

**PARLIAMENTARY MEMORANDUM**

**SUBMITTED**

**BY**

**KEN OFORI-ATTA  
(MINISTER FOR FINANCE)**

**AND**

**WILLIAM OWURAKU AIDOO (MP)  
(DEPUTY MINISTER FOR ENERGY)**

**FOR A 116.6 MILLION EUROS LOAN FACILITY**

**BETWEEN**

**THE REPUBLIC OF GHANA**

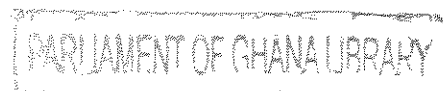
**AND**

**KREDITANSTALT FÜR WIEDERAUFBAU (KFW)  
FRANKFURT AM MAIN**

**FOR**

**330kV ACCRA – KUMASI TRANSMISSION LINE PROJECT**

*14th*  
**..... NOVEMBER 2022**



## **EXECUTIVE SUMMARY**

### **1.1 DECISION REQUIRED**

Parliament is respectfully invited to consider and approve a concessional loan facility of One Hundred and Sixteen Million, Six Hundred Thousand Euros (€116,600,000.00) between the Government of Ghana and Kreditanstalt Für Wiederaufbau (KfW), Frankfurt Am Main, Germany for the implementation of the 330kV Accra-Kumasi Transmission Line Project. This is to enhance electricity transmission capacity across the National Interconnected Transmission System, particularly from Greater Accra to the Ashanti, Bono, Bono East, Ahafo and Northern Regions of Ghana.

H.E the President granted an Executive Approval on 4th November, 2022 for this memorandum to be laid before Parliament.

### **1.2 BACKGROUND**

- i) Ghana's power system was designed in the 1960s to predominantly serve the Volta Aluminum Company (VALCO), mining and industrial customers in the west and domestic consumers in the southern to middle portions of the country. In the 1980s, the power system was extended to the northern parts of Ghana. The Akosombo & Kpong Hydroelectric dams and Aboadze Thermal plant have mainly supported the power system.
- ii) Ghana embarked on a Power Sector Reform process in 1996 having approved a policy in 1994. Principal among the reforms was the unbundling of the sector into generation, transmission and distribution as well as the establishment of independent regulatory authorities to oversee the operations of the utilities, devoid of operational interventions from government.
- iii) Two regulatory institutions were established:
  - a. The Public Utilities Regulatory Commission (PURC) was established by Act 538 in 1997 to regulate economic tariffs charged by utilities and address customer complaints, and
  - b. The Energy Commission was established by Act 541 in 1997 as the Technical Regulator and Policy Advisor to the Minister for Energy and also to license utilities and service providers to ensure right practice and safe operation of the utilities in conformity to policy.
- iv) An electricity transmission utility, Ghana Grid Company Limited (GRIDCo), was also established.
- v) Despite the considerable expansion of generation capacity, Ghana has repeatedly experienced supply bottlenecks in recent years, which have impaired economic development. The installed generation capacity is currently more than 5,231 MW

(approx. 68 % thermal, 30 % hydroelectric power plants and 2 % Renewable). Since the existing energy infrastructure is mainly based on natural gas, oil and hydropower, Ghana is heavily dependent on external factors for its electricity generation.

- vi) In view of Ghana's ambitious industrialization plans and population growth of around 2.2 %, the Energy Commission expects energy demand further to rise to around 3,900 MW by 2023.
- vii) Currently, the National Interconnected Transmission System (NITS) is fragile and is evident in challenges with power delivery to consumers, inability to meet all customer demand, high transmission losses and frequent power system disturbances. These effects are caused by weak and obsolete transmission infrastructure, inadequate redundancies, poor power factor, and inadequate reactive power support.
- viii) To be able to transform the grid into a robust network to support Government's industrialization agenda there is the need to replace the weak and obsolete transmission infrastructure and provide adequate redundancies in the system to serve the industrial and domestic customers in the identified regions.
- ix) In this regard, and to meet the increasing load at the main load centers in Kumasi and beyond, power system studies have identified a strategic new transmission line for connecting Accra to the identified regions. The proposed 330 kV Accra-Kumasi Transmission Line would form a strong connection between the two cities. This will create the required 330 kV grid loop linking Accra, Kumasi and Aboadze for improved power delivery quality and reliability.
- x) The Project includes an interconnection 330/161kV Substation at Nkawkaw. The proposed connection at Nkawkaw to the 161 kV system would improve voltage stability and power quality in the Nkawkaw area. This will support the 161kV network from Akosombo through Nkawkaw to Kumasi.
- xi) The Project would also reduce overall transmission losses significantly and increase transmissible power to consumers in Kumasi and the northern parts of Ghana. This is critical to improved revenue generation. It will also improve Ghana's position as a net exporter of power to Burkina and later to Mali. The proposed 330 kV transmission line will add to the regional West African Power Pool (WAPP) interconnection which would ensure that countries in the Sahelian Region have a more secure and reliable network for import of electricity from their southern neighbours.

