

**GLOBAL EXPRESSION OF INTEREST (EOI) UNDER INTERNATIONAL COMPETITIVE BIDDING PROCESS FOR PRE-QUALIFICATION FOR PROVISION OF VARIOUS G&G STUDIES AND SERVICES FOR RJ-ON-90/1 BLOCK AND OTHER CAIRN OPERATED BLOCKS IN INDIA**

Cairn Oil & Gas, a vertical of Vedanta Limited is the Operator on behalf of itself and Joint Venture (JV) partner Oil & Natural Gas Corporation (ONGC) Ltd., of the onshore block RJ-ON-90/1 located in Barmer and Jalore district, in the state of Rajasthan, India, Cairn Oil & Gas also operates other Blocks in the various parts of India. The RJ-ON-90/1 Block & Cairn operated other blocks contain number of major oil discoveries, including the Mangala, Bhagyam and Aishwariya Fields.

Cairn Oil & Gas on behalf of itself and its joint venture partners invites interested contractors (Indian and International) with proven capabilities and demonstrated HSE performance to express their interest for pre-qualification to participate in an International Competitive Bidding Process (ICB) for the packages listed below. Cairn Oil and Gas shall enter into Long Term Contract for the Provision of G & G studies and services on call-out basis.

The services covered under this EOI are listed below and the pre-qualification for each service will be done independently.

Package Ref No.	Item Description	Brief Scope of Work
1	2D/3D Seismic Data Acquisition	<ul style="list-style-type: none"> <li>Experienced Seismic Data Acquisition Contractors for the 2D/3D Land/Marine seismic data acquisition services.</li> <li>Contractor to carry out Pre-survey designing/review of existing design, optimizing parameters in order to achieve the subsurface targets using the available data (old vintage 2D, 3D, seismic interpretation, velocities, &amp; Gravity-Magnetic)</li> <li>Contractor to prepare and submit a detailed Project Plan comprising both Contractor's operational plans with recommendation of technology specific to area of interest for executing the Work in stipulated timeline and Contractor's plans for meeting HSE</li> <li>Deploy single/multiple crews to carry out the operation simultaneously in all blocks according to the project plan</li> </ul>
2	2D/3D Seismic Data Processing	<ul style="list-style-type: none"> <li>Experienced Seismic Contractors for the 2D/3D Land/Marine seismic data processing services. Processing/Reprocessing of anisotropic 3D PreStack Time Migration (PreSTM) and anisotropic 3D Pre Stack Depth Processing Migration (PreSDM) of 2D/3D Land/Marine seismic data using advanced seismic processing techniques. An effective &amp; detailed internal as well as remote QA/QC process will be required.</li> </ul>
3.	Airborne Full Tensor Gradiometry (FTG) and Magnetic Data Acquisition, Processing, Modelling and Interpretation	<ul style="list-style-type: none"> <li>Experienced Gravity and Magnetic Data Contractors for Airborne Land 3D Full Tensor Gradiometry (FTG) and magnetic data acquisition, processing, modelling and interpretation- using advance available technologies and techniques.</li> <li>Contractor to prepare and submit a detailed Project Plan for executing the Work in stipulated timeline and Contractor's plans for meeting HSE</li> </ul>
4.	Surface Geochemical Data Acquisition, Processing and Interpretation	<ul style="list-style-type: none"> <li>Experienced surface geochemical survey contractor for conducting the soil geochemistry by collecting samples in a required sample grid. In this approach, deep soil samples are physically collected (using simple manual or auger drills) in tin cans from 15-20 feet depth.</li> <li>Experienced in analysing collected samples in a reputed laboratory for geochemical parameters such as headspace, occluded and adsorbed gas</li> </ul>

