



Energy for India

CAIRN INDIA LIMITED

(Incorporated in Mumbai, India – U11101MH2006PLC163934)

## GLOBAL EXPRESSION OF INTEREST (EoI) FOR PROCUREMENT OF SKIDS AND BULK ITEMS UNDER LONG TERM RATE CONTRACT FOR RAJASTHAN BLOCK

Cairn India Ltd. ("CIL") is the Operator on behalf of itself and its joint venture partners, Cairn Energy Hydrocarbons Limited and Oil and Natural Gas Corporation Ltd. (ONGC), of the Contract Area RJ-ON-90/1 at Barmer in the state of Rajasthan. The RJ-ON-90/1 Block contains a number of major oil fields namely Mangala, Bhagyam, Aishwariya and various other discoveries which would be developed over a period of time. The Global 'Expression of Interest' is sought for developments in Rajasthan Block, where Cairn India Ltd (CIL) is the Operator.

CIL 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. CIL shall enter into Long Term Rate contract for the supply of the Bulk Items / Packages on call-out order basis.

The scope includes design, engineering, shop fabrication/manufacturing, testing and delivery (wherever applicable).

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
	<b>Package Ref No: A Piping Items</b>		
A 1.	Pipe CS	<p>Seamless pipe bare with bevelled ends to ASME B 36.10. Sizes ½" to 14". Pipe wall thickness ranging from sch 40 to Sch XXS.</p> <p>MOC: CS to ASTM A 106 Gr.B/C basis project piping material specification.</p> <p>EFSW welded pipe bare with bevelled ends to B36.10. Sizes 16" to 32". Pipe wall thickness ranging from sch 40 to Sch XXS and non standard thicknesses per piping material specification</p> <p>MOC: A 672 Gr.B60 Class12</p> <p>Charpy &amp; impact testing required for wall thickness &gt;21mm</p> <p>Seamless pipe bare with bevelled ends to ASME B 36.19. Sizes ½" to 6". Pipe wall thickness ranging from sch 40S to Sch 160.</p>	90,000 mts  (Various sizes and ratings)

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
A 2	Pipe SS/ DSS	Stainless Steel MOC: ASTM A 312 TP 304, 304L and 316, 316L, S 32205, S 32750 basis project piping material specification. Sizes 3" to 14" with 3LPP / 3LPE coating or without.	45,000 mts  (Various sizes and ratings)
A 3.	Anchor Flanges	Design, manufacture and supply of Anchor Flanges for pipeline sizes 6" to 30" , designed to ASME Sec VIII BPVC and AISC (ASD) 9 <sup>th</sup> Ed for pipeline applications, MOC A 105 / SA694 - F52 and F60/Equivalent	200 Nos
A 4.	<b>Pipe Fittings:</b> Fittings will include Elbows, tees, caps, plugs, full and half couplings, swages, reducers (eccentric and concentric), bushings, hex nipples, unions, weldolets, sockolets, thredolets, Nipolets, latrolet & elbowlets and Chemical Injection Quill. All fittings shall be seamless and welded depending on sizes (>14" welded).	<ul style="list-style-type: none"> <li>All fittings to suit piping in accordance with ASME B31.3 &amp; ASME B 31.1</li> <li>All pipe fittings shall be to ASME B 16.9 &amp; 16.11</li> <li>Wrought fittings machined from block forgings shall not be acceptable</li> <li>Sizes 1/2" to 32"</li> <li>Sch/Thickness: To match pipe per MS (Sch 40 - Sch XXS and non-standard)</li> <li>Rating (for smaller fittings): 3000/6000/9000</li> <li>Pipe Fittings MOC: A105/A234 WPC/WPB/A420 WPL6/A430WP304L/316L</li> <li>Pipes Transition - SS to CS</li> </ul>	Fittings- 90,000 Nos  (Various sizes and ratings)
A 5	<b>Flanges:</b> Flanges will include SORF, WNRF, blind and spectacle blinds ad API FLanges. All flanges shall be forged and those machined from bar stock will not be acceptable.	<ul style="list-style-type: none"> <li>Flanges 24" and smaller shall be forged to the requirements of ASME B16.5.</li> <li>Flanges &gt;24" shall be as per ASME B 16.47 A series</li> <li>Blind flanges shall be as per ASME B 16.48</li> <li>Flanges MOC : A-105/A-350LF2/ A182 F304L/316L</li> <li>API Flanges 5K to 3K</li> </ul>	Flanges- 90,000 Nos  (Various sizes and ratings)
A 6	<b>Gaskets</b>	<ul style="list-style-type: none"> <li>All Gaskets shall be of ASME B16.20/B16.21/B16.5/B16.47A with 4.5mm Thk.</li> <li>Size range from 1/2" to 48".</li> <li>Rating 150, 300, 600, 900, 1500 &amp; 2500.</li> <li>MOC - a) Spiral wound SS304/316/316L with Graphite filler &amp; with inner &amp; outer ring. b) 2mm Thk. Compressed Non-Asbestos. c) For RTJ Flange Oval type soft iron with hardness of 90BHN.</li> <li>Insulation Gasket Kits</li> </ul>	150,000 Nos.  5000 Nos.

