

**EXPRESSIONS OF INTEREST (EOI) FOR CONSULTANCY SERVICES FOR DEVELOPMENT AND OPERATION OF INFRASTRUCTURE FOR IMPORTATION OF LIQUEFIED NATURAL GAS FOR POWER GENERATION.**

The Kenya Electricity Generating Company PLC (KenGen) invites expressions of interest from eligible consultancy firms to conduct a Feasibility Study for:

- Development and operation of infrastructure for importation, storage, and regasification of liquefied natural gas (LNG) for power generation in Kenya.
- Conversion of the existing Heavy Fuel Oil (HFO) to operate on Natural Gas
- Development of a new Natural Gas Power Plant.

### **1.0. Introduction**

The Government of Kenya (GoK) intends to create a domestic natural gas market for power generation and industrial use. The gas will be imported as GoK progresses with development of domestic gas resource. Introduction of gas for power generation is aimed at further diversification of the country's energy mix, increased security of supply, reduction of cost of electricity and reduction of Greenhouse gas emissions in line with 2015 Paris Global Climate Change Agreement that Kenya is a signatory.

### **2.0 Background**

The interconnected Kenya Electricity Supply System has a total installed generation capacity of 2,763MW comprising of 826 MW of hydroelectric power, 720MW of thermal, 828MW of geothermal, 336 MW of wind, 50MW of solar, and 2MW from biogas. Isolated mini grids have a combined installed capacity of 28.5MW bringing the total national installed capacity to-2,791 MW.

To reduce the cost of power supply in the Country, we plan to study the feasibility of converting the existing 720MW thermal power plants operating on HFO to operate on Natural Gas.

In addition, the power system is dominated by Geothermal and Hydropower generation, and therefore the power system's baseload power requirements is adequately catered for current demand levels. However, going forward providing the system's peaking power and load following requirements will increasingly be a challenge due to the rapid increase of wind and solar power generation capacity connected to the system

Increased proportion of variable renewable energy sources pose a challenge to operation of the power system. There are a variety of ways in which such a challenge could be addressed with natural gas-powered power plants being possible candidates to address the problem. Natural gas is also a preferred alternative fuel for the country's thermal (HFO) power plants because it is relatively cleaner and a cheaper fuel than HFO. Development of a local natural gas market would also provide economic benefits for other sectors, such as industries, households, and transport.

The proposed natural gas infrastructure project would comprise of, but not limited to the following main components:

- (i) Gas import, storage and regasification facility – Either on-shore storage and regasification facility, floating storage and regasification unit (FSRU) or floating storage unit (FSU) and onshore regasification unit
- (iii) Conversion of existing HFO plants to operate on natural gas.

- (iii) Development of a new natural gas fired generating plant if determined to be necessary by the study; and
- (iii) Operations and Maintenance (O&M) of the natural Gas infrastructure for a period of 20 years.

### **3.0 Objectives of the feasibility study**

The objectives of this consultancy assignment is to:

- (a) Determine the viability of conversion of existing thermal (HFO) power plants, with a total installed capacity of 720MW, to operate on natural gas and resulting implication on cost of electricity.
- (b) Establish the national natural gas requirement in Kenya and determine the feasible size of gas import, transportation and storage infrastructure and logistics of gas importation for gas requirements for a period of 20 years.
- (c) Carryout a gas sourcing study, pricing, and importation logistics
- (d) Determine the optimal size and timing for implementation of a new natural gas-powered electricity generating plant, should this be deemed necessary, create enough demand for gas to meet the minimum annual volume required to invest in gas infrastructure.
- (e) Undertake a site selection for the gas importation and storage infrastructure as well as the new power plant, and further, carryout site investigations comprising of geotechnical investigations, topographical survey, and bathymetric study for the offshore facilities
- (d) Assess with reasons, the appropriate method of procurement (Conventional EPC versus PPP) of the project. If the PPP method is determined to be the appropriate procurement method, then the feasibility study shall be comprehensive enough to enable development of the project using the PPP method
- (e) Assess the environmental and social impact of converting existing thermal power plants to natural gas, the LNG importation, storage and regasification infrastructure and the new power plant and state how any adverse impact would be mitigated

