



THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

MAJOR TENDER BOARD SUBMISSION

**Confidential
Award****Date: 27/07/2017****Part B - Contract**

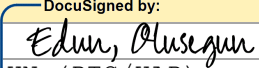
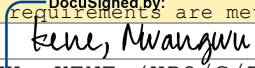
| | | | |
|--|---|-------------------|--|
| Category | Rotating Equipment | Contract ID: | NG01020423 |
| Contract Title: | LONG TERM SERVICES AGREEMENT (LTSA) FOR AFAM VI COMBINED CYCLE POWER GENERATION PLANT | | |
| HSE Mode & Risk | Mode 2, High Risk | | |
| Agenda Item | (TB secretary to complete) | | |
| Proposed Authorized Contract Value (ACV) | USD138,627,809 NGN6,549,041,137 (F\$160,231,111.45) | + | Segmentation (Click here to access tool) |
| Proposed expenditure while pending NAPIMS approval | USD/Naira (only applicable for MTB Submissions - urgent contracts) | | |
| Start & End dates | Q1 2017 - Q4 2024 | Duration | 8 Years |
| | | Extension options | 2 Years |

PURPOSE**To seek approval from MTB for the following:**

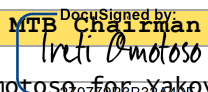
- Inform MTB of the outcome of negotiations with GE International Operations (Nigeria) Limited (GEION).
- Award of contract for the Long-Term Services Agreement for AFAM VI Combined Cycle Power Generation Plant to GE International Operations (Nigeria) Ltd at a total ACV of **USD138,627,809 + NGN6,549,041,137 (F\$160,231,111.45)** being 74% of the CE/Should cost.
- Execute a twelve-month Interim Agreement with the recommended contractor, at a total ACV of **\$25,126,200.00 + NGN1,178,760,000.00 (F\$29,014,572.09)**, pending NAPIMS approval and subject to LDL approval.

Exchange rate used – NGN303.15/\$

Stakeholders Endorsement:

| | Senior Procurement Manager (SPM) | Contract Owner |
|-----------|---|--|
| | Reviewed and approved for SCC/MTB and confirms: 1. Alignment with approved Category Strategy (& Global Category Strategy where applicable) 2. Compliance with the NOGICD Act & Community Content commitments. | Reviewed whole submission and confirms support from: 1. Finance [Azubuike, John] - for the financial aspects of the submission, including adequate budget cover/JV Partner approval to ensure full cost recovery/approved GIP in place (if applicable) 2. HSSE [Otti Lawrence] - HSSE consideration and requirements are met |
| Signature |  |  |
| Name | SEGUN EDUN (PTC/UAP) 20A70F8185D8426... | NWANGWU KENE (IJO/G/PLA) 24A427FD69974EF... |
| Date | 13 August 2017 | 11 August 2017 09:41 |

Approval

| | |
|-----------|--|
| | MTB Chairman Ireti Omoso for Yakov Kravchenko |
| Signature |  |
| Name | Ireti Omoso for Yakov Kravchenko 219779B8B32A49E... |
| Date | 24 August 2017 13:21 BST |

Declaration:

Signatories to this submission acknowledge that they have read and understood the Conflict of Interest Policy in SEPCin and that they do not have any direct or indirect arrangement or relationship with any other person or company that breaches the requirements of that Conflict of Interest Policy, or that they have fully disclosed any potential Conflict of Interest to the Contract Owner, CP Manager and the Supply Chain Council/Tenders Board.

SECTION A: CONFORMANCE TO CONTRACT PLAN (PART A)**APPROVAL REFERENCES**

| Tender Activity | Approval Date |
|----------------------------------|-------------------|
| MTB Approval of Part A1 | 30/06/2015 |
| MTB Approval of Part A1 Addendum | 15/01/2016 |
| NAPIMS approval of strategy | 10/09/2015 |
| NCDMB approval of strategy | 23/08/2016 |

BACKGROUND

Following the Tender Board approval of Part A1 addendum (**Attachment 1**), Commercial ITT was sent to the contractor via email on 19/01/2016 with an initial bid closing date of 10/02/2016, which was extended to 26/02/2016 because of clarifications from the contractor and the formal acquisition of ALSTOM by GE.