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
A 7	Fasteners	<ul style="list-style-type: none"> <li>All bolts &amp; Nuts shall be of ASME B-18.2.1/B18.2.2</li> <li>MOC - a) Bolts:-A193 Gr.B7, Galvanised b) Nuts:-A194 Gr.2H, Galvanised c) Bolts:-A193 Gr.B8 d) Nuts:-A194 Gr.B8</li> </ul>	300,000 Nos.
A 8	Corrosion Coupons	<ul style="list-style-type: none"> <li>Supply, installation and commissioning of Retrievable / Retractable Multidisc Corrosion Coupons with Access Fittings</li> </ul>	300 Nos.
<b>Package Ref No: B Valves / Strainers</b>			
B 1	Ball Valves	<p style="text-align: center;"><b>Common for B1 to B5</b></p> <ul style="list-style-type: none"> <li>All valves to meet : ASME B16.10 end to end dimensions</li> <li>Sizes: ½" to 30"</li> <li>Rating: 150#, 300#, 600#, 900# &amp; 1500#</li> <li>All valves shall meet the project VMS specification.</li> <li>All Ball valves shall be designed to ASME B16.34/API 6D/ BS/ ISO standards &amp; tested to API 598</li> <li>API valves shall meet designed and tested in accordance with API 6A</li> <li>Butterfly valves shall meet API-609</li> <li>Gate, globe, check, Plug and needle valve shall meet ASME 16.34</li> <li>Material of construction - CS/LTCS/SS</li> <li>API 5000 # Valves for Wellheads 2-1/16" to 4-3/16"</li> </ul>	Ball valves: 10000 Nos Gate valves: 1000 Nos Globe valves: 1000 Nos Check valves: 2500 Nos Butterfly valves: 200 nos Needle valves: 2500 nos Plug Valves- 100 Y-Strainer :100 nos (Various sizes and ratings)  Steam Traps : 100 Nos.
B 2	Gate/Globe/Check Valves		
B 3	Butterfly Valves		
B 4	Plug Valves & Needle Valves		
B 5	Y-Strainer, and Steam Traps		
<b>Package Ref No: C Line Pipes and Accessories</b>			
C 1	API 5L X65 Line Pipe	API 5L X65, ASME Class 600/900/1500 Line Pipe in accordance to PSL-2 with Epoxy Coating / PUF insulation for the following sizes : <ul style="list-style-type: none"> <li>Seamless from 2" to 16" having thickness 5.6mm to 18mm</li> <li>HSAW/LSAW above 16" to 30" having thickness 9.5mm to 32 mm</li> </ul> Interested Parties may express their interest for supply of Bare pipes/Coated pipes/ coating only /Coating& Insulation/ Insulation only	15 km

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
C 2	Actuated Ball Valves	Size : 10" to 24" Type: Two Pieces split body, API-6D. Class Rating: ASME 600# & 900# Actuator Type: Motor/ Gas/Gas over oil-Hydraulic	30 Nos
C 3	Control Globe Valves	Size : 10" to 24" Type: Globe Class Rating: ASME 600# & 900#	5 Nos
C 4	Induction Bends	5 D/10 D Induction Bends (or higher bends of various sizes up to 24"	100 Nos
C 5	Monolithic Insulation Joints	As per relevant International standards/manufacturing standards. Size upto 24"	200 Nos
C 6	Barred Tee and Flow Tees	As per relevant International standards/manufacturing standards. Size upto 24"	500 Nos
<b>Package Ref No: D Mechanical</b>			
D 1	Design, Fabrication, testing, packing and Supply of Skid Mounted Pig Launcher/Receiver	<ul style="list-style-type: none"> <li>The unit will be skid mounted and include a Quick Opening Closure, piping to various tie points, valves, instrumentation, pig signallers, etc.</li> <li>All lines and Pig Barrels to be Heat traced &amp; insulated.</li> <li>Line Size/Spec : 6" to 30 "; Rating - 300#, 600#, 900#, ASME B 31.4</li> <li>The Supplier shall be responsible for detailed design, supply of materials, fabrication, assembly and testing, in accordance with ASME Section VIII, Div 1 as well as technical documentation, painting, and shipment.</li> </ul>	8 Nos.
D 2	Design, Supply, Testing of Instrument Air Compressor Package	Design, Material Procurement, Fabrication, inspection, testing, pre commissioning & commissioning support for IA Compressor Packages with standard/customised capacities along with package PLC and Modbus connectivity.  Specific Qualification Criteria : Demonstrated track record of past supplies of similar skids.	20 Nos.
D 3	Design, Supply, Testing of Chemical Injection Skid/Package	Design, Material Procurement, Fabrication, inspection, testing, pre commissioning & commissioning support for Chemical Injection Skid/Packages with customised capacities of storage tanks and pumps and associated Piping and Instrumentation along with package PLC and Modbus connectivity.  Specific Qualification Criteria : Demonstrated track record of past supplies of similar skids.	20 Nos.

