
TERMS OF REFERENCE FOR APPOINTMENT OF A SERVICE PROVIDER FOR ADVISORY SERVICES ON FINANCING OPTIONS, MODELS, AND SOLUTIONS FOR NEW BUILD NUCLEAR FLEET PROGRAMME FOR THE DEPARTMENT OF ENERGY HEAD OFFICES AT 192 VISAGIE STREET, CORNER PAUL KRUGER AND VISAGIE STREET, FOR A PERIOD OF 10 WEEKS.

1 BACKGROUND

- 1.1 The 9 600 MW nuclear programme, as stipulated in the Integrated Resource Plan 2010-2030, would result in the single biggest procurement and associated financing ever undertaken in South Africa. Consequently, the Department of Energy would like to engage suitable external party/parties to investigate the optimal financing structure based on lessons learned on large nuclear build and other similar infrastructure programmes globally.
- 1.2 The Department of Energy previously conducted some initial studies on the various ownership structures suitable for the nuclear programme. Recommendations based on the findings indicate that more detailed work is needed on some of the priority scenarios. The purpose of this work is to delve into more detailed financial aspects of the scenarios that have been considered from the previous studies.

2 OBJECTIVES

- 2.1 On conclusion of this study, it is anticipated that the Department of Energy, where appropriate, will be in a position to identify and establish:
- the optimum financing structure scenario for the nuclear new build programme; and
 - the appropriate financing execution strategy for the nuclear new build programme;
- 2.2 The study must be based on the understanding that the majority ownership of the nuclear power plants will be vested in a South African State Owned

Company operating in the South African policy environment. All recommended scenarios must therefore conform to the appropriate national legislation and financing regulatory requirements, or propose changes that would enable flexibility for a more beneficial financing structure.

- 2.3 Proposed scenarios and recommendations emanating from this study must be based on a thorough benchmarking to the international best practice for large nuclear build projects.
- 2.4 Detailed calculations through a financial model based on the construction and power generation life cycle of the nuclear programme must be developed and used as a basis for comparison of various financing scenarios.
- 2.5 Consideration of key drivers of the programme must be given, these include: supplier development and localisation, skills development, cost of plant, nuclear safety and technical requirements, reduction of programme risk, security of funding solutions and possible equity proposals. Recommendations must ensure that solutions are structured to ensure optimisation of the above key drivers during the course of the programme, especially during the procurement phase.

3 SCOPE OF WORK

The service provider is expected to adequately address, as a minimum deliverable, all the items referenced in the Scope of Work below:

- 3.1 The service provider is expected to deliver the work through four (4) phases. The final product would be a collation of each of these into a coherent and internally consistent recommendation. The phases are Benchmarking and Options Studies, Assessment, Modelling and Analysis, Recommendations. Further details of each are given in the ensuing paragraphs.
- 3.2 **Benchmarking and Options Studies:** A historical overview of the various financing structures (not ownership as this has been carried out in a previous study that could be provided) utilised to finance previous and current nuclear build programmes in other countries. By extension, a description of any additional options not implemented previously that could be considered for

South Africa should be given. Details of each financing structure investigated should include the following:

- 3.2.1 A description on how the various nuclear plant risks were apportioned during construction, operation and decommissioning.
 - 3.2.2 Lessons learned, successes and failures and the reasons thereto with regards to financing from time of a policy decision to proceed with a nuclear programme to the current structure (i.e. an evolution of the financing structure).
 - 3.2.3 At least the following country programmes must be studied: Turkey, Russian Federation, South Korea, Japan, China, United States of America, Vietnam, France, Brazil, India, Taiwan, Germany, Finland, Sweden, Poland, Lithuania, Canada, Switzerland and Spain.
- 3.3 **Assessment:** A comparative **assessment** of each of the various financing structures derived from the benchmarking and options phase, as it relates to their impact on the South African environment with regards to:
- a) Localisation
 - b) Cost effectiveness
 - c) Tenor
 - d) Drawdown and repayment flexibility
 - e) Risks (including refinancing risk, foreign exchange risk)
 - f) Time to deploy
 - g) Implementability
- 3.3.1 An outline of the pros and cons of each of the options with reference to the financial regulatory and legislative framework of South Africa should be included.
 - 3.3.2 The assessment should be based on the international experience to enhance the bankability of the nuclear project (single plant or fleet), lessons learned, successes and failures and the reasons thereto.
 - 3.3.3 The Service Provider must include in the assessment details of the international experience on the appetite and likely terms and conditions (tenor, sculpting of the financing drawdowns and repayments, returns) of the