The Commercial Bid was eventually opened on 25/10/2016 and commercial evaluation commenced on the same day. Commercial Evaluation was completed with full involvement of NAPIMS representatives. Commercial Negotiations with GEION commenced on 07/11/2016.

The negotiation ended with the achievement of 74% of the company estimate against MTB mandate of 80%. Additional features were also negotiated to be included in the scope (at no extra cost to SPDC) as follows:

- Upgrade of all 3 GTs to MXL2 model which has the under-listed advantages over the current MXL
- Extension of the C-inspection interval by 12,000 Equivalent Operating Hours (EOH - from 36,000EOH to 48,000EOH) which offers a 33.33% increase in equipment availability between major inspections.
- An improved EOH accumulation Formula will lead to lower frequency of inspections.
- Capability of 10+MW additional output power per GT.
- Improved Fuel Efficiency, etc.

CHANGES FROM STRATEGY

The initial tender plan envisaged a contract commencement in Q4 2015. However, this could not be achieved due to delays in the approval of strategy by NCDMB and subsequently the protracted negotiations with GEION.

SUMMARY OF VALUE CONTRIBUTION

| | Benefit | Losses |
|-----------------------------|---|--|
| Safety | The LTSA will provide the platform to carry out the required periodic maintenance of the GTs, ST, and generators to ensure sustenance of technical integrity (TI) and operating integrity (OI) of equipment and processes. High TI and OI are necessary to attain the desired level of process safety of the plant. | Loss of TI and OI will result in process safety concerns. The plant will then need to be shut down leading to loss of power supply to Okoloma Gas Plant with attendant safety implications. |
| Reputation | Afam VI CCPP contributes about 14% of the electricity on the Nigerian grid. This contribution has earned SPDC a high reputation. | SPDC's reputation will dwindle and negatively impacted should the power plant default to supply electricity to the grid. Afam VI Power plant, and the largest CCGT, and the second largest power plant on the Nigerian Grid. |
| Production - Oil ('000 b/d) | N/A | N/A |
| Production Electricity | Sustained production of 14,976MWhr/day. | Contribution to the national grid at risk if GTs or ST fail without adequate maintenance |

| | | |
|----------------------------|--|--|
| Production - Gas (mscf/d) | Supports Okoloma Gas Plant production of 240Mscf/d | Loss of production (gas plus condensate) from Okoloma Gas Plant. |
| Reserves (mboe/d) | N/A | N/A |
| Flares reductions (mscf/d) | N/A | N/A |
| Cost Saving | | |

SECTION B: RESULTS AGAINST AGREED CRITERIA**TECHNICAL EVALUATION**

N/A

COMMERCIAL EVALUATION

Commercial ITT was sent to the contractor via email on 19/01/2016 with an initial bid closing date of 10/02/2016, which was extended to 26/02/2016 because of clarifications from the contractor and the formal acquisition of ALSTOM by GE.

The Commercial Bid was eventually opened on 25/10/2016 and commercial evaluation commenced on the same day. Commercial Evaluation was completed with full participation of NAPIMS representatives. Commercial Negotiations with GEION commenced on 07/11/2016.

GEION submitted a Commercial bid comprising a base option (in SPDC Commercial Template) and two alternative bids. A summary of GEION Commercial bid is as shown below:

- Base Option: - Based on the SPDC Commercial Template for the existing gas turbine (MXL) model.
- Option 1: - Based on MXL2 upgrade (turbine-only) of each of the three (3) Gas Turbines
- Option 2: - Based on MXL2 upgrade (turbine-only) of each of the three (3) Gas Turbines and including 24/7 continuous site support provided by two site engineers.

Out of the three options presented by the contractor in their Commercial submission, SPDC's preferred option is Option 2, because of the following advantages it has over the other options.

- Extension of the C-inspection interval by 12,000 Equivalent Operating Hours (EOH - from 36,000EOH to 48,000EOH) which offers a 33.33% increase in equipment availability between major inspections.
- An improved EOH accumulation Formula.
- Capability of 10+MW additional output power per GT.
- Improved Fuel Efficiency, etc.