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
D 4	Design, Supply, Testing of Emergency Power system/DG sets in various capacities	Design, Material Procurement, Fabrication, inspection, testing, pre commissioning & commissioning support for Emergency Power supply system/DG sets.  Specific Qualification Criteria : Demonstrated track record of past supplies of similar package.	10 Nos.
D 5	Design, Supply, Testing of Mobile and Online Multi Phase Flow Meter Skids	Design, Material Procurement, Fabrication, inspection, testing, pre commissioning & commissioning support for Mobile and Online Multi-Phase Flow Meter Package comprising of Structural base frame housing Piping, EHT and Instrumentation along with Modbus connectivity as per preliminary designs by CIL.  Specific Qualification Criteria : Demonstrated track record of past supplies of similar package.	5 Nos.
D 6	Structural Steel	All Standard structural steel members like ISMC, ISMB, Angles, Plates, Flats, ISHB, Hilti Bolts, Anchor bolts, Erection bolts, etc in all sizes	1000 tonnes
D 7	Grating Material	Serrated GI Gratings, FRP Gratings with grating clamps and Hex head bolts and washer, nuts	800 tonnes
<b>Package Ref No: E Electricals</b>			
E 1	Transformers	Oil-filled / dry type transformers up to 3 MVA, up to 33kV/433 V as per Indian Standards, furnish type test certificates from Central Power Research Institute (CPRI) - India or equivalent, proving guaranteed performance of the transformers at site.	30 Nos.
E 2	LV Switchboard	Indoor (IP 4X) and Outdoor (IP 55 min.), Double front, fuse less and draw-out type low voltage switchboards (415V, up to 4500 Amps, up to 100kA for 1 sec) with built-in VFDs / soft-starters / dual-speed drivers, as per IS/IEC Standards, furnish type test certificates from Central Power Research Institute (CPRI) - India or equivalent, and proving guaranteed performance of the switchboards at site.	30 Nos.

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
E 3	HV Switchgear Panels	SF6 circuit breaker panels (33kV, up to 1250A, 31.5kA for 1 sec), VCB / VC + Fuse panels (11kV, up to 4000A, 50kA for 1 sec & 6.6kV, up to 2500A, 40kA for 1 sec) as per IS/IEC Standards, integrate with existing Switchboards, panels built-in with numerical relays communicating over IEC 61850 protocol with Experion PKS SCADA, furnish type test certificates from Central Power Research Institute (CPRI) - India or equivalent, proving guaranteed performance of the switchgear panels at site.	30 Nos.
E 4	Un-interruptible Power Supply (UPS) System	Solid state parallel redundant UPS system with by-pass mains up to 50kVA, 240V, 1ph, 50Hz as per IS/IEC Standards, 12 pulse rectifiers, complete with ultra-low maintenance Ni-Cd batteries, capable of communicating over MODBUS protocol with plant control system, furnish type test certificates from Central Power Research Institute (CPRI) - India or equivalent, proving guaranteed performance of the UPS at site.	15 Nos.
E 5	High Voltage Power Cables -6.6kV (UE), 11kV (UE) & 33kV(E)	<p>Single / Multi-core power cables of stranded copper conductor, conductor screening, XLPE insulation &amp; insulation screening formed by triple extrusion, extruded PVC-ST2 inner sheathed, galvanised steel / aluminium wire armoured, overall flame retardant low smoke (FRLS) and UV resistant extruded PVC-ST2 sheathed as per IS/IEC Standards.</p> <p>Cables should have been type tested in Central Power Research Institute, Bhopal or equivalent for electrical performance and in Central Institute of Mines and Fuel Research (CIMFR), Dhanbad - India or equivalent, approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 &amp; 2).</p>	5 Kms

