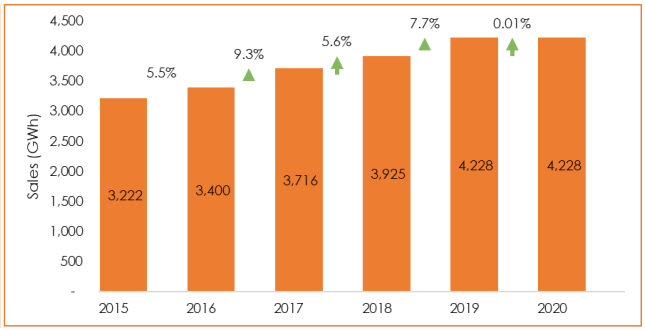
Source	No. of Plants	Purchases (GWh)
Large Hydro	4	3,434.8(78%)
Small Hydro	19	601.9 (14%)
Thermal (HFO)	2	57.3 (1%)
Solar	5	87.5(2%)
Cogeneration/Bagasse	3	188.3(4%)
Imports	2	21.4(1%)
Total	35	4,391.1

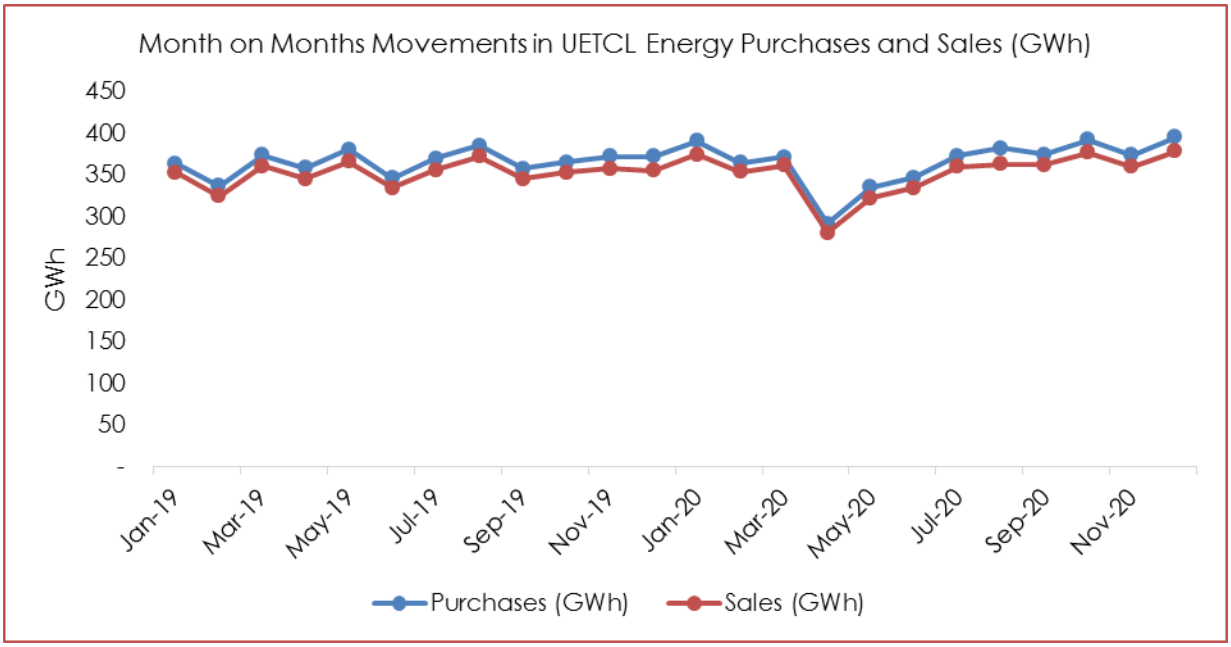


UETCL's Annual Growth Rate for Energy Purchases and Sales of 2020 increased but at a decreasing rate compared to the previous years – see **Figure 7**, recording a growth rate of less than 0.5% for Purchases and Sales. This drop in the growth rate in the operations of UETCL in 2020 is majorly attributable to the impacts of COVID-19.

Figure 7: UETCL Energy Purchases and Sales over the Years







3.3.1 Energy Purchases by Source

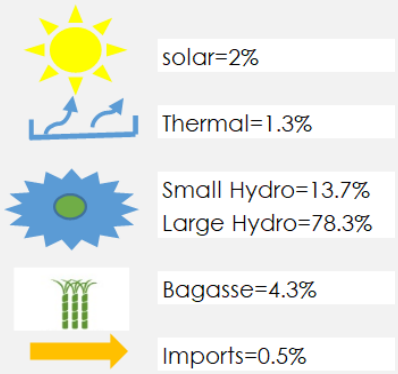
The Energy Purchases by UETCL by Technology (Generation Mix) over the years 2015 to 2020 is presented in Table 1. Hydro (Small and Large Hydro) Power Plants supplied 92% of the Energy Purchased by UETCL in 2020 with the other Technologies and imports combined contributing the remaining 8% (see **Figure 8**).

Over the years, there is an observed increase in Energy Purchases from Renewable Energy sources especially Small Hydros and Solar but with a decrease in purchases from Thermal, attributable to the desire to harness lower-cost Energy sources as well as a drive towards the use of Renewable Sources.

Table 1: UETCL Energy Purchases by Technology (GWh)

	2015	2016	2017	2018	2019	2020
Large Hydro	2,745.4	2,967.1	3,183.4	3,157.5	3,505.9	3,434.8
Small Hydro	306.9	293.7	264	444.4	479.9	601.9
Bagasse	174	177.6	149.8	206.5	196.8	188.3
Thermal	73.3	66.3	231.1	198.9	102.8	57.3
Solar		3.7	25.4	32.3	78.1	87.5
Imports	48.5	40.7	13.4	39	20.5	21.4
Total	3,348.1	3,549.0	3,867.1	4,078.5	4,383.9	4,391.1

Figure 8: UETCL 2020 Purchases by Technology (%)



3.3.2 UETCL Energy Sales by Destination

UETCL sold 4,228.3 GWh in 2020, increasing by 0.04% compared to the sales of 2019. The majority (92%) of UETCL's Energy Sales were to Umeme Limited, the leading domestic Electricity Distributor; 3% to other domestic Small Distribution Utilities and 5% exported to Neighboring Countries (see **Figure 6**).

The highest Annual Growth Rate in Energy Sales by UETCL was to BECS. However, UETCL attributed the growth in sales to BECS, not to Energy consumption but to Wheeling Losses following the commissioning of the Ndugutu and Sindila Power Plants with a Total Installed Capacity of 11.15 MW.

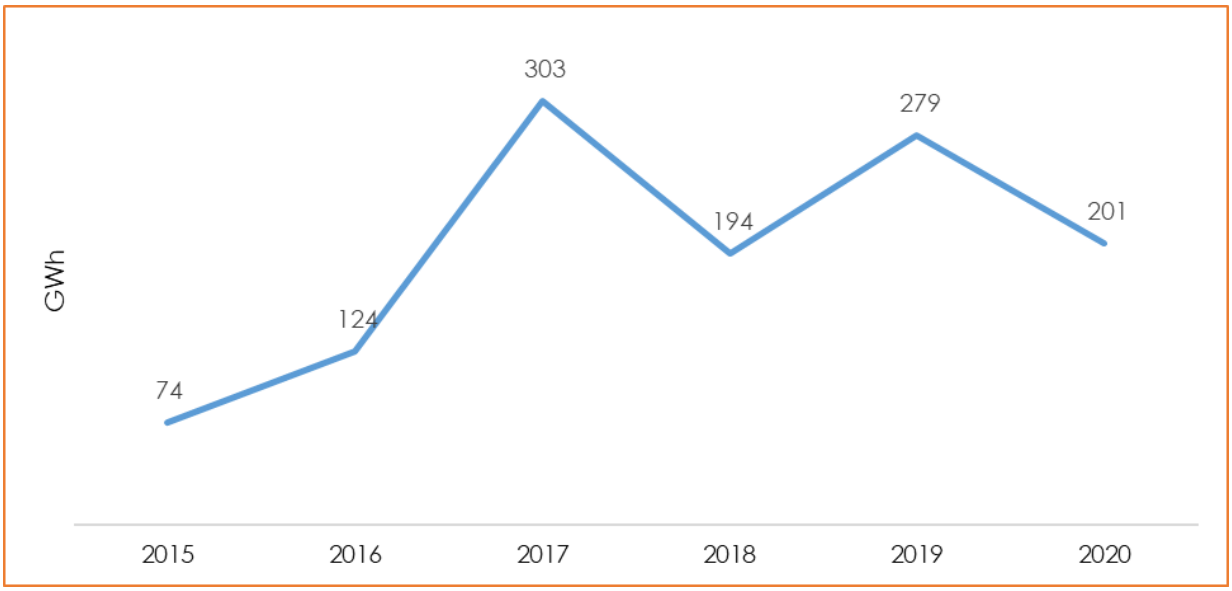
Table 2: UETCL Energy Sales by Source (GWh) over the Years

	2015	2016	2017	2018	2019	2020
Domestic						
UMEME LIMITED	3,053.2	3,180.8	3,333.9	3,608.1	3,824.5	3,883.5
UEDCL	8.5	11.2	46.0	68.1	81.7	94.0
KIL	4.6	4.9	5.5	6.4	6.8	7.9
BEC	2.2	2.9	2.9	3.1	5.1	9.2

	2015	2016	2017	2018	2019	2020
PACMECS	2.2	2.3	2.2	2.3	2.4	2.3
KRECS	2.1	2.6	3.8	4.2	4.4	5.5
WENRECO	-	-	-	-	3.8	3.6
Ferdsult	26.8	30.4	4.9	-	-	
Exports						
KENYA	55.7	83.2	225.9	129.2	208.1	132.0
TANESCO	61.4	77.2	79.2	93.4	81.1	81.4
Rwanda	2.7	2.4	9.3	8.3	7.5	6.7
DRC	2.3	2.2	2.5	2.2	2.5	2.2
Total	**3,221.7**	**3,400.1**	**3,715.9**	**3,925.4**	**4,227.9**	**4,228.3**

Uganda has over the years reported positive net exports (difference between exports and imports), but with a decline in 2020 compared to 2019. The drop in net exports was majorly due to a fall in exports to Kenya (2020 sales reduced by 37%), attributable to improved base-load sources especially hydrology levels in Kenya's Western Region in addition to the slowdown in economic activity due to COVID-19 in the same period.

