



ऑयल इंडिया लिमिटेड
(भारत सरकार का उद्यम)
Oil India Limited
(A Government of India Enterprise)

Conquering Newer Horizons

La Sablière, Immeuble FIDJI,
Près de la Cour Constitutionnelle
BP: 23134, Libreville, Gabon
Tel: (241)-442992/03005052
E-mail: oilgabon@gmail.com/
bhattacharjee.kishalay@gmail.com

NOTICE INVITING EXPRESSION OF INTEREST (EOI)

EOI REF: OIL/GABON/EOI-04 DATED 19.11.2014

CLOSING DATE & TIME: 19.12.2014 AT 15:00 HRS (Gabon Time)

Sub: PreSTM Processing and Interpretation of 2D Seismic Data for
Evaluation and Identification of Hydrocarbon Prospects for Exploratory
Drilling in Block Shakthi-II (G4-245), Gabon

1.0 INTRODUCTION:

1.1 A Consortium of M/s. OIL INDIA LIMITED (OIL) and M/s. INDIAN OIL CORPORATION LIMITED (IOCL), both Government of India Company under the administrative control of Ministry of Petroleum and Natural Gas, has been assigned by the Government of Gabon to carry out exploration activities in Block Shakthi II (G4-245) with 50% P.I. each. The consortium is in process of acquiring 2D seismic Data in the Block, which is located adjacent to continental Basement margin within interior sub-basin Gabon, under administrative guidelines of Gabon's Director General of Hydrocarbons [DGH]. OIL is the Operator of the Block.

1.2 Oil India Limited (OIL) along with its partner invites Expression of Interest (EOI) from Interested, Potential, Experienced & Reputed Parties for PreSTM Processing and Interpretation of onshore 2D Seismic Data **(Dynamite as Energy source and Geophones/Hydrophones as receivers)** for Evaluation and Identification of Hydrocarbon Prospects for Exploratory Drilling in Block Shakthi, Gabon.

2.0 PROJECT INFORMATION:

2.1 Block Shakthi with total surface area of 3761.25 sq. KM is situated in Interior- Basin, Gabon. Oil India Limited being the Operator in the above-mentioned block, has to carryout PreSTM Processing and Interpretation of 2D Seismic Data for Evaluation & Identification of Hydrocarbon Prospects for Exploration Drilling within the stipulated timeframe. OIL is likely to commence acquisition of 1200 GLKM of 2D Seismic Data using Dynamite as energy source by March/April 2015 which are stretched over 56 numbers of 2D lines. In addition to above, 1039 GLKM of 2D Seismic Data acquired along 30 numbers of 2D lines in 2008-09 and vintage data of around 300 GLKM are likely to be included in the study. The details regarding the same will be provided in the final tender documents.

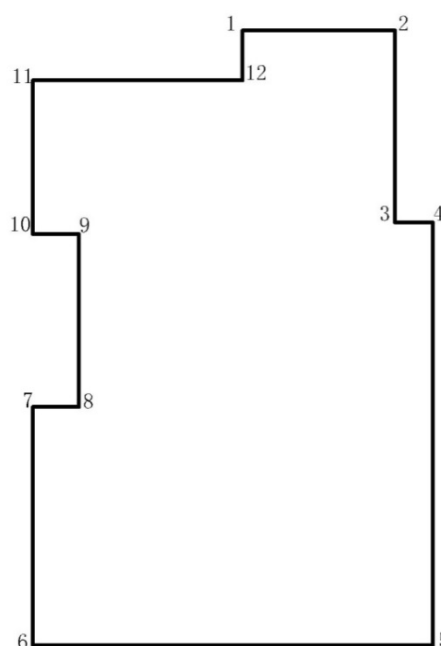
3.0 **BRIEF GEOLOGY OF THE BLOCK:**

3.1 The block “Shakthi” is located adjacent to the main continental basement margin within the Interior Sub-basin. The Sub-basin consists of a narrow, north northwest – south southeast trending asymmetric rift basin that formed in the early Cretaceous. It is approximately 120 km long and 60 km wide, bound to the east by Precambrian Basement, and to the south west by the Precambrian Lambarene Horst, and is filled with up to with more than 3000 meters of Cretaceous & Mesozoic/ Upper Paleozoic sediments. The main structures seen in the Interior Sub Basin are the Lambarene Horst, and the Axial Fault. The Lambarene Horst is a Pre-Cambrian horst block which forms the western margin to the basin The Axial Fault trends northwest – southeast and runs for approximately 200 km through the centre of the basin. It is a southwestwardly dipping extensional fault which exhibits minor syn-sedimentary growth in the hanging wall. So far all the most promising hydrocarbon indications within the block Shakthi have been made on the footwall block of the main Axial Fault, within the N'Dombo Formation.