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
E 6	Medium & Low Voltage Power and Control Cables	<p>Single / Multi-core power cables of stranded copper conductor, XLPE insulation, extruded PVC-ST2 inner sheathed, galvanised steel / aluminium wire armoured, overall flame retardant low smoke (FRLS) / Fire Resistant (FR) and UV resistant extruded PVC-ST2 sheathed as per IS/IEC Standards.</p> <p>Cables should have been type tested in Central Power Research Institute, Bhopal or equivalent for electrical performance and Central Institute for Mining and Fuel Research (CIMFR), Dhanbad - India or equivalent, and approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 &amp; 2).</p>	200 Kms
E 7	Self Electrical Tracing (EHT) Regulatory Heat System	<p>Electrical heat tracing system for piping up to 24" dia., rotating and static equipment based on self regulating type tracers, for maintenance of process temperature up to 149<sup>0</sup>C, piping exposure temperature of 232<sup>0</sup>C. EHT System comprises, tracers, power &amp; control cables, RTDs, temperature Controllers, transformers, flameproof control panels, power / control JBs, connectors etc. as per IEEE/IS/IEC standards. Performance of EHT system shall be demonstrated at site.</p> <p>All equipment should have been type tested at Central Power Research Institute (CPRI), Bhopal or equivalent for electrical performance, hazardous area equipment should have been type tested at Central Institute for Mining and Fuel Research (CIMFR), Dhanbad - India or equivalent, and approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 &amp; 2, Gas Group IIA/B, T3 temperature code).</p>	30 KMs tracers

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
E 8	Cathodic Protection (CP) System	<p>Temporary and permanent cathodic system for underground piping up to 32" dia. and static equipment based on sacrificial anode and impressed current principle. CP System comprise, transformer / rectifier units, power &amp; control cables, impressed current / sacrificial anodes, insulating materials, field JBs / bond boxes etc. as per NACE/IS/IEC/DNV standards. Performance of CP System shall be demonstrated at site.</p> <p>All equipment should have been type tested at Central Power Research Institute (CPRI), Bhopal or equivalent for electrical performance, hazardous area equipment should have been type tested at Central Institute for Mining and Fuel Research (CIMFR), Dhanbad - India or equivalent, and approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 &amp; 2, Gas Group IIA/B, T3 temperature code).</p>	20 KMs
E 9	Power & Lighting Distribution Boards (PDB/LDBs) - Outdoor	<p>PDBs / LDBs self-standing / wall mounted, 415/240V, 100Amps, 3P,3W or 1P, 2W, Copper bus, weatherproof and flameproof enclosures, LM6 die-cast aluminium body, with 415V/240V, dry type transformers up to 20kVA capacity, up to 30 Way, feeder ratings as per panel schedule / single line diagram as per IS / IEC standards.</p> <p>PDBs / LDBs should have been type tested at Central Power Research Institute (CPRI), Bhopal for electrical performance and hazardous area equipment should have been tested at Central Institute for Mining and Fuel Research (CIMFR), Dhanbad - India or equivalent, &amp; approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 &amp; 2, Gas Group IIA/B, T3 temperature code).</p>	60 Nos.



Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
E 10	<b>Power &amp; Lighting Distribution Boards (PDB/ LDBs) - Indoor</b>	<p>PDBs / LDBs self-standing / wall mounted, 415V/240V, 630Amps, 3P,3/4W, Copper bus, IP4X enclosures, CRCA steel body, with 415V/415V or 240V, dry type transformers up to 125kVA capacity, up to 30 Way, feeder ratings as per panel schedule / single line diagram as per IS / IEC standards.</p> <p>Type test certificates from Central Power Research Institute (CPRI) - India or equivalent shall be furnished and guaranteed performance of the PDBs / LDBs shall be proved at site.</p>	60 Nos.
E 11	<b>Lighting Mast - up to 30 meters height</b>	<p>Symmetrical and asymmetrical, galvanised flood lighting mast up to 30 meters height, suitable for up to 20 nos. 400W metal halide fixtures, comprising flameproof motor operated mechanism, flameproof feeder pillar, flameproof cable glands, stopper plugs, reducers / adapters, cabling, aviation lamps, lightning protection etc.</p> <p>Lighting mast should have proven performance in desert environment in India and hazardous area equipment should have been type tested at Central Institute of Mines and Fuel Research (CIMFR), Dhanbad - India or equivalent, approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 &amp; 2, Gas Group IIA/B, T3 temperature code).</p>	30 Nos.
E 12	<b>Street Lighting Poles</b>	<p>Galvanised round tapered straight street lighting poles up to 12 meters height, with 1.2 m single / double arm at 300 angle to horizontal, with base plate, suitable for flameproof 250W metal halide fixture, off-grid solar panel with battery (optional), flexible cabling, flameproof junction box with MCBs, flameproof double compression cable glands, adapters / reducers, grounding/lightning protection etc.</p> <p>Street lighting poles should have proven performance in desert conditions in India and hazardous area equipment should have been type tested at Central Institute of Mines and Fuel Research (CIMFR), Dhanbad - India or equivalent, approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 &amp; 2, Gas Group IIA/B, T3 temperature code).</p>	150 Nos.