### **4.0 Scope of Work**

The scope of the consultancy for the project is comprised of but not be limited to the following:

- a) Project feasibility assessment
- b) Site selection and site investigations
- c) Gas sourcing, pricing and importation logistics
- d) Technical and commercial options analysis
- e) Market Study to estimate potential gas requirements and uses
- f) Project due diligence
- g) Economic and Social benefit analysis (ECSBA)
- h) Financial Viability and affordability Assessment
- i) Value for money assessment
- j) Legal due diligence
- k) Site due diligence
- l) Public Sector Comparator Assessment that is, carry out an estimate of the total costs to the government of achieving the targeted outputs if the project is undertaken through the normal project development as opposed to a PPP Process.
- m) Environmental and Disaster Risk Assessment
- n) Environmental and Social impact assessment

- o) Procurement options, and if PPP option is recommended, PPP structure analysis
- p) Options development, evaluation, and selection
- q) Risk allocation framework and preparation of Heads of Terms for Project Contracts
- r) Project cost estimate, financial analysis, and determination of key financial parameters- NPV, FIRR, EIRR, LCOE, financial models and market sounding
- s) Summary of recommendations, Implementation plan and feasibility study report
- t) Determine viability of development of a proposed new plant running on natural gas, should it be required.
- u) Grid interconnection study for new natural gas fired power plant.
- v) Preparation of Concept design and bidding documents for a competitive procurement process, if the project is deemed feasible.
- w) If the project is deemed to be appropriate for procurement as a PPP option, preparation of the bidding documents including RfQ, RfP and all the associated agreements

Successful bidders will be allowed to improve the TORs during the study inception phase to allow for efficiency of contract execution provided that such improvements are approved by the client

### **5.0 Firm Profile**

It is anticipated that Consultants responding to this EoI will be an individual firm or a consortium (with one firm designated as the lead firm). The consultant team should have references for consultancies carried out for onshore and offshore natural gas storage, regasification and gas reticulation infrastructure; power generation projects, including natural gas fired power plants; sourcing of natural gas and preparation of Public Private Partnership (PPP) projects.

The Team Leader should be from the lead firm and should have a record of accomplishment in preparation of PPP Projects. It is further anticipated that local consultants will also be incorporated in the consultant team to meet the statutory local content requirement.

### **6.0 Evaluation Criteria**

Shortlist of consulting firms for the assignment will be prepared based on detailed references (or letters of commendation) of consulting assignments successfully carried out and certified curriculum vitae of key staff submitted. Interested consultants must provide information indicating that they are qualified to successfully undertake the feasibility study.

Interested eligible consulting firms must demonstrate ability and capacity to undertake the assignment and meet the following minimum criteria:

- i) Demonstrate clear understanding of dynamics of the global LNG Markets
- ii) Have conducted a feasibility study and design for at least one existing LNG onshore storage facility or Floating Storage Regasification Unit (FSRU)/Floating Gas Unit and downstream infrastructure.
- iii) Have at least 6 years' experience in the design and engineering of power plants running on natural gas.
- iv) Have carried out at least one feasibility study or design that led to successful conversion of at least one power plant running on Heavy Fuel Oil to run on natural gas.
- v) Demonstrate experience in structuring projects for implementation as PPP

- vi) Demonstrate availability of professional staff and disciplines expected to take part in the feasibility study and expertise in sourcing for LNG in the international market.

The key staff should be professionals in the following disciplines: Expert in LNG Commercial contracts/trade, Mechanical, Electrical, Civil, Marine and Power System Engineers, Environmental, Financial & Economic Analyst and Legal specialists, among others. The team Lead should demonstrate understanding of structuring PPP projects, design, and operation of FSRU and thermal power plants fired by natural gas.

