



GHANA WHOLESALE ELECTRICITY MARKET BULLETIN

MARKET WATCH

Monthly Market Data Analysis

ISSUE NO. 58

1st October 2020 to 31st October 2020

This Bulletin covers major developments in the Wholesale Electricity Market (WEM) of Ghana from 1st October, 2020 to 31st October, 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.

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. The Electricity Market Oversight Panel (EMOP) would very much appreciate and welcome comments from readers on the Bulletin.

HIGHLIGHTS OF THE MONTH

There was a marginal increase in the System Peak Load for October 2020 by 7.7%, from 2,676.7 MW in September 2020 to 2,881.6 MW. On the contrary, the System Peak Load recorded in October 2020 was 4% lower than the 3,002 MW projected in the 2020 ESP. At the System Peak Load for October 2020, a total of 139 MW was exported to our neighbouring countries. The Ghana Peak Load of 2,742.6 MW in October 2020 was 12.4% higher than the 2,440.3 MW in September 2020. However, the Ghana Peak Load recorded in October 2020 was 0.2% lower than the 2,736 MW projected in the 2020 ESP. The average electricity demand of 2,295 MW recorded for October 2020 was 8.1% higher than the 2,122.4 MW in September 2020.

Average electricity supply in October 2020 increased by 8.1%, from 50.94 GWh per day in September 2020 to 55.1 GWh per day. Similarly, the total electricity of 1,707.5 GWh supplied in October 2020 was 11.7% higher than the 1,528.12 GWh in September 2020. Electricity import (inadvertent import) from CIE decreased from 7.53 GWh in September 2020 to 5.28 GWh in October 2020. Domestic electricity supply increased from 50.69 GWh per day in September 2020 to 54.91 GWh per day in October 2020. Electricity export to CIE, CEB and SONABEL increased by 50% from 87.58 GWh in September 2020 to 131.42 GWh in October 2020.

The shares of hydroelectric supply in October 2020 in the total electricity supply decreased from 39.5% in September 2020 to 35.3% in October 2020. The electricity generated from the solar power plants continued to account for 0.3% of the total electricity supply. Consequently, thermal electricity supply increased from 60.2% of the total electricity supplied in September 2020 to 64.4% in

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

	September 2020		October 2020	
	Projected	Actual Outturn	Projected	Actual Outturn
Total Supply (GWh)	1,522.9	1,580.1	1,675.4	1,707.5
Source by Power Plants (GWh)				
AROSOMBO	392.1	369.3	405.2	423.3
KPONG	70.8	69.9	73.0	78.1
BUI	158.0	108.8	158.0	101.0
Simon Asogli	-	353.4	-	250.7
TAPCO	97.2	92.3	100.4	29.4
TICO	73.4	17.8	202.4	139.5
TT2PP	-	41.9	-	73.8
CENT	-	76.8	-	57.4
TT2PP	-	7.6	-	16.3
Amandi	116.3	3.3	120.2	-
Karpowership	275.4	260.2	284.6	270.9
AMERI	41.0	73.8	27.5	97.4
KTFP	61.2	35.8	59.5	4.4
Trojan Power	-	-	-	-
CENPOWER	291.8	-	239.6	115.8
ARSA	-	16.9	-	20.0
Bridge Power	-	-	-	-
BXC Solar	2.2	2.2	2.3	2.8
Safisana	0.1	-	0.1	-
VRA Solar	0.2	0.2	0.3	0.3
Genser	-	38.5	-	38.9
Meinergy	2.2	2.4	2.3	2.4
Total Generation (GWh)	1,522.9	1,571.4	1,675.4	1,702.2
Imports (GWh)	-	8.7	-	5.3
Total Supply (GWh)	1,522.9	1,580.1	1,675.4	1,707.5
Deficit/Over supply (GWh)	-	22.8	-	32.1
Ghana Coincident Peak Load (MW)	2,498.0	2,440.3	3,002.0	2,742.6
System Coincident Peak Load (MW)	2,818.0	2,697.4	2,682.0	2,881.6

HIGHLIGHTS OF THE MONTH

October 2020.

The rate of increase in the water level for the Akosombo GS decreased by 11.1%, from 0.18 feet per day in September 2020 to 0.16 feet per day in October 2020. Also, the water level for the Bui GS increased from 0.15 feet per day in September 2020 to 0.31 feet per day on October 2020.

Natural gas continues to dominate the total fuel supply mix for October 2020 increasing its shares from 97.9% in September 2020 to 98.4% in October 2020. AKSA was the only thermal power plant to operate on liquid fuel in October 2020 accounting for 1.6% of the total fuel mix, which was lower than the 2.1% recorded in September 2020.

ELECTRICITY DEMAND AND SUPPLY

Electricity Demand

The System Peak Load of 2,881.6 MW recorded in October 2020 was 7.1% higher than the 2,676.7 MW recorded in September 2020. On the other hand, the System Peak Load recorded for October 2020 was 4% lower than the 3,002 MW projected in the 2020 ESP for October 2020. The electricity supply from the hydroelectric power plants at the System Peak Load constituted 46.6% of the total load supplied with the remaining 53.4% from thermal sources.

The Ghana Peak Load on the contrary increased by 12.4% to 2,742.6 MW in October 2020 from 2,440.3 MW in September 2020. The average electricity demanded in October 2020 increased by 8.1% from 2,122.4 MW in September 2020 to 2,295 MW and higher than the Ghana Peak Load of 2,219.5 MW recorded in the 2020 ESP.

Average electricity demand in the regulated market decreased by 10.3% from 1,508.3 MW in September 2020 to 1,663.3 MW in October 2020. Likewise, electricity demand for the deregulated market increased by 2.6% from 180.7 MW in September 2020 to 185.4 MW in October 2020. Average export demand to our neighbouring countries increased by 45.9% in October 2020 from 128.9 MW in September 2020 to 187.9 MW. Average electricity demand recorded for VALCO in October 2020 was 3.4% higher than the average electricity demand in September 2020 of 83 MW.

The System Load Factor recorded for October 2020 was 77.9%, which was higher than the 77.1% recorded in September 2020.

Electricity supply

On average, the electricity supplied in October 2020 increased by 8.1%, from 50.9 GWh per day in September 2020 to 55.1 GWh. Similarly, the total electricity supplied in October 2020 increased from 1,528.12 GWh in September 2020 to 1,707.5 GWh. The total electricity supplied in October 2020 was 1.9% higher than the 1,675.4 GWh projected in the 2020 ESP. The total electricity supplied in October 2020 was constituted by 5.28 GWh of import from CIE and 1,702.22 GWh from domestic sources. A total of 131.42 GWh was exported to CIE, CEB and SONABEL in October 2020. Out of the total electricity exported, 47.64 GWh, 3.36 GWh and 80.42 GWh was supplied to CEB, CIE and SONABEL respectively. The total electricity supplied for domestic consumption decreased by 9.4%, from 1,440.54 GWh in September 2020 to 1,576.08 GWh in October 2020. The contribution of the electricity generated from thermal sources was 64.4%, while the generation from hydroelectric sources was 35.3% and solar power generation was 0.3%.