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
E 13	Lighting Poles	<p>Galvanised round tapered lighting poles up to 12 meters height, heavy duty, one or two piece construction, with ladder / lowering mechanism for lamp replacement &amp; base plate, suitable for upto 2 nos. flameproof 400W metal halide fixture, off-grid solar panel with battery (optional), flexible cabling, flameproof junction box with MCBs, flameproof double compression cable glands, adapters / reducers, grounding / lightning protection etc.</p> <p>Flood lighting poles should have proven performance in desert conditions in India and hazardous area equipment should have been type tested at Central Institute of Mines and Fuel Research (CIMFR), Dhanbad - India or equivalent, approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 &amp; 2, Gas Group IIA/B, T3 temperature code).</p>	250 Nos.
E 14	Safe Area Lighting Fixtures	<p>Industrial general purpose indoor &amp; outdoor / corrosion resistant, integral / non-integral type well glass, high / medium / low bay, bulk head, recess/surface mounted lighting fixtures with or without standby battery for emergency purpose, building exit lights etc suitable for use in office / substation / control rooms, unclassified plant areas such as periphery / gate /flood light / street light for use with 2X36W / 4X18W FTL, 70W/150W/250W/400W metal halide (MH) lamps, 100W GLS lamp etc as per IS. Light fixtures shall be complete with low loss electronic type fixtures, mounting brackets, cable glands etc</p> <p>All fixtures should have proven performance in India.</p>	500 Nos.

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
E 15	<b>Hazardous Area Lighting Fixtures (FLP)</b>	<p>Industrial indoor &amp; outdoor, corrosion resistant, integral / non-integral type well glass, high / medium / low bay, bulk head, LM6 cast aluminium body, surface mounted lighting fixtures with or without standby battery for emergency purpose, suitable for use in hazardous area (Zone 1 &amp; 2, Gas Group IIA/B, T3 temperature code) in Oil &amp; Gas mine installations for use with 2X36W FTL, 2X36W / 4X18W FTL, 70W/150W/250W/400W metal halide (MH) lamps, 100W GLS lamp etc as per IS. Light fixtures shall be complete with low loss electronic ballast, mounting brackets, flameproof double compression cable glands, reducers/adapters, stopper plugs etc</p> <p>Lighting fixtures should have proven performance in desert conditions in India and should have been type tested at Central Institute of Mines and Fuel Research (CIMFR), Dhanbad - India or equivalent, approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 &amp; 2, Gas Group IIA/B, T3 temperature code).</p>	500 Nos.
E 16	<b>Local Control Station</b>	<p>Weatherproof / flameproof local control station with Start and Stop push buttons, Hand-Off-Auto Switch, Ammeter, Emergency Stop Push Button mounting brackets, flameproof double compression cable glands, reducers / adapters, stopper plugs etc</p> <p>LCS should have proven performance in desert conditions in India and should have been type tested at Central Institute of Mines and Fuel Research (CIMFR), Dhanbad - India or equivalent, approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 &amp; 2, Gas Group IIA/B, T3 temperature code).</p>	100 Nos.
E 17	<b>Safe Area Power Receptacles</b>	<p>Industrial type, weatherproof single phase (240V, 1ph, up to 16Amps) and three phase (415V, 3ph, up to 200Amp) interlocked receptacles, CRCA enclosure IP 55 (min), with 3P/2P MCB/MCCB + earth leakage protection, galvanised sheet hood, SS hardware, double compression cable glands, stopper plugs etc</p> <p>Receptacles should have proven performance in desert conditions in India</p>	100 Nos.