4.0 **LOCATION & BLOCK COORDINATES:**

4.1 Block Shakthi-II (G4-245) is situated in Interior- Basin, Gabon. . The 2D Seismic lines (Proposed 1200 GLKM + Old 1039 GLKM and Vintage 300 GLKM) lies within the following broad co-ordinates:

| Sl. No. | X | Y |
|---------|--------|----------|
| 1 | 650000 | 10010000 |
| 2 | 670000 | 10010000 |
| 3 | 670000 | 9985000 |
| 4 | 675000 | 9985000 |
| 5 | 675000 | 9930000 |
| 6 | 622500 | 9930000 |
| 7 | 622500 | 9961000 |
| 8 | 628500 | 9961000 |
| 9 | 628500 | 9983500 |
| 10 | 622500 | 9983500 |
| 11 | 622500 | 10003500 |
| 12 | 650000 | 10003500 |



5.0 **BRIEF SCOPE OF WORK:**

5.1 The quantum of seismic data for **PreSTM Processing** is likely to be 1200 GLKM having a provision of around 30% of such data for specialized processing viz. Additional Velocity analysis, PostSDM, PreSDM, Inversion, AVO, Attribute analysis etc., as optional work. The **Interpretation** of Processed 1200 GLKM 2D Seismic data and an integration of 1039 GLKM of old 2D Seismic data are also to be taken up for evaluation and identification of hydrocarbon prospects for drillable exploratory locations.

5.2 Oil India Limited, however, keeps the provision of increasing the quantum of 2D Seismic Data for both PreSTM Processing and Interpretation by nearly 100% over the above mentioned quantity of 1200 GLKM.

5.3 The entire PreSTM Processing Job is likely to be covered through 2 (two) phases of which Oil India Limited may prioritise Processing of around 190 GLKM of 2D Seismic Data stretched over 9 (nine) 2D lines in the 1st (first) phase. However, if required, OIL may further increase the quantum of Processing of more 2D Seismic Data on priority basis in the 1st (first) phase. The remaining will be processed in 2nd (second) phase.

5.4 The entire project would be required to be executed on a **Turnkey basis** within the stipulated time frame.

6.0 OBJECTIVE OF THE STUDY:

6.1 The objective of 2D Seismic Data Processing (PreSTM) and Interpretation is the identification and evaluation of structural and stratigraphic prospects/leads for exploratory drilling within Eocene, Lower Cretaceous, Palaeozoic levels/age. The existing seismic sections indicate the primary objectives at around 200-2200 msec. two way time with the depth around 200-3200 m within the block. The job involves a detailed analysis of the identified prospects/leads for their prospectivity from generation, migration and entrapment of hydrocarbons point of view, estimation of hydrocarbon reserves, resources, risk weighted economic analysis in terms of both NPV and IRR, using state-of-the-art technology and identification of location for exploratory drilling with inter-se priority.

7.0 METHODOLOGY OF THE WORK:

7.1 PROCESSING: The interested party shall carry out PreSTM Processing of 2D Seismic Data acquired through Dynamite as Energy source and Geophones/Hydrophones as receivers using the state-of-the-art software and hardware available in the Geophysical industry.

The 2D Seismic Data PreSTM Processing work broadly includes the following but not limited to;

- a) Data loading
- b) Anti-alias Filtering
- c) Geometry assignment, checks of Seismic/Navigation data
- d) Data Editing (Shots and traces)
- e) Band pass Filter
- f) Elevation Statics Correction
- g) Statics calculation and application – Refraction / LVL / Up-hole data
- h) True amplitude recovery
- i) Surface consistent Decon
- j) Band pass Filter
- k) Surface Consistent Amplitude balancing
- l) CDP Gathering

- m) Velocity Analysis & NMO correction
- n) Brute / Initial stack for Q.C.
- o) First Pass Surface Consistent Residual Statics Calculation & Correction
- p) Residual Statics
- q) Velocity analysis & NMO correction
- r) Second pass Surface consistent Residual Statics Calculation & Correction
- s) Residual Stack
- t) PreSTM
- u) Final Velocity analysis on PreSTM Gathers
- v) Multiple attenuation
- w) NMO correction
- x) Trace Equalization
- y) PreSTM Stack
- z) Post Stack Decon / Spectral balance, if required
- aa) Post Stack noise attenuation, if required
- bb) Band Pass Filter and Scaling

7.2 INTERPRETATION: The interested party shall carry out Interpretation of 2D Seismic Data using the state-of-the-art software and hardware available in the Geophysical industry.