Figure 9: Uganda Net Exports (GWh)

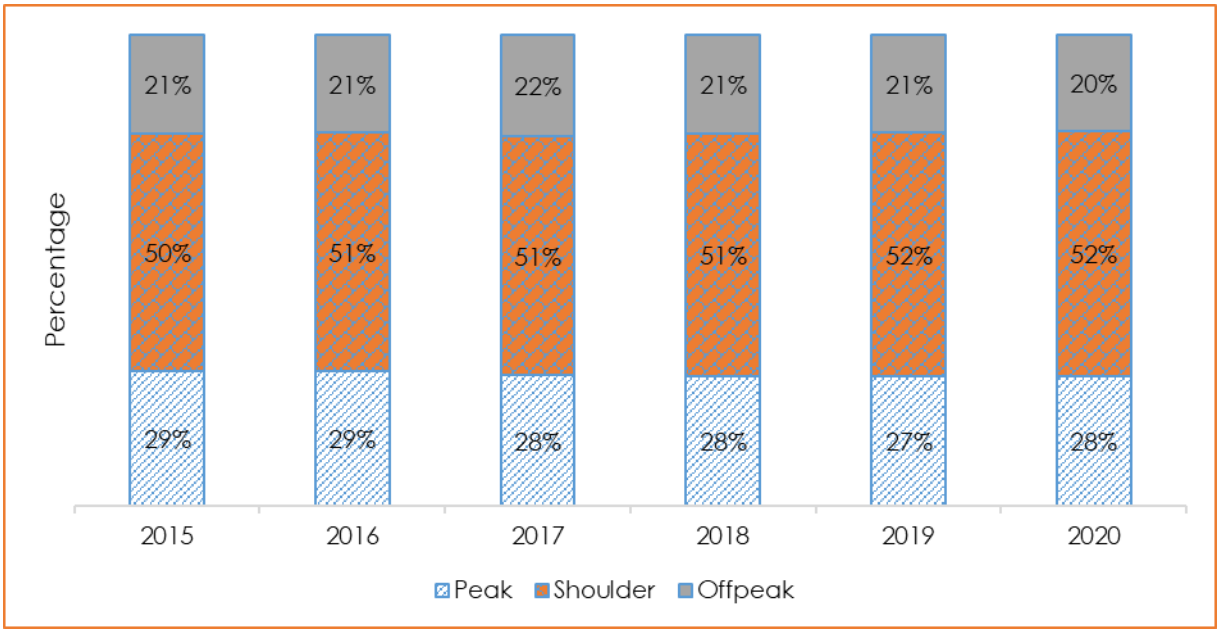


3.3.3 UETCL Energy Sales by Time-Of-Use (ToU)

UETCL charges Distributors on a Time-of-Use (ToU) Energy Charge. The Time-of-Use Periods are set by ERA and may be amended from time to time, should the Load Profile change. At present, there are three time periods: Peak (the Five hours between 18:00 and 23:00), Shoulder (the Thirteen hours between 05:00 and 18:00), and Off-Peak (the Six hours between 23:00 and 05:00).

Figure 10 shows that over the years, about half of the UETCL Energy Sales are made during the Shoulder time band with the sales during Peak and Off-Peak averaging between 28% and 21% respectively. The curfew restrictions imposed through 2020 concerning combating the spread of COVID-19 did not have a significant impact on the ToU distribution of UETCL's Energy Sales.

Figure 10: UETCL Energy Sales by Time-of-Use over the Years

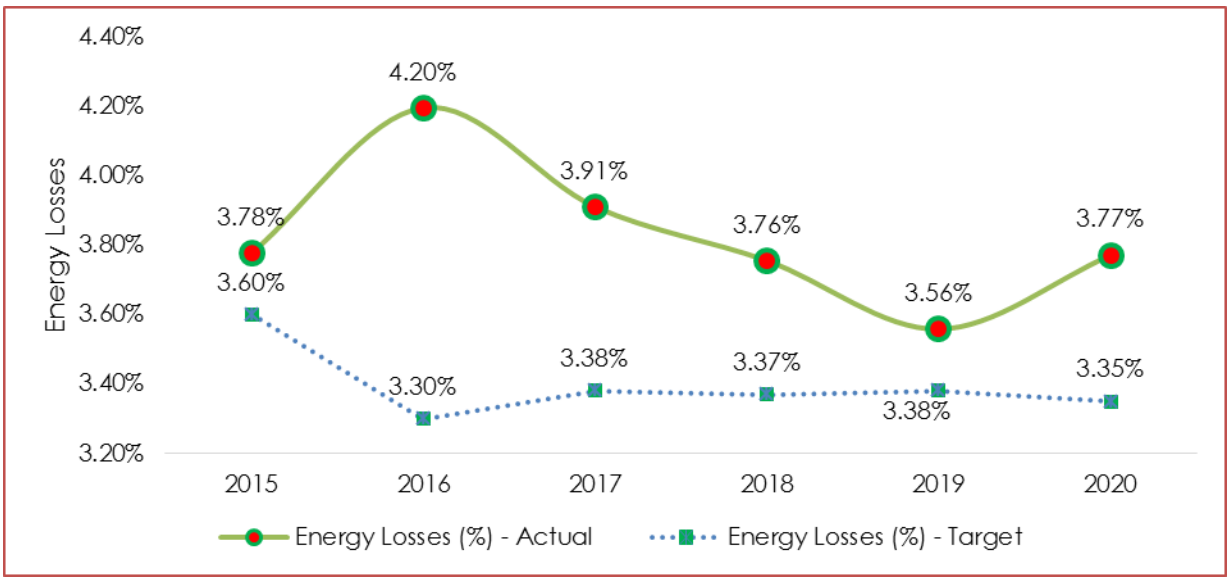


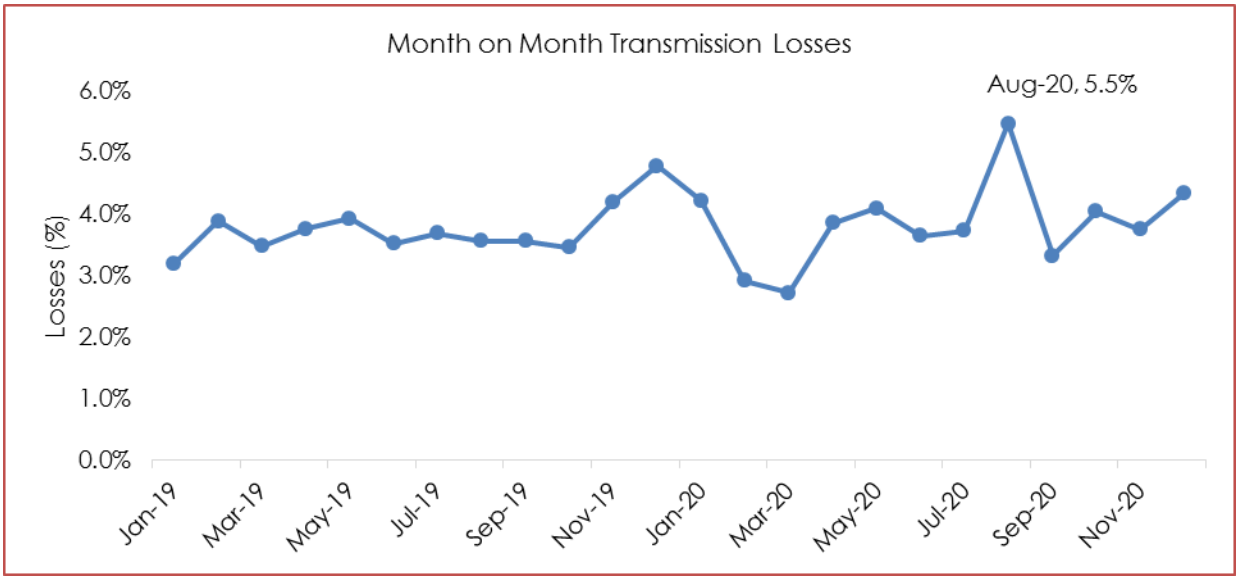
3.4 Transmission Energy Losses

Energy Losses are computed as the difference between the Energy Purchased and the Energy Sold. UETCL recorded an increase in Energy

Losses compared to the status in 2019. In 2020, the Transmission Losses were 3.8% compared to 3.6% reported in 2019; and were above the ERA set Performance Target of 3.35% for the year. The month on month movements in Transmission Losses shows that the highest losses were recorded in August 2020.

Figure 11: Transmission Losses (%)

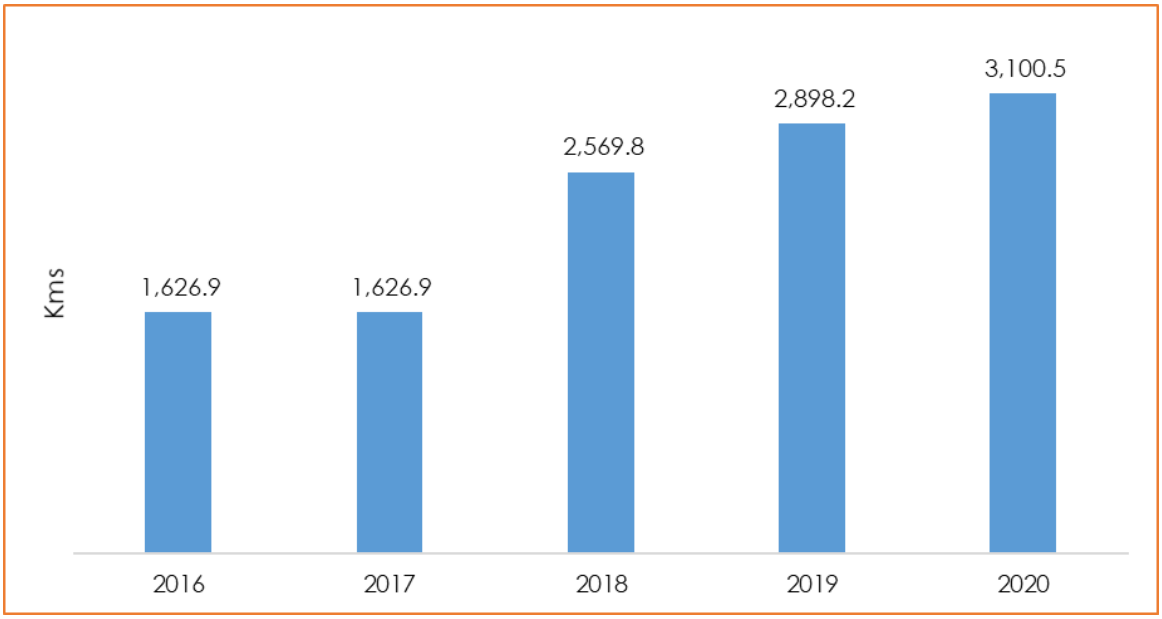




3.5 Transmission Network Assets (Transmission Length, Substations)

A total of **202 Kms** were added to the Transmission Route Length in 2020, thereby increasing from 2,898.2 Kms (220 kV=1,008 Kms; 132 kV=1,855 Kms, 66 kV=35.2 Kms) as at the end of 2019 to 3,100.5 Kms (220 kV=1,008 Kms; 132 kV=2,057.3 Kms, 66 kV=35.2 Kms) as at the end of 2020.

Figure 12: Transmission Line Length (Kms)



4.0 ELECTRICITY DISTRIBUTION ON THE NATIONAL GRID

4.0 Introduction

This Section presents the Performance of the Electricity Distribution Segment across the National Grid. The Licensees on the National Grid purchase Electricity from the Uganda Electricity Transmission Company Limited (UETCL), the Sole Operator of the National Transmission Grid.

During the reporting period, Five (5) Utilities distributed Electricity on the National Grid, including Umeme Limited, Uganda Electricity Distribution Company Limited (UEDCL), Pader-Abim Community Multipurpose Electricity Cooperative Society Limited (PACMECS), Kilembe Investments Limited (KIL), Kyegegwa Rural Electricity Cooperative Society (KRECS). Umeme Limited is the largest operator on the National Grid followed by UEDCL.

UEDCL operations are spread in Eight Service Territories that include; Central North Service Territory (CNST), Eastern Service Territory (EST), Mid-West Service Territory (MWST), North East Service Territory (NEST), North-North West Service Territory (NNWST), Southern Service Territory (SST), Southern West Service Territory (SWST), North-Western Service Territory (NWST). In this Report, other than Umeme Limited, the other Distribution Utilities are defined as Mini-Grids.

4.1 Energy Purchases and Sales by Grid-Connected Distribution Utilities

The Distribution Utilities operating on the National Grid purchased 4,008.8 GWh in 2020, signifying a 2% increment compared to the 3901.9 GWh purchased in 2019. About 22% of the Energy purchased by Distribution Utilities was lost (due to Technical and Commercial Factors) with 3,269.1 GWh sold to the End-Users. The Energy sold to the End-Users in 2020 increased by 1% compared to the 3,246.4 GWh sold in 2019.