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
E 18	<b>Hazardous Area Power Receptacles</b>	<p>Flameproof single phase (240V, 1ph, up to 16Amps) and three phase (415V, 3ph, up to 200Amp) interlocked receptacles, LM6 cast aluminium enclosure IP 55 (min), with 3P/2P MCB/MCCB + earth leakage protection, galvanised sheet hood, SS hardware, double compression cable glands, reducers / adapters, stopper plugs etc</p> <p>Receptacles should have proven performance in desert conditions in India, should have been type tested at Central Institute of Mines and Fuel Research (CIMFR), Dhanbad - India or equivalent and approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 &amp; 2, Gas Group IIA/B, T3 temperature code).</p>	100 Nos.
E 19	<b>Bus Ducts</b>	<p>Indoor (IP 4X) and Outdoor (IP 55 min.), sandwich type for medium voltage up to 11kV/4500A/100kA(1Sec) and air insulated for high voltage up to 11kV/4000A/50kA(1Sec) as per IS/IEC Standards, furnish type test certificates from Central Power Research Institute (CPRI) - India or equivalent, and proving guaranteed performance of the switchboards at site.</p>	30 Nos.
E 20	<b>Cable Trays</b>	<p>Hot dip galvanised up to 6 meters long ladder / perforated trays up to 900mm wide cable trays including tees, bends, elbows, risers / droppers, coupler plate, unistrut channels, hardware etc. as per IS</p>	20 KMs
E 21	<b>Neutral Grounding Resistors</b>	<p>Nichrome wire wound resistance suitable for 415V/750mA/333 Ohms, high resistance grounded system and Stainless Steel grid resistance suitable for up to 11kV/100A, 63.5 Ohms, low resistance grounded system in outdoor weatherproof sheet steel enclosure as per IS. NGRs shall have automatic closing / opening features for interface with generator synchronisation scheme</p> <p>Type test certificates from Central Power Research Institute (CPRI) - India or equivalent shall be furnished and guaranteed performance of the NGRs shall be proved at site.</p>	20 Nos.
<b>Package Ref No: F Instruments</b>			

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
F 1	<b>Emergency Shutdown Valves (ESDV)</b>	Ball valve fire safe design, Sizes ranging from 2" to 30", ANSI class 150/300/600/900/1500, MOC: CS/SS body with DSS/Hastelloy-C ball, leakage class V with metal seat and Class VI with soft seat with Pneumatic single acting spring return actuators, 316SS Body 24 VDC low power solenoid valves and accessories like open/close position limit switchbox, Quick exhaust valves, silencers etc. Some of the valve shall be provided with partial stroke facility using electronic valve controller.	750 Nos
F 2	<b>Motorised Operated Valves</b>	Ball valve fire safe design, Sizes ranging from 8" to 30", ANSI class 150/300/900/1500, MOC: CS body with DSS/Hastelloy-C ball, leakage class V with metal seat, Electric motorised actuators 240VAC / 24VDC supply and accessories like open/close position limit switchbox, torque switches, local operation pushbuttons etc	500 Nos
F 3	<b>Control Valves</b>	Globe/Ball/Rotary style body, sizes ranging from 2" to 30", ANSI Class 150/300/600/900/1500/2500, MOC : CS body with DSS/Hastelloy-C trim, leakage class IV, Pneumatic actuator with Electro-pneumatic smart positioner and AFR. Trim design. Valve sizing shall be as per ISA 75.01	300 Nos
F 4	<b>Electronic Transmitters</b>	Pressure, Differential Pressure, Flow, DP type level transmitters, Temperature transmitters with RTD/thermowell,, capillary, diaphragm and instrument isolation manifold including tube fittings suitable for Hazardous area (Ex-proof, ATEX certified, CMRI approved) and desert installation. Accuracy shall be min 0.1% of range.	750 Nos
F 5	<b>Orifice Plates</b>	Flow & restriction orifice complete with carrier flanges and pressure tappings. Pressure rating 150#, 300#, 600# & 900#. Sizing of orifice as per ISO 5167.  MOC of orifice shall be SS316 and flanges to meet piping specification.	750 Nos
F 6	<b>Instrument Rotameters</b>	Variable area type metallic rotameters with local analogue/digital display. Accuracy class shall be 1%.  MOC - SS316 and flange rating to match with piping. Pressure rating 150#, 300#, 600#, 900#	750 Nos

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
F 7	<b>Pressure Safety Valves</b>	Safety valves to API RP 520. Sizes ranging from ½" thru 8" to suit the flow rates. Flange rating 150#, 300#, 600# & 900# MOC: A216 WCB/A105 (CS)/A 182 F304/316	300 Nos
F 8	<b>Self Acting Pressure Regulators</b>	Flanged self acting regulators per project specification complete with pneumatic pilots and diaphragm actuated. Flange rating: 150#, 300#, 600#, 900# MOC: Carbon steel body with SS316 trim	100 Nos
F 9	<b>Pressure Gauges</b>	SS 304/316 body gauges, with blow out protection back, external adjustment, bezel, shatter proof glass, glycerine filled and screwed bottom connection. Gauges shall be supplied complete with isolation manifold and tube fittings as applicable. Accuracy class 0.5%. Accessories include snubbers and siphons. Suitable for 300/900/1500# lines	150 Nos
F 10	<b>Temperature Gauges</b>	SS 304/316 body gauges, with SS316 thermowell, with external adjustment, bezel, shatter proof glass, glycerine filled, back connection, all angle & bi metallic sensor. Accuracy class 0.5%. Suitable for 300/900/1500# lines	150 Nos
F 11	<b>Integrated Control System (ICS) with containerised instrument room</b>	ICS comprising of DCS for control of well pad, SIL-3 certified emergency shutdown system (ESD) with associated marshalling cabinets and power distribution cabinets housed in a air conditioned instrument containerised room (approximate size equivalent to standard 40 feet container) with lighting, fire alarm system and telephone connections. ICS at each of the 15 well pads shall interface seamlessly with Yokogawa Centum CS DCS and Prosafe RS ESD system at MPT to allow remote monitoring and control of these well pads from MPT	15 Nos