The seismic interpretation work broadly includes the following but not limited to;

- a) Well-to-seismic tie
- b) Identification and picking of important/key horizons/reflectors.
- c) Mapping of time and depth structure maps of seismic horizons.
- d) Seismic sequence analysis of prospective sequences and areas of porosity development etc.
- e) Trap integrity analysis/fault seal analysis.
- f) Seismic Attribute analysis/DHI analysis.
- g) Identification of prospects for hydrocarbon habitat in different geological/stratigraphic sequences in the block.
- h) Evaluation of prospectivity of the identified prospects/leads from the point of view of generation, migration, play fair way analysis and entrapment and their ranking.
- i) Identification and prioritization of prospects (both stratigraphic and structural) for exploration drilling. Generation of locations for exploratory drilling in the respective Area/Block with inter-se-priority.
- j) Estimation of hydrocarbon reserves for all identified Prospects/leads.
- k) Risk-weighted economic analysis for all identified Prospects/Leads in the respective Area/Block, in terms of both NPV and IRR, using state-of-the-art technology.

- 1) Preparation of detailed interpretation report including methodology, structural review, stratigraphic analysis, prospect evaluation and ranking & techno-economic risk analysis etc.

8.0 PRE-QUALIFYING CRITERIA (PQC):

8.1 The interested parties must fulfill the following minimum pre-qualifying criteria for empanelment/short-listing for issue of tender documents for hiring of Services for PreSTM Processing and Interpretation of 2D Seismic Data acquired through Dynamite as Energy source and Geophone/Hydrophone as receivers for Evaluation & Identification of Prospects for Exploration Drilling in Block Shakthi-II (G4-245), Gabon.

- i) The interested party should have an established state-of-the-art interactive workstation based Processing Centre for carrying out detailed Pre-stack Time Migration (PreSTM) Seismic Data Processing including other Specialized Processing and Studies and should have minimum 3 (three) years' experience in PreSTM Processing and have processed at least 2000 GLKM 2D land seismic data using leading/latest advanced processing software package as on the date of submission of EOI.
- ii) The interested party should have an established state-of-the-art interactive workstation based Interpretation Centre and experience of completing at least 3 (three) 2D seismic data interpretation projects in last 3 (three) years and must have interpreted at least 2000 GLKM of 2D land seismic data using leading/latest interpretation package of international repute for evaluation and identification of prospects for exploration drilling as on the date of submission of EOI.
- iii) The interested party should have completed at least 3 (three) 2D land PreSTM Seismic Data Processing & Interpretation jobs of similar nature each costing not less than US\$ 0.8 million in last 3 (three) years as on the date of submission of EOI.

Or

Completed at least 2 (two) similar nature job each costing not less than US\$ 1.0 million

Or

Completed at least 1 (one) similar nature job costing not less than US\$ 1.6 million.

- iv) For Seismic data PreSTM Processing, the interested party should provide for 1 (one) Processing Manager (Geophysicist) & minimum 2 (two) Processing Geophysicists. The Project Manager should have at least 12(twelve) years' experience, while both geophysicists at least 7 (seven) years of experience each in processing of seismic data for oil exploration. QC Processing Geophysicist, required to be part of the team should have a minimum of 7 years of experience in QC related processing jobs of PreSTM techniques.
- v) For Interpretation, the interested party should provide 1 (one) Group Leader (Geologist) & minimum 2 (two) Geoscientists (Geologist and

Geophysicist). The Group Leader should have at least 15 (fifteen) years' experience, while both geoscientists must have at least 10(ten) years of experience each in interpretation of seismic data for oil exploration.

