**GLOBAL EXPRESSION OF INTEREST FOR PROVISION OF RESERVOIR PERFORMANCE MANAGEMENT SERVICES FOR RJ-ON-90/1**

Cairn Oil and Gas (the “Company”), Vedanta Limited is the Operator of the Onshore **RJ-ON-90/1** block (located in Barmer District of Rajasthan, India), Offshore **CB-OS/2** (located on the West Coast of India) and Offshore **Ravva** Block (located on the East Coat of India) on behalf of itself and its Joint Venture (JV) partners.

Cairn Oil and Gas has a vision to achieve 50% of India’s crude production and contribute to India’s energy security. In this regard, Cairn has embarked on an exciting growth journey to achieve world class recovery factors in our diverse reservoirs in the Rajasthan basin. We have been on the forefront of technology adaptation in the past with digital oil field, successful ASP pilots, world’s longest continuously heated crude transport pipelines and operating one of the largest polymer floods in the world. Our ambitious growth journey includes large scale plans for chemical EOR, hydraulic fracturing, extensive drilling, many million barrels of water handling and re-injection and digitalization with a firm commitment to achieve zero harm to life and environment.

In this regard Cairn Oil and Gas invites partners for a holistic approach to manage reservoir performance and production decline rates for four of the biggest fields in our portfolio – Mangala, Bhagyam, Aishwarya and Aishwarya Barmer Hill. A summary of the fields is provided in Appendix I. Further details can be provided on request, subject to signing of non-disclosure agreement. Cairn wants to reduce the base decline rates to less than 4% annually from the fields, i.e. the base production minus the capital expenditure projects planned and under execution.

The scope of the engagement includes:

1. Analyze the production injection data and propose changes to reservoir management practices to reduce decline rates and operating costs, especially polymer.
2. Assist the Cairn inhouse teams to build, calibrate and maintain reservoir models for regular optimization of field operating plans and optimize polymer injection. Bring in best in class technology for reservoir modelling to ensure and achieve targeted objectives of field decline.
3. Design surveillance plans for reservoir management in collaboration with inhouse teams. Analyze results and propose changes based on the results. This may include amongst others, Tracer studies, Pressure transient studies, Production logging studies, Water injection quality studies, Polymer injection quality studies, core studies, PVT studies or any other studies and reviews required.
4. Recommend a well-defined execution strategy to implement the above changes. The scope includes proposing, supervising or conducting any related study to improve practices of managing injection water quality, injector conformance, injector stimulation, producer stimulations, artificial lift improvement etc.
5. Bring data driven work flows for analyzing and predicting reservoir performance.
6. Review current capital projects and Propose new capital projects that will meet the minimum economic screening criteria.

Cairn Oil & Gas invites interested Consultants/Service providers with proven capabilities and demonstrated performance in similar requirements to express their interest in pre-qualification to participate in the International Competitive Bidding (ICB) Process for the services.

Interested companies meeting following criteria should respond to this EoI:

**Technical Criteria**:

Interested parties should demonstrate proven expertise in reservoir management, chemical EOR, reservoir surveillance, reservoir modelling, geo-sciences and petrophysics. The parties must have an experienced panel of sub surface and petroleum engineering staff. The parties should be self-sufficient with the software necessary for the deliverables.

**Financial Criteria**:

1. Turnover in each of the immediately preceding two financial years should be equal to or more than the estimated average annual contract value.
2. Positive net worth in each of the immediately preceding two financial years.
3. Liquidity ratio shall not be less than 1.00 in each of the preceding Two (02) financial years.

Also, note –

1. 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/holding company financials can be submitted and considered, subject to submission of financial guarantee and commitment letter, as described under (ii).
2. Where the bidding entity is unable to meet the Financial Evaluation Criteria, Parent/Holding Company Audited Financials can be considered, subject to:

a) Submission of Financial guarantee in the form of 10% Bank guarantee of contract value.

b) Commitment Letter from Parent/Company to provide financial support to the bidding entity.

1. 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.
2. 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 the Expression of Interest by clicking on the **“Evince Interest” link** against the corresponding EoI listing on the Cairn website i.e. http://www.cairnindia.com 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 Consultants/Service providers may be requested to submit the following pre-qualification documents at an appropriate stage:

1. Letter of interest clearly indicating the Project references.
2. 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.
3. Detailed Company Information with Organisation structure.
4. Details of completion of similar type of projects in the last five years under headings:
	1. Brief scope of work
	2. Value of work in INR/USD
	3. Contractual Duration
	4. Actual completion of Project
	5. Clients name
	6. Contact details of the Client (Cairn may approach the client directly for the feedback)
	7. Safety Certification / Inspection of plant and machineries
	8. HSE statistics, LTI graph etc.
5. Typical Project Planning and Execution methodology.
6. List of all jobs under execution with the value of the Job and percentage completion (with particular emphasis on projects of similar magnitudes carried out in Oil and Gas Sector).
7. Experience of working in similar terrain and remote areas.
8. HSE policy and implementation procedures in line with internationally accepted practices with statistics for last four years.
9. Quality assurance & Quality control practices currently in place for the execution of similar work/services.

**The interested suppliers should “Evince interest” to participate in EoI within 14 days of publication of Expression of Interest.**

**APPENDIX I**

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| --- | --- |
|  | **Fields** |
|  | **Mangala** | **Bhagyam** | **Aishwarya** | **Aishwarya Barmer Hill** |
| Estimated Oil Originally in place (million stock tank barrels) | 1329 | 515 | 300 | 380 |
| Recovery factor as on Dec 2019 | 33% | 10% | 16% | 0.5% |
| Field development plan under implementation | Polymer flooding | Water flooding transitioning to polymer flood | Water flood transitioning to polymer flood | Depletion with long horizontal wells with multi stage hydraulic fractures |
| In-situ Oil Viscosity | 16 cp to 20 cp | 15 cp to 400 cp | 8 cp to 12 cp | 2 cp to 4 cp |
| Depth of oil water contact (true vertical depth below mean sea level) | 963 m | 448 m | 1157 m | 1157 m |
| Rock type | Sandstone | Sandstone | Sandstone | Porcellanitic |
| Permeability (milli Darcies) | 1000-5000 | 500-3000 | 500-2000 | 0.1-10 |
| Initial Reservoir pressure at oil water contact | 1629 psi | 892 psi | 1906 psi | 1906 psi |
| Initial Reservoir Temperature | 65-67 deg C | 55-58 deg C | 72-75 deg C | 67-70 deg C |
| Production rate as on Dec 2019 (1000 barrels of oil per day) | 92 | 13 | 14 | 5 |
| Field development ongoing | Infills | Polymer flooding | Polymer flooding | First phase development with horizonal multi stage fracked wells |

**In case of any issue while evincing interest please contact Aayush Agrawal (****Aayush.Agarwal@cairnindia.com****) and Kunwar Ankesh (****Kunwar.Ankesh@cairnindia.com****)**