Umeme Limited is the leading Distribution Utility, with 32,00.8 GWh (98%) of the Energy sold to the End-Users. The other Distribution Utilities combined sold 2%. The distribution of Energy Sales by Customer Categories shows that overall, 22% of the Energy sold by the Distribution Utilities on the National Grid was to Domestic Customers, 11% to Commercial Customers, and the remaining 67% to Industrial Customers.

Figure 13: Distribution Purchases and Sales on the National Grid in 2020

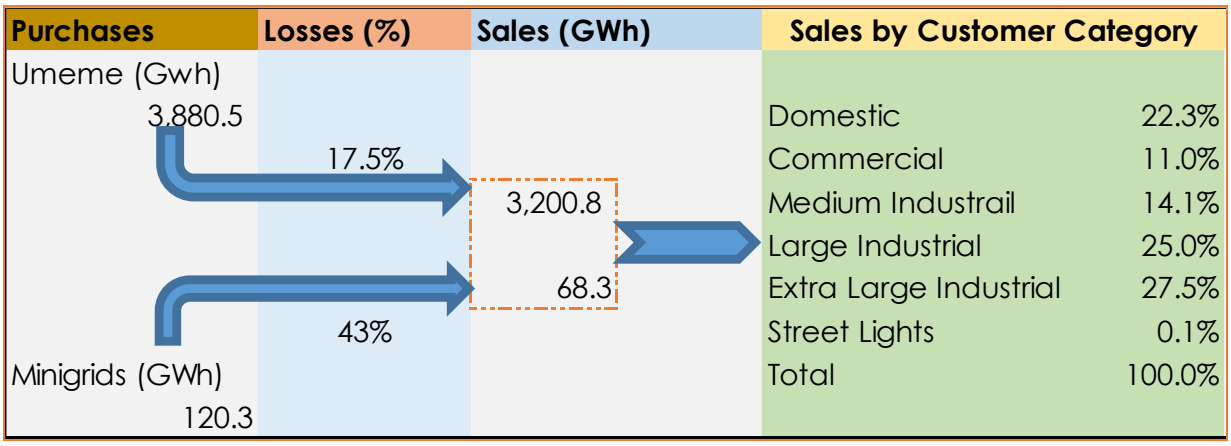


Table 3: Energy Purchases and Sales of Umeme Limited

	2015	2016	2017	2018	2019	2020
Umeme Limited						
Purchases (GWh)	3,051.1	3,170.3	3,335.7	3,611.9	3,805.5	3,862.9
Sales (GWh)	2,457.0	2,570.0	2,763.0	3,011.0	3,182.0	3,201.0
Minigrids						
Purchases (GWh)	48.4	38.6	54.7	84.1	96.4	120.3
Sales (GWh)	36.0	25.0	40.0	56.0	64.0	68.0
Overall						
Purchases (GWh)	3,099.6	3,208.9	3,390.5	3,696.0	3,901.9	3,983.2
Sales (GWh)	2,493.0	2,595.0	2,803.0	3,067.0	3,246.0	3,269.0

4.1.1 Energy Purchases, Sales and Losses of Umeme Limited

4.1.1.1 Umeme Limited Energy Purchases and Sales

Umeme Limited is Uganda's main Distribution Utility, selling about 98% of the Energy to the End-Users (see **Figure 13**). The Energy sales of Umeme Limited increased but at a decreasing rate in 2020 compared to the previous years (see Table 3), with this impact partly attributable to COVID-19.

Figure 14: Proportional Distribution of Umeme Limited's Energy Sales by Customer Category in 2020

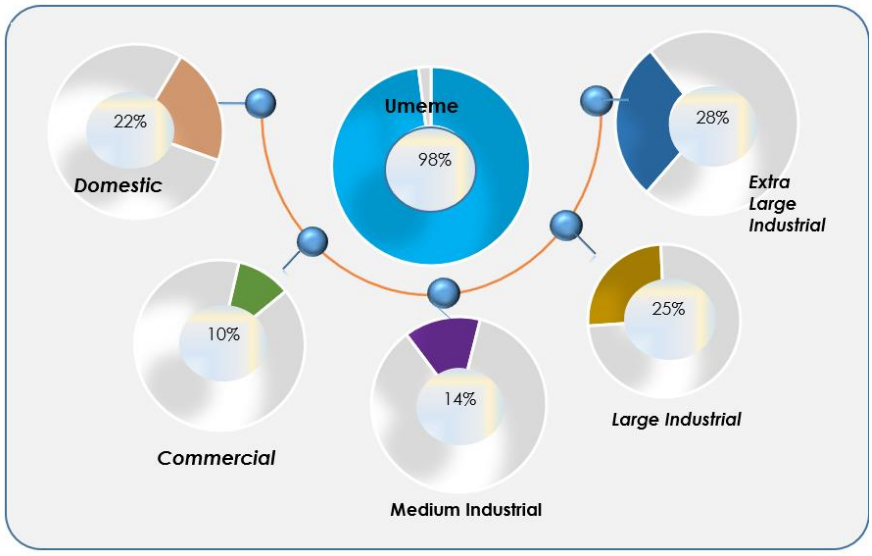
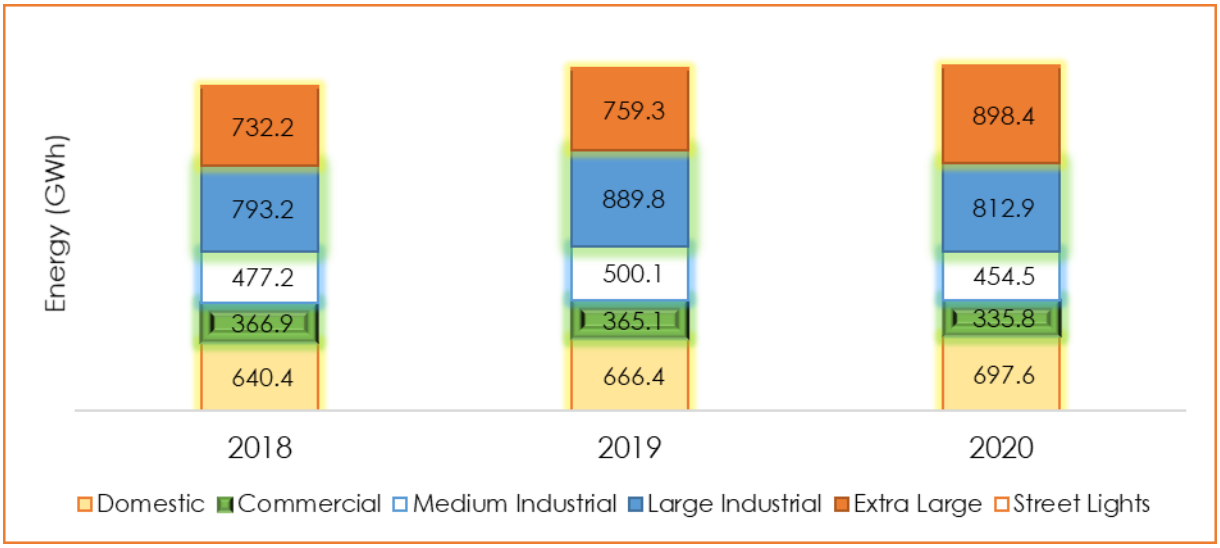


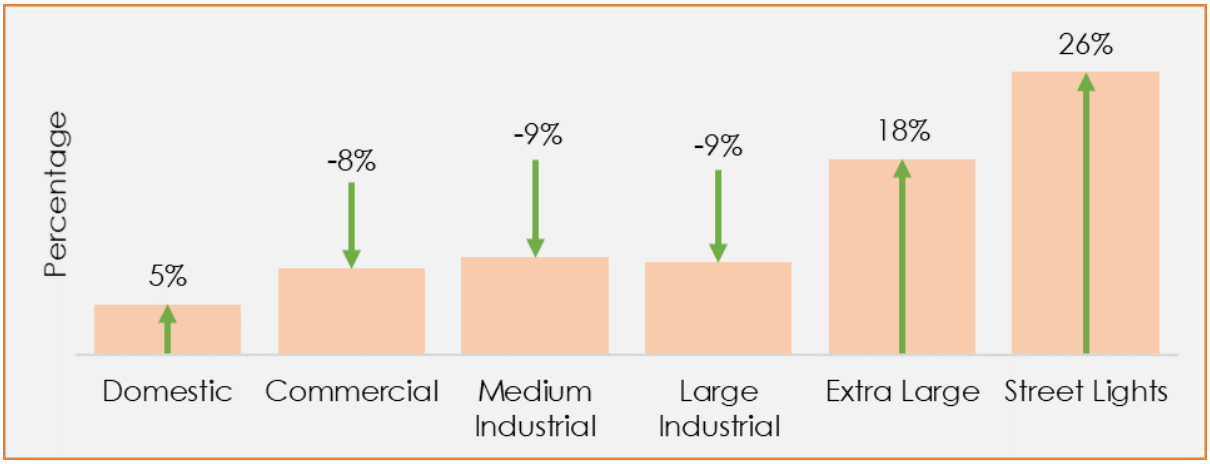
Figure 14 shows that 22% of Umeme Limited's Electricity Sales of 2020 were to Domestic Customers with the Commercial and Industrial Customer categories constituting 10% and 68%, respectively. The Energy Sales to street light customers constituted less than 1%.

Figure 15: Umeme Limited Energy Sales by Customer Category



The Umeme Energy Sales by Customer Category (**Figure 16**) show that only the Domestic, the Extra-Large Industrial and Street Lighting Customer Categories recorded growth in Energy Consumption; with Commercial, Medium Industrial and Large Industrial Customers recording a fall in consumption in 2020 compared to 2019.

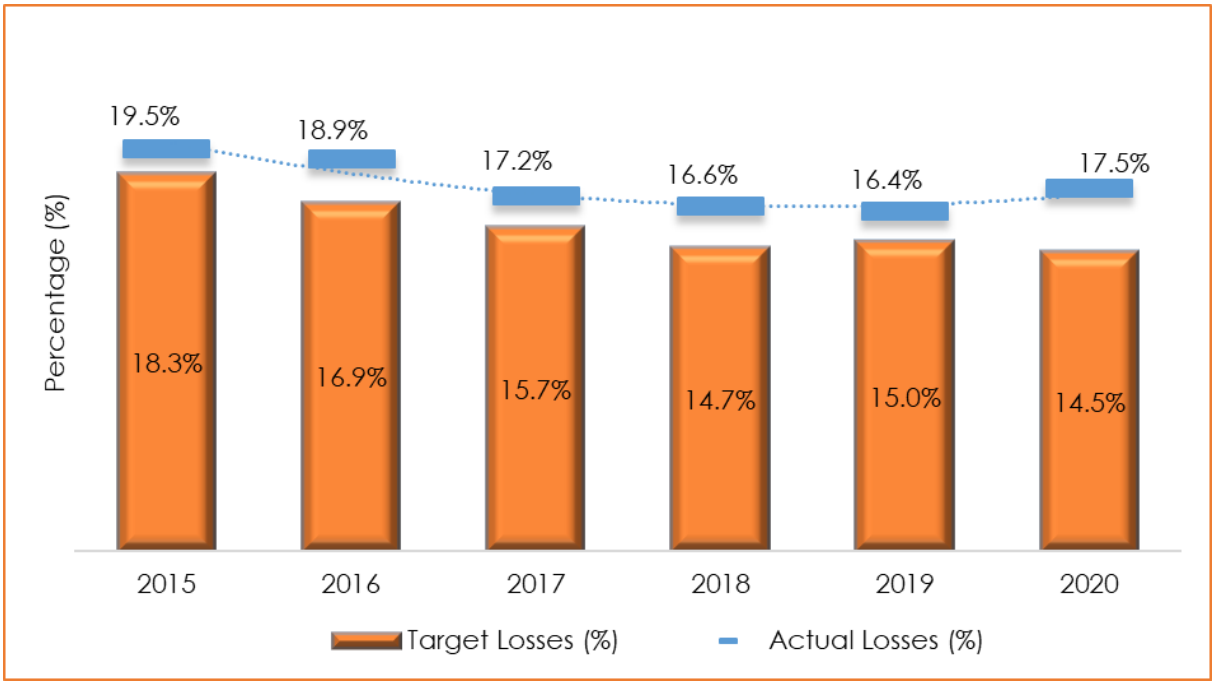
Figure 16: 2020 Umeme Limited's Energy Consumption Growth Rate Comparative to 2019



Umeme Limited recorded an increase in Energy Losses in 2020 (17.5%) compared to 2019 (16.4%) partly attributable to a failure by the

Company to implement loss mitigation strategies due to COVID-19, especially in the periods of the Lockdown (March to May 2020).