Commercial negotiation with GEION for Option 2, which commenced on 09/11/2016, was concluded on 08/12/2016. A summary of the Commercial discussions is as shown in the Table below:

| | GEION (FUSD) | SPDC (FUSD) |
|-------------|--------------|-------------|
| 1st Offer | 169,800,000 | 89,816,136 |
| 2nd Offer | 159,900,000 | 108,764,120 |
| Final Offer | 155,100,000 | 146,000,000 |

See attachment 2 – Minutes of Negotiation Meeting.

Calculation of savings

| S/N | VENDOR | COMPANY ESTIMATE FUSD | TOTAL ACV (FUSD) | TPSS OVER 10 YEARS |
|-----|--------|-----------------------|------------------|--------------------|
| 1 | GEION | 200.6M | 155.10M | 45M |

The table above indicates a cumulative savings of \$45m within the life of the contract compared to same period on previous contract.

The Company Estimate – F\$216.8M - comprises the cost of providing the services (F\$200.6M) and a provisional sum of F\$16.2M to cover for contingencies. The contingencies will cover such activities as (supply of OEM spare parts that are not part of the scheduled inspection scopes, OEM services for unscheduled maintenance scopes). The Company Estimate/Should cost is based on a mix of historical cost and more of competitive intelligence.

Cost comparison between the base option, option 1, and option 2

| SCOPE | BASE OPTION | OPTION 1 | OPTION 2 |
|---------------|----------------------------|----------------------------|----------------------------|
| Gas Turbine | FUSD 149,824,357.52 | FUSD 152,970,524.49 | FUSD 161,983,884.21 |
| Steam Turbine | FUSD 7,677,970.44 | FUSD 7,677,970.44 | FUSD 7,677,970.44 |
| Black start | USD 490,000.00 | USD 490,000.00 | USD 490,000.00 |
| TOTAL | FUSD 157,992,327.96 | FUSD 161,138,494.93 | FUSD 170,151,854.65 |

Note: Option 2 was negotiated down to FUSD 155,100,000.00 (This option was found the most attractive due to the inherent advantages mentioned earlier viz; increase in GT & ST power output, higher availability of GTs between major inspections, and increase in fuel efficiency, and 24/7 availability of OEM engineers to resolve uncommon operations)

Benchmarking:

Basis of Company estimates: The company estimate was drawn up in 2015 using data obtained from the market (competitive intelligence) and applying other factors such as (scope consolidation to minimize ambiguities; elimination of bonus payments) to determine what should make up the cost elements and appropriate pricing at that time.

However, during the commercial evaluation, it was deduced that with the complexities of building the should -cost model from scratch, a proper benchmark be carried out with other known similar facilities within the Shell Group and in the industry to confirm the commerciality of the pricing offered by GE.

It was noted that benchmarking the Long-Term Services Agreements or Contractual Service Agreement has its own challenges as it is not a straight forward apple for apple comparison of Power Plant to Power Plant. It typically depends on the number of Gas Turbines included, duration of the contract, details of the covered scope and warranties / availability guarantees etc.

In the case of Afam VI, the plant is a Combined Cycle power generation plant of both Gas Turbines and a Steam Turbine and the LTSA covers the entire scope.

To carry out the benchmark therefore, data was obtained from the Shell Enterprise Category Management (Equipment) team at Shell Global Solutions on similar installations within Shell and in the industry.

Table below shows the comparison made.



Afam_benchmark_Details.xlsx

Outcome: The revised pricing and offering by GE indicates the competitiveness in this proposal.

In addition to a reduced pricing for the individual Inspections (A, B & C), there are other benefits such as

1. The upgrade of the existing models to the MXL2 series which, apart from being a newer technology, also increase the intervals for major inspections which is a huge savings on cost and cash.
2. Provision of 24/7 site support by two (2) engineers for prompt intervention
3. Increase of between 10MW – 12MW from each gas turbine set.
4. Increase of between 15MW to 20MW from the Steam Turbine (due to increase in GT exhaust flow, hence more steam generation in the HRSGs).
5. Better fuel efficiency of the gas turbines.

In addition to the above, the Contract Management team together with the Asset leadership have agreed to carry out a benchmark of a combined cycle commercial power plant as Afam VI through the Shell Global benchmarking company

(contractor - Solomon Associates) after due approval and sponsorship commitment from the business.

