



GHANA WHOLESALE ELECTRICITY MARKET BULLETIN

MARKET WATCH

Monthly Market Data Analysis

ISSUE NO. 56

1st August 2020 to 31st August 2020

This Bulletin covers major developments in the Wholesale Electricity Market (WEM) of Ghana from 1st August, 2020 to 31st August, 2020. It analyses the performance of the key WEM indicators against their benchmarks, and examines the likely implications of any discernable trends in the market. This edition of the WEM bulletin presents a review of the GWEM for August 2020.

The Electricity Market Oversight Panel (EMOP) would very much appreciate and welcome comments from readers on the Bulletin. Reasonable care has been taken to ensure the information contained in this Bulletin is accurate at the time of publication, nevertheless, any errors, omissions or inaccuracies therein are regretted.

HIGHLIGHTS OF THE MONTH

In August 2020, the System Peak Load recorded reduced marginally by 0.6%, from 2,652.54 MW in July 2020 to 2,637.4 MW. The System Peak Load recorded in August 2020 was 9.4% lower than the 2,912 MW projected in the 2020 ESP. The total electricity export at the System Peak Load was 251 MW, which was supplied to CIE, CEB and SONABEL. On the other hand, the Ghana Peak Load of 2,440.33 MW recorded for August 2020 was 0.1% marginally lower than the 2,437.7 MW recorded in July 2020. The Ghana Peak Load recorded in August 2020 was 0.1% marginally lower than the 2,442 MW projected in the 2020 ESP. A reduction of 5.5% was recorded for the average electricity demand, from 2,264.66 MW in July 2020 to 2,140.14 MW in August 2020.

The average electricity supplied in August 2020 decreased by 3.1%, from 52.58 GWh per day in July 2020 to 50.97 GWh. As a result of this reduction, the total electricity supplied decreased from 1,622.4 GWh in July 2020 to 1,580.13 GWh in August 2020. Out of the total electricity supplied in August 2020, 8.72 GWh was imported from CIE, with the remaining 1,571.41 GWh supplied through domestic sources. A total of 111.55 GWh was exported to CEB, CIE and SONABEL in August 2020.

The contribution of the total electricity supplied from the hydroelectric power plants constituted 34.6% of the total electricity supplied in August 2020. The electricity generated from thermal sources accounted for 64.5% of the total electricity supplied in August 2020. The electricity generated from renewable sources continued to account for 0.3% of the total electricity supply.

Table 1. Projected and Actual Outturn of electricity demand and supply in July 2020 and August 2020.

	July 2020		August 2020	
	Projected	Actual Outturn	Projected	Actual Outturn
Total Supply (GWh)	1,579.3	1,622.4	1,557.3	1,580.1
Source by Power Plants (GWh)				
AKOSOMBO	375.0	321.8	375.0	369.3
KPONG	68.0	64.3	68.0	69.9
BUI	39.0	92.9	39.0	108.8
Sunon Asogli	275.0	366.4	273.0	353.4
TAPCO	167.0	115.9	89.0	92.3
TICO	195.0	52.1	98.0	17.8
TTPP	-	72.5	-	41.9
CENIT	-	77.2	-	76.8
TTPPP	-	5.7	-	7.6
Amandi	99.0	-	99.0	3.5
Karpowership	268.0	282.4	268.0	260.2
AMERI	-	108.0	124.0	73.8
KTPP	-	-	-	35.8
Trojan Power	-	-	-	-
CENPOWER	89.0	-	120.0	-
AKSA	-	13.8	-	16.9
Bridge Power	-	-	-	-
BXC Solar	2.0	1.8	2.0	2.2
Safisana	-	-	-	-
VRA Solar	0.3	0.2	0.3	0.2
Genser	-	39.5	-	38.5
Meinergy	2.0	1.9	2.0	2.4
Total Generation (GWh)	1,579.3	1,616.2	1,557.3	1,571.4
Imports (GWh)	-	6.2	-	8.7
Total Supply (GWh)	1,579.3	1,622.4	1,557.3	1,580.1
Deficit/Over supply (GWh)	-	43.1	-	22.8
Ghana Coincident Peak Load (MW)	2,574.0	2,437.7	2,574.0	2,440.3
System Coincident Peak Load (MW)	2,894.0	2,632.5	2,894.0	2,637.4

HIGHLIGHTS OF THE MONTH

The Akosombo GS recorded a reduction in the rate of increase in the water level of the dam, from 0.045 feet per day in July 2020 to 0.022 feet per day in August 2020. Similarly, the Bui GS recorded a decrease in the rate of decrease in the water level from 0.19 feet per day in July 2020 to 0.01 feet per day in August 2020.

The share of the total natural gas consumed in the total fuel mix in August 2020 reduced from 98.9% in July 2020 to 98.5%. This was as a result of an increase in the electricity generation from the AKSA power plant. Consequently, the share of the total liquid fuel consumed increased from 1.1% in July 2020 to 1.5% in August 2020.

ELECTRICITY DEMAND AND SUPPLY

Electricity Demand

The System Peak Load of 2,637.4 MW recorded in August 2020 was 0.6% lower than the 2,652.54 MW recorded in July 2020. Similarly, the System Peak Load recorded for August 2020 was 9.4% lower than the 2,912 MW projected in the 2020 ESP. At the System Peak Load in August 2020, a total of 251 MW was exported to CEB, CIE and SONABEL. However, there was no electricity import from CIE at the System Peak Load in August 2020. The electricity generated from the hydroelectric power plants constituted 46.4% of the total load supplied with the remaining 53.6% from thermal sources. Contrary to the decrease in the System Peak Load, the Ghana Peak Load increased marginally by 0.1% to 2,440.33 MW in August 2020 from 2,437.7 MW in July 2020. The hydroelectric generation sources contributed 44.9% of the Ghana Peak Load while the thermal generation sources contributed the remaining 55.1% in August 2020. The average electricity demanded in August was 2,126.19 MW, which was 5.7% lower than the 2,254.11 MW recorded in July 2020 and was 1.5% higher than the 2,093 MW projected in the 2020 ESP. The System Load Factor recorded for August 2020 was 78.3%, which was lower than 80% recorded in July 2020.

Electricity supply

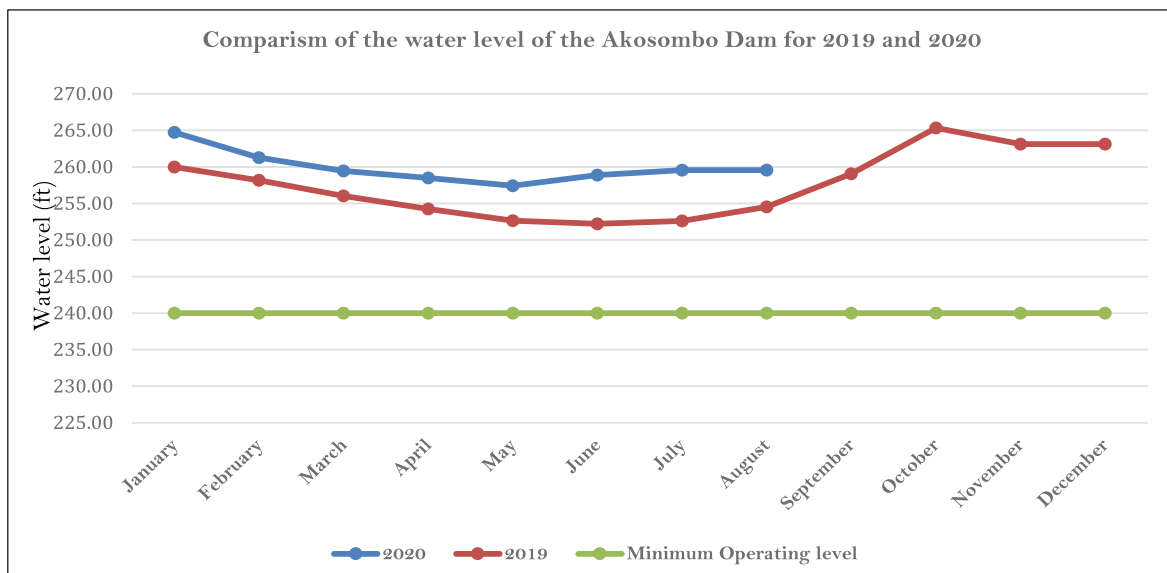
On average, the electricity supplied in August 2020 reduced by 3.1%, from 52.58 GWh per day in July 2020 to 50.97 GWh. In a similar fashion, the total electricity supplied in August 2020 reduced from 1,622.39 GWh in July 2020 to 1,580.13 GWh. The total electricity supplied in August 2020 was 1.5% higher than the 1,557.3 GWh projected in the 2020 ESP. The total electricity supplied in August constituted 8.72 GWh of import from CIE and 1,571.41 GWh from domestic sources. In August 2020, a total of 111.55 GWh was exported to CIE, CEB and SONABEL. Out of the total electricity exported, 28.13 GWh, 4.93 GWh and 78.49 GWh was supplied to CEB, CIE and SONABEL respectively. The total electricity supplied for domestic consumption decreased marginally by 1%, from 1,484.77 GWh in July 2020 to 1,468.58 GWh in August 2020. The contribution of the electricity generated thermal sources was 64.5%, while the generation from hydroelectric sources was 34.6% and solar power generation was 0.3%.