Figure 17: Umeme Limited Distribution Losses (%)

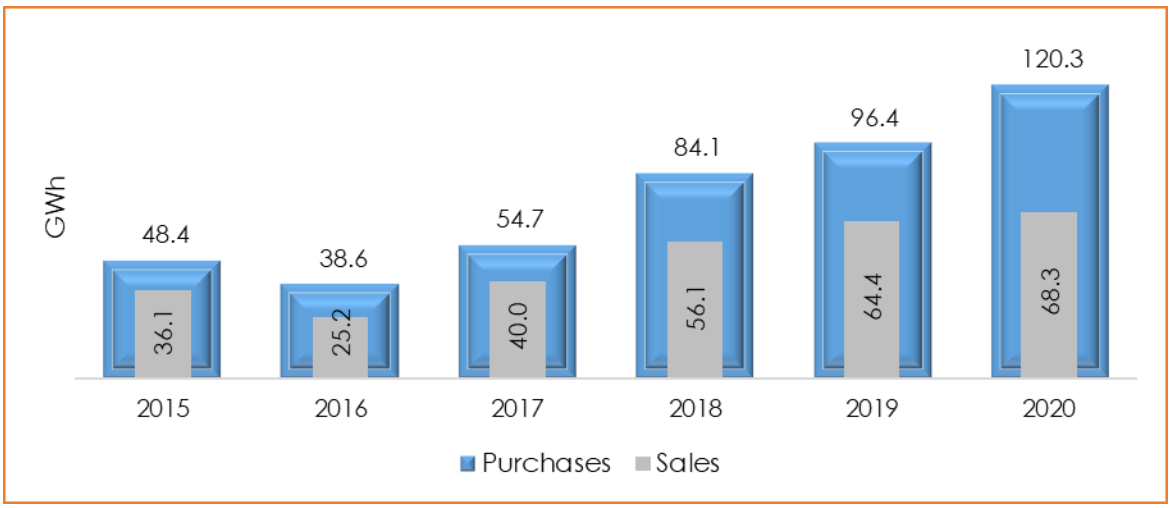


4.1.2 Energy Purchases, Sales and Losses of Mini-Grids

The Mini-Grids are the other Utilities operating and wheeling Electricity to the End-Users through the National Grid, other than Umeme Limited. These include the Uganda Electricity Distribution Company Limited (UEDCL), Pader - Abim Community Multipurpose Electricity Cooperative Society Limited (PACMECS), Kilembe Investments Limited (KIL), and Kyegegwa Rural Electricity Cooperative Society (KRECS).

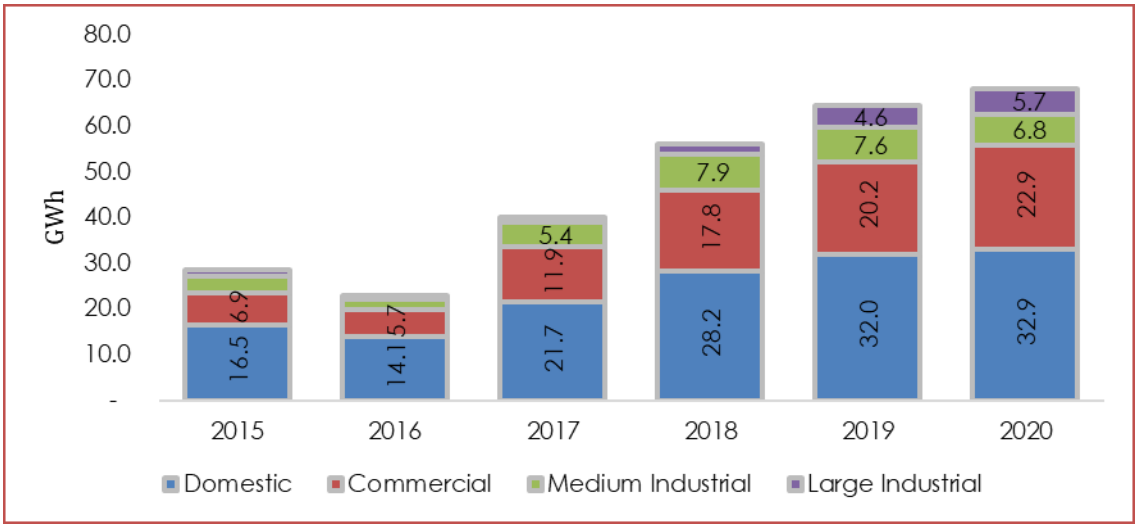
The Mini-Grids purchased and sold 120.3 GWh and 68.3 GWh respectively in 2020. The purchases in 2020 increased by 25% while sales to End-Users increased by 6%. The Mini-Grids recorded an increase in losses in 2020 (43%) compared to 33% that was recorded in 2019; UEDCL constituted about 79% of the Energy purchases and sales of the Mini-Grids.

Figure 18: Energy Purchases and Sales of Mini-Grids



The majority of the Energy sales of the Mini-Grids in 2020 were to Domestic Customers (48%) with the Commercial and Industrial Customers constituting 34% and 18%, respectively.

Figure 19: Distribution of Energy Sales of Mini-Grids over the Years by Customer Category



4.2 Customer Growth

Uganda's Tariff Structure classifies Electricity Customers into Six Categories and these are; Domestic, Commercial, Medium Industrial, Large Industrial, Extra-Large Industrial, and Street Lighting.

As at the end of 2020, there were 1,630,789 Customers on the National Grid, signifying a 3% growth from the 1,579,322 Customers as at the end of 2019. The Low Growth Rate in Customer Connections in 2020 as compared to the previous years was attributed to limitations in the supply of connection materials to support the Electricity Connections Policy as well as the constraints imposed by the COVID-19 Pandemic. Umeme Limited, made only 59,623 new connections in 2020, a figure translating to only a third of the connections done by the company during the previous year 2019.

Figure 20: Growth in the Total Customers on the Network over the Years

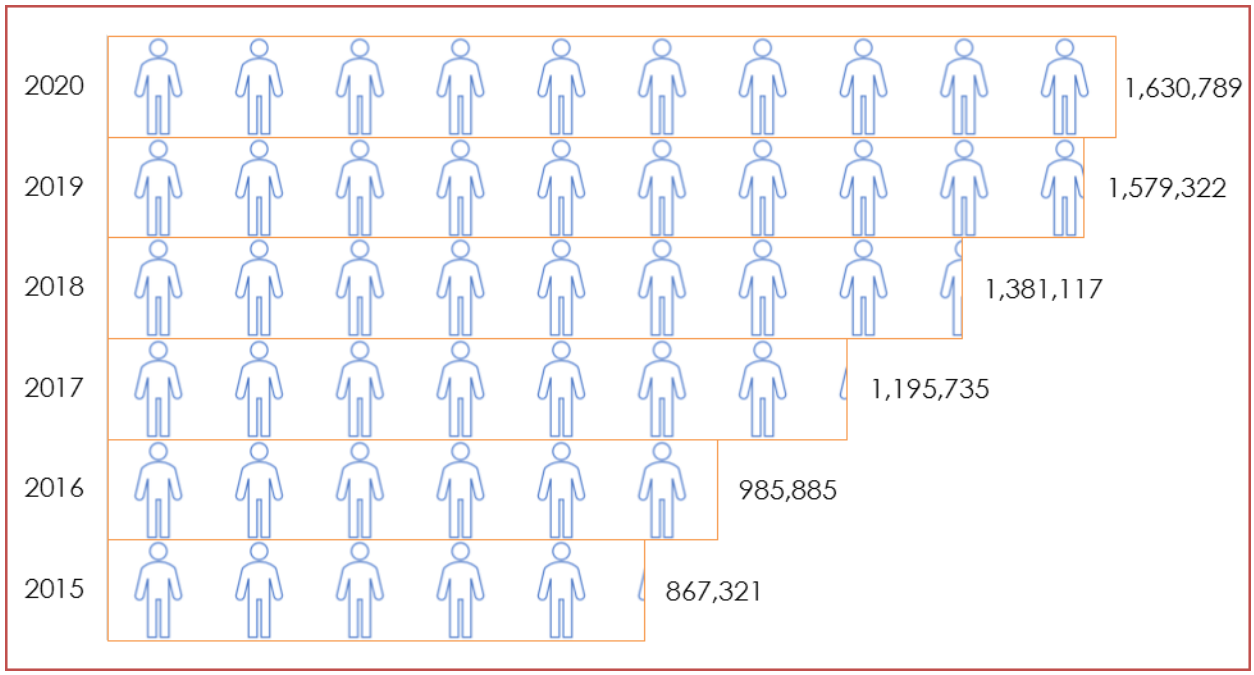
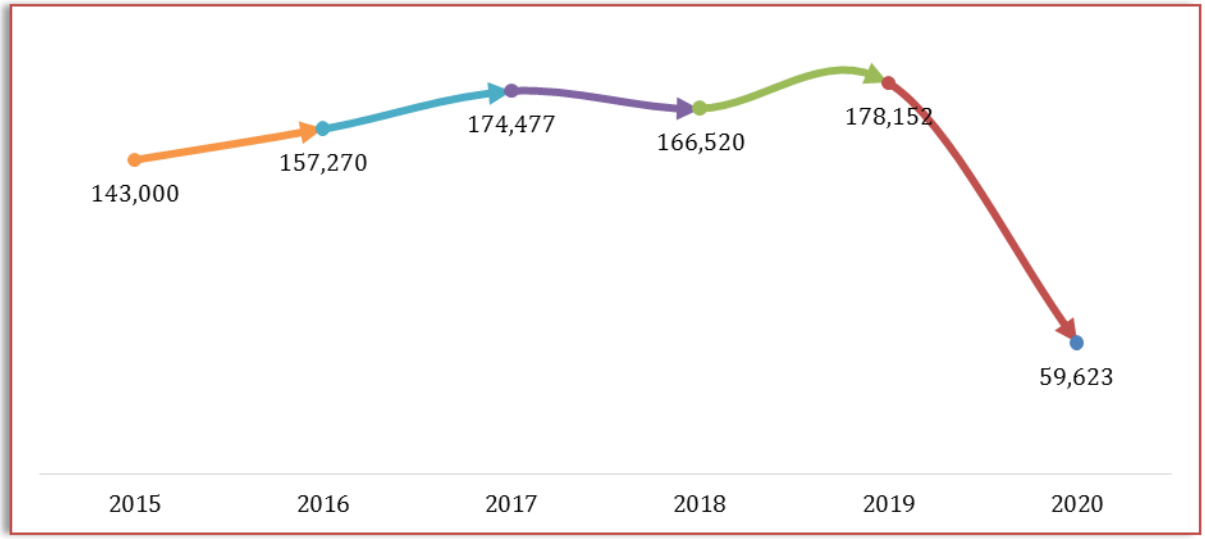


Figure 21: New Connections made by Umeme Limited Over the Years



4.2.1 Customers by Distribution Utility

Table 4 shows the number of Customers on the National Grid at the end of December 2020 by Service Provider. Umeme Limited had 1,506,920 (92%) of the total Customers on the National Grid with the Mini-Grids combined having 123,869 (8%) Customers.

