
TERMS OF REFERENCE FOR APPOINTMENT OF A SERVICE PROVIDER FOR A STUDY ON THE COST OF NUCLEAR POWER FOR THE DEPARTMENT OF ENERGY, HEAD OFFICES AT 192 VISAGIE STREET, CORNER PAUL KRUGER AND VISAGIE STREET, FOR A PERIOD OF 4 WEEKS.

1 BACKGROUND

1.1 In order to remain abreast of the latest developments in the energy industry, the Department of Energy would like an update on cost of nuclear power. The previous official estimate received was the Electric Power Research Institute study of 2010, which has recently been updated by the 2012 report.

2 OBJECTIVE

2.1 The objective of this work is to obtain an update on the costs of nuclear power that consolidates estimates of a broad range of studies into the costs, with a global view which is inclusive of eastern and western country nuclear technologies.

3 SCOPE OF WORK

3.1 The present study should be based on a broad survey of literature data regarding the cost of nuclear power (light water reactor technology), broken down into the following aspects

3.1.1 Preparatory Costs (related to procurement and legislation)

3.1.2 Overnight costs (in US\$/kWe installed)

3.1.3 Fuel Costs (in US\$/kWh);

3.1.4 Long term Fuel Waste Management Costs (in US\$/kWh)

3.1.5 Operation and Maintenance Costs (in US\$/kWh)

3.1.6 Decommissioning and Dismantling Costs (US\$/ KWe decommissioned)

- 3.1.7 Any other costs considered to make up more than 5% of the total.
- 3.2 All data should be clearly referenced to source and the quality/reliability of data should be assessed on a relative basis (such as a scale of Low, Medium, and High).
- 3.3 Data should be statistically analysed to arrive at a range of costs, including an average and upper extreme (95% confidence interval) cost.
- 3.4 All cost estimates should be converted to 2013 US\$ and the exchange rate to ZAR should be maintained throughout, i.e. all data that are not in 2013 US\$ should be converted to this using the appropriate financial tools.
- 3.5 The data should be further analysed to obtain a Levellised Cost of Energy (US\$/kWh) and assume a full plant operational life (40 years for Generation II and 60 years for Generation III technologies).
- 3.6 This Levellised cost should be compared with the statistical range of renewable (Wind, Solar PV, Solar CSP) and fossil fuel technologies (Gas, Coal) as contemplated in the Integrated Resource Plan 2010-2030 and updated to latest cost values.
- 3.7 There should be a balanced representation of at least five nuclear vendor technologies, from both Eastern and Western countries.

4 PAYMENTS

- 4.1 The Department will **not** make an upfront payment to a successful service provider. Payment will only be made in accordance to the delivery of service that will be agreed upon by both parties and upon receipt of an original invoice.

5 REPORTING REQUIREMENT AND PROGRESS MEETINGS

- 5.1 It is envisaged that the Department of Energy will require an initial meeting with the successful service provider to agree on the project process and options to be investigated.
- 5.2 Progress meeting feedback shall be held as and when necessary, but at least once during the four weeks. The venue for these meetings will be a selected

venue in Johannesburg or Pretoria. Representatives from the advisors' organisation shall be obliged to attend. Where applicable, and subject to the discretion of the Department, video and/or conference calls may be held to facilitate such meetings.

6 DOCUMENTATION

6.1 For all Phases, the successful service provider shall organise all project files and data banks in a systematic way, with adequate indexing. Two copies of these files shall be submitted to Department of Energy after completion of each phase. The files shall contain all documents produced and, in particular:

- calculation sheets;
- correspondence;
- copies of minutes of meetings; and
- copies of all memoranda produced.

6.2 The copyright in the end product will vest in Department of Energy and be presented with its logo, and it will be at liberty to use the report and results as deemed necessary.

7 COMPLETION DATE

7.1 The duration of the project is four (4) weeks after signing of the contract with the successful service provider. A maximum of an additional two (2) weeks is allowed for logistical and coordination arrangements for the members of the team. Failure to meet this requirement will invalidate the bid.

8 COMPULSORY INFORMATION SESSION

8.1 A **Compulsory Briefing** session will be held on 13 May 2013 at the Department of Energy, 192 Visagie Street, Pretoria, 0001. Failure of at least one member of the bidder to attend (or at least one member of the bidder consortium if applicable) will lead to disqualification.

9 TAX CLEARANCE CERTIFICATE

9.1 The bidder (or lead party of the joint venture) is required to submit an original and valid Tax Clearance Certificate issued by the South African Revenue Services together with the bid documents before the closing date and time of the bid. Failure to comply with this condition will invalidate the bid.

10 CONFIDENTIALITY OF INFORMATION

10.1 The names of all the members of the service provider team must be disclosed for the prior approval of Department of Energy. Any changes, replacements and/or additions should be submitted for prior approval of Department of Energy.

10.2 All members will have to sign a Non-Disclosure Agreement before project commencement, and may be required to undergo security screening and tests as the Department of Energy deems necessary.

11 BROAD BASED BLACK ECONOMIC EMPOWERMENT

11.1 Provisions of the Preferential Procurement Policy Framework Act (PPPFA) 2011 and its regulation will apply in terms of awarding points.

11.2 Bidders are required to submit original and valid B-BBEE Status Level Verification Certificates or certified copies thereof together with their bids, to substantiate their B-BBEE rating claims.

11.3 Bidders who do not submit their B-BBEE status level verification certificates or are non-compliant contributors to B-BBEE will not qualify for preference points for B-BBEE.