HYDRO DAM LEVELS

Akosombo Dam Water Level continued to increase in August 2020

The Akosombo dam continued to record an increase in the water level but at a reduced rate of 0.022 feet per day in August 2020 from 0.045 feet per day in July 2020. The water level of the dam recorded at the beginning of the month dropped by 0.69 feet, from 258.88 feet to 259.57 feet. The month end water level recorded for the Akosombo GS was 19.57 feet above the minimum operating level of the dam and was 5.02 feet above the water level recorded for the same period in 2019.

Figure 1: Month-End Water Level for Akosombo Dam from January 2019 to August 2020.



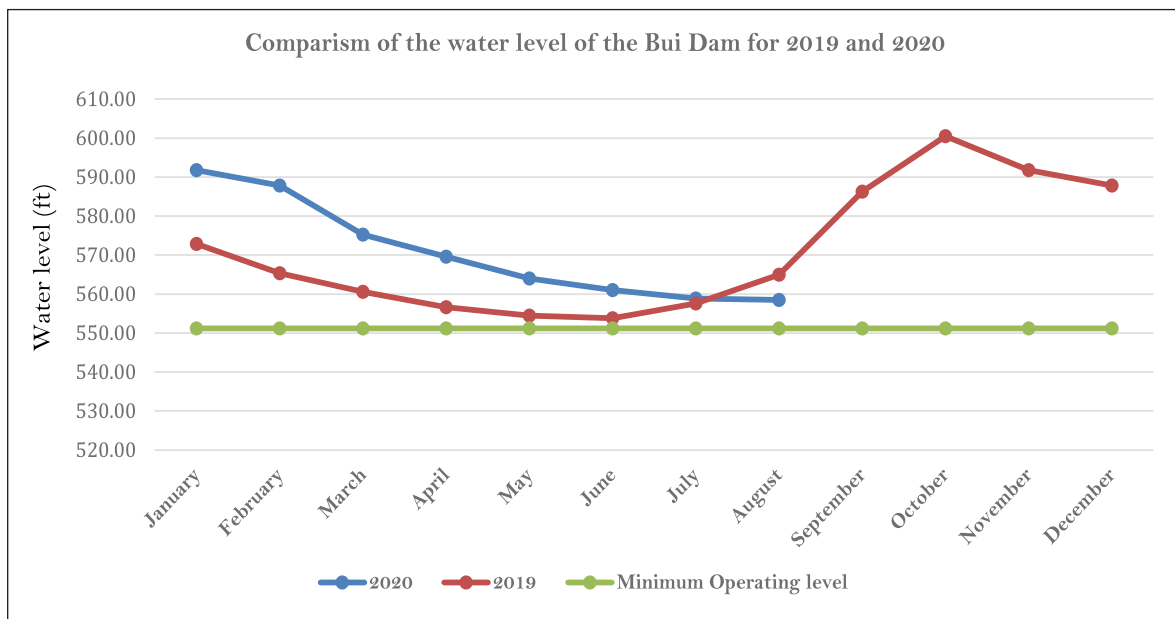
HIGHLIGHTS OF THE MONTH

Bui Dam Water Level continued to drop but at a reduced rate in August 2020

The rate of drop in the water level for the Bui GS decreased from 0.071 feet per day in July 2020 to 0.01 feet per day in August 2020. The water level of 558.83 feet recorded at the beginning of the month dropped by 0.33 feet to 558.5 feet at the end of the month. The water level recorded at the month end was 7.23 feet above the minimum operating water level of the dam and was 6.49 feet below the water level recorded for the same period in 2019.

Figure 2 shows the comparative end of month trajectory of the level of water in the Bui dam from January 2019 to August 2020.

Figure 2: Month-End Water Level for Bui Dam from January 2019 to August 2020



FUEL SUPPLY FOR POWER GENERATION

Natural gas imports from the West Africa Gas Pipeline Company (WAPCo) decreased in August 2020

WAPCo, in August 2020 witnessed a decrease in the average natural gas supplied by 11%, from 65.31 MMSCFD in July 2020 to 58 MMSCFD. Consequently, the total natural gas by WAPCo decreased from 2,024.6 MMSCF in July 2020 to 1,801.77 MMSCF in August 2020. The total natural gas imported constituted 22.2% of the total natural gas consumed in August 2020, which was marginally higher than the 22% recorded in July 2020. In the total fuel mix, the share of the natural gas imported was 21.8% which was the same in July 2020.

Natural gas supply from domestic sources decreased in August 2020

The average natural gas supplied from the domestic fields reduced by 11%, from 227.52 MMSCFD in July 2020 to 202.48 MMSCFD in August 2020. Similarly, the total natural gas supplied from the domestic sources decreased from 7,053.22 MMSCF in July 2020 to 6,276.76 MMSCF in August 2020. The share of the natural gas supplied from the domestic constituted 77.9% of the total natural gas consumed in August 2020 which was lower than the 78% recorded in July 2020. In the total fuel mix, the share of the natural gas supplied from domestic sources was 76.7% which was lower than the 77.1% recorded in July 2020.

Liquid Fuel consumption increased in August 2020

The total liquid fuel consumed in August 2020 increased by 23%, from 18,685.16 barrels in July 2020 to 23,076.68 barrels. The increase in liquid fuel consumption was due to increased generation from AKSA in August 2020. The share of the total liquid fuel consumed increased from 1.1% in July 2020 to 1.5% in August 2020. The Heavy Fuel Oil (HFO) continued to be the only liquid fuel consumed in July 2020 just as June 2020.

HIGHLIGHTS OF THE MONTH

Plant by Plant Highlights

Electricity Generation at the Akosombo Generation Station (GS) increased in August 2020

The average electricity supplied by the Akosombo GS increased by 14.8%, from 10.38 GWh per day in July to 11.91 GWh per day in August 2020. Consequently, the total electricity supplied by the power plant increased from 321.79 GWh in July 2020 to 369.29 GWh in August 2020. The Akosombo GS' total supply in August 2020 constituted 23.3% of the total electricity supplied but was 1.5% lower than the 375 GWh projected in the 2020 ESP. The hydroelectric power plant contributed 902.3 MW to the System Peak Load, representing 34.2% in August 2020.