Average electricity supply to the GWEM increased by 8.2% in October 2020 from 49.57 GWh per day in September 2020 to 53.65 GWh per day. Likewise, total electricity supply to the GWEM increased by 11.9% in September 2020 to 1,663.15 GWh from 1,486.97 GWh. Of the total electricity supply to the GWEM, 78.4% was supplied to the regulated market, 8.7% to the de-regulated market and 12.9% to the export market (4% to VALCO and 8.9% was exported to the CIE, CEB and SONABEL).

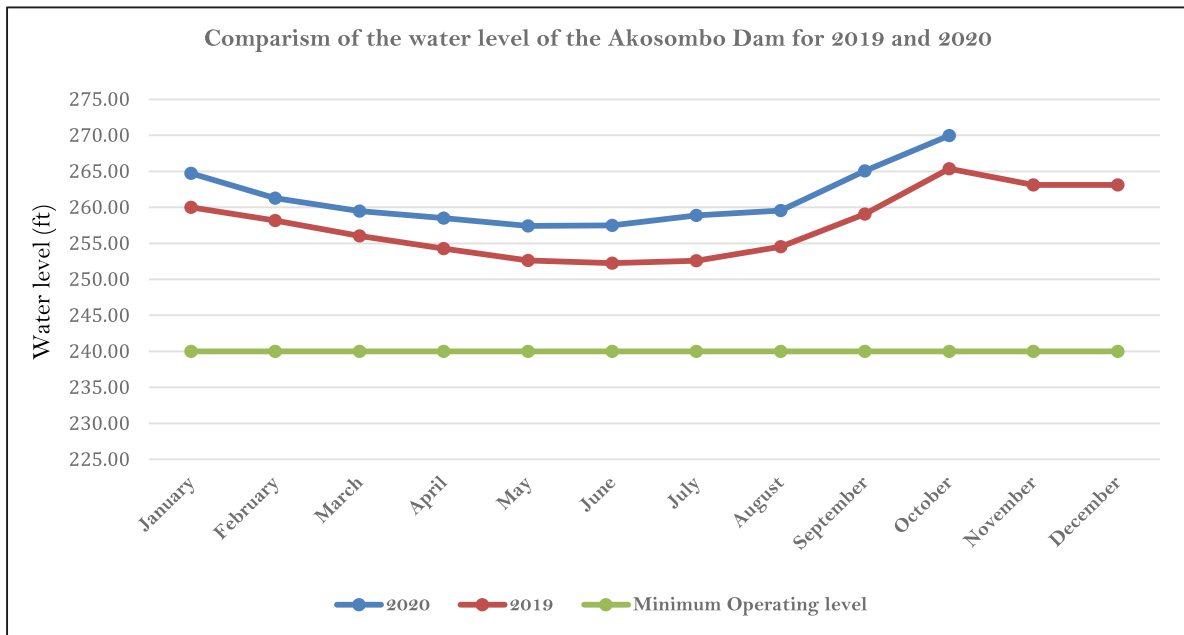
HYDRO DAM LEVELS

Akosombo Dam Water Level continued to increase at a reduced rate in October 2020

The water level for the Akosombo GS continued to increase at a reduced rate in October 2020, from 0.18 feet per day in September 2020 to 0.16 feet per day. The water level for the Akosombo GS at the beginning of the month was 265.05 feet which increased by 4.92 feet to a month end water level of 269.97 feet. At the end of the month, the water level recorded was 4.62 feet above the water level recorded for the same period in 2019 and was 15.05 feet above the minimum operating level of the dam of 240 feet.

HIGHLIGHTS OF THE MONTH

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

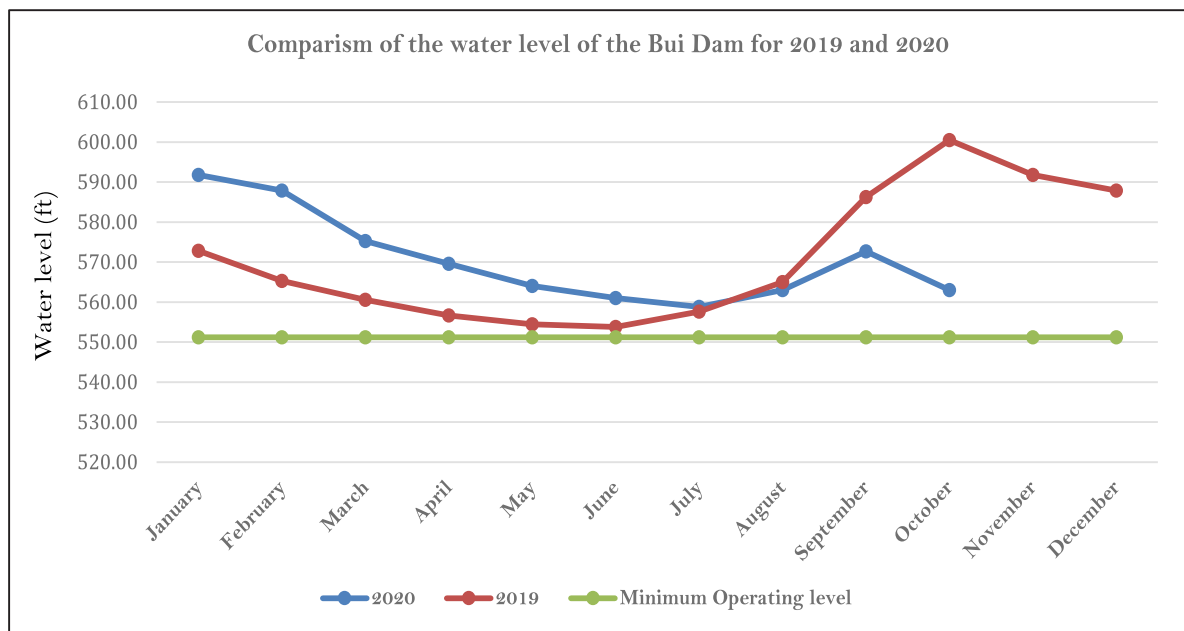


Bui Dam Water Level increased at an increasing rate in September 2020

The water level for the Bui GS increased in October 2020 at an increasing rate of 0.31 feet per day compared to the rate of increase of 0.15 feet per day in September 2020. The water level of 562.99 feet recorded at the beginning of the month increased by 9.71 feet to 572.7 feet at the end of the month. The month-end water level recorded was 27.78 feet above the water level recorded for the same period in 2019 and was 27.69 feet above the minimum operating level of the dam of 551.18 feet.