By Category, as at the end of 2020, 95% of the Customers on the National Grid were Domestic[2], 5% were commercial[3] with the Industrial Customers (Medium, Large and Extra-Large) constituting 1%.

Table 4: Customers on the National Grid in 2020 by Service Providers

	Domestic	Commercial	Medium Industrial	Large Industry	Extra Large	Street Light	Total	% Share
UEDCL	81,656	1,982	99	7	3	14	83,761	5.1%
KRECS	8,682	148	3				8,833	0.5%
KIL	18,266	183	50				18,499	1.1%
PACMECS	4,470	68					4,538	0.3%
BECS	8,174	64					8,238	0.5%
Umeme	1,416,818	86,429	2,845	578	49	201	1,506,920	92.4%

[2] Low Voltage Single Phase Supplied at 240 volts.
[3] Three Phase Low Voltage Load not exceeding 100 Amperes supplied at 415 volts.

	Domestic	Commercial	Medium Industrial	Large Industry	Extra Large	Street Light	Total	% Share
Limited								
Total	1,538,066	88,874	2,997	585	52	215	1,630,789	100.0%
% share	94%	5%	0%	0%	0%	0%	100%	

4.2.2 The Electricity Connections Policy

The Government of Uganda approved the ECP in 2018 purposed to achieve a 60% level of Access to Electricity for Uganda by 2027.

Whereas 201,116 connections were made under the ECP in the year 2019 (see Table 5); connections under the ECP were negatively impacted in 2020. The Government of Uganda on the 29th July 2020 suspended the ECP, following the realignment of priorities and financial resources which was in part brought about by the unexpected COVID-19 Pandemic.

Amendments to the ECP were later done on the 7th of December 2020, allowing willing and able customers to pay for the connections at Regulated Connection Costs, while the provision for Free Connections under the ECP was maintained for members of the public who were willing to wait for the Government to mobilize the necessary funds. Overall, only 71,827 connections were done under the ECP in 2020.

Table 5: The Distribution of 2019 and 2020 Connections under the ECP

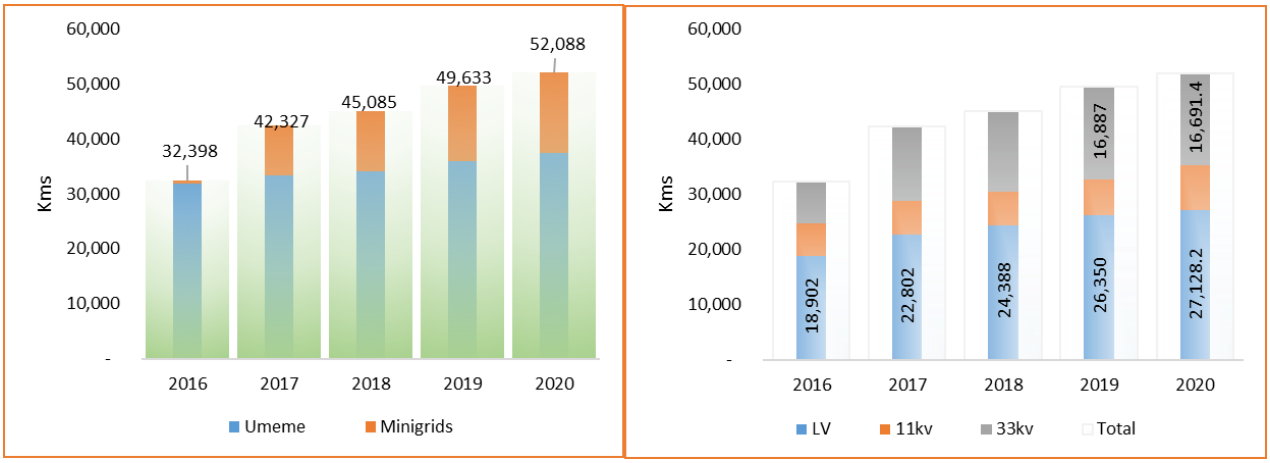
		2019			2020			
S/N	Licensee	No Pole	Pole	Total	NOPOLE	POLE	Unknown*	Total
1	Umeme Limited	144,424	31,893	176,317	47,503	9,921	107	57,531
2	UEDCL	16,530	231	16,761	6,679	466	2,420	9,565
3	KRECS	1,876	122	1,998	1,006	123	84	1,213
4	KIL	1,936	18	1,954	1,034			1,034
5	WENRECo	1,719	64	1,783	421	6	924	1,351
6	BECS	1,005	-	1,005	362			362
7	KIS	594	150	747	304	131	-	435
8	PACMECS	528	23	551	327	7	2	336

		2019			2020			
S/N	Licensee	No Pole	Pole	Total	NOPOLE	POLE	Unknown*	Total
Total		**168,612**	**32,501**	**201,116**	57,636	10,654	3,537	71,827
***Unknown - connections not yet verified as at the time of reporting**								

4.3 Distribution Network Length

As at the end of 2020, Uganda's Distribution Network Length was 52,088 Kms, signifying an addition of 2,454 Kms from the 49,633 km as of the end of December 2019. Of the total Distribution Network Length, 27,128 Kms were of the low voltage lines (Umeme Limited=21,788 Kms, others=5,340 Kms) and 2, 490 Kms of 11kv and 33kv Distribution Lines (Umeme Limited=15,564 Kms; others=9,396 Kms). Overall, Umeme Limited operated 37,351 kms of the total Distribution and low Voltage lines with the other Distribution Utilities on the National Grid operating 14,736 Kms.

Figure 22: Growth in the Distribution Network



5.0 ELECTRICITY GENERATION AND DISTRIBUTION BY OFF-GRIDS

5.1 Introduction

In this Report, Off-Grids are defined as Electricity Distribution Utilities that Generate and Sell Electricity directly to the End-Users. West Nile Rural Electrification Company Limited (WENRECO) and Kalangala Infrastructure Services (KIS) Limited are the leading Off-Grid Electricity Distributors in Uganda.

The other smaller Off-Grids, which are Licence Exempted by the Authority include Kisiizi Hospital Company Limited, Absolute Energy Limited, Bwindi Community Micro Hydropower Limited, and Pamoja Energy Limited. The performance of these Off-Grids during 2020 was not reported on as they are Licence-Exempted companies with minimal reporting requirements; their performance may not easily be compared.

5.2 Financial and Commercial Performance of Licensed Off-Grids

5.2.1 Energy Generation and Sales by Licensed Off-Grids

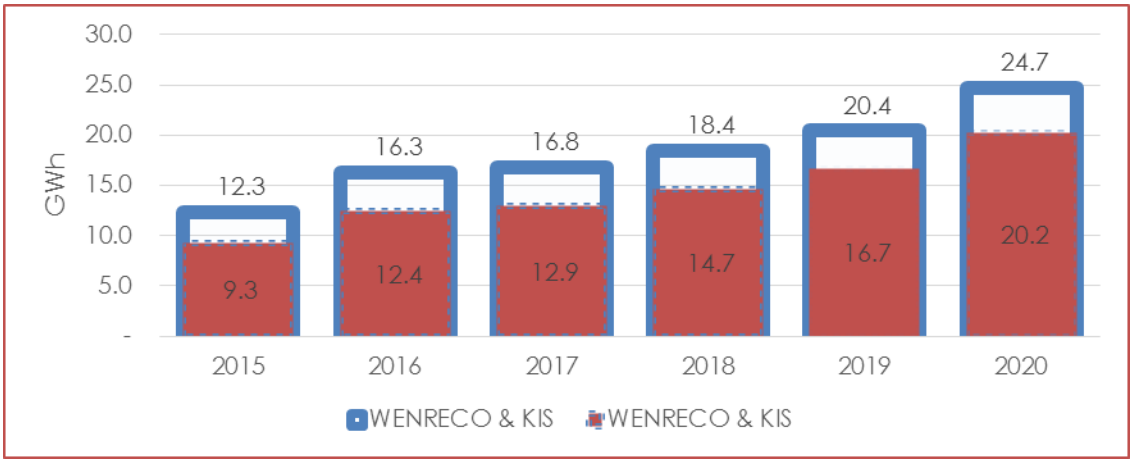
The Energy Generation and Sales of the leading Off-Grids (WENRECO and KIS) during 2020 are presented in Table 6. The two Off-Grids sold 20.2GWh to End-Users during the year 2020, representing a 21% increase from the 16.7GWh sold during the previous year. About 89% of the Energy Sales to End-Users was by WENRECO with KIS sales constituting 11%. Electricity sales of WENRECO increased by 23% in 2020 compared to 2019 whereas KIS recorded an annual increment of 9%.

Table 6: Energy Generated and Sold by Off-Grids over the Years (GWh)

	WENRECO		KIS		Total	
	Generation/ Purchases (GWh)	Sales (GWh	Generation (GWh)	Sales (GWh	Generation/ Purchases (GWh)	Sales (GWh
2015	11.4	8.6	0.9	0.7	12.3	9.3

	WENRECO		KIS		Total	
	Generation/ Purchases (GWh)	Sales (GWh	Generation (GWh)	Sales (GWh	Generation/ Purchases (GWh)	Sales (GWh
2016	14.7	11.3	1.6	1.1	16.3	12.4
2017	14.9	11.9	1.9	1	16.8	12.9
2018	16.6	13.3	1.8	1.4	18.4	14.7
2019	18.1	14.7	2.4	2	20.5	16.7
2020	22.4	18	2.3	2.2	24.7	20.2

Figure 23: Energy Generated and Sold by Off-Grids over the Years (GWh)

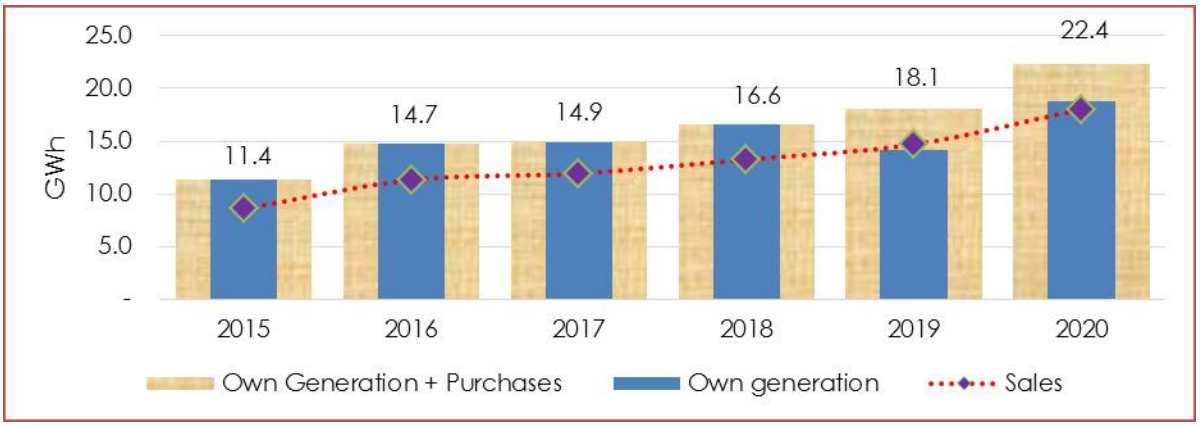


5.2.1.1 WENRECO Electricity Supply

On 4th May 2019, the Authority Licensed Electro-Maxx Thermal Power Plant to Generate up to 8 MW using Heavy Fuel Oil for a period of 4 and a half years (2019-2024), to supplement and meet the Electricity needs for the West Nile Region. WENRECO purchases the Power from Electro-Maxx through a Power Purchase Agreement.