11.4 In a case of Exempted Micro Enterprise, the following documents MUST be submitted:

11.4.1 Verification agencies accredited by SANAS

11.4.2 Registered auditors approved by IRBA

11.5 Bidders who qualify as EMEs

11.5.1 Accounting officers as contemplated in the CCA; or

11.5.2 Verification agencies accredited by SANAS; or

11.5.3 Registered auditors (Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EMEs with B-BBEE Status Level Certificates).

11.5.4 The table below depicts the B-BBEE status level of contribution:

| B-BBEE Status Level of Contributor | Number of points (90/10 system) |
|---|--|
| 1 | 10 |
| 2 | 9 |
| 3 | 8 |
| 4 | 5 |
| 5 | 4 |
| 6 | 3 |
| 7 | 2 |
| 8 | 1 |
| Non-compliant contributor | 0 |

12 EVALUATION CRITERIA

12.1 Company Experience

12.1.1 Service providers should have at least three (3) years recent experience in nuclear power plant advisory directly related to costing and financing, with a record of successful nuclear programme involvement.

12.1.2 Service providers should clearly indicate the role played at their involvement in the abovementioned assignments, including the duration and size of the teams deployed.

12.1.3 The Service provider must have at least three (3) years' experience in the South African electricity sector at advising on costing and financing.

12.2 Team Leader and Team Members Experience

12.2.1 The team leader must have at least 10 years of experience in the nuclear power sector, more-especially in the field of nuclear finance and costing in countries with successful new nuclear build programmes (delivered on time and budget). Other members of the team should have at least 5 years of similar experience.

12.2.2 Curriculum Vitae's of the team leader and team members must be attached to the technical proposal as proof.

12.2.3 The role, location and commitment of each member in the team during the assignment must be specified.

12.3 Team leader and team members qualifications

12.3.1 Team leaders and team members must possess at least a postgraduate degree in economics, finance, or engineering related disciplines.

12.3.2 A copy of certified certificates of qualification/s must be attached as proof.

12.4 Independence

12.4.1 The service provider should demonstrate that the team members are sufficiently independent from any particular nuclear power plant supplier.

12.5 Research and Project Plan

12.5.1 The approach to the successful delivery of the stated objectives and scope of work, including the quality and depth of the proposal in terms of the scope of work :

- Literature survey (including broadness of technology to be considered – i.e. Eastern and Western Technology)
- Data Analysis
- Cost comparison and Conclusion

13 EVALUATION PROCESS

13.1 Bids will be evaluated on 90/10 point system as outlined in the PPPFA of 2011.

The proposals will be evaluated in two phases:

Phase 1: Bidders will be evaluated based on functionality. The minimum threshold for functionality is 70 out of 100 points. Bidders who fail to meet minimum threshold will be disqualified and will not be evaluated further for price and points for B-BBEE.

| <i>Item</i> | <i>Evaluation criteria</i> | <i>Weight</i> |
|-------------|--|---------------|
| 1. | Company Experience Capacity and experience to determine costs for nuclear projects and programmes, especially those that are successful, including, experience in successfully developing and executing assignments of a similar nature. CVs must be attached as proof. | 20 |
| 2. | Team Leader and Team Members Experience The team leader must have at least 10 years of experience in the nuclear power sector, more-especially in the field of nuclear finance and costing in countries with successful new nuclear build programmes (delivered on time and budget). Other members of the team should have at least 5 years of similar experience. | 10 |
| 3. | Team leader and team members qualifications Team leaders and team members must possess at least a postgraduate degree in economics, finance, or engineering related disciplines. A copy of certified certificates of qualification/s must be attached as proof. | 5 |
| 4. | Independence Assurance of independence from all possible vendors of nuclear power plants. | 5 |

| <i>Item</i> | <i>Evaluation criteria</i> | <i>Weight</i> |
|-------------|--|---------------|
| 5. | Research and Project Plan The approach to the successful delivery of the stated objectives and scope of work, including the quality and depth of the proposal in terms of the scope of work. | 60 |
| | <ul style="list-style-type: none"> • Literature survey (including broadness of technology to be considered – i.e. Eastern and Western Technology) | 25 |
| | <ul style="list-style-type: none"> • Data Analysis | 25 |
| | <ul style="list-style-type: none"> • Cost comparison and Conclusion | 10 |

13.2 Phase 2: Price and B-BBEE

| <i>Evaluation criteria</i> | <i>Weight</i> |
|----------------------------|---------------|
| Price | 90 |
| B-BBEE Compliance | 10 |

13.3 **Optional Phase 3:** The Department will at its discretion require an interview to be conducted with up to three of the highest scoring service providers. This will include a brief presentation of the Project Plan by the service providers.

14 FORMAT AND SUBMISSION OF THE PROPOSAL

14.1 All Standard Bidding Documents (SBD) must be completed in all respects by bidders. Failure to comply will invalidate a bid.

14.2 Bidders are requested to submit two (2) copies: 1 original plus 1 copy of the proposal and bid documents.

15 CLOSING DATE

15.1 Proposal must be submitted at 11:00 on 24 May 2013 at the Department of Energy, 192 Visagie Street, Corner of Visagie and Paul Kruger Street, Pretoria in the Bid Box marked Department of Energy. **No late bids will be accepted.**

16 ENQUIRIES

16.1 All technical enquiries to be directed in writing to Mr Jeetesh Keshaw

Tel: 012 406 7621

Email: Jeetesh.keshaw@energy.gov.za

16.2 All bid enquiries to be directed to Ms Daisy Maraba/Ms Rachel Moerane

Tel: 012 406 7748/ 7747

Email: Daisy.Maraba@energy.gov.za/Rachel.Moerane@energy.gov.za