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
F 12	<b>Wireless Transmitter with gateway &amp; Seamless Control System Connectivity</b>	Wireless Pressure, Differential Pressure, DP type level transmitters, flow, Temperature transmitters with RTD/thermowell, capillary, diaphragm and instrument isolation manifold with +2 dbi /+6dbi gain antenna, including redundant gateway & seamless integration with control system on each of 15 well pads over TCP/IP, Modbus , suitable for Hazardous area (Ex-proof, ATEX certified, CMRI type tested) and desert installation. Accuracy shall be min 0.1% of range, long life battery, online removal of battery in hazardous area, real time battery life status, System should work in licence free frequency bandwidth. Transmitter Minimum scan time -1sec	400 Nos.
F 13	<b>Instrument and Serial Communication Cables</b>	Single /Multi pair( 20P), Two /Multi-core (40C) instrumentation cables of stranded copper conductor, XLPE insulated, screened, Low smoke zero halogen compound inner sheathed, Glass cloth single side Mica tape wrapped over conductor, Polyamide sheathed, Galvanised steel wire armoured and overall Low smoke zero halogen compound sheathed Fire-Resistant Instrument and serial communication cables as per IS/IEC Standards.  Cables should have been type tested in Central Power Research Institute, Bhopal or equivalent for electrical performance and Central Institute for Mining and Fuel Research (CIMFR), Dhanbad - India or equivalent, and approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 & 2).	250 KM

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
F 14	<p>a. Plant Fire and Gas System</p> <p>b. Substation Fire and Gas System</p>	<p>A. IR type point gas detector for methane, SIL2, Triple band IR type Flame detectors for methane file at 30 mtr, manual call point, beacon, hooter suitable for Hazardous area (Ex-proof, ATEX certified, CMRI tested and DGMS approved for detectors.</p> <p>B. Addressable Building fire detection system supply, installation and commissioning to include multi smoke, rate of rise heat detector, catalytic combustion type hydrogen detector, beacon and hooter for safe and hazardous area with Fire alarm panel &amp; battery back, shall be communicating to DCS system over Modbus and signal to a central location over Ethernet network.</p>	50 sets
F 15	Instrumentation Tubes and Fittings	All instrumentation tubes and fittings MOC: SS316/Alloy Steel/Haste alloy 327C	80,000 nos.
<b>Package Ref No: G Telecom</b>			
G 1	CCTV System	<p>The CCTV Central Control System is an IP based solution utilizing DVTEL Latitude Elite Digital Media Controller (DMC) Video Software based Management System. Remote camera signals are standard PAL Video and RS 485 Serial Data (Pelco-P Protocol) which interface the Central CCTV equipment racks using single mode fibre optic transceivers, each using a single fibre</p> <p>Camera should be housed in one of the 2 housing:</p> <ol style="list-style-type: none"> <li>1) PTZ Camera Housing</li> <li>2) Fixed Housing</li> </ol> <ul style="list-style-type: none"> <li>• Hazard Rating: ATEX II 2 GD EExd IIC T6</li> <li>• Material: Stainless Steel AISI 316L</li> <li>• Ingress Protection: IP67(PTZ Camera housing)/IP66 (fixed housing)</li> </ul>	3 Units



Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
		<p>Features: Sunshield, Heater, Wash Wiper  Camera Junction Box:  Hazard Rating: ATEX II 2 GD EExd IIC T6  Material: Stainless Steel 1.5mm AISI 316L  Ingress Protection: IP66  Should contain: SAK Terminals, FCPC Inline Connector  Camera:  ½ Inch Sony Cameras  Standard Output Colour: PAL  Operating Temperature: 0 to 50 Deg Celsius  Resolution: 530 TV Lines  Signal to Noise Ration: &gt;50dB  Sensitivity:0.07 Lux  Auto and Manual Iris Control: Yes  F Stop: 1.4  Lens:  18X Zoom with f=4.1mm (wide) to 73.8mm (tele) focal length</p>	
G 2	PA/GA System	<p>The main PAGA system is located at MPT (Mangala Processing Terminal), all other sites are connected and act as satellite systems, broadcasting messages and alarms from the main system - the satellite locations in this scope are 24 Well pads.</p> <p>In the event the link between the main system and the satellites is compromised, the satellite systems will produce alarms from the Fire and Gas only. Equipments should be able to operate below the RF interference signals permitted by the ITU Standards. This should also be integrated with the existing PBX System</p>	3 Units