Electricity supply by Kpong Generation Station (GS) increased in August 2020

There was an increase in the average electricity supplied by the Kpong GS by 8.6%, from 2.07 GWh per day in July 2020 to 2.25 GWh per day in August 2020. Likewise, the total electricity supplied by the Kpong GS increased from 64.31 GWh in July 2020 to 69.85 GWh in August 2020. The total electricity supplied by the hydroelectric power plant in August 2020 was 2.7% higher than the 68 GWh projected in the 2020 ESP and also contributed 4.4% of the total electricity supplied. The Kpong GS contributed 4.3% of the System Peak Load recorded in August 2020, which translates into 114.1 MW.

Electricity supply by the Bui Generation Station (GS) increased in August 2020.

In August 2020, the Bui GS recorded an increase of 17.1% in the average electricity supplied, from 3 GWh per day in July 2020 to 3.51 GWh per day. Similarly, the total electricity supplied by the hydroelectric power plant increased from 92.95 GWh in July 2020 to 108.82 GWh in August 2020. Bui GS' total electricity supplied in August 2020 was over 170% more than the 39 GWh projected in the 2020 ESP and constituted 6.9% of the total electricity supplied. The hydroelectric power plant contributed 207.6 MW to the System Peak Load, representing 7.9% of the total load supplied at peak.

The Sunon Asogli Power Plant (SAPP) decreased generation in August 2020

The SAPP's average electricity supplied in August 2020 decreased from 11.82 GWh per day in July 2020 to 11.4 GW by 3.6%. Likewise, the total electricity supplied by SAPP decreased from 366.38 GWh in July 2020 to 353.38 GWh in August 2020. The thermal power plant's total electricity supplied in August 2020 constituted 22.3% of the total electricity supplied and was 29.4% higher than the 273 GWh projected in the 2020 ESP. The SAPP contributed 14% of the total load served at the System Peak Load for August 2020, translating into 369 MW. The thermal power plant consumed a 2,510.2 MMSCF of natural gas at an estimated heat rate of 7,868.98 Btu/kWh in August 2020, which was marginally lower than the 7,895.73 Btu/kWh projected in the 2020 ESP.

Ameri Energy Power Plant's generation decreased in August 2020

The Ameri power plant's average electricity supplied decreased by 3.16%, from 3.48 GWh per day in July 2020 to 2.38 GWh per day in August 2020. Consequently, the total electricity supplied by the Ameri plant in August 2020 was 73.85 GWh, which was lower than the 107.96 GWh in July 2020. The total electricity supplied by the thermal power plant was 40.5% lower than the 124 GWh projected in the 2020 ESP and constituted 4.7% of the total electricity supplied in August 2020. The Ameri power plant generated 96.5 MW at the System Peak Load, which represents 3.7% of the peak load in August 2020. A total of 699.89 MMSCF of natural gas was consumed by the thermal power plant at an estimated heat rate of 10,499 Btu/kWh in August 2020, which was higher than 10,111.73 Btu/kWh recorded in July 2020.

The Karpowership Power Plant's generation decreased in August 2020

The average electricity supplied by the Karpowership decreased by 7.9%, from 9.11 GWh in July 2020 to 8.39 GWh in August 2020. The power plant's total electricity supply of 260.22 GWh in August 2020 was lower than the 282.4 GWh recorded in August 2020. Karpowership's total supply in August 2020 was 2.9% lower than the 268 GWh projected in the 2020 ESP and constituted 16.5% of the total electricity supplied. The thermal power plant generated 419.6 MW to the System Peak Load, which translates into 15.9% of the peak load in August 2020. The thermal power plant consumed a total of 1,864.88 MMSCF of natural gas at an estimated heat rate of 7,938.93 Btu/kWh in August 2020, which was marginally higher than the 7,927.89 Btu/kWh recorded in July 2020.

AKSA Power Plant's generation increased in AKSA 2020

The AKSA power plant recorded an average electricity supply of 0.54 GWh per day in August 2020, which was 22.8% higher than the 0.44 GWh per day in July 2020. AKSA in August 2020 supplied a total of 16.89 GWh, which was higher than the 13.76 GWh in July 2020. The total electricity supplied by AKSA constituted 1.1% of the total electricity supplied in August 2020. The thermal power plant was however projected to be offline in the 2020 ESP. The thermal power plant generated 14.6 MW at the System Peak Load for August 2020, representing 0.6%. A total of 23,076.68 barrels of HFO was consumed by the power plant at an estimated heat rate of 8,263.72 Btu/kWh in August 2020 which was lower than the 8,216.51 Btu/kWh recorded in July 2020.

Takoradi International Company (TICO) generation decreased in August 2020

There was a significant reduction in the average electricity supplied by the TICO power plant by 65.8%, from 1.68 GWh per day in July 2020 to 0.58 GWh per day in August 2020. The total electricity supplied by the thermal power plant decreased from 52.09 GWh in July 2020 to 17.84 GWh in August 2020. The total electricity supplied by TICO constituted 1.1% of the total electricity supplied in August 2020 and 81.8% significantly lower than the 98 GWh projected in the 2020 ESP. TICO supplied 112.8 MW to the System Peak Load, representing 4.3% of the peak load in August 2020. The thermal power plant consumed a total of 158.83 MMSCF of natural gas at an estimated heat rate of 9,861.73 Btu/kWh in August 2020. The heat rate recorded in August 2020 was significantly lower than the 12,115.7 Btu/kWh recorded in July 2020.

Takoradi Power Company (TAPCo) Plant's generation decreased in August 2020

There was a decrease of 20.4% in the average electricity supplied by the TAPCo power plant in August 2020, from 3.74 GWh per day in July 2020 to 2.98 GWh per day. The power plant supplied a total of 92.27 GWh in August 2020 which was lower than the

HIGHLIGHTS OF THE MONTH

115.87 GWh in July 2020. TAPCo's total electricity supplied in August 2020 was 3.7% higher than the 89 GWh projected in the 2020 ESP and also constituted 5.8% of the total electricity supplied. 153.8 MW of electricity was supplied by TAPCo at the System Peak Load in August 2020 which constituted 5.8% of the peak load. The thermal power plant consumed a total of 702.33 MMSCF of natural gas at an estimated heat rate of 8,432.3 Btu/kWh in August 2020, which was higher than the 7,913.33 Btu/kWh recorded in July 2020.

CENIT Power Plant's decreased its generation in August 2020.

The electricity supplied by the CENIT power plant reduced marginally by 0.4% in August 2020. The average electricity supplied by CENIT decreased from 2.49 GWh per day in July 2020 to 2.48 GWh per day in August 2020. The CENIT power plant supplied a total of 76.84 GWh in August 2020, which was lower than the 77.16 GWh in July 2020. The total electricity supplied by the thermal power plant constituted 4.9% of the total electricity consumed in August 2020. The CENIT power plant was scheduled to be offline in August 2020. However, the thermal power plant supplied 110 MW to the System Peak Load in August 2020, which translates into 4.2%. The CENIT power plant consumed a total of 795.5 MMSCF of natural gas at an estimated heat rate of 11,468.12 Btu/kWh in August 2020. The heat rate recorded in August 2020 was lower than the 11,545.2 Btu/kWh recorded in July 2020.

Tema Thermal 1 Power Plant's (TT1PP) decreased its generation in August 2020

The average electricity supplied by the TT1PP decreased by 42.2%, from 2.34 GWh per day in July 2020 to 1.35 GWh in August 2020. Similarly, the total electricity supplied by the TT1PP decreased from 72.51 GWh in July 2020 to 41.92 GWh in August 2020. The total electricity supplied by TT1PP constituted 2.7% of the total electricity supplied in August 2020. The thermal power plant did not contribute to the System Peak Load in August 2020. The power plant consumed 468.5 MMSCF of natural gas at an estimated heat rate of 12,380.64 Btu/kWh in August 2020. The heat rate recorded in August 2020 was lower than the 12,509.55 Btu/kWh recorded in July 2020.