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

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



FUEL SUPPLY FOR POWER GENERATION

Natural gas imports from the West Africa Gas Pipeline Company (WAPCo) increased in October 2020

Natural gas imported from Nigeria through the West African Gas Pipeline (WAGP) increased by 2.1%, from 55.4 MMSCFD in September 2020 to 56.5 MMSCFD in October 2020. Likewise, the total natural gas supplied by WAPCo increased from 1,716.07 MMSCF in September 2020 to 1,752.49 MMSCF in October 2020. The total natural gas supplied by WAPCo constituted 19.2% of the total natural gas consumed in October 2020 which was lower than the 23.4% recorded in September 2020. In the total fuel mix, the share of the natural gas supplied by WAPCo decreased from 23.2% in September 2020 to 18.9% in October 2020.

HIGHLIGHTS OF THE MONTH

Natural gas supply from domestic sources increased in October 2020

Domestic oil and gas fields supplied a total of 237.91 MMSCFD in October 2020 which is 31.2% higher than the 181.28 MMSCFD supplied in September 2020. Consequently, the total natural gas supplied increased from 5,619.47 MMSCF in September 2020 to 7,375.08 MMSCF in October 2020. The natural gas supplied from the domestic gas fields constituted 80.8% of the total natural gas consumed in October 2020 which was higher than the 76.6% recorded in September 2020. Similarly, the share of the natural gas supplied from domestic sources in the total fuel mix increased from 74.7% in September 2020 to 79.5% in October 2020.

Liquid Fuel consumption decreased in October 2020 as natural gas consumption increased

The consumption of liquid fuel decreased from 29,431 barrels in September 2020, to 27,099 barrels in October 2020. The increase in liquid fuel consumption was due to decreased generation from AKSA in October 2020 from 21.72 GWh in September 2020 to 20.01 GWh in October 2020. The share of the total liquid fuel consumed decreased from 2.1% in September 2020 to 1.6% in October 2020. The Heavy Fuel Oil (HFO) continued to be the only liquid fuel consumed.

Plant by Plant Highlights

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

The Akosombo GS recorded an increase in the average electricity supplied in October 2020. Electricity generation from the power plant increased from 13.34 GWh per day in September 2020 to 13.65 GWh per day in October 2020, representing a 2.3% increase in generation. Consequently, the total electricity supplied by the Akosombo GS increased from 400.27 GWh in September 2020 to 423.27 GWh in October 2020. The Akosombo GS' total supply in September 2020 was 4.4% higher than the 405.2 GWh projected in the 2020 ESP and constituted 24.8% of the total electricity supplied in October 2020. The hydroelectric power plant generated 929.7 MW to the System Peak Load, representing 32.3% in October 2020.

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

The run-of-the-river hydroelectric power plant which operates in tandem with the Akosombo GS, the Kpong GS, generation increased in October 2020 by 2.9%. The generation from the Kpong GS increased from 2.45 GWh per day in September 2020 to 2.52 GWh per day in October 2020. Similarly, the total electricity supplied by the hydroelectric power plant increased from 73.44 GWh in September 2020 to 78.05 GWh in October 2020. The total electricity supplied by the Kpong GS constituted 4.6% of the total electricity supplied in October 2020 and was 6.9% higher than the 73 GWh projected in the 2020 ESP. The Kpong GS supplied a total of 144 MW to the System Peak Load, which translates into 5% in October 2020.

Electricity supply by the Bui Generation Station (GS) decreased in October 2020.

The Bui GS average electricity supply decreased from 4.3 GWh per day in September 2020 to 3.26 GWh per day in October 2020. The total electricity supplied by the hydroelectric power plant decreased from 128.93 GWh in September 2020 to 101.01 GWh in October 2020. The Bui GS' total electricity supplied in October 2020 constituted 5.9% of the total electricity supplied and was 36% lower than the 158 GWh projected in the 2020 ESP. The Bui GS contributed 7.4% of the System Peak Load, translating into 212.7 MW in October 2020.

The Sunon Asogli Power Plant (SAPP) generation continued to decrease in October 2020

The average electricity supplied by the SAPP continued to decrease in October 2020 by 26.6%, from 10.14 GWh in September 2020 and from 13.5 GWh per day in August 2020. Similarly, the total electricity supplied by SAPP decreased from 304.19 GWh in September 2020 to 230.67 GWh in October 2020. The total electricity supplied by the thermal power plant constituted 13.5% of the total electricity supplied in October 2020 but was projected to be offline in the 2020 ESP. The thermal power plant supplied 270.8 MW to the System Peak Load in October 2020. The total electricity supplied by SAPP at the System Peak Load represents 9.4% of the peak load. A total of 1,626.72 MMSCF of natural gas was consumed by the thermal power plant at an estimated heat rate of 7,812.42 Btu/kWh in October 2020 which was higher than the 7,934.66 Btu/kWh recorded in September 2020.

Ameri Energy Power Plant's generation increased in October 2020

The average electricity supplied by the Ameri power plant increased by 84.7%, from 1.7 GWh per day in September 2020 to 3.14 GWh per day in October 2020. The total electricity supplied by the Ameri power plant in October 2020 was 97.39 GWh which was lower than the 73.8 GWh in September 2020 by 32%. The total electricity supplied by the thermal power plant in October 2020 constituted 5.7% of the total electricity supplied and was significantly higher than the 27.5 GWh projected in the 2020 ESP. A total of 168.8 MW was supplied by the thermal power plant to the System Peak Load, representing 5.9% in October 2020. The Ameri power plant consumed 879.63 MMSCF of natural gas at an estimated heat rate of 10,005.25 Btu/kWh in October 2020. The heat rate recorded in October 2020 was lower than the 10,271.06 Btu/kWh recorded in September 2020.

The Karpowership Power Plant's generation increased in October 2020

The Karpowership recorded an increase in electricity supply by 14.4% in the average electricity supplied in October 2020, from 7.64 GWh per day in September 2020 to 8.74 GWh per day. The total electricity supplied by the power barge increased from 229.09 GWh in September 2020 to 229.09 GWh in October 2020. Karpowership's total electricity supplied in October 2020 constituted 15.9% of the total electricity supplied and was 19.5% lower than the 284.6 GWh projected in the 2020 ESP. The thermal power plant contributed 14.2% of the System Peak Load, translating into 410 MW in October 2020. The Karpowership consumed a total of 879.63 MMSCF of natural gas at an estimated heat rate of 8,012.05 Btu/kWh in October 2020 which was lower than the 8,063.59 Btu/kWh recorded in September 2020.

AKSA Power Plant's generation decreased in October 2020

The average electricity supplied by the AKSA power plant decreased by 9.7% in October 2020 compared to the 0.72 GWh per day supplied in September 2020. Consequently, the total electricity supplied by the thermal power plant decreased from 21.72 GWh in September 2020 to 20.01 GWh in October 2020. The total electricity supplied by the thermal power plant constituted 1.2% of the total electricity supplied in October 2020. The AKSA power plant was projected to be offline in October 2020 in the 2020 ESP. AKSA contributed 16 MW to the System Peak Load in October 2020, which represent 0.6% of the peak load. A total of 27,099 barrels of HFO was consumed at an estimated heat rate of 8,191.97 Btu/kWh in October 2020. The heat rate recorded by AKSA in October 2020 was lower than the 8,197.44 Btu/kWh recorded in September 2020.