Additionally, since this is a strategic contract, a Supplier Financial Risk Assessment (SFRA) was carried out to ascertain the contractor's financial capability to execute the contract. The SFRA Report on GE came back as a Green Banded and Financially Low Risk Company. See attachment 3 – SFRA Report

Based on the above and in line with the approved award strategy, which states that award shall be made based on meeting the Tender Board mandate of 80% of the Company Estimate, it is proposed that the contract for the Long-Term Services Agreement for Afam VI Combined Cycle Power Generation Plant be awarded to GEION, at the total contract value of **USD138,627,809 + NGN6,549,041,137 (F\$160,231,111.45)**. This ACV includes an additional F\$16,200,000 provisional allowance for contingencies. This value represents 74% of the Company Estimate.

BASIS OF AWARD & RECOMMENDATION

In line with the approved award strategy, which states that award shall be made based on meeting the Tender Board mandate of 80% of the Company Estimate, it is proposed that the contract for the Long-Term Service Agreement for Afam VI Combined Cycle Power Generation Plant be awarded to GEION, at the total contract value of **USD138,627,809 + NGN6,549,041,137 (F\$160,231,111.45)**. This value represents 74% of the Company Estimate.

TRANSITION PLAN / COST OF IMPROVEMENTS (IF APPLICABLE)

This is a Mode 2, High Risk contract. There is no record of HSE capability assessment for GE in the system. It is proposed to process the interim agreement using the contract HSE assessment pending completion of vendor HSE capability assessment.

Vendor performance will be closely monitored during the interim agreement period, and quarterly business reviews will be used to document and track findings. The contract will have performance-based KPIs against which the vendor's performance will be measured.

APPROVED CONTRACT VALUE

Proposed ACV for the contract is **USD138,627,809 + NGN6,549,041,137 (F\$160,231,111.45)**. Company Estimate is based on data obtained from the market (competitive intelligence) and applying other factors such as (scope consolidation to minimize ambiguities; elimination of bonus payments) to determine what should make up the cost elements and appropriate pricing at that time.

COMPLIANCE TO MODEL TERMS & CONDITIONS

MCL based and localised standard terms and conditions will be used in the Contract Document.

GOVERNMENT INTERMEDIARY (GI) ELEMENT

| | | |
|---|------------------------------|--|
| GI elements present in work scope? | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| If yes, GI terms & conditions included in contract? | <input type="checkbox"/> YES | <input type="checkbox"/> NO |

IDD STATUS

The IDD status of GE International Operations (Nigeria) Limited is Green

SECTION C: POST AWARD CONTRACT MANAGEMENT

KEY PERFORMANCE INDEX (KPI) (FROM PART A)

| Business Objective | KPI | Measure | Annual Target | Frequency Measured |
|---------------------|--|---------|--------------------------------------|------------------------------|
| HSSE | HSE Meeting | No | 12 | Monthly |
| Technical Integrity | Power output Degradation & Heat Rate Degradation | % | As in appropriate charts in contract | After every major inspection |
| Power Generation | Plant Availability | % | 95% | Yearly |

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED

Major Tender Board Submission

| | | | | | |
|------------------|------------------------|---------|--|--|--|
| (Production) | | | | | |
| Delivery | Response Time | Hours | As per agreed contractor response time | As per agreed contractor response time | |
| Nigerian Content | Use of local personnel | Man hrs | 80% | Yearly | |

CONTRACT MANAGEMENT PLAN (CMP)

| | | |
|---------------------------------------|-------------|-----------------|
| · Sign Contract/Input in SAP/Issue PO | Q1 2017 | SPDC |
| · Contract/Kick off meeting | Q1 2017 | SPDC/Contractor |
| · Pre-mobilisation | Q1 2017 | SPDC/Contractor |
| · PO Issue as per request | As required | SPDC |
| · HSE Meetings/Audit | Monthly | SPDC/Contractor |
| · Contract Progress review | Quarterly | SPDC |