### 1.3 JUSTIFICATION FOR GOVERNMENT ACTION

Current issues and challenges in the National Interconnected Transmission System (NITS) are attributable to: inability to serve increasing demand, high transmission losses and unreliable power delivery.

- i) **Inability to Serve Increasing Demand:** Demand forecast from the Ghana Grid Company Limited (GRIDCo) indicates that Ghana's domestic load is growing at the rate of 8% to 10% per annum. By end of 2022, Ghana's peak load is estimated at 3,632 MW. By 2030, Ghana's power demand is expected to double up to 6,581MW. At this

rate, the current power system will be unable to supply the projected demand unless there are significant investments in the transmission system.

- ii) **High transmission losses:** Transmission losses represent the difference between the amount of electricity injected into the transmission network and the quantity delivered to bulk customers. The Public Utilities Regulatory Commission's (PURC) policy on losses socializes the cost to every consumer that draws its electricity from the grid and has set a threshold of 4.1% of total energy supplied to the grid. Additional losses recorded are borne by GRIDCo irrespective of the causes.

As at end 2021, GRIDCo's total accumulated transmission losses bill beyond the PURC threshold payable to VRA for the year stood at GHS66,295,441.32. GRIDCo's accrued losses payable to VRA now exceeds GHS500 Million.

According to the PURC's 2019 Annual Report, GRIDCo has been unable to meet the regulatory threshold for transmission losses from 2008 to 2019. These high losses are attributable to weak and obsolete network, poor load power factor, delays in delivering infrastructure projects on time and inadequate reactive power support.

- iii) **Unreliable Power Delivery:** Over the last decade, GRIDCo has invested heavily in the transmission network to provide adequate electricity to bulk customers in Ghana and in the neighbouring countries. Over 2,000 kilometres of transmission lines and 20 substations have been commissioned since GRIDCo's operationalization in August 2008. Most of the new substations are within Greater Accra, Bono, Bono East, Ahafo and the northern regions of Ghana. Recently, GRIDCo commissioned 800 kilometres of 330 kV transmission lines from Aboadze to Bolgatanga. The Anwomaso, Pokuase and Kasoa Substations have also been commissioned. Also, there is an ongoing upgrade of the Volta- Accra East-Achimota and Achimota- Accra Central-Mallam transmission lines.

These projects notwithstanding, GRIDCo continues to face unreliable power delivery to its customers especially in the Eastern, Ashanti and Northern regions of Ghana. Unreliable power supply has slowed down provision of power to rural communities. The result is slow economic growth, which will culminate in Gross Domestic Product (GDP) decline in Ghana.

## OPTIONS AND IMPACTS CONSIDERED

### 1.3.1 Options for 330kV Accra – Kumasi Transmission Project

An overview of the options assessed in relation to Government's objectives for the energy sector are outlined below:

- i. **Option 1: 330 kV Aboadze - Dunkwa - K2BSP (Anwomaso):** – This option considers the strengthening of the existing 330kV link from Aboadze to Kumasi by construction of a second transmission line from Prestea to Kumasi.
- ii. **Option 2a: 330 kV A4BSP (Pokuase) – Nkawkaw – K2BSP:** - This option considers the construction of the 330kV from A4BSP (Pokuase) – Nkawkaw – K2BSP (Anwomaso). The interconnection into the existing 161kV Substation at Nkawkaw is also considered.
- iii. **Option 2b: 330 kV A4BSP – Tafo – K2BSP:** - This option considers the construction of the 330kV from A4BSP (Pokuase)– Tafo – K2BSP (Anwomaso). The interconnection into the existing 161kV Substation at Tafo is also considered.
- iv. **Option 2c: A4BSP - Tafo - Nkawkaw - K2BSP:** - This option considers the construction of the 330kV from A4BSP – Tafo - Nkawkaw – K2BSP (Anwomaso) with interconnection at Tafo and Nkawkaw 161kV substations.
- v. **Option 3a: 330kV Volta - Akosombo - Nkawkaw - K2BSP:** - This option considers the construction of the 330kV from Tema (Volta Substation) through Akosombo – Nkawkaw to K2BSP (Anwomaso).
- vi. **Option 3b: 330kV Volta - Akosombo - K2BSP:** - This option considers the construction of the 330kV from Tema (Volta Substation) – Akosombo – K2BSP (Anwomaso).
- vii. **Option 3c: 330 kV Akosombo - Nkawkaw - K2BSP:** - This option considers the construction of the 330kV from Akosombo – Nkawkaw - K2BSP (Anwomaso).

### 1.3.2 Recommended Option:

#### Option 2a: 330 kV A4BSP – Nkawkaw – K2BSP

This option considers the construction of the 330kV from A4BSP (Pokuase) through a new interconnection 330/161kV substation at Nkawkaw to K2BSP (Anwomaso).

### 1.3.3 Scope of Project

The Project will be undertaken in two (2) lots as below:

#### **Lot 1: Construction of a new 330/161/34.5kV Nkawkaw Substation and expansion of 330kV Pokuase (A4BSP) and Anwomaso (K2BSP) Substations.**

The starting point of the new connection is the A4BSP (Pokuase) substation in Accra, which was commissioned in 2021. The substation site offers sufficient space to integrate the new 330 kV transmission lines. The works will require the expansion of the existing busbars and balance of plant.

A new substation is proposed along the line near Nkawkaw at the intersection with an existing 161kV Nkawkaw-New Abirem line. The substation design is similar to the Pokuase and Anwomaso Substations.

The Anwomaso (K2BSP) substation will require an expansion to accommodate the new 330kV lines from Accra (Pokuase) substation. The works will require extension of the existing busbars and balance of plant.

#### **Lot 2: Construction of a 330kV Double Circuit Overhead Line between A4BSP Substation and K2BSP Substation via New Nkawkaw Substation**

For the transmission line, double circuit self-supporting lattice towers are proposed, which will be equipped with Aluminium Conductor Steel Reinforced (ACSR) twin-bundle conductors and optical ground wires. The length of the line route up to the Anwomaso (K2BSP) substation is about 217 km, made up of 128km from Pokuase to Nkawkaw and 89km from Nkawkaw to Anwomaso.

### 1.3.4 Impact

The Project will result in significant and crucial positive economic impact at the strategic and national level given the recent challenges the energy sector in Ghana faced. Challenges in the energy sector have serious implications on Ghana's energy security and presents a major economic burden to the Ghanaian economy. The positive impacts of the proposed undertaking include but not limited to:

- Employment opportunities,
- Stabilization of electricity supply
- Promotion of economic growth
- Promotion of gender equality
- Avoided transmission losses
- Avoided outages / unserved energy
- Additional energy supplied to the consumers

## 1.4 CONSULTATION

The Ministry of Energy has had consultation with Ghana Grid Company Limited (GRIDCo), the Ministry of Finance and the Environmental Protection Agency (EPA). Post approval consultation will be held with relevant MMDAs.

## 1.5 IMPLEMENTATION PLAN

The Ministry of Energy (MoEn) in collaboration with the Ghana Grid Company Limited through the KfW have completed the Feasibility Study for the Project. KfW has subsequently engaged a Tender Agent to commence the process for the selection of Consultants for the Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) as well as the Owner's Engineer for the Project. The selection of a Contractor for Construction will commence upon clearance to proceed.

The various packages under the project constituting the procurement and construction works are scheduled to be executed concurrently over 54 months. The Ghana Grid Company Limited shall be responsible for the technical supervision.