Kpone Thermal Power Plant (KTPP) resumed operation in August 2020

The Kpone Thermal Power Plant (KTPP) resumed operation in August 2020 and supplied a total of 35.8 GWh. The total electricity supplied by KTPP constituted 2.3% of the total electricity supplied in August 2020. The thermal power plant generated 103 MW to the System Peak Load in August 2020, which represents 3.9% of the peak load. A total of 358.84 MMSCF of natural gas was consumed by KTPP at an estimated heat rate of 11,105.15 Btu/kWh.

Embedded Electricity Generation

Genser Power Plant's generation decreased in August 2020

The average electricity supplied by Genser power plant decreased by 2.7%, from 1.28 GWh per day in July 2020 to 1.24 GWh per day in August 2020. The thermal power plant supplied a total of 38.46 GWh in August 2020, which was lower than the 39.53 GWh in July 2020. The power plant's total generation constituted 2.4% of the total electricity supplied in August 2020. 393.55 MMSCF of natural gas was consumed by the Genser power plant in August 2020 at an estimated heat rate of 11,335.62 Btu/kWh. The heat rate recorded in August 2020 was higher than the 11,080.23 Btu/kWh recorded in July 2020.

BXC Solar generation increased in August 2020

The BXC solar power plant recorded an increase in the total electricity supplied in August 2020, from 1.77 GWh in July 2020 to 2.23 GWh by 25.9%. The total electricity supplied by the solar power plant constituted 0.1% of the total electricity supplied in August 2020 and was 11.3% lower than the 2 GWh projected in the 2020 ESP.

Meinergy Solar generation increased in August 2020

The Meinergy solar power plant recorded an increase of 30.1% in the total electricity supplied in August 2020, from 1.86 GWh in June 2020 to 2.42 GWh. The total electricity supplied by the solar power plant was 20.8% lower than the 2 GWh projected in the 2020 ESP and constituted 0.2% of the total electricity supplied in August 2020.

VRA Navrongo Solar generation increased in August 2020

The total electricity supplied by the VRA solar increased by 9.7%, from 0.21 GWh in July 2020 to 0.22 GWh in August 2020. The solar power plant supplied 23.7% less than the projected 0.3 GWh in the 2020 ESP. The total electricity supplied by power plant constituted 0.01% of the total electricity supplied in August 2020.

Electricity Exchange – Import increased while Export decreased in July 2020

The average electricity imported from CIE increased in August 2020 by 41.6%, from 0.2 GWh per day in July 2020 to 0.28 GWh per day. Consequently, the total electricity imported increased from 6.16 GWh in July 2020 to 8.72 GWh in August 2020. The total electricity imported constituted 0.6% of the total electricity supplied in July 2020.

The average electricity export to CIE, CEB and SONABEL reduced by 19.3%, from 4.46 GWh per day in July 2020 to 3.6 GWh per day in August 2020. The average electricity exported to CEB in August 2020 decreased by 28.7%, from 1.27 GWh per day in July 2020 to 0.91 GWh per day. Similarly, the average electricity exported to CIE and SONABEL reduced by 47.6% and 12.1%, from 0.3 GWh per day and 2.88 GWh per day in July 2020 to 0.16 GWh per day and 2.53 GWh per day in August 2020 respectively. Consequently, the total electricity exported to CEB, CIE and SONABEL decreased from 39.43 GWh, 9.41 GWh and 89.34 GWh in July 2020 to 28.13 GWh, 4.93 GWh and 78.49 GWh in August 2020.

Ghana continued to be a net exporter of electricity in August 2020.

OPERATIONAL FACT SHEET

Monthly Market Data Analysis

Figure 3a: Shares of sources of fuel in the total fuel mix for power generation Figure 3b: Shares of fuel type in the generation fuel mix power generation

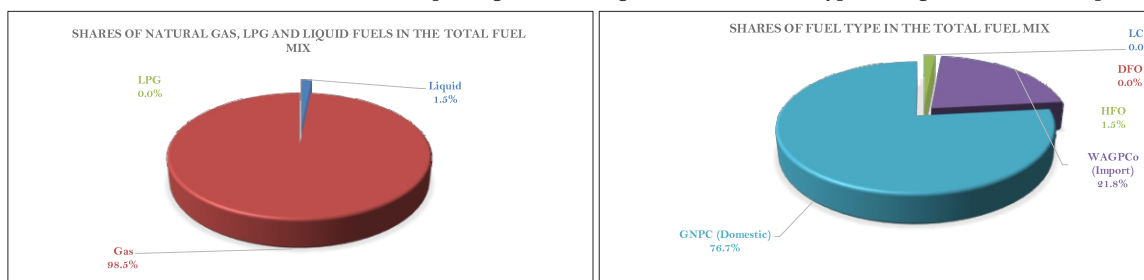


Figure 4a: Contribution of Natural Gas Supply by sources

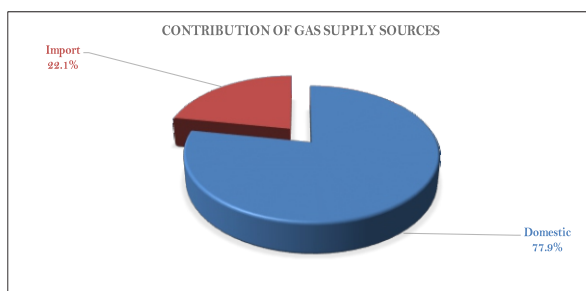
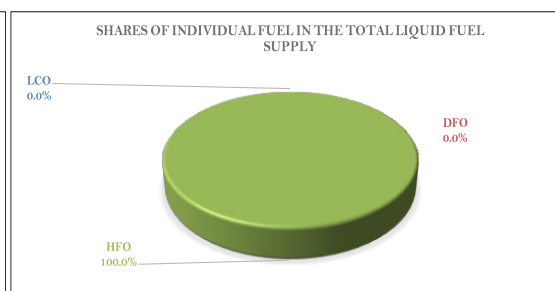


Figure 4b: Contribution of individual fuel in the liquid fuel supply

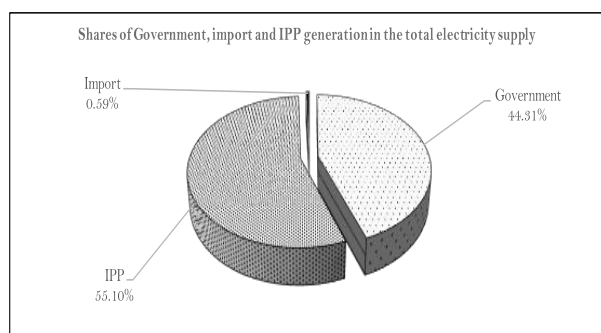
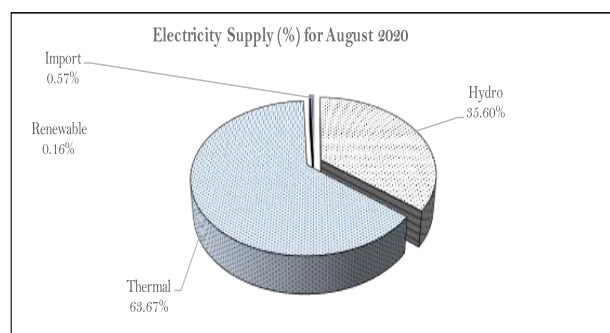