		<p>analyses, TOC/TC analysis etc. Several dry and wet gas parameters and ratios are derived from capillary gas chromatographic data. Rich samples are subjected to stage 2 analyses comprising, solvent extraction and GC of solvent extracts, which give an accurate assessment of all liquid hydrocarbons present in the samples.</p> <ul style="list-style-type: none"> <li>• Finally, a selection of samples (roughly 20% of original sample inventory) can be evaluated using powerful geochemical techniques such as C-isotope of gases and solvent extract and biomarkers.</li> <li>• Experienced in interpretation and integration of the I geochemical analytical data that captures both volatile and non-volatile hydrocarbons, gives a total picture on the richness, type and composition of the hydrocarbons present in the soil samples.</li> <li>• Mapping the important geochemical parameters and ratios to find out the sweet spots.</li> <li>• Submission of comprehensive report that comprises data acquisition, lab analysis, interpretation and recommendations.</li> </ul>
5	Fluid Inclusion Stratigraphy Lab Analysis and Interpretation	<ul style="list-style-type: none"> <li>• Perform Fluid Inclusion Stratigraphy Analysis: Full Well Profiles, identification of trapped fluid inclusions residual hydrocarbons and inorganic volatile compounds found in cuttings samples of all cutting samples every 5-10 m along the well</li> <li>• interpretation covering aspects like hydrocarbon migration, seals and seal integrity, fluid contacts, proximity to petroleum accumulation, pay zone/by passed pay delimitation, Reservoir Scale Compartmentalization and Fluid Pressure Compartments, bacterial and or thermal alteration based on the measured well profiles</li> <li>• Advanced techniques like microtherometry, petrographic study and inclusion fluid characterization (like API, salinity etc)</li> </ul>
6	Geochronology and Thermochronology Applications in Basin Analysis	<ul style="list-style-type: none"> <li>• U-Pb dating: Dating of U-Pb zircon/apatite/monazite grains (minimum 100 grains) using LA-ICP-MS to estimate of crystallization age based on the youngest concordant grain-age population; Dating of UPb detrital zircon grains (minimum 100 grains) in sedimentary rock using LA-ICP-MS and analysis of grain age populations based on Gaussian deconvolution.</li> <li>• K-Ar dating: On whole rock, On separated mineral, On clay mineral fraction</li> <li>• Ar-Ar dating on separated minerals</li> <li>• Sm-Nd whole rock dating</li> <li>• Rb-Sr whole rock dating</li> <li>• Combination of Zircon Fission track dating and U-Pb dating on detrital zircons to constraining depositional age and provenance indicator</li> <li>• Apatite fission track analysis: The measurements include fission track age and confined track lengths, followed by modelling AFTA parameters through various thermal history solutions to define the range of maximum paleo-temperatures and timing of cooling.</li> <li>• (U-Th-Sm)/He dating (AHe) on Apatite/Zircon: Measurement of radiogenic <math>^4\text{He}</math> and the amounts of uranium and thorium isotopes present, followed by modelling of the (U-Th)/He age expected from any inputted thermal history, in grains of any specified radius.</li> <li>• Integration with VR measurements: Measurement of Vitrinite Reflectance (VR) to model and constraints on the maximum palaeotemperature experienced by the strata studied.</li> <li>• Thermal History Modelling integrating all the above data</li> </ul>
7	Shale Oil/Gas	<ul style="list-style-type: none"> <li>• Assess the potential of shale oil/gas resources plays: integrate all of the</li> </ul>

	Resource Assessment Integrated Study (Lab and Desktop Studies)	<p>relevant information that is available from geological, geochemical, geophysical, petrophysical, and engineering work.</p> <ul style="list-style-type: none"> <li>• Resource/Reserve estimation</li> <li>• Quick cutting based lab analysis for unconventional assessment</li> <li>• Proposal of detailed exploration/Appraisal pilot program</li> </ul>
8	Coal Bed Methane Resource Assessment Integrated Study (Lab and Desktop Studies)	<ul style="list-style-type: none"> <li>• Assess the potential of coal-bed methane: integrate all of the relevant information that is available from geological, geochemical, geophysical, petrophysical, and engineering work.</li> <li>• Resource/Reserve estimation</li> <li>• Quick cutting based lab analysis for Coal assessment</li> <li>• Proposal of detailed exploration coring and production pilot program</li> </ul>