Takoradi International Company (TICO) generation increased in October 2020

The TICO power plant recorded an increase in the average electricity supplied by 92% in October 2020. The power plant supply increased

HIGHLIGHTS OF THE MONTH

to 4.5 GWh per day in October 2020 from 2.34 GWh per day in September 2020. The TICO power plant supplied a total of 139.48 GWh of electricity in October 2020 constituting 8.2% of the total supply and was 31.1% lower than the 202.4 GWh projected in the 2020 ESP. The thermal power plant generated 216 MW to the System Peak Load, representing 7.5% of the System Peak Load in October 2020. TICO consumed a total of 1,471.91 MMSCF of natural gas at an estimated heat rate of 11,690.2 Btu/kWh in October 2020 which was higher than the 11,525.17 Btu/kWh recorded in September 2020.

Takoradi Power Company (TAPCo) Plant's generation increased in October 2020

The TAPCo power plant electricity supply generated 29.36 GWh in October 2020 which was higher than the 12.33 GWh generated in September 2020. The total electricity supplied by TAPCo constituted 1.7% of the total electricity supplied in October 2020. The thermal power plant did not contribute to the System Peak Load in October 2020. A total of 215.15 MMSCF of natural gas was consumed by the thermal power plant at an estimated heat rate of 8,117.85 Btu/kWh in October 2020, lower than the 9,461.07 Btu/kWh recorded in September 2020.

Tema Thermal One Power Plant (TT1PP) generation increased in October 2020

The TT1PP generated 73.78 GWh in October 2020 as it operated fully in the month. The power plant generated 6.04 GWh in September 2020 due to the natural gas rotation between KTPP and TT1PP. The thermal power plant generated 106 MW to the System Peak Load, representing 3.7% of the System Peak Load in October 2020. TT1PP consumed a total of 808.05 MMSCF of natural gas at an estimated heat rate of 12,132.64 Btu/kWh in October 2020 which was lower than the 13,340.79 Btu/kWh recorded in September 2020.

CENIT Power Plant generation continued to decrease in October 2020.

The average electricity supplied by the CENIT power plant continued to decrease in October 2020. Average electricity generation by the power plant decreased from 2.48 GWh per day in August 2020, 2.03 GWh in September 2020 to 1.85 GWh per day in October 2020. Similarly, the power plant's total electricity supplied decreased from 76.84 GWh in August 2020, 60.77 GWh in September 2020 to 57.4 GWh in October 2020. The total electricity supplied by the thermal power plant constituted 3.4% of the total electricity supplied in October 2020. The thermal power plant did not contribute to the System Peak Load. A total of 592.05 MMSCF of natural gas was consumed by the thermal power plant at an estimated heat rate of 11,425.27 Btu/kWh in October 2020 which was lower than the 11,481.33 Btu/kWh recorded in September 2020.

Kpone Thermal Power Plant's (KTPP) generation decreased in October 2020

The KTPP recorded a significant decrease in the total electricity supplied due to the natural gas rotation between TT1PP and KTPP. The KTPP generated 4.43 GWh in October 2020 significantly lower than the 67.64 GWh. The total electricity supplied by KTPP constituted 0.3% of the total electricity supplied in October 2020. The power plant did not contribute to the System Peak Load in October 2020. KTPP consumed a total of 43.85 MMSCF of natural gas at an estimated heat rate of 10,954.22 Btu/kWh in October 2020 which was lower than the 11,481.33 Btu/kWh in September 2020.

Embedded Electricity Generation

Genser Power Plant's generation increased in September 2020

The Genser power plant recorded a marginal increase in its average electricity supply by 2.4%. The average generation increased from 1.23 GWh per day in September 2020 to 1.26 GWh per day in October 2020. On the other hand, the total electricity supplied by the embedded thermal power plant increased from 37.11 GWh in September 2020 to 38.94 GWh in October 2020. Genser's total electricity supply for October 2020 constituted 2.3% of the total electricity supplied. The thermal power plant consumed a total of 450.54 MMSCF of natural gas at an estimated heat rate of 13,114.56 Btu/kWh in October 2020. The heat rate recorded in October 2020 was higher than the 12,925.06 Btu/kWh recorded in September 2020.

BXC Solar generation decreased in October 2020

The total electricity supplied by the BXC solar power plant decreased by 38.3%, from 2.01 GWh in September 2020 to 2.78 GWh in October 2020. The total electricity supplied by BXC constituted 0.2% of the total electricity supplied in October 2020 and was 39% higher than the 2 GWh in the 2020 ESP for October 2020.

Meinergy Solar generation increased in October 2020

The Meinergy solar power plant recorded an increase in the total electricity supplied in October 2020 by 29.8%, from 1.81 GWh in September 2020 to 2.35 GWh. Meinergy's total electricity supply for October 2020 contributed 0.1% of the total electricity supplied and was 17.5% higher than the 2 GWh projected in the 2020 ESP for October 2020.

VRA Navrongo Solar generation increased in October 2020

The VRA Navrongo solar recorded an increase in the electricity supplied by 27.3%, from 0.22 GWh in September 2020 to 0.28 GWh in October 2020. The solar power plant supplied 6.7% lower than the 0.3 GWh projected in the 2020 ESP and constituted 0.02% of the total electricity supplied in October 2020.

Electricity Exchange – Import increased while Export decreased in July 2020

The average electricity imported from CIE in October 2020 decreased by 32%, from 0.25 GWh per day in September 2020 to 0.17 GWh per day. Similarly, the electricity imported from CIE decreased from 7.53 GWh in September 2020 to 5.28 GWh in October 2020. The electricity imported in October 2020 constituted 0.3% of the total electricity supplied.

On the contrary, average the electricity export to our neighbouring countries increased by 45.2% from 2.94 GWh per day in September 2020 to 4.24 GWh per day in October 2020. The average electricity exported to CIE increased by 72.3% from 0.065 GWh per day in September 2020 to 0.112 GWh per day in October 2020. Also, export to CEB increased by 55.6% from 0.99 GWh per day in September 2020 and 1.54 GWh per day in October 2020. Likewise, electricity export to SONABEL increased by 38.7% to 2.59 GWh per day in October 2020 to 1.87 GWh per day in September 2020.

A total of 131.42 GWh of electricity was exported to CEB, CIE and SONABEL in October 2020 which was 50.1% higher than the 87.58 GWh recorded in September 2020.