Peak Electricity Supply - August 2020			
Source of Supply	Generation at System Peak Load (MW)	Generation at Ghana Peak Load (MW)	Electricity Supply (GWh)
AKOSOMBO	902.30	858.36	369.29
KPONG	114.10	114.26	69.85
BUI	207.60	210.51	108.82
SEAP	369.00	536.20	353.38
TAPCO	153.80	155.69	92.27
TICO	112.80	-	17.84
TT1PP	-	-	41.92
CENIT	110.00	110.00	76.84
TT2PP	23.00	12.01	7.60
MRP	11.10	-	3.51
KARPOWER	419.60	420.00	260.22
AMERI	96.50	96.90	73.85
KTPP	103.00	103.00	35.80
Trojan Power	-	-	-
CENPOWER	-	-	-
AKSA	14.60	16.40	16.89
BXC Solar	-	-	2.23
Safisana	-	-	-
VRA Solar	-	-	0.23
Genser	-	-	38.46
IMPORT	2,637.40	2,633.33	8.72
Export to CIE at peak	52.00	27.00	28.13
Export to CEB at peak	60.00	48.00	4.93
Export to Sonabel	139.00	118.00	78.49
System Coincident Peak Load	2,637.40		
Ghana Coincedent Peak Load		2,440.33	
Total Supply			1,577.72
Total Supply without export			1,466.16

OPERATIONAL FACT SHEET

Average Monthly Flowrate (MMSCFD)	
Location	Monthly Average
Etoki	67.28
Tema WAGPCo	135.89
Aboadze WAGPCo	0.00
Aboadze GNGC	55.05
Reverse Flow	83.69

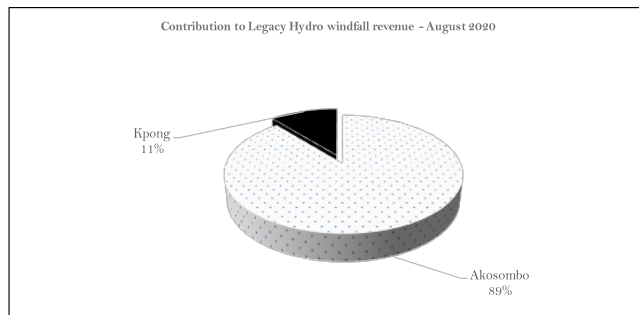
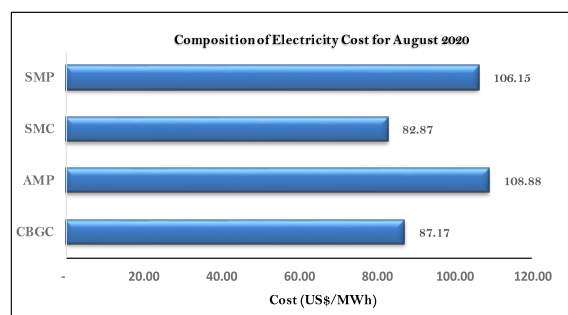
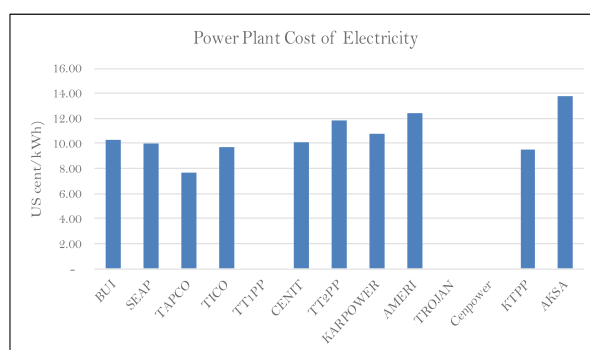
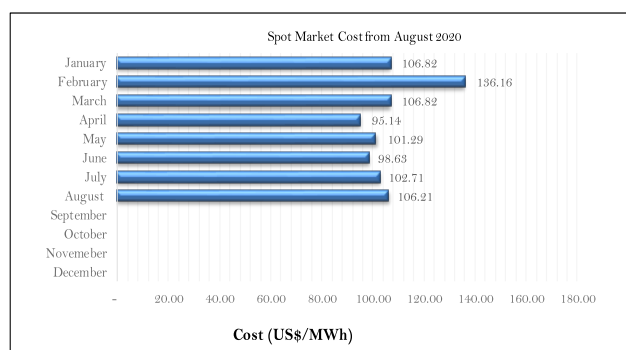
Aug-20			
	Beginning month (ft)	End month (ft)	Change in water level (feet)
Hydro Dam			
Akosombo	258.88	259.57	0.69
Bui	558.83	558.50	-0.33



Power Plant Data August 2020								
	Installed Capacity (MW)	Plant Capacity Utilization (%)	Electricity Generation (GWh)	Natural Gas Consumption (MMBtu)	LCO Consumption (MMBtu)	DFO Consumption (MMBtu)	HFO Consumption (MMBtu)	LPG Consumption (MMBtu)
Akosombo	1,020.00	48.66	369.29	-	-	-	-	-
Kpong	160.00	58.68	69.85	-	-	-	-	-
Bui	400.00	36.57	108.82	-	-	-	-	-
SEAP	560.00	84.82	353.38	2,780,750.22	-	-	-	-
TAPCO	330.00	37.58	92.27	778,031.69	-	-	-	-
TICO	340.00	7.05	17.84	175,943.21	-	-	-	-
TT1PP	126.00	44.72	41.92	518,996.43	-	-	-	-
CENIT	126.00	81.97	76.84	881,242.25	-	-	-	-
TT2PP	87.00	11.74	7.60	98,084.31	-	-	-	-
KARPOWER	470.00	74.42	260.22	2,065,874.57	-	-	-	-
AMERI	250.00	39.70	73.85	775,327.15	-	-	-	-
Cenpower	370.00	-	-	-	-	-	-	-
TROJAN	56.00	-	-	-	-	-	-	-
KTPP	220.00	21.87	35.80	397,512.01	-	-	-	-
AKSA	360.00	6.31	16.89	-	-	-	139,613.90	-
Amandi	192.00	2.45	3.51	41,507.80	-	-	-	-
Bridge Power	-	-	-	-	-	-	-	-
GENSER	95.00	54.41	38.46	435,967.92	-	-	-	-
VRA Solar	2.50	12.31	0.23	-	-	-	-	-
BXC	20.00	14.96	2.23	-	-	-	-	-
Meinergy	20.00	16.24	2.42	-	-	-	-	-
Total	5,204.50	40.58	1,571.41	8,949,237.56	-	-	139,613.90	-