various categories of lenders and major investors within each category to the nuclear project (single plant or fleet), lessons learned, successes and failures and the reasons thereto, and recommend solution/s to address these.

- 3.3.4 The Service Provider must provide an assessment of the international landscape on nuclear liability as it relates to the nuclear programme. Lessons learned, successes and failures and the reasons thereto, and recommend solution/s to address this must be included.
- 3.3.5 The assessment must consider the international experience on Government based guarantees that may be required in the South African programme, such as project completion guarantees and financing guarantees. A high level summary must also be given of the successes and failures of these, the reasons thereto, and recommended solution/s to address this.
- 3.3.6 An assessment of the differences in financing of a fleet strategy versus procurement of individual units should also be given. A detailed risk analysis is to be submitted for each scenario as well as the pros and cons for each.
- 3.3.7 The Service Provider must provide a description of the international experience to address the regulatory tariff risk that may occur during construction, operation and decommissioning. By extension, this should be based on previous scenarios and incorporate the lessons learned, successes and failures and the reasons thereto, and recommend solution/s.
- 3.3.8 From this, there should be an assessment of the South African tariff determination process and the resulting impact on the programme.
- 3.3.9 The Service Provider must provide a description of the impact of three proposed ownership structures of the nuclear programme (single plant and fleet) on country financials and the ownership company.
- 3.3.10 Based on this, an assessment must be done of the impact of the nuclear programme (single plant and fleet) on the South African country financials such as balance of payments, trade deficit, currency, contingent liabilities, fiscal deficit and other relevant financial ratios. The impact on the ownership company financials and credit rating should also be assessed.

3.4 **Modelling and Analysis** – The service provider must develop a quality assured financial modelling tool that would enable comparison of various financing structures that are explored for the South African new build programme.

3.5 The tool must be based on Microsoft Excel and should include user training, documented calculation theory, and a manual for its use. This tool must be included in the service providers deliverables and should be detailed enough to allow the Department to utilise the model afterwards.

3.5.1 The model must be based on the cumulative 80 year construction and generation lifetime of the nuclear power programme, and assume a 60 year plant operation life.

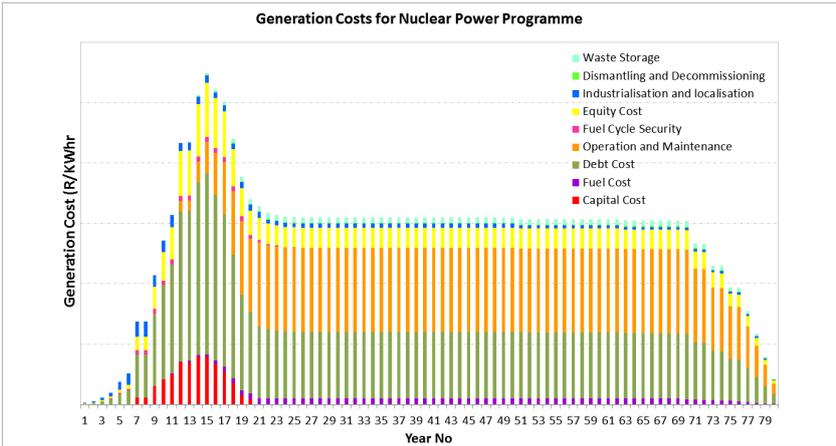
3.5.2 Inputs into the model should include at least:

- a) Capital costs
- b) Owners Development costs
- c) Fuel Supply costs
- d) Operation and Maintenance Costs
- e) Decommissioning Costs
- f) Industrialisation and Localisation Costs
- g) Fuel Cycle Infrastructure Development Costs
- h) Waste storage costs (post lifetime recovered during operation)
- i) Up to three optional other Costs which can be specified by the user

3.5.3 Input variables for the calculation should include variables such as

- a) Debt financing costs
- b) Debt financing periods
- c) Debt/Equity Ratio
- d) Construction period
- e) Yearly S-Curve proportions for construction period
- f) Construction frequency (plant to plant timing)
- g) Exchange Rates per year for the complete plant lifetime
- h) Inflation Rates per year for the complete plant lifetime

3.5.4 The primary output of the model should be a numeric and graphical illustration of the cost of generation of nuclear electricity on a per year basis, an illustration of a sample of typical output is given below. In addition an output of key financial ratios, gross and net cash flows, a levelised cost calculation output, and breakeven smoothed tariff of the owner (assume ring-fenced nuclear ownership entity) is required for each scenario.



3.5.5 Various plausible scenarios must be modelled using the abovementioned tool with the salient outputs of each captured in a comparative chart or table. The impact of each scenario on the fiscus, investors, shareholders, and lenders must also be clearly quantified.

3.5.6 A scenario in which the current nuclear power station is ring-fenced as part of a nuclear joint venture would need to be modelled in detail to provide an impact assessment on the current state owned entity, country financials, as well as the bankability of the programme. In this case, relevant information on the financials of the nuclear power station and the owner company would be provided by the Department of Energy.

3.6 The service provider should provide access to all the formulae, sheets, and source code for the model which would allow the Department to independently verify, validate or further develop or enhance the model at a later stage.

3.7 **Recommendations** - From the assessment and analysis, an internally consistent **recommendation(s)** should be made on the following:

3.7.1 Optimal financing structure including how risks should be apportioned and allocated.

3.7.2 Optimal sources (including source quantities) of financing.

3.7.3 Optimal mechanism to address other financing related issues.

3.7.4 Optimal financing implementation strategy.

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 a dully compliant 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 when necessary, but at least twice a month. 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 of Energy, video or conference calls shall 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 it's 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 ten (10) weeks after signing of the contract with the successful service provider. A maximum of two (2) weeks period is allowed for commencement of the project after acceptance of the bid. Service providers are not to exceed these timelines.

8 COMPULSORY INFORMATION SESSION

8.1 A **Compulsory Briefing** session will be held on **30th October 2013** at the Department of Energy, at 192 Corner Paul Kruger and Visagie Streets. 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 in a consortium or 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 by the Department of Energy. Any changes, replacements and/or additions should be submitted for prior approval by the 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 INFORMATION TO BE SUPPLIED BY THE DEPARTMENT OF ENERGY

- 11.1 Any information requested by the service provider in order to perform the services will be subject to discretion of the Department of Energy to provide such information.
- 11.2 The Department of Energy will inform and provide the service provider with any material or information that it deems relevant during the service period.
- 11.3 Bidders should base their proposal on the grounds that no further information from the Department of Energy, or related entities would be necessary to perform the service. Note information of the previous study and related financial information referred to in the Scope of Work would be made available where necessary.

12 CONFLICT OF INTEREST

- 12.1 A comprehensive list of service provider team members involved in the study must be disclosed as part of the response documentation. For each team member there must be:-
- 12.1.1 A concise resume detailing the members related experience.
- 12.1.2 A declaration from each member detailing any possible conflict of interest in terms of this section.
- 12.2 The Department of Energy reserves the right to exclude any member whom the Department of Energy deems, at its own discretion, to have a possible conflict of interest from the study. In this case the advisor will be requested to replace the excluded member with another suitable candidate. The replacement candidate must submit the above mentioned resume and declaration and be approved by the Department of Energy in writing.
- 12.3 An advisor, including members of a joint venture, consortium, or other unincorporated grouping, is not allowed to have an interest, whether direct or indirect that is regarded as creating an actual or perceived conflict of interest. This includes a relationship that is regarded as creating an actual or perceived conflict of interest between an advisor and

