OIL INDIA LIMITED
(A Govt. of India Enterprise)
PRODUCTION DEPARTMENT
Jodhpur -342005 (Rajasthan)

NOTICE FOR PRE-TENDER MEETING

AA) OIL INDIA LIMITED (OIL), a Govt. of India "Maharatna" Company is engaged in the business of Exploration, Production and Transportation of Crude Oil and Natural Gas and production of LPG. Rajasthan Field (RF) of Oil India Limited (OIL), is engaged in E&P of Natural Gas from Jaisalmer Basin and Heavy oil from Bikaner-Nagaur basin of Western Rajasthan in India. The project office of OIL at Jodhpur is well connected by Road, Rail and Air.

BB) Oil India Limited is in the process of formulating a contract for "Hiring of services for supply, installation & commissioning of real time monitoring system (RTMS) for SRP wells of Baghewala field along with services of AMC."

CC) In this connection, OIL intends to organize a Pre-Tender meeting on 16.06.2025 (Monday) at OIL House, Jodhpur from 11:30 AM.

DD) Vendors with following experience criteria and interested in providing the service can participate in the Pre-Tender meeting

Eligibility Criteria: Experience of successfully executed contract services for supply, installation & commissioning of real time monitoring system (RTMS) for SRP wells.

Note: A draft scope of work along with the payment terms are enclosed herewith. Vendors are requested to review the document thoroughly before attending the meeting.

EE) View above, we request interested vendors to depute their representative (not more than 2 per vendor) to attend the Pre-Tender meeting to be held as per following details:

Date: 16.06.2025
Time: 11:30 AM
Venue: OIL House, 2A District Shopping Center, NH 62, Saraswati Nagar, Jodhpur, Rajasthan 342005

SCOPE OF WORK

"Hiring of services for supply, installation & commissioning of real time monitoring system (RTMS) for SRP wells of Baghewala field along with services of AMC"

1.0 Introduction:

Oil India Limited (OIL), a "Maharatna" Category Government of India Enterprise under the Ministry of Petroleum and Natural Gas, is a premier upstream Exploration & Production (E&P) company engaged in the exploration, production, and transportation of crude oil and natural gas, along with the production of LPG. OIL's primary operations are concentrated in the North-Eastern states of Assam and Arunachal Pradesh while also maintaining active operations in Rajasthan, Andhra Pradesh, Andaman, and the Kerala-Konkan basin, as well as overseas.

Rajasthan Fields of OIL is engaged in engaged in exploration and production of Heavy Oil from Bikaner-Nagur basin from Baghewala. The Baghewala field, located in the Bikaner-Nagaur Basin approximately 110 kilometers from Phalodi Town and 3 kilometers from Tawariwala village, was discovered in 1991. The presence of highly viscous heavy oil (14° – 17° API) in the Jodhpur Sandstone of Infra-Cambrian age was first confirmed through the drilling of an exploratory well. This heavy oil exhibits high viscosity, measured in thousands of centipoises (5,000 – 24,000 Cp at 45 deg C).

2.0 Objectives:

The Baghewala Oil Field currently comprises of twenty nine (29) producing oil wells. Another twenty five (25) nos. of wells are planned to be drilled in the next two years. Production here relies on artificial lift methods due to the heavy nature of the crude oil. The field has deployed Sucker Rod Pumps (SRP) as the chosen artificial lift technique. These SRP wells are vital to the field's oil production, making them critical to the overall operations of the field.

The wells are geographically spread across an area of approximately 10 km x 7 km, which poses challenges for manual monitoring. Each SRP is powered by a three phase electric motor, with site-specific power supplied through state electricity board (DISCOM-provided transformers) or through individual OIL-owned Diesel Generator sets for each/multiple well/wells. The power supply available at the well site is 415 VAC (±) 15%, 3-phase, 50 Hz.

OIL currently has an inventory of twenty-eight (28) SRP surface units with another five (5) SRPs lined up for delivery **(details in Annexure-I)**. Apart from this, procurement of another fourteen (14) SRP Surface Units is in progress (currently under tendering stage). We intend to have RTMS for **minimum 25 nos. of SRPs** with provision of expansion in future.