ECONOMIC FACT SHEET

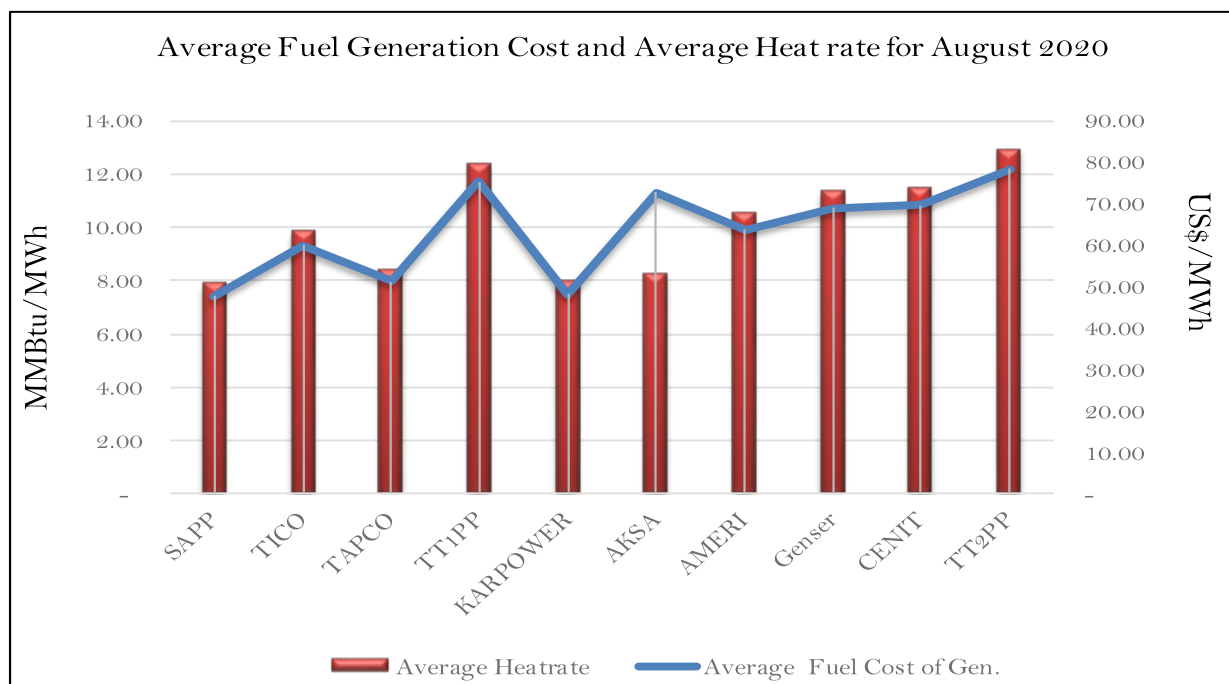
		Actual	Projected	Difference
Average Market Energy Cost	US\$/MWh	68.93	56.68	12.25
Average Market Capacity Charge (AMCC)	US\$/MWh	39.95	42.01	(2.06)
Total Average Market Cost (TAC)	US\$/MWh	108.88	98.69	10.19
System Marginal Cost (SMC)	US\$/MWh	82.87	59.04	23.82
System Marginal Capacity Charge (SMCC)	US\$/MWh	23.28	23.95	(0.67)
Spot Market Price (SMP)	US\$/MWh	106.15	82.99	23.16
Composite Bulk Generation Charge (CBGC)	US\$/MWh	87.17	87.17	-
Deviation of TAC from CBGC	US\$/MWh	(21.71)	(11.52)	(10.19)
Deviation of SMP from CBGC	US\$/MWh	(18.98)	4.18	(23.16)



	Gazetted Natural Gas Price	Weighted average Natural Gas Price	LCO	HFO	DFO	LPG
US\$/MMBTu	6.08		8.43	8.81	12.86	12.63

Average Fuel Prices		
Aug-20		
Fuel Type	Unit	Delivered Cost
Natural Gas	US\$/MMBTu	6.08
LCO	US\$/BBL	44.59
HFO	US\$/Tonne	246.63
DFO	US\$/Tonne	519.58
LPG	US\$/Tonne	538.87

ECONOMIC FACT SHEET



Power Plant	Capacity Utilization (%)	Average Heat rate (Btu/kWh)	Average Fuel Cost of Generation (US\$/MWh)	Emission Factor (kgCO ₂ /kWh)
Akosombo	48.66	-	-	-
Kpong	58.68	-	-	-
Bui	36.57	-	-	-
SAPP	84.82	7,868.98	47.84	0.42
TAPCO	37.58	8,432.30	51.27	0.45
TICO	7.05	9,861.73	59.96	0.52
TT1PP	44.72	12,380.64	75.27	0.66
CENIT	81.97	11,468.12	69.73	0.61
TT2PP	11.74	12,905.83	78.47	0.68
Amandi	74.42	11,839.41	71.98	0.63
KARPOWER	74.42	7,938.93	48.27	-
AMERI	39.70	10,499.00	63.83	0.56
TROJAN	-	-	-	-
KTPP	21.87	11,105.15	67.52	0.59
AKSA	6.31	8,263.72	72.84	0.65
Cenpower	-	-	-	-
Genser	54.41	11,335.62	68.92	0.60

TRANSACTIONS IN THE GHANA WHOLESALE ELECTRICITY MARKET FOR AUGUST 2020

2.1. ELECTRICITY DEMAND

2.1.1. System Demand Overview

The total electricity consumed in the Ghana Wholesale Electricity Market (GWEM) in August 2020 was 1,519.02 GWh. The total electricity consumed in August 2020 was 2.7% lower than the 1,561.76 GWh projected in the 2020 ESP. Out of the total electricity consumed in August 2020, the Regulated Market accounted for 77.4%, the De-Regulated Market accounted for 9.8% and 12.8% for the Export Market. Figure 1 shows the shares of electricity according to the type of market whiles figure 2 shows the shares of electricity consumed by each consumer.

Figure 1: Shares of the electricity consumed in the various market in August 2020

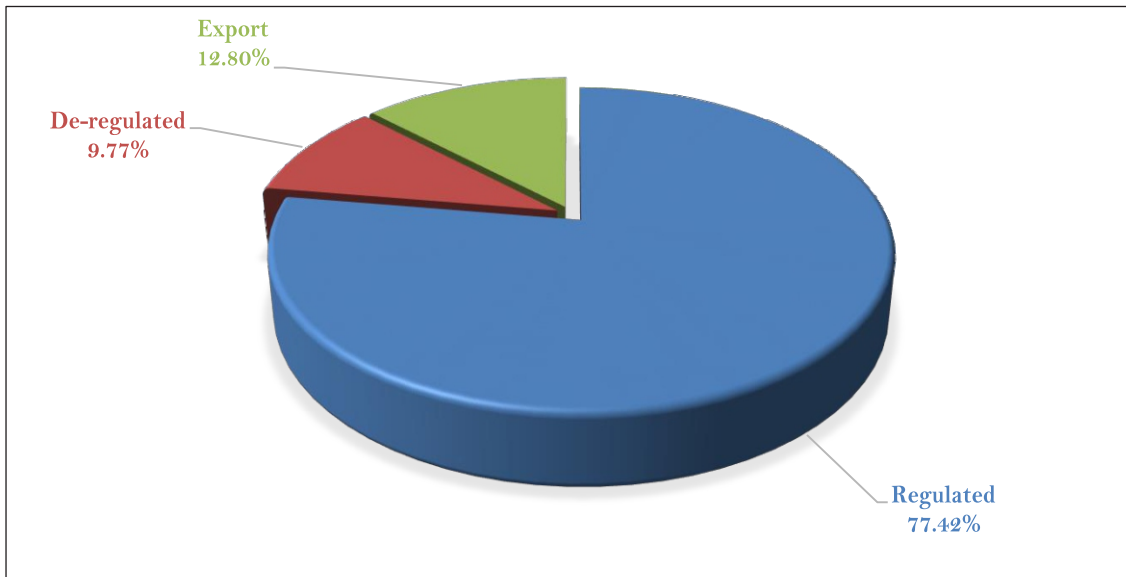
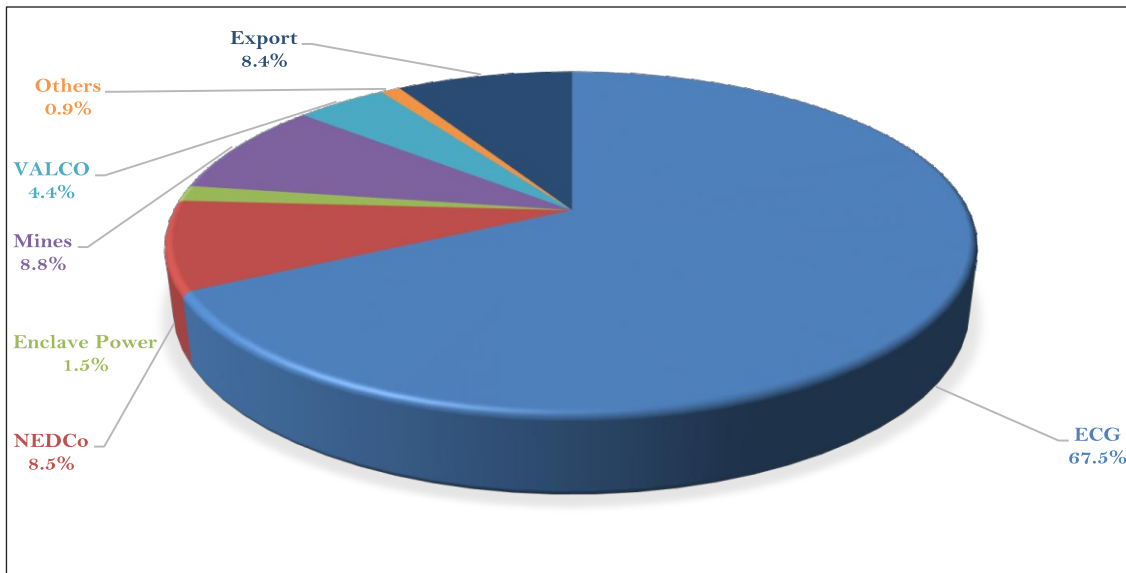


Figure 2: Shares of the electricity consumed by each consumer in August 2020



2.2.2 Regulated Market Demand

The average electricity demand for the Regulated Market was 1,514.4 MW in August 2020, which was 0.9% lower than the 1,528.4 MW recorded in July 2020.