Figure 24 shows the demand (Energy Sales) of WENRECO in 2019 and 2020 exceeding the own generation (supply from the 3.5 MW from Nyagak 1) but with the surplus demand met with purchases from UETCL. WENRECO purchased 3.64GWh in 2020 to supplement its generation (18.7GWh).

Figure 24: Demand Vs Supply (2013-2020)

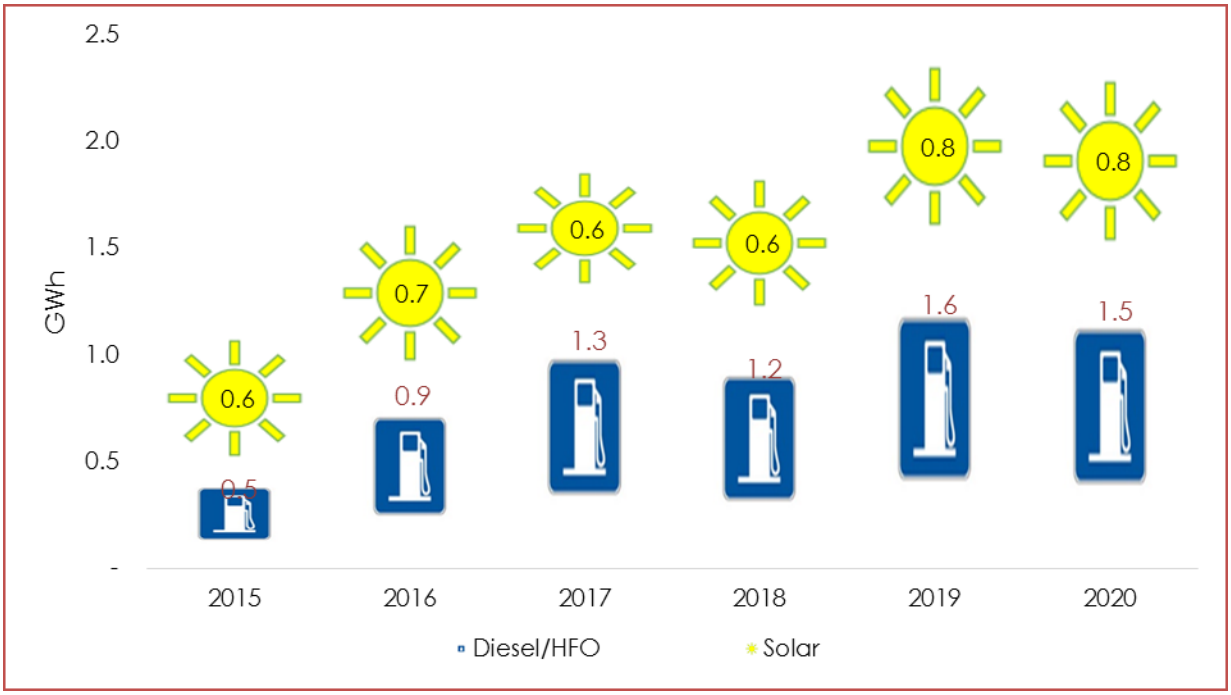


To provide a more permanent solution to the supply of Power to the West Nile Region, the Government of Uganda through UETCL is financing a Transmission Line to connect West Nile to the National Grid. Uganda Electricity Transmission Company Limited is constructing a Grid Extension from Kole - Gulu- Olwiyo - Nebbi - Arua. The Grid Extension is expected to be commissioned in 2024.

5.2.1.2 Electricity Supply for Kalangala Infrastructure Services (KIS)

KIS operates a Hybrid Electricity Generation Plant comprising **1.0 MW** of Diesel and **0.6 MW** of Solar PV. **Figure 25** shows the amount dispatched by technology over the years. A total of 2.3 GWh was dispatched in 2020, of which 65% was from Diesel/HFO with the Solar PV component contributing 35%.

Figure 25: KIS Electricity Dispatch by Technology (GWh)



5.2.2 Energy Sales by Customer Category

5.2.2.1 WENRECO Energy Sales by Customer Category

WENRECO reclassified Customer Categories in the Tariff Year beginning 2019. The reclassification led to a significant variation in the distribution of Customer numbers and Energy Sales.

Table 7 shows that over the years 2013 to 2019, the Energy sold to Domestic Customers constituted an average of 23% with 76% distributed to Commercial and Industrial Customers. Following the reclassification in 2019, 6.8 GWh (41%) of the Energy Sales were attributable to Domestic Customers, 7.2 GWh (39%) to Commercial Customers, with the remaining 4.0GWh (20%) to Industrial Customers. The company observed an increase of 23% in Energy Sales in 2020 compared to 2019, with significant increment observed among the Domestic Customer category (88% increase) and Industrial Customers

(50% increase). The 14% drop in the Energy Sales to Commercial Customer category is partly attributable to the negative impacts of COVID-19 including the Lockdown.

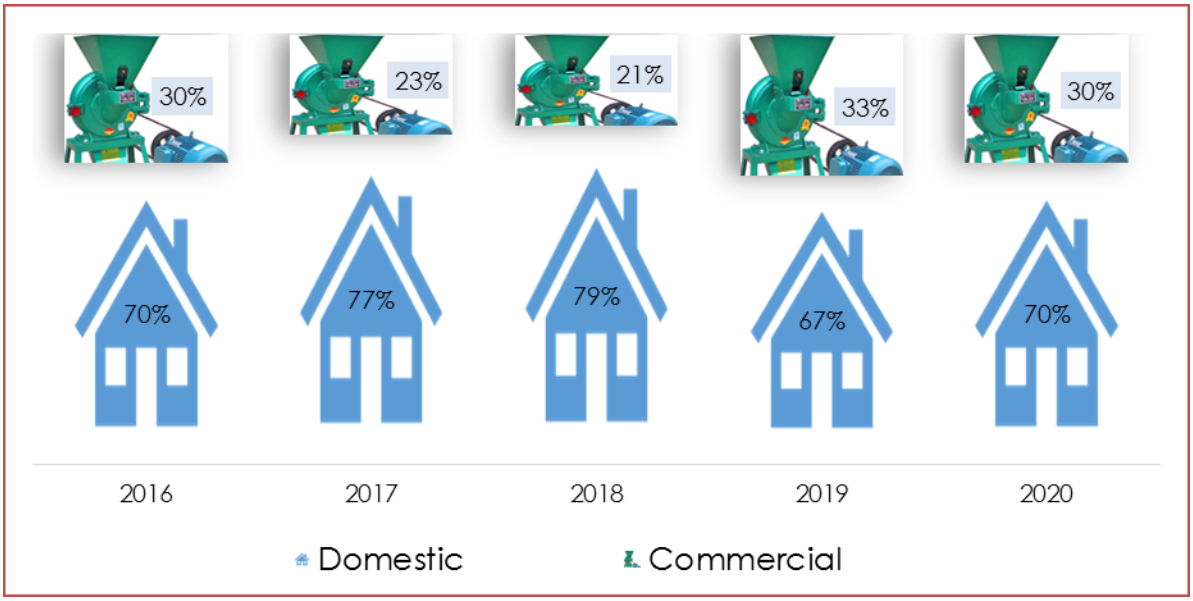
Table 7: Distribution of Energy Sales by Customer Categories

WENRECO Energy sales	2015	2016	2017	2018	2019	2020
Domestic	1.8	2.4	2.7	3.2	3.6	6.8
Commercial	6.0	7.5	7.4	8.8	8.4	7.2
Medium Industrial	0.8	1.5	1.8	1.3	0.9	1.6
Large Industrial	0.0	0.0	0.0	0.0	1.8	2.4
Total	8.6	11.3	11.9	13.3	14.7	18.0

5.2.2.2 KIS Energy Sales by Customer Category

KIS' Energy Sales increased by 9% in 2020 compared to 2019. Of the 2.2GWh sold in 2020, 70% was sold to Domestic Customers with the remaining 0.7GWh (30%) sold to Commercial Customers (see **Figure 26**).

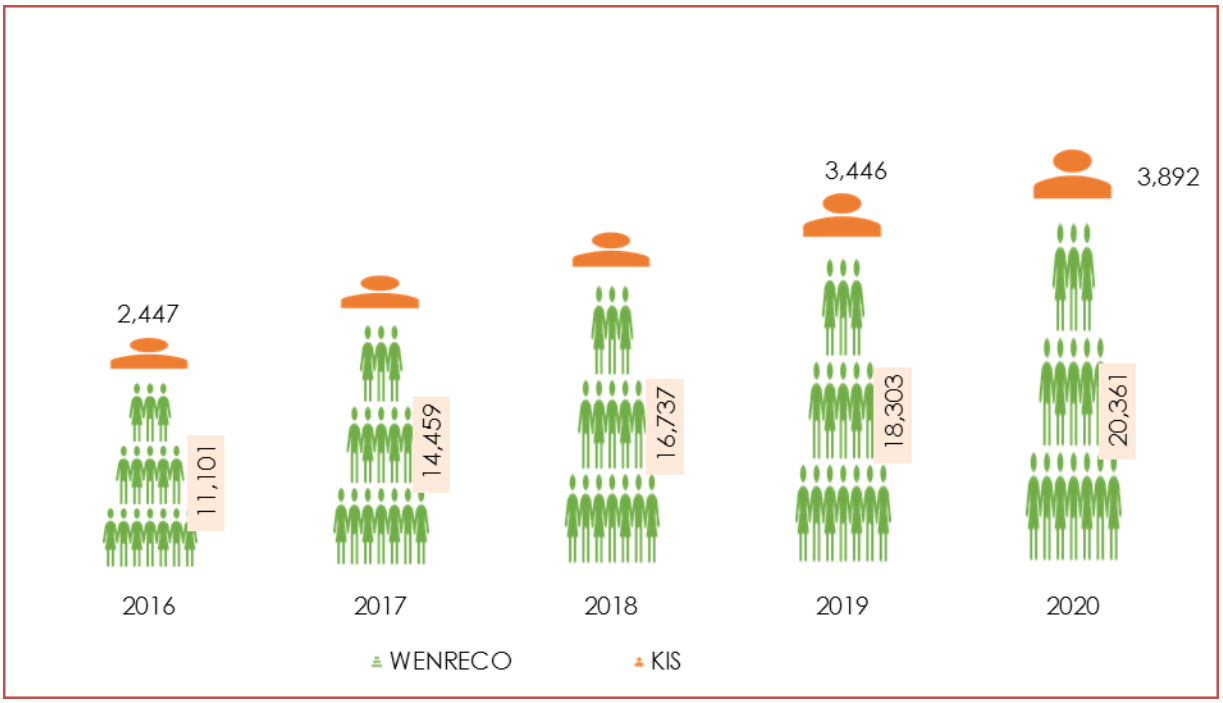
Figure 26: Distribution of Energy Sales of KIS by Customer Category



5.2.3 Customer Growth and Distribution for Leading Off-Grids

WENRECO and KIS contribute to improved Access to Electricity by extending Electricity to areas not connected to the National Grid. As at the end of December 2020, KIS and WENRECO had 24,253 Customers, signifying an addition of 2,504 new connections as compared to the 21,749 Customers by the end of 2019.

Figure 27: Customers on the WENRECO and KIS Grid



By Customer Category, 24,253 (97%) of the Customers served by KIS and WENRECO are classified as Domestic Customers with the other Customer Categories combined constituting 2%. The drop in Commercial Customers in the years 2019 and 2020 compared to the previous years was due to the 2019 reclassification of Customers under the WENRECO concession. The Customer reclassification factored in the capacity and purpose for which Energy was drawn.