Ghana continued to be a net exporter of electricity in September 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

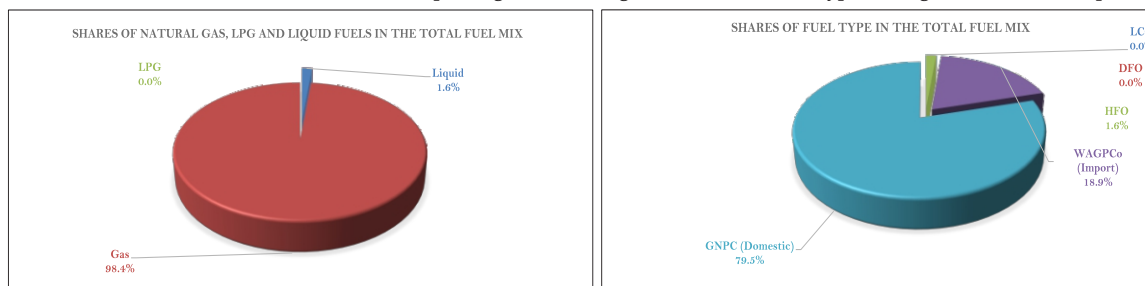


Figure 4a: Contribution of Natural Gas Supply by sources

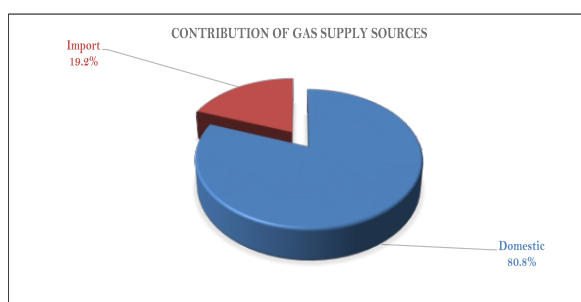
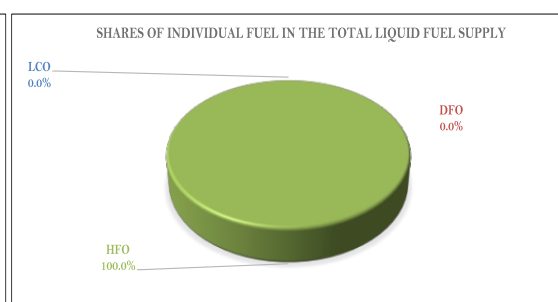


Figure 4b: Contribution of individual fuel in the liquid fuel supply

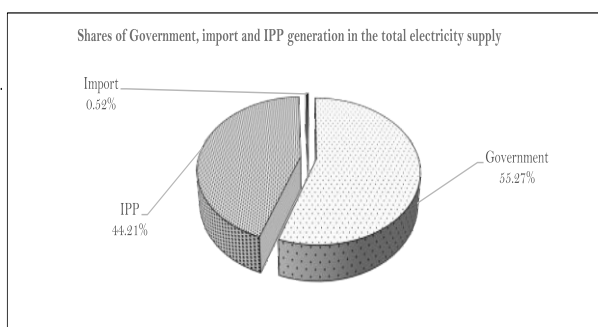
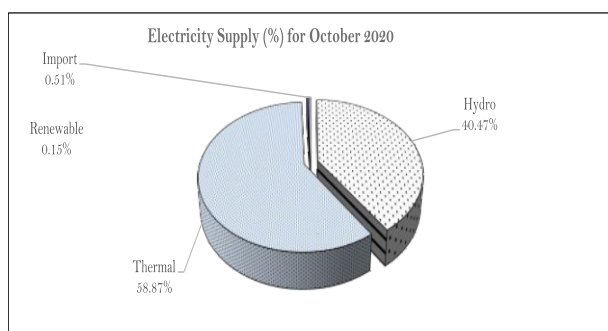


Peak Electricity Supply - October 2020			
Source of Supply	Generation at System Peak Load (MW)	Generation at Ghana Peak Load (MW)	Electricity Supply (GWh)
AKOSOMBO	929.70	929.70	423.27
KPONG	144.00	144.00	78.05
BUI	212.70	212.70	101.01
SEAP	270.80	270.80	230.67
TAPCO	-	-	29.36
TICO	216.00	216.00	139.48
TT1PP	106.00	106.00	73.78
CENIT	-	-	57.40
TT2PP	28.40	28.40	16.29
MRP	-	-	-
KARPOWER	410.20	410.20	270.91
AMERI	168.80	168.80	97.39
KTPP	-	-	4.43
Trojan Power	-	-	-
CENPOWER	337.00	337.00	115.81
AKSA	16.00	16.00	20.01
BXC Solar	-	-	2.78
Safisana	-	-	-
VRA Solar	-	-	0.28
Genser	42.00	42.00	38.94
IMPORT	2,881.60	2,881.60	5.28
Export to CIE at peak	-	-	47.64
Export to CEB at peak	139.00	139.00	3.36
Export to Sonabel	-	-	80.42
System Coincident Peak Load	2,881.60		
Ghana Coincedent Peak Load		2,742.60	
Total Supply			1,705.15
Total Supply without export			1,573.74

OPERATIONAL FACT SHEET

Average Monthly Flowrate (MMSCFD)	
Location	Monthly Average
Etoki	58.23
Tema WAGPCo	176.69
Aboadze WAGPCo	0.00
Aboadze GNGC	81.68
Reverse Flow	79.31

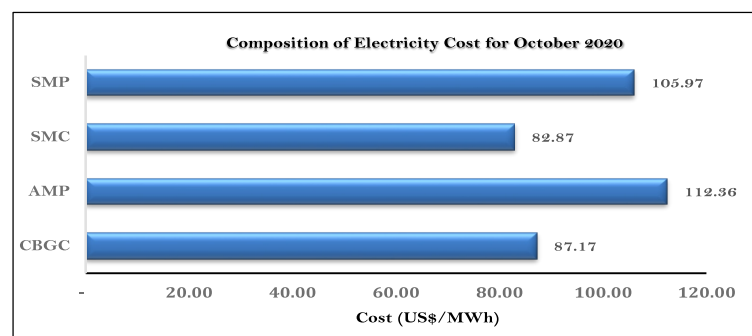
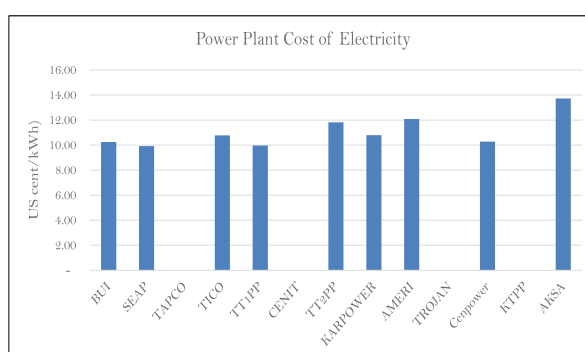
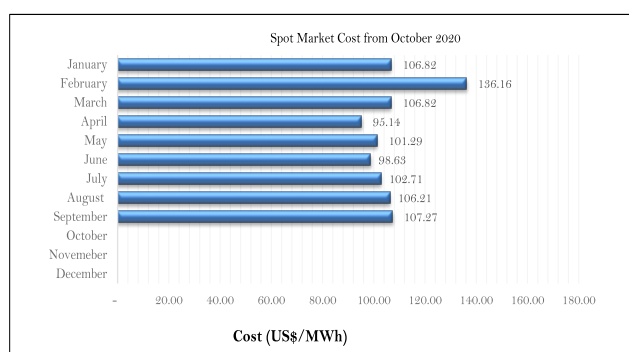
Oct-20			
	Beginning month (ft)	End month (ft)	Change in water level (feet)
Hydro Dam			
Akosombo	265.05	269.97	4.92
Bui	562.99	572.70	9.71



