

EXPRESSION OF INTEREST (EOI) FOR MARKET EXPLORATION FOR HIRING OF SERVICES FOR “TRIAL ORDER ON PILOT BASIS FOR THERMOPLASTIC COMPOSITE PIPE (TCP) PIPES FOR WATER INJECTION AND WELL-FLUID LINES” FOR SUBSEA APPLICATIONS

1. Introduction

Oil and Natural Gas Corporation Limited (ONGC), India’s premier exploration and production company, operates an extensive network of offshore subsea pipelines in the Western Offshore region for transportation of well fluids, produced water, gas, and injection water. These pipelines form a critical part of ONGC’s offshore production and injection infrastructure and require reliable, safe, and cost-effective solutions to ensure long-term operational integrity. Traditionally, offshore pipelines have been constructed using carbon steel materials. However, challenges associated with corrosion, maintenance requirements, operational downtime, and life-cycle costs have led the industry to explore alternative pipeline technologies. Thermoplastic Composite Pipe (TCP) technology has emerged as a promising solution owing to its corrosion resistance, lightweight construction, flexibility, and reduced maintenance requirements compared to conventional metallic pipelines. With a view to evaluating the suitability of TCP technology under actual offshore operating conditions, ONGC proposes to undertake a pilot deployment of TCP pipelines on selected water injection and well-fluid service lines in offshore subsea applications. The proposed pilot project is intended to generate field-performance data, assess installation feasibility, evaluate operational reliability, and establish confidence for potential wider deployment of TCP systems in ONGC’s offshore assets. Accordingly, ONGC invites Expressions of Interest (EOI) from eligible domestic manufacturers, technology providers, suppliers, and service providers possessing capabilities in the design, engineering, manufacture, supply, testing, inspection, installation, commissioning, and associated services related to Thermoplastic Composite Pipe (TCP) systems for offshore subsea applications. The proposed TCP systems are envisaged for transportation of well fluids, including crude oil, natural gas, produced water, and injection water in offshore oilfield environments. Through this EOI, ONGC intends to assess the technical capabilities, manufacturing infrastructure, quality assurance systems, execution experience, of the established players in his domain.

Further in case there are certain vendors who have indigenous capability to develop such product under Make in India campaign of Govt of India, the proposals from such vendors shall be evaluated under ‘Development Order Policy’ of ONGC.

2. Objective

The objective of this EOI is to identify and evaluate manufacturers and service providers with proven or demonstrable capability in:

- Design and engineering of TCP pipeline systems.
- Manufacture and supply of TCP pipelines for offshore/subsea applications.
- Design, manufacture and supply of associated accessories, end fittings, connectors etc.
- Offshore transportation, installation and laying of TCP pipelines.
- Testing, inspection, commissioning support and lifecycle technical services.

3. Scope of Participation

Interested parties may submit their Expression of Interest (EOI) under either of the following categories:

A. Established Manufacturers / Suppliers / Technology Providers

Firms having proven experience and established capabilities in the design, engineering, manufacture, supply, installation, testing and commissioning of Thermoplastic Composite Pipe (TCP) systems for offshore subsea applications, including water injection and well-fluid transportation lines. The interested parties should possess experience in executing the following, as a complete package:

- Design and engineering of TCP pipeline systems.
- Manufacture and supply of TCP pipes and associated end fittings, connectors and accessories.
- Offshore transportation, installation and laying of TCP pipelines.
- Inspection, testing, commissioning and integrity management services related to TCP pipeline systems.
- Execution of TCP pipeline projects in offshore, subsea or other oil & gas applications.

B. Domestic Manufacturers Seeking Indigenous Development

Domestic manufacturers who may not possess adequate prior supply experience in TCP pipelines for offshore subsea applications but have the requisite technical capability, infrastructure, manufacturing facilities and intent to develop, manufacture, supply and install TCP pipeline systems in India. Such firms may include manufacturers having experience in related composite materials, polymer processing, offshore pipeline components, flexible piping systems or other relevant engineering products, and who are willing to undertake technology development, product qualification and field validation activities. The firms identified under this category may subsequently be considered for participation under ONGC’s **Vendor Development / Development Order (DO) Scheme**, including prototype development, testing, field trials and performance evaluation, with the objective of establishing reliable indigenous sources of supply for future requirements in accordance with ONGC’s prevailing Development Order Policy.

4. Broad Technical Requirement

Enclosed at **Appendix 1**.

5. Information Sought from Interested Parties

Interested Firms must submit a comprehensive dossier detailing their technical credentials and relevant experience including the following:

- a. Company profile, including details of ownership and principal business activities.
- b. Details of manufacturing facilities and infrastructure.
- c. Technical literature and product specifications.
- d. Quality Assurance Plan (QAP) and details of available testing facilities.
- e. Details of similar supplies/services executed.
- f. Customer references and performance certificates, if available.
- g. Details of relevant certifications/approvals, if any.
- h. Any other technical information considered relevant to demonstrate the firm's capability.