Table 8: Growth in Customer Numbers in the WENRECO and KIS Concession by Customer Category

		2015	2016	2017	2018	2019	2020
Overall	Domestic	6,588	8,465	11,011	12,460	21,271	23,724
	Commercial	3,556	5,062	6,000	6,958	456	505
	Medium Industrial	7	21	12	13	20	22
	Large Industrial					2	2
	Total	10,151	13,548	17,023	19,431	21,749	24,253
WENRECO	Domestic	4,653	6,037	8,477	9,813	17,874	19,884
	Commercial	3,539	5,043	5,970	6,911	407	453
	Medium Industrial	7	21	12	13	20	22
	Large Industrial					2	2
	Total	8,199	11,101	14,459	16,737	18,303	20,361
KIS	Domestic	1,935	2,428	2,534	2,647	3,397	3,840
	Commercial	17	19	30	47	49	52
	Total	**1,952**	**2,447**	**2,564**	**2,694**	**3,446**	**3,892**

6.0 RETAIL TARIFFS

The Authority sets Tariff Rates for the Distribution Licensees under Section 10 and 75 of the Electricity Act, 1999.

The Tariff Methodology of the Electricity Supply Industry in Uganda is influenced by Macro-Economic Changes. These include the Consumer Price Index (CPI), the US Dollar Producer Price Index (US PPI)[4], the Exchange Rate of the Shilling (Shs) to Foreign Currencies[5], and International Fuel Prices. Every year, ERA sets Base Tariffs which are then adjusted every Quarter for these Macro-Economic Factors. This Section provides the movements in the Macro-Economic Factors.

[4] The US PPI is published by the Bureau of Labor Statistics.

[5] The Methodology uses the Mid-Exchange Rate (the average of the buying and selling rates) for the last day of the month as published by Bank of Uganda (BoU).

6.1 Grid Retail Tariff

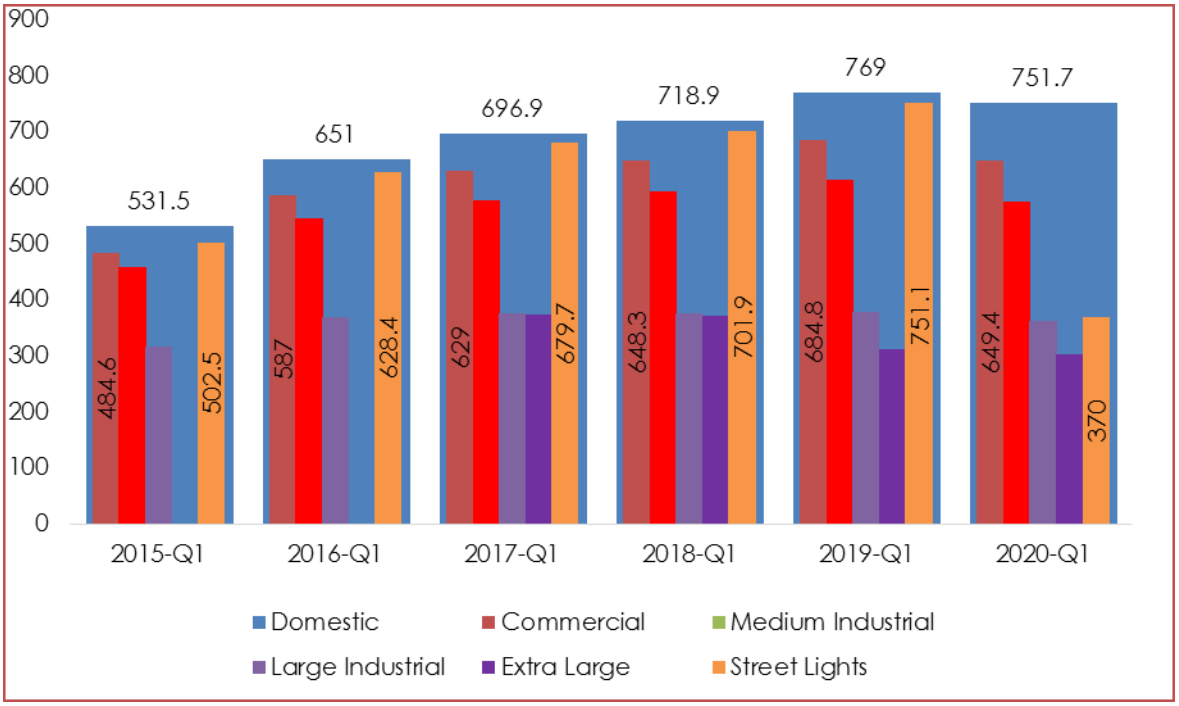
Table 9 shows the Grid Tariffs for Umeme Limited and UEDCL by Customer Category over the Tariff Review Periods of 2019 and 2020, while **Figure 28** shows the movements in Base Tariffs of Domestic Customers in comparison with the other Customer Categories. Umeme Limited and UEDCL operate under the same Tariff Structure as their services are extended across the same Service Areas.

The Tariff Year 2020 observed a drop in the Retail Tariffs for the different Customer Categories compared to the Tariff Year 2019. This drop is attributed to movement in the Energy Mix and Macro-Economic Factors.

Table 9: Quarterly Retail Tariffs for Customers on the Main Grid by Customer Category over the Tariff Period 2019 – 2020 (Shs/kWh)

Customer Category	*2019-Q1*	*2019-Q2*	*2019-Q3*	*2019-Q4*	*2020-Q1*	*2020-Q2*	*2020-Q3*	*2020-Q4*
Domestic	769.0	760.2	755.1	752.5	751.7	750.9	750.9	750.9
Commercial	684.8	675.4	669.5	666.1	649.4	645.6	645.6	645.6
Medium Industrial	613.2	604.7	599.2	595.6	575.2	570.9	570.9	570.9
Large Industrial	377.7	371.2	365.7	364.0	362.4	361.0	361.0	361.0
Extra Large	311.9	307.9	304.7	302.6	302.2	301.7	301.7	301.7
Street Lights	751.1	742.8	371.4	370.4	370.0	370.0	370.0	370.0

Figure 28: Base Tariff for Domestic Customer Category in Comparison with other Customer Categories (Shs/kWh)



6.2 Retail Tariffs for Mini-Grid and Off-Grid Customers

Unlike the Main-Grid Tariffs that are Adjusted Quarterly, adjusting the Base Tariff for key changes in the Macro-Economic Factors (see Table 9), Tariff Structures for the Small Distribution Utilities are only adjusted at the beginning of the Tariff Year.

Table 10 shows the average Base Tariff Charges per kWh consumed by Customers served by the Mini-Grids (other than UEDCL) and Off-Grid (WENRECO and KIS) over the years. Unlike the Grid Tariffs (Umeme Limited and UEDCL) where the Base Tariff across the Customer Categories reduced in 2020 compared to 2019; there was an increase in the Retail Tariff for Customers on the Mini-Grids and Off-Grids, and this is mainly attributable to the increase in Operational Costs.

Table 10: Base Tariffs for the Customers served by Mini-Grids and Off-Grids (Shs/kWh)

	2014	2015	2016	2017	2018	2019	2020
KIL							
Domestic	509.1	517.3	583.3	590.5	598.4	611.5	626.4
Commercial	400.8	400.8	527.2	532.8	543.7	556.3	571.6
Medium Industrial						553.1	566.9
PACMECS							
Domestic	498.6	561.6	572.6	590.5	610.2	635	669.4
Commercial	392.9	532.6	536.5	544.9	562.1	593.9	614
BECS							
Domestic	467.4	515.5	598	618.6	635.3	635.3	635.3
Commercial	375	479.7	534.7	558	561.2	561.2	561.2
KRECS							
Domestic		524.9	524.9	615.3	615.3	615.3	750.8
Commercial		448.4	448.4	552.3	552.3	552.3	604.8
Medium Industrial							594.8
WENRECO							
Domestic	440.4	529.3	594.8	631	642.5	710	710
Commercial	433.6	498.5	560.2	594.3	605.1	643.2	643.2
Medium Industrial	433.6	498.5	560.2	594.3	605.1	620	620
Large Industrial						373	373
Street Lights						710	710
KIS							
Domestic		518.7	667.4	518.7	692.1	707.8	742.8
Commercial		567.8	764.2	567.8	806.2	821.2	846.2
Medium Industrial							846.2

7.0 INDUSTRY PROJECTIONS FOR 2020

7.1 Plants Expected for Commissioning

The Installed Capacity was projected to increase by **114 MW** by the end of 2020. The Plants expected to be commissioned in 2021 are presented in Table 11.

Table 11: Power Generation Plants Expected to Achieve Commercial Date of Operation in 2021

Plant			
Achwa 1	42	Hydro	May-21
Kikagati - Murongo HPP	14	Hydro	Jul-21
SCOUL Cogeneration Power Plant	25	Bagasse	Jun-21
Nyamagasani 1 HPP	15	Hydro	May-21
Nyamagasani 2 HPP	6	Hydro	Feb-21
Kakaka HPP	4.6	Hydro	Jul-21
Lolwe Island Off-Grid	0.55	Solar Hybrid	Jul-21
Bunjakko Island Off-Grid	0.12	Solar Hybrid	Jun-21
Nyamwamba 2	7.2	Hydro	Nov-21
Total	**114.37**		

APPENDICES

Appendix 1: List of Operational Generation Plants by December 2020

No	Name	Purpose	Licensed Capacity (MW)	Technology	District Located	Year Commissioned
1	Tororo PV Power Plant	GS	10.00	Solar	Tororo	2020
2	Electro-Maxx Uganda Limited	OFG	8.0	Thermal (HFO)	Arua	2020
3	Timex Bukinda HPP	GS	6.50	Small Hydro	Kibale/Hoima	2020
4	Isimba HPP	GS	183.00	Large Hydro	Kayunga	2019
5	Achwa 2 HPP	GS	42.00	Large Hydro	Pader-Kitgum-Gulu	2019
6	Siti 2 Small Hydro Power Plant	GS	16.50	Small Hydro	Bukwo	2019
7	Bufulubi Solar Plant	GS	10.00	Solar	Mayuge	2019
8	Kyambura HPP	GS	7.60	Small Hydro	Rubirizi	2019
9	Ndugutu HPP	GS	5.90	Small Hydro	Bundibugyo	2019
10	Sindila (Butama) HPP	GS	5.25	Small Hydro	Bundibugyo	2019
11	Kabulasoke Solar PV Power Plant	GS	20.0	Solar	Kabulasoke	2018
12	Nkusi HPP	GS	9.6	Small Hydro	Hoima	2018
13	Nyamwamba HPP	GS	9.2	Small Hydro	Kasese	2018
14	Lubilia HPP	GS	5.4	Small Hydro	Kasese	2018
15	Waki HPP	GS	4.8	Small Hydro	Hoima	2018
16	Mahoma HPP	GS	2.7	Small Hydro	Kabarole	2018
17	Tororo Solar North Plant	GS	10.0	Solar	Tororo	2017
18	Muvumbe HPP	GS	6.5	Small Hydro	Kabale	2017
19	Rwimi HPP	GS	5.5	Small Hydro	Kasese	2017
20	Siti I Small Hydro Power Plant	GS	5.0	Small Hydro	Bukwo	2017
21	Access Uganda Solar Limited Power Plant	GS	10.0	Solar	Soroti	2016
22	Absolute-Kitobo	OFG	0.2	Solar	Kalangala	2016
23	Sugar And Allied Industries Limited	OGGS	11.9	Cogeneration	Kaliro	2015
24	Mayuge Sugar Limited	OG	9.2	Cogeneration	Mayuge	2015
25	Kalangala Infrastructure	OFG	1.0	Diesel	Kalangala	2015