Power Plant Data October 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	57.64	423.27	-	-	-	-	-
Kpong	160.00	67.75	78.05	-	-	-	-	-
Bui	400.00	35.07	101.01	-	-	-	-	-
SEAP	560.00	57.21	230.67	1,802,052.16	-	-	-	-
TAPCO	330.00	12.36	29.36	238,340.17	-	-	-	-
TICO	340.00	56.98	139.48	1,630,549.76	-	-	-	-
TT1PP	126.00	81.33	73.78	895,146.30	-	-	-	-
CENIT	126.00	63.28	57.40	655,861.72	-	-	-	-
TT2PP	87.00	26.00	16.29	210,179.19	-	-	-	-
KARPOWER	470.00	80.06	270.91	2,170,535.33	-	-	-	-
AMERI	250.00	54.11	97.39	974,431.12	-	-	-	-
Cenpower	370.00	43.47	115.81	986,574.67	-	-	-	-
TROJAN	56.00	-	-	-	-	-	-	-
KTTP	220.00	2.80	4.43	48,572.13	-	-	-	-
AKSA	360.00	7.72	20.01	-	-	-	163,947.59	-
Amandi	192.00	-	-	-	-	-	-	-
Bridge Power	-	-	-	-	-	-	-	-
GENSER	95.00	56.93	38.94	510,681.05	-	-	-	-
VRA Solar	2.50	15.44	0.28	-	-	-	-	-
BXC	20.00	19.30	2.78	-	-	-	-	-
Meinergy	20.00	16.33	2.35	-	-	-	-	-
Total	5,204.50	45.43	1,702.22	10,122,923.59	-	-	163,947.59	-

ECONOMIC FACT SHEET

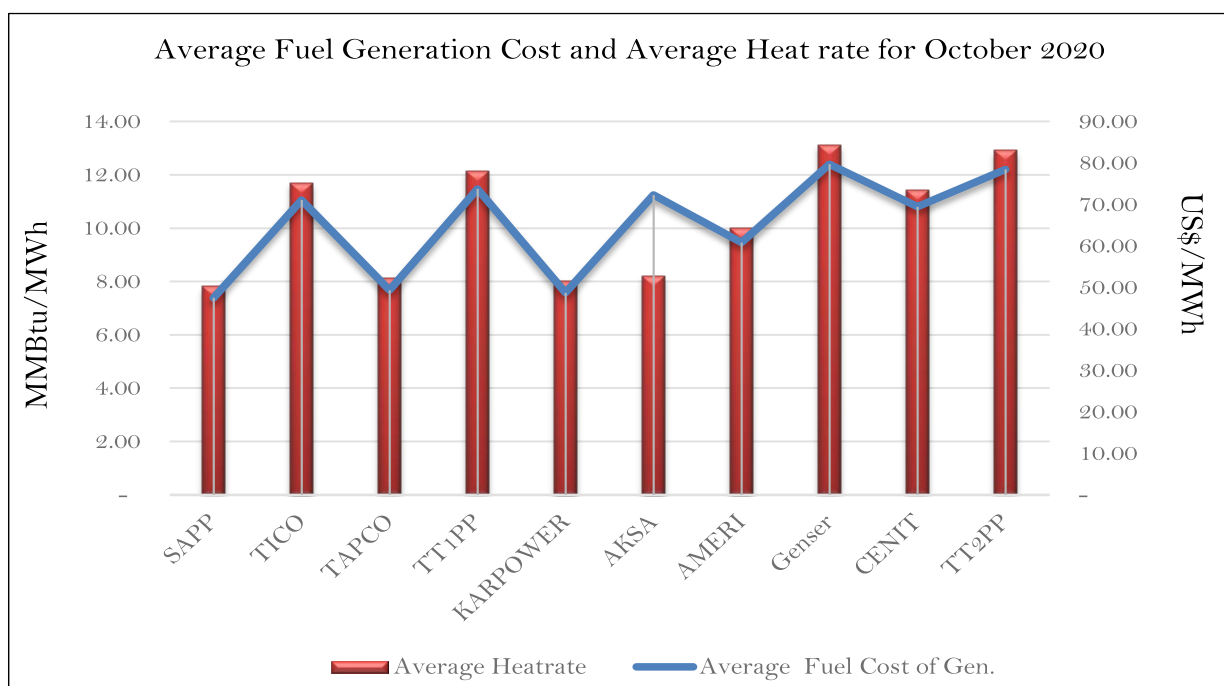
		Actual	Projected	Difference
Average Market Energy Cost	US\$/MWh	72.48	73.90	(1.42)
Average Market Capacity Charge (AMCC)	US\$/MWh	39.88	33.96	5.92
Total Average Market Cost (TAC)	US\$/MWh	112.36	107.86	4.50
System Marginal Cost (SMC)	US\$/MWh	82.87	92.18	(9.31)
System Marginal Capacity Charge (SMCC)	US\$/MWh	23.11	23.95	(0.84)
Spot Market Price (SMP)	US\$/MWh	105.97	116.13	(10.16)
Composite Bulk Generation Charge (CBGC)	US\$/MWh	87.17	87.17	-
Deviation of TAC from CBGC	US\$/MWh	(25.19)	(20.69)	(4.50)
Deviation of SMP from CBGC	US\$/MWh	(18.80)	(28.96)	10.16



	Gazetted Natural Gas Price	Weighted average Natural Gas Price	LCO	HFO	DFO	LPG
US\$/MMBTu	6.08	6.15	8.54	8.82	12.38	12.54

Average Fuel Prices		
		Oct-20
Fuel Type	Unit	Delivered Cost
Natural Gas	US\$/MMBTu	6.08
LCO	US\$/BBL	45.19
HFO	US\$/Tonne	279.00
DFO	US\$/Tonne	500.05
LPG	US\$/Tonne	534.95

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	57.64	-	-	-
Kpong	67.75	-	-	-
Bui	35.07	-	-	-
SAPP	57.21	7,812.42	47.50	0.41
TAPCO	12.36	8,117.85	49.36	0.43
TICO	56.98	11,690.20	71.08	0.62
TT1PP	81.33	12,132.64	73.77	0.64
CENIT	63.28	11,425.27	69.47	0.61
TT2PP	26.00	12,905.83	78.47	0.68
Amandi	80.06	-	-	-
KARPOWER	80.06	8,012.05	48.71	-
AMERI	54.11	10,005.25	60.83	0.53
TROJAN	-	-	-	-
KTPP	2.80	10,954.22	66.60	0.58
AKSA	7.72	8,191.97	72.28	0.65
Cenpower	43.47	8,518.68	51.79	0.45
Genser	56.93	13,114.56	79.74	0.70