- 12.3.1 Any nuclear power plant vendor or consortium of nuclear power plant vendors that submits a tender during the procurement of South Africa's nuclear power plants, or
- 12.3.2 Any party that is or becomes involved in the procurement of South Africa's nuclear power plants as a potential investor; advisor to any investor or supplier of any related service or product;
- 12.3.3 Any structure of the Government nuclear decision making framework of the National Nuclear Energy Executive Coordination Committee.
- 12.4 Any person or entity that intends to become involved in the process of procurement of nuclear power plants that has a relationship with the advisor that may create actual or perceived conflict of interest may be disqualified from the procurement process, in addition to any other steps that may be taken against the advisor.
- 12.5 The advisor shall disclose all information in its proposal regarding any interests that may result in an actual or perceived conflict of interest.
- 12.6 Please note that Department of Energy reserves the right to disqualify any bidder in circumstances where a conflict of interest exists or is perceived to exist or where a bidder has failed to disclose any conflict of interest or any other material information that may have affected the award of the bid.
- 12.7 A service provider may be considered to have a conflict of interest with one or more parties in this process if:
- 12.7.1 they have controlling partners in common; or
- 12.7.2 they receive or have received any direct or indirect subsidy from any of them;
or
- 12.7.3 they have the same legal representative for purposes of this proposal; or
- 12.7.4 they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about, or influence on, the proposal of another bidder or to influence the decisions of Department of Energy regarding this process; or

13 COST

13.1 The service provider will be requested to provide a detailed quote regarding the work to be undertaken for this project.

13.2 The total cost must be VAT inclusive and should be quoted in South African currency (i.e. South African Rands).

14 DECLARATION ON AGREEMENT ON DEPARTMENT OF ENERGY CONDITIONS OF CONTRACT

14.1 The bidding party must **explicitly** state in its proposal whether any terms and conditions of the Department of Energy, or those of this Terms of Reference, are in conflict with its offering.

15 BROAD BASED BLACK ECONOMIC EMPOWERMENT

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

15.2 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.

15.3 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.

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

15.4.1 Verification agencies accredited by SANAS

15.4.2 Registered auditors approved by IRBA

15.5 Bidders who qualify as EMEs

15.5.1 Accounting officers as contemplated in the CCA; or

15.5.2 Verification agencies accredited by SANAS; or

15.5.3 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).

15.5.4 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

15.6 Company Experience

15.6.1 Service providers should have at least five (5) years recent experience in nuclear power plant financing in an advisory capacity. This should be experience on a nuclear financing that is successful (i.e. contracting has been concluded and construction commenced/completed on schedule and budget). The following template of a table header to be filled out to assist at illustrating this is indicated below (**compulsory**):

Nuclear Project Name and Region	Start Date and Planned completion date	Actual completion date of project.	Contract Value	Description of the project and the work executed by the advisor.
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15.6.2 Service providers should clearly indicate the role played at their involvement in the abovementioned assignments, including the duration and size of the teams deployed.

15.6.3 The Service provider must have at least 5 years’ experience in the South African electricity sector at advising on financing.

15.7 Qualifications and Experience of Team Leader and Team Members

15.7.1 Team leader must possess at least a postgraduate degree in economics, finance, or financial engineering related disciplines.

15.7.2 The team leader must have at least 15 years of experience in the nuclear power sector, more-especially in the field of nuclear finance. Other members of the team should have at least 5 years of similar experience.

15.7.3 Curriculum Vitae's of the team leader and team members must be attached to the technical proposal. **Certified copies of all qualifications at graduate level and upwards must be attached to the proposal.** Failure to submit will result in forfeiting of points.

15.7.4 Availability of team members must specified by the role, location and commitment of each member in the team for this project.

15.8 Global Experience

15.8.1 The service provider should demonstrate and ensure that the team members have a broad experience in the global nuclear industry and a well balanced team with cross-continental experience (East and West) would count in their favour.

