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REPUBLIC OF GHANA

7th MAY, 2019

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**POLICY GUIDELINES FOR LEAST COST FUEL PROCUREMENT AND
COMPETITIVE PROCUREMENT OF ENERGY SUPPLY AND SERVICES
CONTRACT**

In line with efforts to ensure efficiency in the procurement of energy supply and services contracts and also to minimize the total fuel costs borne by Government in the power generation subsector, the Ministry of Energy has developed policy guidelines accordingly.

The policies and their corresponding objectives are as follows:

i) **Policy Guidelines for Least Cost Fuel Procurement**

Objective: To minimize the total fuel costs borne by the GOG in the power generation sector while honoring the obligations under effective fuel supply contracts and maintaining reliable supply of power.

ii) **Policy for Competitive Procurement of Energy Supply and Services Contracts**

Objective: To ensure that Ghana procures energy in a sustainable and least-cost manner to meet demand, Ghana intends to implement a procurement policy based on:

- transparency,
- open-competition, and
- a regulator approved, regularly-updated, least-cost expansion plan based on consensus energy demand projections determined through a comprehensive planning process.

We hereby forward to you the attached policy documents for compliance.

HON. WILLIAM OWURAKU AIDOO (MP)
DEPUTY MINISTER, POWER
FOR: MINISTER

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MINISTRY OF ENERGY



Republic of Ghana

POLICY FOR COMPETITIVE PROCUREMENT OF ENERGY SUPPLY AND SERVICES CONTRACTS

May 2019

POLICY FOR COMPETITIVE PROCUREMENT OF ENERGY SUPPLY AND SERVICES CONTRACTS

1. Background

Ghana has total installed electricity generating capacity of approximately 4,700MW, which exceeds peak demand of approximately 2,700MW (including system losses and exports). Although it was necessary to increase thermal generating capacity to meet growing demand and diversify the fuel supply mix in the sector, Ghana significantly over-contracted for thermal generating capacity and at relatively expensive rates. As thermal generation will remain an important part of Ghana's generation supply mix going forward (it is expected that energy supplied by thermal generation will be approximately two-thirds of the supply mix in the short and medium terms) and the cost of such capacity has significant financial implications for the sector, it is imperative that Ghana only procures additional capacity when it is needed and at competitive prices.

The procurement of the existing thermal plants and fuel supply contracts were executed through bilateral negotiations and unsolicited proposals with Independent Power Producers (IPPs) and fuel suppliers, as opposed to open, competitive bidding processes. This has resulted in relatively expensive end-user electricity tariffs for the commercial and industrial sectors in Ghana when compared to tariffs in other developing countries, as shown in the Table below:

Country/Region	Ghana	RSA	India	China	SE Asia
US¢/kWh	15-19	8-10	8-9	7-8	4-7

GoG is committed to improving the competitiveness of the energy sector by ensuring transparency and implementing competitive tendering processes for all future generation capacity additions and fuel supply arrangements, all in accordance with the Public Procurement Act 2003, as amended by the Public Procurement [Amendment] Act 2016 (ACT 914), and other applicable laws of Ghana.

2. Purpose

To ensure that Ghana procures energy in a sustainable and least-cost manner to meet demand, Ghana intends to implement a procurement policy based on:

- transparency,
- open-competition, and

- a regulator approved, regularly-updated, least-cost expansion plan based on consensus energy demand projections determined through a comprehensive planning process.

For this purpose, the Government of Ghana, through the Energy Commission, has adopted the Integrated Power System Master Plan for Ghana (the 'IPSMP'), which identifies the "least-regrets" energy pathway to meeting long-term demand growth. The IPSMP will be updated at least every three years, or more frequently as warranted. Consensus-derived Electricity Supply Plans will be published on an annual basis.

3. Policy Statement

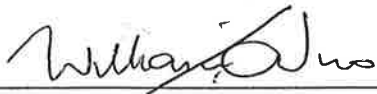
Government shall ensure that all energy supply and energy service contracts procured by the GOG and State Owned Entities shall be through a transparent, public and competitive process and in accordance with the laws and regulations of the Republic of Ghana. Further, any such procurement shall be in accordance with an industry regulator approved least-cost expansion plan which shall be updated regularly and is intended to support diversification of the power generation mix and other national strategic interests.