6. Key Information and Dates

EOI Reference No.	ONGC/ TCP/EOI/2026/14
Issue Date	20/10/2026
Submission Due Date	10/11/2026
Submission Mode	Electronic Submission by Email
Contact Email(s)	gupta_p1@ongc.co.in , mishra_sb@ongc.co.in
Contact Nos	011-2675 2035
Address	DUB, Plot No. 5A- 5B Nelson Mandela Road, Vasant Kunj, New Delhi,

7. Confidentiality

All information received by ONGC as part of this EOI shall become the property of ONGC and will be maintained in confidence and utilized solely for internal evaluation and assessment purposes.

8. Disclaimer

This EOI is solely for the purpose of market exploration. It does not constitute a commercial tender or RFP, nor does it commit ONGC to proceed with any procurement process.

Appendix- 1

Technical Specifications and Scope of Supply
for Flexible Thermoplastic Composite Pipes (TCP)

This specification describes the requirement for supply of flexible TCP with end fittings. Flexible pipes shall be suitable for subsea lines for carrying sour (H₂ S content), oil, gas and injection water in offshore oilfields and shall be deployed by DP multi-support vessels. Details of scope of supply, important parameters and general conditions are given in the following appendices:

- Appendix I: Service conditions.
- Appendix II: Scope of supply.
- Appendix III: Important parameters/requirements of flexible line.
- Appendix IV: Inspection and Certification.
- Appendix V: Documents to be supplied by the bidder along with supply.
- Appendix VI: Packing.
- Appendix VII: GA for installation winch available with ONGC.

Appendix I: Service Conditions

A. 1.0 Service Conditions

1.1 The flexible pipe should be suitable for crude oil as produced in multiphase flow having oil, gas and water. It should also be suitable for carrying sour gas (H₂ S and CO₂) and injection water (treated sea water). The following are the broad parameters:

Parameter	Requirement
GOR (Gas Oil Ratio)	120–3000
Water content	0 to 90%
Temperature	23 to 80 °C
Maximum sour content	550 ppm
CO ₂ content	2 to 30%
Moisture	5–10%
Additional parameter as stated in source	< 34,000 ppm

1.2 Seabed conditions:

Parameter	Requirement
Seabed temperature	22–30 °C
Seabed depth	50–100 m
Seabed status	Soft/Muddy

Note: The offered flexible pipe should be suitable for well fluid (crude oil/gas and water), sour gas and water injection services.

Appendix II: Scope of Supply

Sl. No.	Item Description	Tentative Quantity (nos)
1	7" nominal bore, 500 m long, working pressure 2255 psi flexible TCP pipe (CFPA12), having ANSI 900 RTJ flange (with end connector) built at both ends of pipe section and spooled on shipping-cum-laying reel.	10
2	Companion ring gaskets (Inconel 625) and set of required number of studs-nuts for Sl. No. 1 above (one set each for each end of flexible pipes as offered above at Sl. No. 1).	20
3	End fittings (ANSI 900 RTJ swivel flange) pre-assembled on both ends of TCP sections.	20
4	7.5 m OD T&I reels to match ONGC PR75/NKT reel drive system.	10
5	Ballast modules (cast iron) with material certificate 3.2, including 10% spare fasteners along with all required fittings/accessories.	10

All items covered under the scope of supply should be new and unused (not reconditioned) and of recent manufacture, which shall in no case be of a date of manufacture older than one year from the date of delivery. This should be supported with an internal inspection report/certificate by the manufacturer.

B. Delivery Schedule

All items should be delivered within --- months from the date of placement of Notification of Award (NOA).
Location for field trial testing: Mumbai High field (~75m water depth)

Appendix III: Important Parameters/Requirements of Flexible Line

3.0 Detailed specifications

The flexible pipe should comply with the following parameters:

Reference	Parameter	Requirement
3.1.A.1	Nominal bore diameter	7 inch as per scope of supply
3.1.A.2	Working pressure	2255 psi
3.1.A.3	Test pressure	2940 psi
3.1.A.4	Operating temperature	23–80 °C
3.1.A.5	Minimum bending radius	Suitable for flexible laying and retrieving system

The solid wall construction consists of an inner liner, thermoplastic composite reinforcement layers and an outer coating fused together as a solid laminate. It shall comply with DNV-ST-F119 with characteristics suitable to:

- Resist hydrostatic collapse and retain pipe roundness within tolerances for the specified minimum bending radius at a maximum water depth of 100 m.
- Ensure liquid tightness at a maximum water depth of 100 m.
- Resist internal/test pressure, axial and torsional loads.
- Ensure external protection against abrasion and corrosion.