No	Name	Purpose	Licensed Capacity (MW)	Technology	District Located	Year Commissioned
	Services					
26	Kalangala Infrastructure Services	OFG	0.6	Solar	Kalangala	2015
27	Kakira Sugar Limited	OGGS	51.1	Cogeneration	Jinja	2014
28	Bwindi Community	OFG	0.1	Small Hydro	Kanungu	2014
29	Pamoja-Tiribogo	OFG	0.032	Biomass	Mpigi	2014
30	Pamoja-Ssekanyonyi	OFG	0.011	Biomass	Mityana	2014
31	Bujagali Energy Limited	GS	250.0	Large Hydro	Buikwe	2012
32	Hydromax Limited – Buseruka	GS	9.0	Small Hydro	Hoima	2012
33	Nyagak 1 – WENRECO	OFG	3.5	Small Hydro	Zombo	2012
34	Africa EMS Mpanga	GS	18.0	Small Hydro	Kamwenge	2011
35	Eco Power Uganda Limited-Ishasha	GS	6.6	Small Hydro	Kanungu	2011
36	Electro-Maxx Uganda Limited	GS	42.0	Thermal (HFO)	Tororo	2010
37	Kinyara Sugar Limited	OGGS	14.5	Cogeneration	Masindi	2010
38	Bugoye Hydro Limited (Mubuku II)	GS	13.0	Small Hydro	Kasese	2009
39	Kisiizi Hospital	OFG	0.36	Small Hydro	Rukungiri	2009
40	Kisiizi Hospital	OFG	0.08	Diesel	Rukungiri	2009
41	Jacobsen Uganda Power Plant	GS	50.0	Thermal (HFO)	Mukono	2008
42	Kasese Cobalt Company Limited (Mubuku III)	GS	9.9	Small Hydro	Kasese	2008
43	Kiira Power Station	GS	200.0	Large Hydro	Jinja	2000
44	Sugar Corporation Of Uganda Limited	OG	9.5	Cogeneration	Buikwe	1998
45	Kilembe Mines Limited (Mubuku I)	OGGS	5.0	Small Hydro	Kasese	1956

No	Name	Purpose	Licensed Capacity (MW)	Technology	District Located	Year Commissioned
46	Nalubaale Power Station	GS	180.0	Large Hydro	Buikwe	1954
	Total		1,269.1			
KEY: GS=Grid Supply; OG=Own Generation; OGGS=Own Generation and Grid Supply; OFG=Off-Grid Generation						

Appendix 2: UETCL Energy Purchases (GWh) by Source

Plant	2015	2016	2017	2018	2019	2020
Eskom (Nalubaale and Kiira)	1,330.80	1,462.20	1,528.30	1,512.80	1,322.70	1,179.80
Bujagali HPP	1,414.60	1,504.90	1,655.10	1,643.80	1,464.40	1,392.00
Isimba HPP				0.9	718.8	857.3
Achwa 2 HPP						5.652
Mobuku III HPP	61.9	56.8	59.5	59.8	56	45.5
Mobuku I HPP	24.5	25.8	25.6	14.7	11.9	3.8
Bugoye (Mobuku II) HPP	77.3	65.8	32.2	77.9	67.1	67.5
Mpanga HPP	56.1	85.6	54.8	79.1	66.7	94.6
Eco-Power-Ishasha HPP	24.8	25.2	16.4	21	14.4	16.8
Kabalega (Buseruka) HPP	62.3	34.5	41.2	37	46.7	72.5
Muvumbe HPP			16	28.1	28.8	35.2
Siti 1 HPP			11.4	19.7	20	24.5
Rwimi HPP			6.9	28.8	25.1	28.1
Nyamwamba HPP				30.4	29.6	16.5
Lubilia HPP				13.7	15.8	19.9
Nkusi HPP				29.3	42.7	66.8
Hydromax Nkusi (Waki) HPP				1.1	12.9	17.6
Mahoma HPP				3.6	9.6	11.7
Electro-Maxx	61	61.5	144.3	88.6	34	3.6
Jacobsen Uganda Power Plant	12.3	4.7	86.8	110.3	68.8	53.6
Kakira Sugar	164.3	148.8	126.1	175.2	161.7	150.2
Kinyara Sugar	8.7	7.9	7.8	5.7	7.5	7.5
SAIL Kaliro Power Plant	1.1	20.8	15.9	25.6	27.6	30.5
Access Solar PV Plant		3.7	19.9	16.3	15.8	15.9
Tororo Solar PV Plant			5.5	15.8	16	16
Kabulasoke Solar Plant				0.3	32.1	31.6
Bufulubi Solar PV					14.2	17.2
Sindila HPP					9.6	14.7
Ndugutu HPP					4.8	19
Siti 2 HPP					2.2	6.29
Ziba HPP					15.9	33.72
Kenya	44.7	37	9.6	34.8	16.2	16.5
Rwanda	3.8	3.8	3.8	4.2	4.3	4.9

Appendix 3: Distribution of Energy sold by UETCL for the Period over the Years in (GWh)

Source	2015	2016	2017	2018	2019	2020
Umeme Limited	3053.2	3180.8	3333.9	3608.1	3824.5	3,883.5
KIL	4.6	4.9	5.5	6.4	6.8	7.9
BECS	2.2	2.9	2.9	3.1	5.1	9.2
PACMECS	2.2	2.3	2.2	2.3	2.4	2.2
KRECS	2.1	2.6	3.8	4.2	4.4	5.5
UEDCL	8.5	11.2	46.0	68.1	81.7	94.0
KPLC	55.7	83.2	225.9	129.2	208.1	132.0
TANESCO	61.4	77.2	79.2	93.4	81.1	81.4
RWANDA	2.7	2.4	9.3	8.3	7.5	6.7
DRC SNEL	2.3	2.2	2.5	2.2	2.5	2.2
Ferdsult	26.8	30.4	4.9	0.0	0.0	0.0
WENRECO	0.0	0.0	0.0	0.0	3.8	3.6

Appendix 4: Projects Under Construction

No.	Project	Capacity (MW)	Technology	District	COD
1	Karuma HPP	600	Hydro	Nwoya & Kiryandogo	Jun-22
2	Kakaka HPP	4.6	Hydro	Kasese	Jun-21
4	Kikagati HPP	14	Hydro	Isingiro	Aug-21
5	Nyamagasani 1 HPP	15	Hydro	Kasese	May-21
6	Nyamagasani 2 HPP	6	Hydro	Kasese	Feb-21
7	Achwa 1 HPP	42	Hydro	Pader	May-21
8	Nyagak 3 HPP	6.6	Hydro	Nebbi	Jul-22
9	Muyembe HPP	6.9	Hydro	Kapchorwa	May-22
10	Nyamwamba 2 HPP	7.8	Hydro	Kasese	Nov-21
11	SCOUL Bagasse Power Plant (Extension)	25	Cogeneration	Buikwe	Sep-21
12	Kinyara Bagasse Power Plant	40	Cogeneration	Masindi	
13	Hoima Sugar Bagasse Power Plant	12	Cogeneration	Kikuube	Feb-21
14	Mayuge Sugar Industries Ltd (Extension)	23	Cogeneration	Mayuge	May-22
15	Rupa Wind Power Project	20	Wind	Moroto	Sep-23
16	Kamuli Sugar Cogeneration Power Plant	3	Cogeneration	Kamuli	
17	Bunjako Off-Grid**	0.12	Solar-Hybrid	Bunjako Island, Mpigi	Sep-21
18	Lolwe Island off-Grid	0.55	Solar-Hybrid	Namayingo	Jun-21
	**License Exempted				

Appendix 5: Licensed but have not Yet Began Construction

No	Project	Capacity (MW)	Technology	District
1	Senok Atari 1 HPP	3.25	Hydro	Kapchorwa
2	Kabeywa 1 HPP	6.5	Hydro	Bulambuli
3	Kabeywa 2 HPP	2.0	Hydro	Kapchorwa
4	Sironko HPP	7	Hydro	Sironko
5	Nyamabuye HPP	7	Hydro	Kisoro
6	Nyabuhuka-Mujunju HPP	3.2	Hydro	Bunyangabu
7	Simu HPP	9.5	Hydro	Bulambuli
8	Sisi HPP	7	Hydro	Bulambuli
9	Kigwabya HPP	4.2	Hydro	Kagadi
10	Hoimo HPP	3.312	Hydro	Hoima

No	Project	Capacity (MW)	Technology	District
11	Igassa HPP	0.276	Hydro	Bunyangabu
12	Kabasanja HPP	0.402	Hydro	Kabarole
13	Tokwe HPP	0.331	Hydro	Bundibugyo
14	Nyahuka HPP	0.693	Hydro	Bundibugyo
15	Nsongya HPP	0.684	Hydro	Bunyangabu
16	Katooke HPP	0.311	Hydro	Kasese
17	Nchwera HPP	0.463	Hydro	Mitooma
18	Warugo HPP	0.463	Hydro	Bushenyi
19	Xsabo Nkoge Solar	20	Solar	Mubende
20	Ulepi Solar project by Ituka Westnile	10	Solar	Madi-Okollo
21	Mukoki HPP	3.4	Hydro	Kabale
22	Albatross Thermal Plant	50	Thermal	Hoima
23	Bukurungo	0.05	Biomass	Kamwenge
24	Winch Lamwo LTD (25 offgrid sites) **	0.936	Solar-Hybrid	Lamwo
25	WeLight (15 Off-Grid sites) **	0.449	Solar-Hybrid	Rakai and isingiro
	Total			
	**License exempted			

Appendix 6: Projects that had applied for Licenses and still under Review as at the time of Reporting

No	Project	Capacity (MW)	Technology	Location
1	Pramukh Steel Bagasse Power Plant	8	Cogeneration	Buikwe
2	Mitano HPP	13.6	Hydro	Rukungiri
3	Kisinga HPP	2.5	Hydro	Kasese

Appendix 7: Projects at Feasibility Study

No	Project	Capacity (MW)	Technology	Location
1	Ayago HPP on R. Nile	840	Hydro	Kiryandongo and Nwoya
2	Kiiba HPP on R. Nile	400	Hydro	Kiryandongo and Nwoya
3	Oriang HPP on R.Nile	392	Hydro	Kiryandongo and Nwoya
4	Muzizi HPP on R. Muzizi	48	Hydro	Kibaale
5	Unergy Biomass Power Project	20	Biomass	Masindi
6	Pece Biomass Power Project	20	Biomass	Gulu
7	Panyimur Geothermal Power Project	10	Geothermal	Packwach
8	Nsongi HPP on R. Nsongya	7	Hydro	Bunyangabu
9	Achwa-Aber Multipurpose HPP on R. Achwa	135	Hydro	Pader
10	Kiraboha HPP on R. Rwimi	5	Hydro	Kasese
11	Latoro HPP on R. Aswa	4.2	Hydro	Nwoya
12	Buwangani HPP on R. Manafwa	7	Hydro	Manafwa
13	Nyakinengo SHP on R. Nchwera	5.2	Hydro	Kanungu
14	Lower Achwa HPP on R. Achwa	17.4	Hydro	Lamwo and Amuru
15	Awere HPP on R. Achwa	18	Hydro	Pader
16	Okollo SHPP on R. Ora	5	Hydro	Arua
17	Rwembya SHPP on R. Rwembya	0.4	Hydro	Kasese
18	Lwakhakha HPP on R. Lwakhakha	6.7	Hydro	Namisindwa
19	Jinja Waste to Energy Power Project	2.5	Biomass	Jinja
20	Maziba HPP on R. Nyakizumba	1.18	Hydro	Kabale
21	Excess Associated Gas Thermal Power Project	146	Thermal	Albertine Region
22	Ngenge HPP on Rivers Ngenge and Emuchoni	13.8	Hydro	Kween
23	Nengo Bridge HPP on R. Mitano	7.5	Hydro	Kanungu
24	Ngoryomwo/Atari 2 HPP on R. Atari	2	Hydro	Kapchorwa and Kween
25	Kingfisher Gas to Power Project	39.1	Thermal	Albertine Region
26	Rubabo HPP on R. Kanyabaha	1.8	Hydro	Kabale