## 1.6 LEGISLATION/REGULATORY PLAN

The Energy Commission Act, 1997 (Act 541) and the Volta River Development (Amendment Act) Act, 2005 (Act 692), provides for the establishment and exclusive operation of the National Interconnected Transmission System (NITS) by an independent utility and the separation of the transmission functions of the Volta River Authority (VRA) from its other activities within the framework of the Power Sector Reform. GRIDCo is operational and the upgrade of the NITS as proposed is part of its core functions.

The Public Financial Management Act (2016) Act 921 requirements relating to viability of the project have been fulfilled. The Public Procurement Act (2016) Act 663 as amended has provisions for sourcing of the works and have been complied with. There shall be no need to enact any further laws or amend existing law.

## 1.7 FINANCIAL IMPACT

The Government would not be required to fund any associated cost for the project implementation. The project shall be supervised and managed by the designated Project Execution Agency (PEA), GRIDCo as part of their existing frameworks for executing such works. The funding for the Transmission Line would be sourced from KfW under the following concessional terms:

Facility amount:	€116.6million
Grace period:	6 years
Repayment period:	32 years
Tenor:	38 years
Interest rate:	0.75% p.a.
Commitment fee:	0.25%
<b>Grant element:</b>	<b>53.26%</b>

## 1.8 COMMUNICATION

The initiative is informed by Government policy to significantly improve the electricity access to 90% within the Medium Term National Development Framework and ultimately improve the GDP.

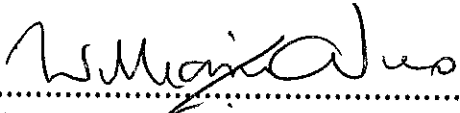
Following the approval of the request by Parliament, the Ministry of Energy shall undertake the following:

- i) Communicate government's decision to the Ghana Grid Company Limited.
- ii) The Ministry of Energy and GRIDCo shall communicate the decision in their areas of operation and engage customers to facilitate the execution of the works.

## 1.9 CONCLUSION

In view of the foregoing, Parliament is respectfully invited to consider and approve the Loan Facility Agreement for €116.6million to enable the implementation of the 330kV Accra-Kumasi Transmission Line Project to enhance electricity transmission capacity across the National Interconnected Transmission System from Greater Accra to Ashanti, Bono, Bono East, Ahafo and the northern regions of Ghana.

  
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**KEN OFORI-ATTA**  
**MINISTER FOR FINANCE**

  
.....  
**WILLIAM OWURAKU AIDOO (MP)**  
**DEPUTY MINISTER FOR ENERGY**

DATE: <sup>14<sup>th</sup></sup>.....NOVEMBER, 2022







REPUBLIC OF GHANA

# OFFICE OF THE PRESIDENT

SECRETARY TO THE PRESIDENT

Jubilee House, Accra

Tel: +233 (0) 302 738 600

Tel: +233 (0) 302 738 601

Digital Address : GA-000-0288

Ref. No.

018/82/22/1209

4<sup>th</sup> November, 2022

*Amante Akintola*

## **RE: REQUEST FOR EXECUTIVE APPROVAL FOR THE ACCRA KUMASI TRANSMISSION LINE PROJECT**

I refer to your letter dated 31<sup>st</sup> October, 2022, with reference number MoF/ERMERD/GER/AKTL/01, in respect of the above subject matter.

The President has granted approval for a concessional loan facility of One Hundred and Sixteen Million, Six Hundred Thousand Euros (€116,600,000.00) between the Government of Ghana and Kreditanstalt Für Wiederaufbau (KfW), Frankfurt Am Main, Germany, for the implementation of the 330kV Accra-Kumasi Transmission Line Project.

I shall be grateful if you could take requisite action on the above.

**NANA BEDIATUO ASANTE  
SECRETARY TO THE PRESIDENT**

**THE HON. MINISTER  
MINISTRY OF FINANCE  
ACCRA**

**ATTN: MR. KEN OFORI-ATTA**

Cc: The Vice President  
Jubilee House, Accra

The Chief of Staff  
Jubilee House, Accra

Secretary to the Cabinet  
Jubilee House, Accra

The Hon. Minister  
Ministry of Energy, Accra