- vi) The Petro-physicists/log analyst, techno-economic analyst must have a minimum experience of 5 (five) years on Interpretation projects. Details of the Minimum work experience required for key personnel to be deployed are given in Annexure-I.
- vii) Average Annual financial turnover As per Audited Annual Reports for the last three accounting years, should be at least US\$ 0.6 MN. The proof of Annual Turnover should be either in the form of Audited Balance Sheet/Audited Annual Reports or Certificate from Chartered Accountant Firm indicating their Membership/code number.
- viii) Interested Parties who themselves do not meet the experience criteria as stipulated above, can also be considered, provided the party is a 100% subsidiary company of the parent company which meets aforesaid experience criteria. In such cases, the party shall have to furnish an agreement/MOU between the parent company and the subsidiary company. Also, a Corporate Guarantee must be furnished from the parent company to OIL for fulfilling contractual obligation under the contract if awarded.
- ix) In case the interested party is a Consortium of Companies, the Leader of the Consortium should satisfy the minimum experience criteria as mentioned above. However, any one of the Consortium member individually shall have to meet the financial criteria. Only the leader of the Consortium shall be permitted to submit the Bid on behalf of the Consortium along with the documentary evidence showing the intent of the Consortium members to submit the EOI and to be jointly and severally responsible to fulfill the contractual obligation under the contract if awarded.

9.0 OTHER REQUIREMENTS:

9.1 Interested parties are also required to indicate the time lines for completion of the contracted job from the date of issue of Letter of Award (LOA) of the contract and receipt of the acquired data.

10.0 INFORMATION AND DOCUMENTS:

10.1 The interested party must furnish the following in support of fulfilling all the above pre-qualifying criteria for both PreSTM Processing & Interpretation:

- a) Details of Processing & Interpretation workstation Hardware like Type of processor, Number of CPUs/nodes, RAM size, Graphics, hard disk capacity/storage capacity etc.
- b) Details of Processing & Interpretation software licenses installed, their release date, version and status of maintenance contract etc.

- c) System Layout Diagram including tape drives, plotter and other I/O interface. Brochures of Hardware and Software Packages for both Processing & Interpretation.
- d) Details of the work experience so as to meet pre-qualification criteria.
- e) Bio-data & Details of experience of key personnel so as to meet pre-qualification as per Annexure-I.
- f) Details of work experience and past performance of the interested party on both PerSTM Processing & Interpretation jobs done of similar nature in the past and details of current work in hand and other contractual commitments, indicating areas and clients are to be submitted, in support of the experience criteria laid down above as per Annexure-II (A& B).
- g) Location of Processing & Interpretation center for undertaking the said job.
- h) Financial turnover of Vendor as per Annexure-III along with Audited Annual Reports etc.
- i) A letter with categorical confirmation that the interested party shall provide key personnel as indicated vide Annexure-I and shall deploy for Processing & Interpretation of 2D Seismic Data for Evaluation & Identification of Prospects for Exploration Drilling.

10.2 All the documents submitted with the EOI must be self-certified by Interested party's authorized person indicating clearly the name and designation of the person.

Note:

- a) All the copies of document submitted along with the EOI should be clear & legible.
- b) OIL INDIA LIMITED (OIL) reserves the right to physically check the original documents/certificates, copies of which are submitted along with the EOI.
- c) The interest submitted by party is liable to be ignored in case of submission of any misleading/false representation by the Interested party in the form, statements and attachments.
- d) OIL INDIA LIMITED (OIL) reserves the right to ignore any of or all interests without assigning any reason thereof.
- e) OIL INDIA LIMITED (OIL) reserves the right to curtail/enhance the scope of the work stated above or cancel, if required, without assigning any reason thereof.
- f) All the EOI's received against this advertisement are subject to review and concurrence of the Director General of Hydrocarbons, Government Of Republic of Gabon for shortlisting of the eligible Vendors to issue final tender documents, for which OIL has no liability.

11.0 SUBMISSION OF EOI:

11.1 The EOI together with the information/documents as mentioned above should be submitted in a closed envelop superscribing “ EOI for Workstation based PreSTM Processing and Interpretation of 2D Seismic Data using Dynamite as Energy source in Block Shakthi-II (G4-245) and must reach the following address on or before 19.12.2014 at 1500Hrs, Gabon Time.

**GENERAL MANAGER (GABON PROJECT)
OILINDIA LIMITED
LA SABLIERE, IMMEUBLE FIDJI,
PRES DE LA COUR CONSTITUTIONNELLE,
BP:23134, LIBREVILLE, GABON
TEL :(241)-442992/03005053**

E-MAIL: oilgabon@gmail.com / bhattacharjee.kishalay@gmail.com

WEBSITE: www.oil-india.com

11.2 OIL INDIA LIMITED (OIL) reserves the right to (a) either accept or reject any/all EOI(s) (b) cancel the process without assigning any reason what so ever.