The interested suppliers should evince interest to participate in the Expression of Interest by clicking on the "**Evince Interest**" link against the corresponding EoI listing on the Vedanta Limited (Division: Cairn Oil & Gas) website and submit their contact details online. Further to this, interested suppliers/ Contractors would be invited to submit their response via Smart Source (Cairn's e Sourcing Platform). The suppliers would be requested, as a minimum, to submit the following documents and details for prequalification via Smart Source.

Only those contractors (both Indian & International) possessing substantial and proven record in any of above services of similar scale & who are interested to enter into Long Term rate Contract should respond to this notice. Contractors are requested, as a minimum, to submit the documents listed against package.

Specific Go/No-Go Criteria:

1. Minimum 3 Years of experience in providing similar services to reputed Operators / Clients with demonstrated HSEQ performance.
2. Net Worth - Positive net-worth of atleast in each of the immediately preceding two financial years
3. Turnover - Annual Turnover of the Vendor in immediately preceding two financial years should be equal or more than the estimated average annual contract value.
4. Liquidity - liquidity ratio in each of the preceding two financial years shall not be less than 0.60

In addition to the above requested document, contractor shall also submit credentials to support the specific qualification criteria for each package.

1. Letter of interest clearly indicating the Project references.
2. Detailed Company Information with Organization structure, List of manpower with CVs of key Personnel, Plant and Machinery list mentioning year of manufacturing, Support agencies and other facilities & resources.
3. Details of completion of similar type of projects in the last five years under headings:
  - a) Brief scope of work
  - b) Value of work in INR
  - c) Contractual Duration
  - d) Actual completion of Project
  - e) Clients name
  - f) Contact details of the Client ( Cairn may approach the client directly for the feedback)
  - g) Safety Certification /Inspection of plant and machineries
  - h) HSE statistics, LTI graph etc.
4. Typical Project Planning and Execution methodology.
5. List of all jobs under execution with the value of the Job and percentage completion.( With particular Emphasis on project of similar magnitude carried out in Oil and Gas Sector)
6. Experience of working in similar terrain.
7. HSE policy and implementation procedures in line with internationally accepted practices with statistics for last four years.
8. Quality assurance & Quality control practices currently in place for the execution of similar work /services.

9. Company's financial performance documents (Audited Balance sheets and Profit and Loss statements , Auditors Report and Notes to Accounts etc.) for last 2 (two) years. Latest financial statement should not be older than 12 months on the date of submission of response to Expression of interest. Please note that
- I. Normally standalone financials of the bidding entity only will be considered. However, consolidated financials at the bidding entity level, if available, can also be submitted. Parent company or Affiliate's financials can be submitted and considered, subject to submission of Parent/ Affiliate company guarantee. This should be clearly mentioned in the EOI response.
  - II. In case of consortium, the financials of the leader of the consortium (in whose name the bid is submitted) will be evaluated. However, consortium partner's financials can also be considered subject to submission of corporate guarantee by consortium partner. This should be clearly mentioned in the EOI response.
  - III. Evaluation will be done only on the basis of the published annual reports/audited financials containing Auditor's report, Balance sheet, Profit & Loss a/c and Notes to Accounts.
  - IV. In case of unaudited statements (if there are no audit requirements for auditing of financials as per the local law), the financials shall be accompanied by a certificate from a Certified Accountant. Certificate should also mention the fact that there is no requirement of audit of the financials as per the local law.

All qualifications and exceptions brought out in Auditor's report and Notes to Accounts would be factored in while undertaking financial evaluation

**The interested suppliers should "Evince interest" to participate in Eoi within 21 days of publication of Expression of Interest.**