OIL intends to implement a system for real-time monitoring of dynagraph data and other critical well parameters such as:

1. Polished Rod Load
2. Fluid Load
3. Pump Fillage
4. Stroke Length
5. Rod loading
6. Structure Loading
7. Gear Box Loading
8. Strokes Per Minute (SPM)
9. Current, Voltage, Frequency drawn from Motor.
10. Well Pump on/off status/ run time.
11. Real time Dynacard (Surface and sub-surface)
12. Energy Consumption

In addition to the monitoring of the above parameters, the scope also includes application of algorithms to the dynacard data and automate dynacard interpretation and transform SRP performance through real-time diagnostics and machine learning–based foresight to optimize oil production. To meet this requirement, a suitable cloud-based Real-Time Monitoring System (RTMS) is sought, capable of future inclusion of additional process parameters. The cloud-based platform should have the data centre in India. Also, the platform should have data redundancy.

The objectives of this initiative are as follows:

a) To supply and maintain POCs along with load cell and inclinometer for SRPs.
b) To have necessary equipment in the well site for real time online monitoring of the parameters as mentioned above. The data must be uploaded in a cloud-based platform so that the same is accessible via internet from anywhere.
c) All the monitored wells to be mapped on Geographic Information System (GIS) based map and real-time data of monitoring to be made available online as per requirement. GIS Mapping should be done covering all SRP units and the details/ status of each RTMS shall be viewable in the web application software through a Google-map interface or web based digital map.
d) Report/ notification of any anomaly or reports as desired by OIL to be generated on real time basis, daily or as per requirement.
e) The system should have the capabilities to integrate additional parameters in future.
f) Cloud-Based Analytics & generation of insights:
    - Dynagraph Generation and interpretation based on Load Data for well health analysis.
    - Anomaly Detection (Normal Operation (NO), Gas Interference, Fluid Pounding, Piston Stuck, Valve Leakage, Downstroke Rod Floating Issue, Sand

Production, Abnormal Dynamometer Conditions and Predictive Maintenance Alerts).

- Data-driven insights to optimize SRP well performance and production optimisation.
- Recommended Counterweight Size and Position.
- Recommended Pumping Unit API Size, Stroke length.
- Recommended Rod String Design.
- Recommended Motor HP.
- Recommended Insert Pump API Size.

g) The system should be capable of providing the following predictive analytics/insights:

- Analytics solution for identifying rod pump failure capable of automated downhole dynacard generation and recognition
- The system shall be required to infer the Dynamic liquid level, Pump Intake Pressure (PIP) on the basis of Dynagraph and estimate Pump Volume Displaced along with volumetric efficiency on the basis of effective plunger stroke length. Any other data which can be derived from existing datasets e.g. Gearbox Torque, Peak Rod Polished Rod Position and velocity to be generated.
- Utilization of pattern recognition techniques to automate the visual interpretation process, increasing efficiency and reducing maintenance activities.
- Prediction of rod pump failures.
- Use of algorithms to analyse the data to learn what causes rod pump failures and the trends that occur in that data.

h) Reliable communication for data transfer from the well sites is to be provided. Vendor has to acquaint himself of the available communication networks at well sites for ensuring requisite connectivity with every well.

i) Interested firm has to identify the most suitable type of load cell for our SRPs. The load cells should be able to fix in between the polished rod clamp and the carrier bar. It should have an operating range of 0 to 30000 Lbs.

3.0 Submission Requirements

Interested firms are invited to submit the following:

i) Company profile highlighting relevant experience.
ii) Summary of previous assignments undertaken.

Additional Notes for Discussion:

OIL has POCs with load cells and inclinometers installed in some of its running SRPs. It is to be noted that, eighteen (18) nos. are operated vide VFD (Variable Frequency Drive) and has POC (Pump Off Controller). The five (5) SRPs lined up for delivery shall be powered by VFD and shall be having POC for display of Dynacard and related parameters.

The present count of the POC and Dynacard (Load cell and Inclinometer with cables) is as below:

1. POC (Make ChampionX) – 12 nos.

2. POC (Make Weatherford) – 6 nos.

3. POC (Make Schneider) – 5 nos.

4. No POC – 10 nos.

Vendor to make field visit to ascertain the following:

1. *Possibility of replacing the faulty load cells and inclinometers and integrate the same with the existing POCs and to modify the existing POCs for display of the above critical well parameters.*
2. *Possibility of rectification of the faulty POCs and modifying them for display of the above critical well parameters.*
3. *To maintain the available POCs in healthy state.*

Post visit, vendor is required to submit a detailed report outlining the possibility of the points as mentioned above.