2 Material and End-Connection Requirements

The selection of material shall be suitable for the fluid service specified.
Laminate layer, if used, shall be designed in compliance with DNVGL-ST-F119.
The manufacturer shall ensure that gas permeation problems in non-metallic pipe materials are adequately handled and are neutral to hydrocarbons, H₂ S and CO₂ .
The material for end connections shall be suitable for the fluid service specified.
End connections shall be protected against marine corrosion by suitable material selection, special treatment for corrosion resistance, or a cathodic protection system.
AISI 4130/ASTM A105 or equivalent, suitable for sour service, with adequate coating/plating for corrosion protection.
Flanges shall be RTJ Class 900 weld neck conforming to ANSI B16.5 standard.
Suitable lifting and holding collars shall be provided at both ends of the pipe.
Each flexible pipe should be supplied with companion ring gaskets and the required number of studs and nuts of the following specifications:

- Stud material: ASTM A193 B7M (PTFE coated).
- Nut material: ASTM A194 Grade 2HM (PTFE coated).

Studs should be long enough to accommodate the hydraulic tensioning device.

3 Operating and Performance Requirements

1. The flexible pipe offered should be suitable for use as a pipeline under the service conditions detailed in the specification.
2. The flexible pipes and fittings shall be leak-proof and corrosion-resistant to the flowing fluid and sea water and shall ensure the required mechanical performance, i.e. resistance to crushing, axial stresses, bottom effect, preservation of roundness and resistance to pull, etc.
3. The flexible pipes should be designed to withstand hydraulic hammering conditions arising out of closure of valves downstream of the pipe.
4. The flexible pipe, along with end connections, should be piggable using polypigs.
5. The design service life of the flexible pipe should be equal to or more than the specified minimum years.

The flexible pipes should conform to the following parameters:

Sl. No.	Parameter	Requirement
1	Outside diameter	Suitable for powered flexible laying and retrieving system
2	Hydrostatic collapse	Suitable for operation at water depth of 100 m
3	Design pressure	2255 psi
4	Test pressure	2940 psi
5	Minimum bending radius	Suitable for powered flexible laying and retrieving system in storage/shipment/laying
6	Damaging pull	Vendor to specify and ensure suitability for the given operating conditions
7	Bending stiffness	Vendor to specify and ensure suitability for the given operating conditions
8	Nominal diameter / bore	7 inch as per scope of supply
9	Internal volume	Vendor to specify
10	External volume	Vendor to specify
11	Weight in air, empty	Vendor to specify
12	Weight in air, full	Vendor to specify
13	Weight in seawater, empty	Vendor to specify
14	Design service life	Years (minimum); vendor to specify

4 Reel and Spooling Requirements

The flexible pipe should be spooled on a shipping-cum-laying reel with drum radius compliant with the winch system. The flexible pipe is to be designed such that the drum radius is more than 1.1 × the minimum bending radius of the flexible pipe and should include a proper latching arrangement with rotating heads of the winch through its hub.

Appendix IV: Inspection and Certification

- Inspection and certification should be carried out by ONGC-QAD or an ONGC-appointed TPI to confirm compliance with tender specifications.
- The bidder will submit the QAP along with its offer for ONGC approval. Inspection shall be carried out as per the approved QAP.
- The bidder shall provide all testing equipment/facilities to the Inspection agency.

Appendix V: Documents to be Supplied by the Bidder Along with Supply

Documents to be supplied by the supplier along with the supply:

5.1 Technical Documents

- 5.1.1 The various parameters as mentioned at 3.1.A should be specified categorically.
- 5.1.2 Report along with all the technical details giving special features of the flexible pipes, including as-built documentation, drawings and operation manual for the flexible laying and retrieving system.
- 5.1.3 Cross-sectional drawings of the flexible pipe offered by the supplier. Details of each layer, giving material, dimensions, etc., should be provided.
- 5.1.4 Factory Acceptance Test (FAT), including gauge pigging and hydrostatic pressure test reports, duly verified by the third-party inspection agency.

5.2 The scope of supply also includes one set in hard copy and one pendrive of the following documents in respect of each section of flexible pipes:

- 5.2.1 Material specifications/certificates of all layers of the flexible pipe, end fittings and end flanges.
- 5.2.2 Copy of test certificates for the flexible pipe, end fittings and end flanges issued by the certification society.
- 5.2.3 Mill certificates for the steel materials used.
- 5.2.4 Procedure for laying/retrieving the flexible pipe and fixing it to the pipeline.
- 5.2.5 Third-party inspection certificates as per the inspection and certification clause 4.0.

Appendix VI: Packing

- **6.1** Flexible pipes spooled on laying cum shipping reels should be properly packed with suitable covers for protection against weather, sunlight and sea transportation. Suitable lifting points should be provided for safe handling.
- **6.2** The supplier shall ensure that before packing the flexible pipe is free from any traces of test fluids and ends are blanked.
- **6.3** The bending radius of flexible pipes on reel should not be less than 1.1 x min. bending radius of flexible pipes.

Appendix VII: GA for Installation Winch

GA for installation winch used in ONGC Vessel (for reference).
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