1. WHOLESALE SUPPLIERS SUPPORTS COVID-19 FIGHT

1.1. Endeavor Energy Donates Ghs350,000 To Covid-19 Relief Fund

Endeavor Energy, a leading independent power company focused on developing, acquiring, financing, constructing, owning, and operating power generation projects in Africa has donated GHS350,000 to the National COVID-19 Trust Fund. "We are grateful for the opportunity to help drive Ghana's economic growth, create jobs, and secure its social system," a statement from the company said. The company made the donation at a short ceremony at the Jubilee house on 11th June 2020. Endeavor's Chief Executive Officer, Sean Long commended Ghana's leadership saying, "Since the first case of COVID was reported in Ghana, we have seen rapid intervention by the government." In addition, GHS150,000 worth of donations were made to institutions and communities where the company's power plants are located.

On May 26th, 2020 Early Power, a subsidiary of Endeavor, donated twenty standings fans to the Ga East Municipal Hospital whose central air-conditioning had failed, rendering a ward obsolete due to the poor ventilation. The donation of fans allowed the hospital to reopen the ward and reintroduce twenty needed beds into circulation. In addition, Early Power and Twin City Energy have donated over a thousand PPEs to communities in the Greater Accra region and Western region. The items include N95 nose masks, hundreds of veronica buckets to facilitate hand washing, hand sanitizers, face shields, and medicine, to the Kpone Katamanso community in Greater Accra and the Aboadze, Abuesi, Dwomo, and Inchaban communities in the Western Region. These donations have been distributed across the Kpone District Headquarters Police Station, Kpone Health Clinic, and Save Them Young Orphanage. The rest are Aboadze, Abuesi, Inchaban, Upper Inchaban and Dwomo Community-Based Health Planning and Services (CHPS) compounds, the Shama District Health Office and directly to members of these communities.

Source: <https://earlypowerltd.com/endeavor-energy-donates-ghs350000-to-covid-19-relief-fund/>

1.2. Sunon Asogli Power Supports Covid-19 National Trust Fund

As Part of Corporate Social Responsibility, Sunon Asogli Power Ghana limited has donated an amount of \$100,000 to the government to aid in the country's fight against the COVID-19 pandemic. Handing over the cheque to the government on behalf of the company in jubilee house, Mr Shi Ting Wang, the Chinese Ambassador to Ghana, commended the government for its efforts to contain and end the epidemic. He said even though the COVID-19 was first discovered in China, it was wrong for people to attribute its origin to the nation adding that the virus had no respect for boundaries.

China has so far made significant progress in containing the virus and gave the assurance that it would continue to support Ghana's fight against to ensure that it did the same. "Under President Xi Jinping's leadership, the whole nation has been fighting an all-out people's war against the epidemic and seen positive changes. In a nation of 1.4 billion population, the number of new domestic transmission cases has become nearly zero." "Though hard hit itself, China will do its utmost to support Ghana for the fight against COVID-19. I would like to assure you, that more support is coming from China to Ghana" Mr Wang said.

Receiving the donation on behalf of the government and the people of Ghana, Madam Akosua Frema Osei-Opere, the Chief of Staff, commended the company as well as the Chinese Government for their support. She said Ghana would take a cue from China's experiences to ensure that it ended the pandemic. Also present at the meeting were Chairman Yang Qun, Togbe Afede XIV, Management members of the company as well as officials of the Chinese Embassy in Ghana.

Source: <http://sunonasogli.com/sunon-asogli-power-supports-covid-19-national-trust-fund/>

1.3. Aksa Energy donates to COVID-19 National Trust Fund

Since the President launched the Covid-19 National Trust Fund, it has been heartwarming to see many companies and individuals donate generously to it – such that the fund keeps growing significantly by the day. However, as a watcher of Turkish-Ghanaian economic relations, I was especially pleased to see Turkish giant, Aksa Energy, donating generously to the fund as a way of supporting government efforts and show solidarity with Ghana in our quest to fight the pandemic.

Aksa Energy, represented by its West African Coordination Director Mr. Murat Captug and Turkish Ambassador to Ghana Dr. Ozlem Ergun Ulueren, presented a cheque for GH¢2,500,000 in a short ceremony at Flagstaff House under supervision of the Chief of Staff, Madam Akosua Frema Osei-Opere.

Mr. Captug, in his comments at the ceremony, emphasised the commitment of Aksa Energy to Ghana in meeting not only the demand for electricity but also social support programmes. Crucially, he indicated that as good corporate citizens the management of Aksa are well aware of their responsibilities to Ghana, especially in these perilous times. He expressed hope that we will soon defeat COVID-19 so things can go back to normal soon for all Ghanaians.

Dr. Ulueren, on her part, highlighted the economic toll of the pandemic and emphasised the need for solidarity as the only way to combat this global challenge. She also made the point that humanitarian dimensions have always been a strong pillar of Turkish foreign policy as far as the African continent is concerned.

Source: <https://thebftonline.com/14/04/2020/aksa-energy-donates-to-covid-19-national-trust-fund/>

1.4. Cenpower Donates GHS 200,000 To National COVID-19 Trust Fund

Cenpower Generation Company Limited, an Independent Power Producer, today donated an amount of GHS200,000.00 to the National COVID-19 Trust Fund established by the President of Ghana as part of efforts to raise resources for combating the effects of the virus in the country.

A Director of Cenpower, Dr Jimmy Heymann, on behalf of the Cenpower Board of Directors, Management and Staff, presented the cheque at the Jubilee House to the National COVID-19 Trust Fund Board of Trustees. He said Cenpower remains committed to contributing to the development of Ghana and stands firmly with the government and the people of Ghana at this difficult time in the efforts to address the effects of COVID-19 on the country. He added that through this contribution, we hope to touch as many lives as possible just as the electricity we produce reaches different homes in Ghana. He further encouraged that “there are brighter days ahead for us all. Through standing together, Ghana is sure to overcome the problems arising from the COVID-19 pandemic. It is important though to observe all recommendations on social distancing, regular use of sanitizers and handwashing”.

The Chairperson of the Board of Trustees for the National COVID-19 Trust Fund, Madam Sophia Akuffo, received the cheque on behalf of the Board.

The Chief Executive Officer of Cenpower, Mr. Theophilus Sackey, reiterated Cenpower’s commitment to continue generating electricity in a least-cost, reliable and environmentally sustainable manner to meet national requirements. “We recognize that availability of power is critical, especially for the economy and the health sector at this time and we will continue to deliver on this mandate”, Mr. Sackey assured.