The total electricity consumed in the Regulated Market in July 2020 constituted 77% of the total electricity consumed.

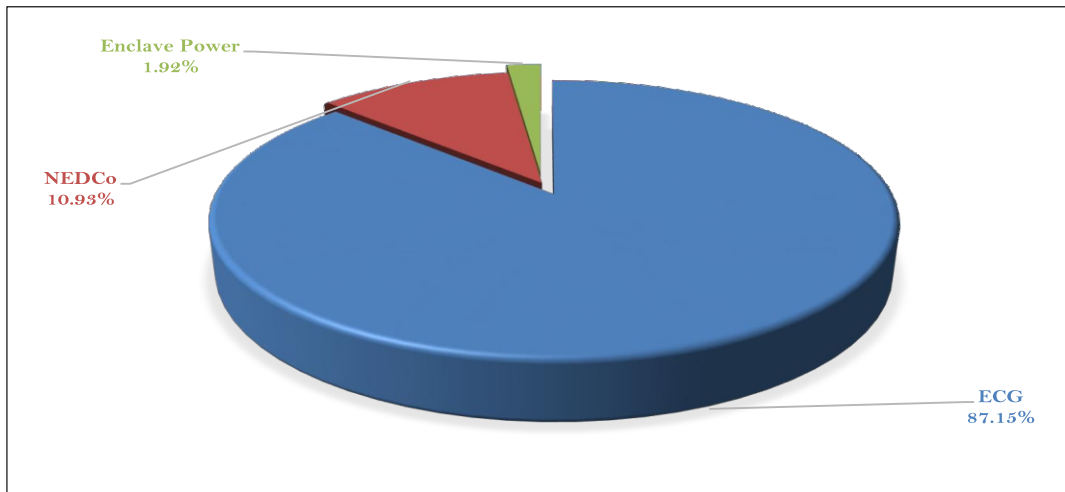
The ECG in August 2020 consumed a total of 981.9 GWh, which was 0.7% lower than the 988.87 GWh consumed in July 2020. The total electricity consumed by ECG constituted 87.2% of the total electricity consumed in the Regulated Market and 67.5% of the

total electricity consumed in the GWEM in August 2020.

NEDCo consumed 123.15 GWh in August 2020, which was 1.6% lower than the 125.09 GWh recorded in July 2020. NEDCo’s consumption constituted 10.9% and 8.5% of the total electricity consumed in the Regulated Market and the GWEM respectively in August 2020.

Lastly, the EPC consumed a total of 21.64 GWh in August 2020 which was 6.4% lower than the 23.14 GWh consumed in July 2020. The total electricity consumed in August 2020 by EPC constituted 1.9% of the total electricity consumed in the regulated market and 1.5% of the total electricity consumed in the GWEM. Figure 3 shows the shares of electricity consumed by the Distribution Companies in the Regulated Market in August 2020.

Figure 3: Shares of the electricity consumed by the Distribution Companies in August 2020.



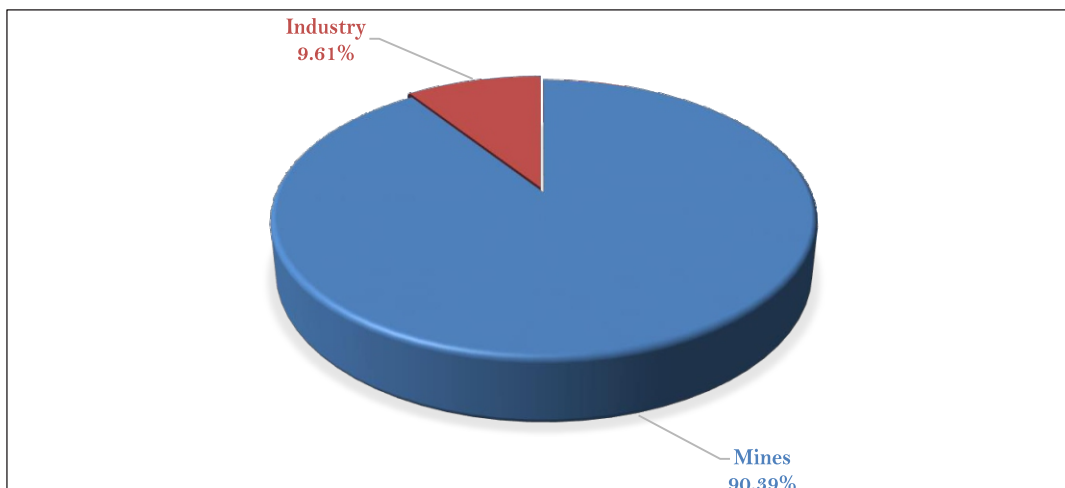
2.2.3 De-regulated Market Demand

The Bulk Customers in August 2020 recorded an average electricity demand of 191.2 MW, which was 1.7% lower than the 194.6 MW recorded in July 2020. The electricity demand for the Mining Companies continued to constitute 90.4% of the total electricity demand of the Bulk Customers. The remaining 9.6% electricity demand of the Bulk Customers is by other Non-Mining Companies (Other Bulk Customers).

In August 2020, the Bulk Customers consumed a total of 142.22 GWh of electricity which constituted 9.7% of the total electricity consumed. The Mining Companies consumed a total of 128.56 GWh in August 2020 which was 2.5% lower than the 131.83 GWh recorded in July 2020 and constituted 8.8% of the total electricity consumed in August 2020. The total electricity consumed by the Other Bulk Customers was 13.66 GWh which was 5.7% higher than the 12.92 GWh consumed in July 2020. The total electricity consumed by the Other Bulk Customers constituted 0.9% of the total electricity consumed.

The Other Bulk Customers consumed a total of 13.13 GWh in August 2020, which was 33% lower than the 19.58 GWh projected in the 2020 ESP. The total electricity consumed by the Other Bulk Customers constituted 9% of the total electricity consumed by Bulk Customers. Figure 4 shows the shares of electricity consumed by customer category in the De-Regulated Market in August 2020.