This policy shall apply to the following activities, among others:

- Strategic National Energy Plans;
- Integrated Resource Planning for the power subsector;
- Annual supply/demand balance projections of sector SOEs for electricity and natural gas and related budget and capital expenditure plans;
- Any Generation Plan developed pursuant to Clause 2.7.2 of the Bulk Supply Agreement entered into between Electricity Company of Ghana Limited and Power Distribution Services Ghana Limited (PDS Ghana);
- Natural gas and liquid fuel procurement and transportation planning for power generation and non-power uses;
- Power and gas transmission infrastructure planning, development and operations;
- Electricity and gas distribution infrastructure development and operations;
- Access to electricity supply; and
- Renewable Energy promotion, development and integration.

4. Compliance and Implementation

- i. All GOG Agencies and State Owned Enterprises (SOEs) shall adhere to this policy. The MOEN will disseminate a notice of this policy to all sector stakeholders, including private sector concessionaires, and post the notice in public media.
- ii. All procurement subject to this policy shall include adequate public notification and processes for stakeholder consultation including the general public.
- iii. The Energy Commission, in accordance with the Energy Commission Act, 1997, Act 541 will develop an integrated (consensus) forecast of power demand on the national grid, including forecasts from any private sector concessionaires. Currently, the Energy Commission's IPSMP serves as such forecast. All procurement plans of GOG and SOEs, including those pursuant to Clause 2.7.2 of the Bulk Supply Agreement, must be in accordance with this plan, as updated from time to time.
- iv. Approval of all license applications shall be in accordance with the IPSMP or other successor regulator approved least-cost expansion plan. No construction licenses for power plants or approvals for natural gas supply contracts shall be granted unless in accordance with such plan.
- v. The PURC shall not approve tariffs or provide for the recovery of costs of power and gas supply contracts in tariff computations unless such contracts were the result of a transparent competitive bidding process.
- vi. Monitoring and enforcement of compliance with this policy will be the responsibility of the relevant sector regulator(s), as applicable.
- vii. CEOs and/or Managing Directors of GOG and SOEs must certify in writing to the relevant sector regulator(s) on an annual basis that all procurement activities are in accordance with this policy.
- viii. Future procurement shall be based on standardized bankable project documentation including government support agreements, if required.
- ix. This Policy shall come into force beginning July 1, 2019.



Hon. William Owuraku Aidoo
Deputy Minister, Power
For: Minister

MINISTRY OF ENERGY



Republic of Ghana

POLICY GUIDELINES FOR LEAST COST FUEL PROCUREMENT

May 2019

1. Background

Ghana enjoys significant indigenous gas resources and currently produces around 300 mmscfd of associated and non-associated gas from its offshore Western Basin. Gas is also being imported from Nigeria through the West African Gas Pipeline (WAGP) and GOG has entered into multiple agreements for the future importation of liquefied natural gas. Each gas supply source has different associated costs, and as such, the supply mix needs to be optimized to minimize the overall cost of power generation and ensures that Ghana maximizes the benefit of exploiting her indigenous gas resources to their full economic potential.

This issue has become increasingly important as thermal generation has overtaken hydro generation as the predominant source of power generation and GOG seeks ways to reduce sector costs to enable sustainable reductions in end user tariffs to improve the competitiveness of Ghanaian industries.

When fuel (including natural gas and liquid fuels) supply exceed demand, as is the case today, it is necessary to prioritize fuel supply sources to reduce the overall fuel costs while respecting contractual commitments. This arrangement shall be required until a national gas aggregator is operationalized, and its incentives are aligned to nominate the lowest cost supplies.

2. Objective

The objective of the least-cost fuel procurement policy is to minimize the total fuel costs borne by the GOG in the power generation sector while honoring the obligations under effective fuel supply contracts and maintaining reliable supply of power.

3. Policy Statement

Government shall ensure that all fuel nominations for use in the power generation sub sector are carried out based on the principle of least Marginal Delivered Cost such that the total fuel cost for the entire power generation sector is minimized while considering existing Take-or-Pay (ToP) obligations, available make-up gas, commodity costs of the various supply sources, different associated transportation costs and levies, and infrastructure constraints.

4. Least Cost Fuel Procurement Policy Description

The least cost gas procurement policy sets out the general principles that determine which order fuel supplies are nominated based on least Marginal Delivered Cost. The ranking shall take into account Take-or-Pay (ToP) obligations, make-up gas available, commodity costs of the various supply sources, different associated transportation costs and levies, and infrastructure constraints. The marginal delivered cost of fuel supplies will be

calculated for each supply, differentiated by volumes from the same source that have different costs. For example, take or pay volumes, make up gas volumes, and additional volumes from the same field may have different Marginal Delivered Costs and should be considered separately.