HSE PLAN

| Main HSE Exposure | Preventive response | Corrective response |
|----------------------------------|---|--|
| Working in High Noise Level Area | Mandatory use of adequate / suitable ear protection (PPE) shall be continuously. Work permits shall clearly state this requirement as a control. Work will be planned and executed in line with SPDC procedures for working in High noise level area. | Audiometric tests shall be to be carried out at regular intervals. |
| Road Transportation | Journey management related to Transportation of staff shall be implemented. | An improved JM system shall be implemented. Retainership clinic will be available for escalation. |
| Working at height | Proper PPE (including harness) shall be used when working at heights above 1.3 meters. HSE toolbox meeting shall be held regularly. Dynamic Risk Assessment shall, be carried out after every break. Work permits shall as much as possible, identify all potentially hazardous work areas and adequate controls shall be put in place. Work will be planned and executed in line with SPDC procedures for working at height | First aid kit shall be made available at all times. Emergency First Responders and onsite medical personnel available for emergencies. Retainership clinic will be available for escalation. |
| Hot work | All hot work shall be captured by Hot Work Permit. All hazards shall be identified through JHA/ Risk Assessment and each hazard shall have adequate controls. All controls shall be stated in the PTW. | Fire extinguishers and emergency first responders shall be available at all times. Retainership clinic shall be available to handle escalation. |
| Working in Confined space | Application of the procedure for entering and working in confined space, including Gas testing, shall prevail throughout. | Emergency first responders / first aiders shall be available at all times. Retainership clinic shall be available to handle escalation. |
| Working with High voltage | Isolations shall be carried out by competent persons. Testing of electrical circuits/equipment shall be carried out by competent persons. All electrical work shall be supervised by qualified staff. PTW shall state all potential electrical hazards. | Emergency first responders / first aiders shall be available at all times. Retainership clinic shall be available to handle escalation. |

NIGERIAN CONTENT EXECUTION PLAN

**If winning vendors are more than one, 'a- c' information below should be completed for each vendor.*

a. Indicate Schedule target(s) and vendors Nigerian Content pledge (s) e.g.

| Contractor | Work Category | Schedule Target | Vendor's NC Pledge | Measuring Metrics | Agreed actions including authorisation to import |
|------------|--|-----------------|--------------------|-------------------|--|
| GEION | Maintenance and Modification of pumps & Rotating Equipment | 65% | 70% | Man-Hours | N/A |

b. Nigeria Content Summary Work scope.
????

Vendor's training plan in alignment with pre-approved Project's Nigerian Content Plan and also in line with the human development capacity guide 2014

| | Training Type | No of Trainees | Total Man-hours/ Man-years | Name / Level of Certification |
|--|---------------|----------------|----------------------------|-------------------------------|
| | N/A | N/A | N/A | N/A |

c. **Global Sustainable Sourcing opportunity (provide details of the global sourcing opportunity utilised and capacity gap addressed).**
N/A

d. **Nigerian Content Compliance Certificate required prior to award approval recommendations to NAPIMS**

****Where the NC pledge falls short of set minimum targets by law an authorisation to import may be required for these categories.**

COMMUNITY CONTENT NIGER DELTA CONTENT EXECUTION PLAN

Adequate provisions will be made in the contract to create opportunities for qualified and experienced Nigerians from the Niger Delta to be engaged in the execution of the works.

RISK ASSESSMENT

HSE Risk - High

Contract Risk - High

See Attachment 4 – RAM Document

| Risk Description | Likelihood (H / M / L) | Impact (H / M / L) | Mitigating Actions | Action Owner |
|---------------------------------------|------------------------|--------------------|---|--------------|
| Quality | L | H | Ensure that all deliveries are accompanied with relevant test/quality certificates. OEM trained and qualified personnel to be deployed to carry out services and repairs on the plant | CH |
| HSE | M | H | PO clauses to ensure that all HSE issues related to deliveries of equipment and all required medical checks on all staff by local clinic in Nigeria are strictly adhered to. First aid admin. Ensure the availability of fire extinguishers. Call medical service on 122 or MEDEVAC | CH |
| Fire during installation/Main tenance | M | H | Environment to be gas-tested at regular pre-determined intervals to ensure that hot work is performed only under hydrocarbon-free area. Cordon off the affected area. First aid admin. Ensure the availability of fire extinguisher. Call medical service on 122 of MEDEVAC | CP/CH |

ATTACHMENT :

1. [Part A1 + Minutes of Meeting](#)
2. [Minutes of Negotiation Meeting](#)
3. [SFRA Report](#)
4. RAM Document