### **7.0 Mandatory requirements:**

- a) Documents detailing that the firm(s) fulfils the minimum requirements in item 5.0 and 6.0 above.
- b) Certificate of Incorporation/Registration (and any certificate of change of name), certified by an authorized representative of the bidder or (as the case may be) the consortium member.
- c) Certified copies of Memorandum / Articles of Association for all consortium members.
- d) For a consortium, a duly notarized Consortium Agreement
- e) In case of a consortium, Power of Attorney nominating the Team Lead of the consortium.
- f) Audited Financial Statements for the last 3 years including Tax registration and Tax compliance certificates or equivalent documents applicable in the bidder's Country of origin. (For consortium arrangements, each member must meet the requirements).
- g) List of consultancy services on LNG Infrastructure, natural gas operated power plant design assignments in the last 15 years. The list should be accompanied by copies of reference letters from clients for the assignments undertaken a brief description of the study (scale and scope) and the status of the projects.
- h) A list of PPP power generation project which the bidder has experience in structuring and has procured.
- i) Company profile and where the Applicant is a consortium, a list of the proposed members of the consortium and the proposed Leader of the consortium and the roles of each consortium member. A joint venture agreement for all the members of the consortium and the proposed Leader of the consortium. Bidders are not allowed to be members of more than one consortium participating in this Expression of Interest (EOI). Foreign consultants are encouraged to associate with local consultants for transfer of technology.

### **8.0 Clarifications**

The interested firms may submit request for clarifications on this Pre-Qualification up to Ten (10) days before the Pre-Qualification submission date.

The study is expected to be completed within twelve months

Any updates on this EOI will be posted on the KenGen website (<http://www.kengen.co.ke/tenders>)

Any request for clarification must be sent in writing by paper mail, facsimile, or electronic mail to:

**Supply Chain Director**  
**Kenya Electricity Generating Company PLC,**  
**Stima Plaza III, Kolobot Road, Parklands,**  
**P.O. Box 47936 – 00100,**  
**Nairobi, Kenya.**  
Tel: +254-20-3666427/+254 – 20 - 3666421

Email: [tenders@kengen.co.ke](mailto:tenders@kengen.co.ke)  
CC: [injiru@kengen.co.ke](mailto:injiru@kengen.co.ke); [SKirui@kengen.co.ke](mailto:SKirui@kengen.co.ke); [bmusyoka@kengen.co.ke](mailto:bmusyoka@kengen.co.ke);  
[fkamanja@kengen.co.ke](mailto:fkamanja@kengen.co.ke); [mogonji@kengen.co.ke](mailto:mogonji@kengen.co.ke)

## 9.0 EoI Submission

The EOI (1 Original and 2 copies) plus one (1) readable soft copy should be submitted in a clearly labelled sealed envelope by **1000 hours** (East African Time) on **30<sup>th</sup> November 2020**. To the following address:

**Supply Chain Director,  
Kenya Electricity Generating Company PLC,  
Ground Floor, KenGen Pension Plaza I,  
Kolobot Road, Parklands,  
P.O. Box 47936, 00100  
NAIROBI.**

The Bid documents should be dropped in the tender box located on Ground Floor at KenGen, RBS building. Bids that cannot fit in the tender box should be submitted to the **Supply Chain Director** office located on **Ground Floor, KenGen Pension Plaza I** before submission deadline.

Bidders should submit one (1) Original and two (2) copies of the RFQ on or before **1000 hours** (East African Time) on **30<sup>th</sup> November 2020**. The information on the outer envelope of the submission should also include: Confidential, **KGN-BDD-09-2020-EXPRESSIONS OF INTEREST (EOI) FOR CONSULTANCY SERVICES FOR DEVELOPMENT AND OPERATION OF INFRASTRUCTURE FOR IMPORTATION OF NATURAL GAS FOR POWER GENERATION: Do not open before, 30<sup>th</sup> November 2020 at 1030 hours. East African Time.** The EOI will be opened immediately thereafter in the presence of bidders representative who choose to attend at Tender Opening Room, Ground Floor.

The Expression of Interest can also be viewed and downloaded from the KenGen website [www.kengen.co.ke](http://www.kengen.co.ke). Bidders are advised to be checking the website from time to time up to ten (10) days before submission date for any uploaded information through clarification/addendum.

KenGen reserves the right to accept or reject any or all applications without the obligation to assign any reason for the decision. Only individuals pre-qualified under this procedure will be issued with the tender documents and be invited to submit their technical and financial bids.

## **SUPPLY CHAIN DIRECTOR**