



TERMS OF REFERENCE

EXPRESSION OF INTEREST FOR CONSULTANCY FOR DEVELOPMENT OF TERMS OF REFERENCE FOR CHARACTERIZATION OF SITES FOR NUCLEAR POWER PLANTS IN KENYA

INTERNATIONAL TENDER NO: KNEB/EOI/01/2017/2018

A: BACKGROUND

The national electricity demand is projected to increase significantly in the near future as Kenya gears towards a middle income economy. Kenya's development blueprint, The Vision 2030, has identified energy as a key driver for sustainable growth. The energy sector is expected to provide adequate, affordable and reliable supply of energy to meet the development needs of the country.

Kenya's Least Cost Power Development Plan projects a considerable increase in peak power demand by the year 2030 as a result of the rapidly increasing use of electricity for industrial, commercial and household use. This has created the need to enhance and diversify national power generation and supply by identifying new generation and supply sources that will produce energy that is affordable, reliable

clean and sustainable. Nuclear energy provides such an option as it is an optimal energy source for base load operation, is efficient and most importantly, reliable.

The Government of Kenya has decided to incorporate nuclear power as one of the technologies of choice for satisfying future electricity demand. This is backed by the fact nuclear power provides safe and reliable electricity production at a reasonable and competitive price, while providing independence from fossil fuel and associated price fluctuations. Uranium fuel represents a relatively small fraction of the total cost of nuclear plants' electricity production. As a result electricity production costs from nuclear plants is not volatile compared to fossil-fuel based plants.

Kenya Nuclear Electricity Board (KNEB) is established under the Kenya Nuclear Electricity Board Order 2012 pursuant to the provisions of the State Corporations Act, Cap 446 of the Laws of Kenya. KNEB's primary function is to promote and expedite the development of nuclear electricity in Kenya.

One of the functions of the board is to identify appropriate sites in Kenya for the construction of nuclear power plants and related amenities. To achieve this mandate, KNEB has established a multidisciplinary Site Selection Team that has developed the Criteria for Siting of Nuclear Power Plants in Kenya. The Site Selection Team also conducted site visits to the potential sites in the regions of interest, and has embarked on a program for ranking the sites.

In order to comply with relevant national and international codes, regulations and standards, KNEB is subjecting the Nuclear Power Programme to a meticulous Site Selection Process. The siting process is conducted to determine the most suitable site for the construction and safe operation of a nuclear power plant. The Comprehensive Terms of References for site characterization of nuclear power plants in Kenya will

ensure that all relevant technical and environmental issues relating to site characterization of nuclear power plants are integrated in the site evaluation process.

Nuclear power however has unique characteristics that impact the environment, such as radioactive waste and spent fuel management, thermal releases, complexity in the amount of time required for construction, the distance of cooling water intake, geotechnical hazards, requirements for heavy haul roads, the international interest, quality assurance requirements and decommissioning. These issues should be analyzed comprehensively in the context of Kenya's Siting Process.

C: OBJECTIVES

The main objective of this consultancy shall be to develop the Terms of Reference for engagement of a suitable Consultant to carry out site characterization for Nuclear Power Plants in Kenya in accordance with the relevant national and international codes, regulations and standards.

D: SCOPE OF SERVICES

The objective of this work is to develop the Terms of Reference for engagement of a suitable Consultant to carry out site characterization for Nuclear Power Plants in Kenya. The scope of service shall be to develop the Terms of Reference for site characterization for NPPs in Kenya. This shall include a comprehensive description of all activities that need to be undertaken by the consultant during site characterization. This shall also take into account training needs assessment and training of SST members from the Board. The Terms of Reference shall also provide specific timelines and milestones from signing of the contract to completion of the project.

E: METHODOLOGY

Standard techniques and best practices shall be used including use of checklists, case comparisons, literature review and consultations in order to generate the Terms of Reference.

F: THE STUDY TEAM

A multidisciplinary team of experts who have expertise in, but not limited to; Earth Sciences, Civil/Geotechnical/Nuclear engineers, Environmental specialists and Meteorology experts registered by the relevant accredited professional bodies shall be required to develop the TORs. Detailed CVs and relevant registration body certificates for the team shall be availed to the board.

G: EXPECTED OUTPUTS

The expected outputs of this assignment shall include the following:

- i. Draft TORs.
- ii. Final TORs.

H: TIMING/REPORTING/QUALIFICATION REQUIREMENTS

The assignment shall take three (3) months from the time of signing of contract up to the time of completion which shall include verification of inputs from KNEB. The Consultant shall provide qualified staff with relevant experience of not less than 10 years in site characterization for the Team Leader and at least 5 years of similar experience for the additional core staff.

Consultant Personnel

Professional Specialization	Minimum Years of Experience in Specialization
Lead Assessor / Specialist	10 years of field experience with 5 years as the Lead Expert
Team members	5 years of relevant experience

The qualified firm must meet all the legal requirements to operate in Kenya, and shall show proof of previous site characterization for nuclear power plants.

The Consultant shall be required to prepare and submit the following reports to KNEB:

i. Draft TORs

The Consultant shall provide Two (2) copies of the draft TORs for site characterization of Kenya's nuclear power plant Proposed and Alternate sites by the end of Week ten (10) after signing of the contract.

ii. Final TORs

The Consultant shall provide five copies (5) copies of the final TORs for Site Characterization of Kenya's nuclear power plant Proposed and Alternate sites by Week sixteen (16) after signing of the contract.

iii. Verification and validation Meetings

The Consultant shall facilitate periodic TORs review workshops.

I: FACILITIES AND COUNTERPART PERSONNEL TO BE

PROVIDED BY THE CLIENT

The Client shall provide the Consultant with counterpart and liaison staff.

J: IMPROVEMENT OF ToRs

The Consultant may offer suggestions and improvements in the Terms of Reference, which he considers would result in better implementation of the project. Such proposals when accepted will form part of the Terms of Reference of the proposals submitted by the consultant. The effect on the time and cost estimates given under the above clause shall be clearly identified.

K: ELIGIBILITY OF CONSULTANTS

To be eligible, the firms/consultants must meet the following minimum criteria:

- a. Provide statutory registration documents i.e. Copies of PIN, VAT Registration Certificate, Incorporation Certificate, Tax clearance certificate where applicable.
- b. Provide detailed company profile including CVs of lead consultant and other key personnel as prescribed in *Para. H* above. Physical address and Telephone contacts should be provided.
- c. Must be familiar with national and international nuclear regulations and environmental management laws, policies and practices.
- d. May associate with other Consultant(s) in a joint venture or subcontract, as appropriate.
- e. International consultant(s) may seek the participation of local Consultant(s) by entering into a joint venture with, or subcontracting part of the assignment to a national Consultant(s).
- f. Majority of the key professional staff proposed shall be permanent employees of the firm or have an extended and stable working relationship with it.