15.9 Project Plan

15.9.1 It is required that a detailed project plan indicating resources and time of delivery of each aspect of the scope of work would be completed for initial review and feedback from the Department of Energy.

15.9.2 It is vitally important that all aspects of the scope of works are covered by the service provider. The service provider is required to state which aspects of the scope, the provider will not provide and this will be factored into the evaluations.

16 EVALUATION PROCESS

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

The proposals will be evaluated in two phases:

16.2 **Phase 1:** Bidders will be evaluated based on functionality. The minimum threshold for functionality is 60 out of 100 points. Bidders who fail to meet minimum threshold will be disqualified and will not be evaluated further for price and preference points for B-BBEE.

Evaluation criteria (detailed in section 15.6 to 15.9 above). Note "at least" refers to minimum criteria to be met, scores of Average are allocated for meeting the criteria.	Weight
<p>Company Experience</p> <ul style="list-style-type: none"> • Service providers should have at least five (5) years recent experience in nuclear power plant financing in an advisory capacity. This should be experience on a nuclear financing that is successful (i.e. contracting has been concluded and construction commenced/completed on schedule and budget); • The Service provider must have at least 5 years' experience in the South African electricity sector at advising on financing 	<p>10</p> <p>7</p> <p>3</p>
<p>Qualifications and Experience Team Leader and Team Members</p> <ul style="list-style-type: none"> • Team leader must possess at least a postgraduate degree in economics, finance, or financial engineering related disciplines. • The team leader must have at least 15 years of experience in the nuclear power sector, more-especially in the field of nuclear finance. Other members of the team should have at least 5 years of similar experience. • Availability of team members must specified by the role, location and commitment of each member in the team for this project. 	<p>25</p> <p>8</p> <p>10</p> <p>7</p>
<p>Global Experience</p> <ul style="list-style-type: none"> • The service provider should demonstrate and ensure that the team members have a broad experience in the global nuclear industry and a well balanced team with cross-continental experience (East and West). 	<p>10</p>
<p>Project Plan and Adherence to Scope</p> <p>It is required that a detailed project plan indicating resources and time of delivery of each aspect of the scope of work would be completed for initial review and feedback from the Department of Energy</p> <p>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</p>	<p>55</p>

<i>Evaluation criteria (detailed in section 15.6 to 15.9 above). Note “at least” refers to minimum criteria to be met, scores of Average are allocated for meeting the criteria.</i>	<i>Weight</i>
work, as outlined below. The service provider is to confirm in writing adherence to the Scope of Work as detailed in this Terms of Reference, Section 3.	
<ul style="list-style-type: none"> • Benchmarking and Options Studies 	10
<ul style="list-style-type: none"> • Assessment 	10
<ul style="list-style-type: none"> • Modelling and Analysis 	20
<ul style="list-style-type: none"> • Conclusions and Recommendations 	15

16.3 Phase 2: Price and B-BBEE

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

16.4 **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.

17 FORMAT AND SUBMISSION OF THE PROPOSAL

17.1 All official forms (SBD) must be completed in all respects by bidders. Failure to comply will invalidate a bid.

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

18 INFORMATION REQUESTED FROM THE DEPARTMENT OF ENERGY

18.1 Any information requested by the service provider in order to perform the services will be subject to discretion of the Department of Energy to provide such information.

18.2 The Department of Energy will inform and provide the service provider with any material or information that it deems relevant during the service period.

18.3 Bidders should base their proposal on the grounds that no further information from the Department of Energy, or related entities would be necessary to perform the service.

19 CLOSING DATE

19.1 Proposal must be submitted on or before **07 November 2013 at 11h00**, 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.**

20 ENQUIRIES

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

Tel: 012 406 7621

Email: Jeetesh.keshaw@energy.gov.za

20.2 All bid enquiries to be directed to Ms Lebogang Mosuwe or Ms Daisy Maraba

Tel: 012 406 7742/ 7748

Email: Lebogang.mosuwe@energy.gov.za or Daisy.Maraba@energy.gov.za