ANNEXURE -I

LIST OF KEY PERSONNEL TO BE OFFERED BY THE PARTY

PROFESSIONAL STAFF FOR 2D SEISMIC DATA PreSTM PROCESSING

| Sr. No. | Position | Minimum Work Experience | No. Of Personnel |
|----------------|----------------------------|---|-------------------------|
| 1 | Processing Manager | 12 years minimum experience in PreSTM 2D Seismic Data Processing including Other Specialized Processing & Studies (PreSDM, AVO, Inversion, etc.) | One (1) |
| 2 | Processing Geophysicists | 7 years minimum experience in PreSTM 2D Seismic Data Processing including Other Specialized Processing & Studies (PreSDM, AVO, Inversion, etc.) | Two (2) |
| 3 | QC Processing Geophysicist | 7 years minimum experience in QC related aspects of PreSTM 2D Seismic Data Processing including Other Specialized Processing & Studies (PreSDM, AVO, Inversion, etc.) | One (1) |

PROFESSIONAL STAFF FOR 2D SEISMIC DATA INTERPRETATION

| Sr. No. | Position | Minimum Work Experience | No. Of Personnel |
|----------------|---|--|---|
| 1 | Group Leader | Minimum 15 years' experience in 2D Seismic Data Interpretation on interactive Interpretation workstation with state-of-the-art interpretation software packages. | One (1) |
| 2 | Interpretation Geologist & Geophysicist | Minimum 10 years' experience in 2D Seismic Data Interpretation on interactive Interpretation workstation with state-of-the-art interpretation software packages. | Geologist One(1) Geophysicist One(1) |
| 3 | Petrophysicist/ Log Analyst | Minimum 5 years' experience in Petrophysical and Log Analysis jobs on interactive work station with state-of-the-art interpretation software packages. | One(1) |
| 4 | Techno-Economic Analyst | Minimum 5 years' experience in Techno-Economic Analysis of Hydrocarbon Prospects. | One(1) |

Note:

- a) Party must submit detailed Bio-data of all its key personnel to be deployed for the whole period of the project. Party should provide the

details viz. Duration of the project, client & clients contact address, area etc. in which the key personnel was associated. Party shall deploy the same persons whose Bio-data is offered in the bid for Processing and Interpretation.

- b) The above list indicates the minimum requirement of Key Personnel and their experience. The interested party may deploy other personnel if required, in addition to above for timely completion of the work without additional cost whatsoever to Company. The Processing and Interpretation personnel have to be efficient enough to coordinate with Company and perform all other required interaction with external agencies for executing the job successfully. All the key personnel must be fluent in speaking, writing and understanding English language.

END OF ANNEXURE I

ANNEXURE -II

Name & Complete Address of Party:

| A. Details of PreSTM Processing experience of 2D Seismic Data in last 3(three) years. | | | | |
|--|----------------|--|---|-----------------|
| Successful completion of PreSTM Processing of 2000 GLKM of 2D Seismic Data. | | | | |
| Details of PreSTM Processing of 2D Seismic Data including area, client name, its complete address etc. | Quantum (GLKM) | Duration (Starting date & Completion date) | Documentary evidence in support like client completion certificate etc. | Remarks, If any |
| 1. | | | | |
| 2. | | | | |
| 3... | | | | |
| TOTAL | | | | |

| B. Details of 2D Seismic Data Interpretation experience in last 3(three) years. | | | | | |
|--|---|----------------|--|---|-----------------|
| Successful completion of Interpretation of 2000 GLKM of 2D Seismic Data. | | | | | |
| Successful completion of 3 (three) 2D Seismic Data Interpretation projects. | | | | | |
| Project | Details of Interpretation Projects including area, client name, its complete address etc. | Quantum (GLKM) | Duration (Starting date & Completion date) | Documentary evidence in support like client completion certificate etc. | Remarks, If any |
| Project 1 | | | | | |
| Project 2 | | | | | |
| Project 3... | | | | | |
| TOTAL | | | | | |

Note:

- Interested Party parties must submit documentary evidence in support of Project (s) involving 2D Seismic Data PreSTM Processing and Interpretation from their client clearly mentioning successful completion of the Projects, covered GLKM and year of completion.
- In case, the Party ever blacklisted due to BAD performance/non adherence to any contractual terms and conditions/breach of contract or any other reason, the Party must clearly mention in the Remark Column.

END OF ANNEXURE II

ANNEXURE –III

| Financial Year | Annual Turnover |
|-----------------------|------------------------|
| 2010-11 | |
| 2011-12 | |
| 2012-13 | |

END OF ANNEXURE III

***** **END OF EOI DOCUMENT** *****

● ●