5. Key Principles

The key principles of the policy are as follows:

- **Marginal Delivered Cost** is equal to the **Marginal Commodity Cost** plus the **Net Processing Cost** plus the **Transportation Cost**.
- The **Marginal Commodity Cost of Take-Or-Pay Volumes** is equal to USD 0 per MMBtu.
- The **Marginal Commodity Cost of Make-up Gas** is equal to USD 0 per MMBtu.
- The **Marginal Commodity Cost of Other Volumes** is the cost of gas owed the supplier per the contract.
- The **Marginal Commodity Cost for Liquid Fuels** is calculated by converting to USD per MMBtu.
- The **Net Processing Cost** is the cost of gathering and processing gas for delivery to end users minus the revenues from processing (e.g., LPG revenue).
- The **Net Processing Cost of Gas Delivered Already Processed** is equal to USD 0 per MMBtu.
- The **Transportation Cost** is the cost of delivering gas or liquid fuels to power plants in the Tema power enclave.
- The fuel supplies will be ranked by least Marginal Delivered Cost to the source with the highest Marginal Delivered Cost.
- The volumes from the least Marginal Delivered Cost fuel supply will be nominated for utilization in full before volumes from the next ranked least Marginal Delivered Cost fuel supply are nominated, and so on until demand has been met.
- In the event of infrastructure constraints that interfere with nominating fuel volumes in the order of least Marginal Delivered Cost, the spirit of the policy will be honored by nominating the lowest Marginal Delivered Cost fuel that is available given the infrastructure constraint.

An example of the ranking process is set forth in Appendix 1, which sets forth the current order of nomination based on contractual obligations and terms at the time of issuance of this Policy.

6. Compliance and Implementation

- i. The Energy Commission as the mandated lead agency for energy sector planning shall issue with no less than annual updates a medium-to-long-term electricity and fuel demand and supply forecast.
- ii. The GRIDCo will issue annually a 12-month forecast of power demand on the national grid and the thermal energy required after netting off hydro and renewable energy supplies.
- iii. Based on the GRIDCo forecast, and nominations from all gas consumers with which it has entered into GSAs, the GNPC shall develop a 12-month forecast of gas to be purchased from suppliers (taking account of the ToP commitment), and transported in the NGITS, along with delivered commodity gas prices as approved by the regulator.
- iv. The GNPC in consultation with GNGC and the various power plants shall develop a 12-month gas demand forecast considering all available gas supplies (firm and interruptible) from all sources (domestic and foreign) and delivery to all consumers (power and non-power) in their different locations, along with the delivered gas prices as approved by the downstream gas regulator.
- v. The VRA shall issue a 12-month forecast by plant of liquid fuel requirements (HFO/LCO/LPG, etc.) for the various power plants under its management.
- vi. The ECG/PDS shall issue a 12-month forecast by plant of liquid fuel requirements (HFO/LCO/LPG, etc.) for the various power plants under its management.
- vii. The Energy Commission shall consolidate the monthly demand and supply projections from the respective entities, and develop a consolidated annual gas and fuel demand/supply forecast.
- viii. The Energy Commission shall produce a semi-annual reconciliation report of monthly forecast versus actual supplies. The report will also include reporting on the parties that were not in compliance with the policy.
- ix. The Energy Commission shall renew the annual forecasts on a rolling semi-annual basis.
- x. Based upon the approval of the supply and demand forecast, the respective agencies will manage nominations and scheduling of gas supplies.

7. Effectiveness

The above policy guidelines shall come into force from 1st July 2019.



Hon. William Owuraku Aidoo
Deputy Minister, Power
For: Minister

Appendix 1

Based on the current portfolio of gas supply options, the current gas demand outlook and the current global oil price the order of nomination based on least-cost fuel procurement policy would look as follows. The order of nomination will be reviewed as per policy above:

Marginal Supply	Volume	Cumulative volumed (mmcf)	Marginal Delivered Cost (USD per mmbtu)	Least Cost Nomination Order
OCTP TOP	140	140	\$ 1.1	1
OCTP Make up gas	40	180	\$ 1.1	2
Jubilee minimum	80	260	\$ 1.6	3
TEN AG minimum	0	260	\$ 1.8	4
Jubilee additional	20	280	\$ 2.1	5
TEN AG additional	30	310	\$ 3.9	6
OCTP additional	50	360	\$ 5.9	7
TEN NAG	20	380	\$ 6.0	8
NGas	120	500	\$ 7.1	9
LNG	250	750	\$ 9.0	10