Source: <https://www.cenpowergen.com/media-news/news/70-business-focus-cenpower-generation>

1.5. BPA Rises Against The Coronavirus Pandemic – Donates Ghs550,000

In the wake of the COVID-19 pandemic which is currently ravaging the world, Bui Power Authority (BPA) is supporting Ghana’s quest to alleviate the effects of the virus on the nation. On a national level, the Authority has made two separate donations amounting to Five Hundred and Fifty Thousand Ghana Cedis since Ghana recorded her first cases of the novel Coronavirus.

On April 6, 2020, the BPA Chief Executive Officer and Deputy Chief Executive Officer (F&S) presented a cheque for Five Hundred Ghana Cedis (GHS500,000) to the National Covid-19 Trust Fund at the Jubilee House. The Fund was set up by the President of Ghana to combat the coronavirus pandemic. The Chief Executive Officer, Fred Oware, in presenting the cheque on behalf of the Board, Management and Staff of BPA, said it was the Authority’s ‘token’ in assisting in the fight against the spread of the coronavirus. He also said the Authority was paying close attention to the situation and would look at its resources to further assist in the fight if need be.

The cheque was received by the Chief of Staff, Madam Akosua Frema Osei Opare, on behalf of the Fund. She expressed her appreciation to the Authority and made it clear that the donation was not a ‘token’ as described but will go a long way to assist in the fight. She said the aim of government was to ensure that coronavirus “does not take root in the country”.

On April 30, 2020, the Deputy Finance Director and the Corporate Affairs Manager presented a cheque for Fifty Thousand Ghana Cedis (GHS50,000) to the Ghana COVID-19 Private Sector Fund, an initiative set up to support the government to combat the pandemic in the country. The project, dubbed the ‘Facility 100 Project’, is a 100-bed infectious diseases isolation and treatment facility which will be used for the treatment of COVID-19 and other infectious diseases when complete.

The Ghana COVID-19 Private Sector Fund was established by ten (10) private businessmen and women to raise GHS100 million to complement the government’s efforts to combat the spread of the coronavirus in the country. The 10 Trustees have each donated GHS100,000 to the Fund. One of the Trustees, who is the Chief Executive Officer of the Ghana Chamber of Bulk Oil Distributors, Mr. Senyo Kwasi Hosi, and one other Trustee who is the Founder and Group Executive Chairman of the CH Group of companies, Mr. Kweku Bediako, received the cheque on behalf of the Fund.

On the local level, the Authority donated over 400 hand sanitizers to the Project Affected Persons (PAPs) within the Bui Enclave. This initiative was to promote the government’s directive for people to use hand sanitizers to prevent coming into contact with the coronavirus. With this, the Authority hopes households will make it a part of their daily routine of using the sanitizers. Personnel of the Ghana Health Services assisted in the distribution of the hand sanitizers to the people living in both BPA Resettlement Townships located in the Savannah and Bono East Regions. The distribution exercise provided the opportunity for sensitization on the covid-19 pandemic and also a demonstration on the use of the sanitizers. Also, temperatures of each member of the households were taken with no cases of unusual high temperatures recorded.

Source: <https://buipower.com/bpa-rises-against-the-coronavirus-pandemic/>

1.6. The Volta River Authority (VRA) has presented a cheque for GH 2 million to the National COVID-19 Trust Fund.

The gesture was to bolster the government’s efforts to combat the spread of the deadly contagious virus in Ghana. Ghana currently has recorded 1,154 cases since the outbreak of the novel Coronavirus with nine persons confirmed dead. Handing over Presenting the cheque, the Board Chairman of the VRA, Mr Kweku Andoh Awotwi, said the donation formed part of the commitment of the energy generation firm to lend a strong support to the national response to stop the spread of the disease.

Other Market News and Trends

For his part, the Chief Executive Officer of the company, Mr Emmanuel Antwi-Darkwa, urged Ghanaians to strictly adhere to the stay-home directive and also observe every hygienic protocols to contain the virus. They were joined by the National Executive Member of the VRA Senior Staff Association, Mr Martin Adjoe.

The Chairperson of the National COVID-19 Trust Fund, Mrs Justice Sophia Akufo, who received the donation on behalf of the Trustees, expressed the gratitude of the VRA for the gesture.

Source: <https://www.graphic.com.gh/news/general-news/vra-supports-covid-19-fight-with-gh-2-million.html>

2. VRA SUBMITS EIA REPORT ON THE 40 MW BONGO SOLAR POWER PROJECT TO EPA

The Volta River Authority (VRA) has submitted the Environmental Impact Assessment (EIA) report on the 40 MW Bongo Solar Power Project to the Environmental Protection Agency (EPA) in accordance with the EPA Act 490, 1994 and L.I. 1652, 1999.

The project is located in Asibiga in the Bongo District of the Upper East Region consisting of a 40 MW ground mounted single axis PV panels solar plant on a 0.501 km² of land. Electricity generated from the power plant would be evacuated at 34.5 kV voltage level through the sub-transmission line of a distance of about 29 km 15m to be connected to the Bolgatanga Substation.

The construction of the solar PV is projected to commence in the third quarter of 2023 with commissioning in the first quarter of 2024.

Acronyms

<i>AGPP = Atuabu Gas Processing Plant</i>	<i>Btu = British Thermal Units</i>
<i>CBGC = Composite Bulk Generation Charge</i>	<i>CUF = Capacity Utilization Factor</i>
<i>DFO = Distillate Fuel Oil</i>	<i>EC = Energy Commission</i>
<i>ECG = Electricity Company of Ghana</i>	<i>EMOP = Electricity Market Oversight Panel</i>
<i>ESP = Electricity Supply Plan</i>	<i>FPSO = Floating Production, Storage and Offloading</i>
<i>GHp = Ghana Pesewa</i>	<i>GNGC = Ghana National Gas Company</i>
<i>GWh = Giga-watt Hours</i>	<i>HFO = Heavy Fuel Oil</i>
<i>KTPP = Kpone Thermal Power Plant</i>	<i>kWh = Kilo-watt hours</i>
<i>MRP = Mine Reserve Plant</i>	<i>LEAP = Long-range Energy Alternative Planning</i>
<i>LCO = Light Crude Oil</i>	<i>LI = Legislative Instrument</i>
<i>LTA = Long Term Average</i>	<i>MW = Megawatt</i>
<i>MMscf = Million Standard Cubic Feet</i>	<i>MWh = Mega-watt hours</i>
<i>NITS = National Interconnected Transmission System</i>	<i>PV = Photovoltaic</i>
<i>SAPP = Sunon Asogli Power Plant</i>	<i>SMP = System Marginal Price</i>
<i>SNEP = Strategic National Energy Plan</i>	<i>TEN = Twenebo, Enyenra, Ntomme</i>
<i>TT2PP = Tema Thermal 2 Power Plant</i>	<i>TT2PP = Tema Thermal 2 Power Plant</i>
<i>VRA = Volta River Authority</i>	<i>WAGPCo = West African Gas Pipeline Company</i>
<i>WAGP = West African Gas Pipeline</i>	<i>WEM = Wholesale Electricity Market</i>

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