Figure 4: Shares of the electricity consumed by customer category in the De-Regulated Market

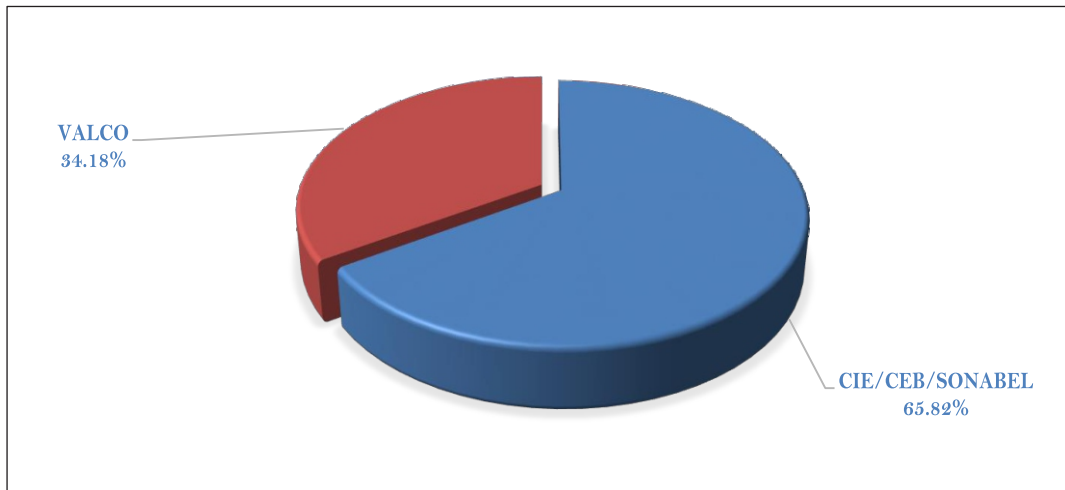


2.2.4 Export Market Demand

Average electricity Export in August 2020 was 250.39 MW, which was 11.5% lower than the 283.01 MW recorded in July 2020. The total electricity demand of the neighbouring countries constituted 65.8% of the total export demand, with VALCO's demand accounting for the remaining 34.2%.

In the Export Market, a total of 210.56 GWh of electricity was consumed in August 2020, which was lower than the 210.56 GWh consumed in July 2020. The total electricity consumed in the Export Market constituted 12.8% of the total electricity consumed in August 2020.

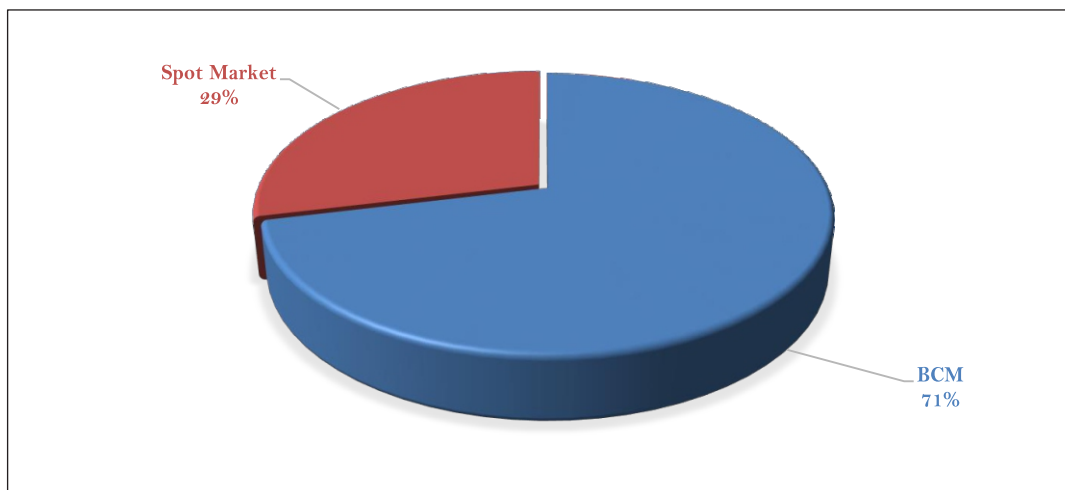
Figure 5: Shares of the electricity consumed by customer category in the Export Market Market



2.3 ELECTRICITY SUPPLY

A total of 1,519.02 GWh of electricity was traded in the GWEM in August 2020 which was 2.7% lower than 1,561.76 GWh recorded in July 2020. Of this total, 1,083.6 GWh was traded in the Bilateral Contract Market (BCM), representing 71.3% of the total electricity traded in the GWEM. On the Spot Market, a total of 435.41 GWh of electricity was traded, representing 28.7% of the total electricity traded in August 2020.

Figure 6: Shares of the electricity traded in the BCM and Spot Market



2.3.1 Electricity Supply to the Regulated Market

A total of 1,189.94 GWh of electricity was purchased by the Regulated Market from the BCM and the Spot Market in August 2020. Out of this total, 905.68 GWh was purchased through the BCM, representing 77% of the total purchases in the regulated market. The remaining 270.39 GWh, representing 23% was purchased through the Spot Market in August 2020.

The ECG purchased a total of 1,024.95 GWh of electricity from the BCM, representing 77% of the total electricity purchased and 23% was purchased from the spot market. The total electricity purchased by ECG on the BCM represented 86.1% of the total electricity purchased from the BCM. This total electricity purchased from the spot market represented 54% of the total electricity

traded in the Spot Market.

NEDCo in August 2020, purchased a total of 128.55 GWh of electricity in the GWEM. Of this total, 98.81 GWh was purchased through the BCM, which constituted 9.1% of the total electricity traded in the BCM. The remaining 29.7 GWh was supplied to NEDCo through the Spot Market, this represented 6.8% of the total electricity traded in the Spot Market in August 2020.

The EPC purchased a total of 22.57 GWh of electricity in the GWEM in August 2020, of which 5.41 GWh and 17.17 GWh was supplied through the Spot Market Price and BCM respectively.

2.3.2 Electricity Supply to the De-Regulated Market

The total electricity traded by the Bulk Customers in August 2020 was 148.46 GWh. Of this total, 139.31 GWh was purchased through the BCM, which represent 12.6% of the total electricity traded in the BCM. A total of 9.14 GWh was purchased by the Bulk Customers through the Spot Market, representing 2.1% of the total electricity traded in the Spot Market in August 2020.

The mines purchased 126.7 GWh of electricity from the BCM and 7.5 GWh from the spots market. The total electricity purchased from the BCM represented 1.7% of the total electricity traded in the BCM. The industrial bulk customers purchased 12.62 GWh and 1.65 GWh from the BCM and spot market respectively. This represented 1.2% of the total electricity traded in the BCM and 0.4% of the total electricity traded in the spot market.

2.3.3 Electricity Supply to the Export Market

The Export Market purchased a total of 194.49 GWh in the GWEM in August 2020. Of this total, 155.88 GWh was purchased through the Spot Market, representing 35.8% of the total electricity traded in the Spot Market. The remaining 38.61 GWh was supplied through the BCM in August 2020.

Acronyms

AGPP = Atuabu Gas Processing Plant
CBGC = Composite Bulk Generation Charge
DFO = Distillate Fuel Oil
ECG = Electricity Company of Ghana
ESP = Electricity Supply Plan
GHp = Ghana Pesewa
GWh = Giga-watt Hours
KTPP = Kpone Thermal Power Plant
MRP = Mine Reserve Plant
LCO = Light Crude Oil
LTA = Long Term Average
MMscf = Million Standard Cubic Feet
NITS = National Interconnected Transmission System
SAPP = Sunon Asogli Power Plant
SNEP = Strategic National Energy Plan
TT2PP = Tema Thermal 2 Power Plant
VRA = Volta River Authority
WAGP = West African Gas Pipeline

Btu = British Thermal Units
CUF = Capacity Utilization Factor
EC = Energy Commission
EMOP = Electricity Market Oversight Panel
FPSO = Floating Production, Storage and Offloading
GNGC = Ghana National Gas Company
HFO = Heavy Fuel Oil
kWh = Kilo-watt hours
LEAP = Long-range Energy Alternative Planning
LI = Legislative Instrument
MW = Megawatt
MWh = Mega-watt hours
PV = Photovoltaic
SMP = System Marginal Price
TEN = Tweneboa, Enyenra, Ntomme
TT2PP = Tema Thermal 2 Power Plant
WAGPCo = West African Gas Pipeline Company
WEM = Wholesale Electricity Market

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