Sub Package Ref No.	Item Description	Brief Technical specification	Approx. Total Qty
G 3	Access Control System (ACS)	<p>The access control system designed to provide controlled access through use of proximity readers; it should also be capable of monitoring contacts, when fitted. Each door should consist of a combination of the following:</p> <ul style="list-style-type: none"> <li>• V100 Door Control module</li> <li>• Proximity Entry Card Reader</li> <li>• Exit button</li> <li>• Break Glass (some locations)</li> <li>• MagLock</li> <li>• Proximity Exit Card Reader (Some locations)</li> <li>• PIR (some locations)</li> </ul> <p>Each location will have a controller and interface units (V1000 &amp; V200). The Interface modules I/Os upto 16 door control modules all daisy chained via RS485. This also reports back to the control unit (at MPT). In order for the interface unit to communicate to the security LAN, the controller (V1000) is used. Each V1000 controller will use fiber media converters to connect to the central equipment.</p>	3 Units
G 4	DNS (Data and Network System)	<p>There are 2 6509 Core switches at the Central location. The edge switch functionality need to be provided using C3560 Catalyst switches - 24/48 ports. Also a 9U (wall mount)/15U/20U/42U (list all) Rack in each location to house the Data Switches and Fibre termination panels.</p> <p>There would be 2 to 4 data/IP telephone sockets each having 3 switch ports connected.</p>	3 Units
G 5	Hotline	<p>The system should provide Point to Point connectivity from the Control Room to the Wellpad(s). The existing setup is created by the AS2850/AS2860 (KELTEL) combinations and is capable of being expanded from a basic 8 channel to 31 channels by adding additional modules - the proposed system for wellpad should integrate with this existing system.</p>	3 Units

### **Specific Pre-Qualification Criteria ( "GO"/"NO GO" )**

For items A1, A2, A3, A4, A5,A6,A7,A8, B1, B2, B3, B4, B5, C2, C3, C4, C5, C6.

- Demonstrate similar quantities of supplies to Oil & Gas projects of pipes, fittings and valves in size range for a single project
- Demonstrate manufacturing capability
- Demonstrate required quality approvals are available
- Identify raw material sourcing details
- In house testing arrangements
- Details of Frame Agreement with local and international Clients if any.

For items D1 to D7

- Demonstrate supplies to Oil & Gas projects of similar skids in the past and in operation
- Demonstrate manufacturing capability
- Demonstrate in-house engineering capability to handle Structural, mechanical, piping and instrumentation associated with the package
- Issue current list of sub suppliers for valves, instruments, pipes, fittings, etc.
- Demonstrate in-house QA/QC capabilities
- Details of Frame Agreement/Term Contract with local and international Clients if any.

For items E1, E2, E3, E4, E9, 14, 17

- CPRI and / or equivalent international type test certificates for temperature rise, short circuit withstand, di-electric withstand, Ni-Cd battery discharge performance, enclosure protection, EMI capability, noise level and operational life as applicable

For items E5, E6

- CPRI type test certificates for thermal withstand, short circuit withstand, di-electric withstand, UV, FRLS and FR properties on outer sheath
- CIMFR or equivalent type test certificates and DGMS approval for use in Zone 1 & 2, Gas Group IIA/B, Temperature Group T3

For items E7, E8

- CPRI or equivalent international type test certificates for electrical performance and operational life
- CIMFR or equivalent type test certificates and DGMS approval for hazardous equipment and cables for use in Zone 1 & 2, Gas Group IIA/B, Temperature Group T3

For items E10, E15, E16, E18

- CPRI and / or equivalent international type test certificates for temperature rise, short circuit withstand and enclosure protection,
- CIMFR or equivalent type test certificates and DGMS approval for hazardous equipment for use in Zone 1 & 2, Gas Group IIA/B, Temperature Group T3

For items E11, 12, 13

- Should have in-house design, development, manufacturing and site erection capabilities
- CIMFR or equivalent type test certificates and DGMS approval for hazardous equipment for use in Zone 1 & 2, Gas Group IIA/B, Temperature Group T3.

For items F1 to F14

- Past track record (PTR) for instruments supplied to EPC upstream Oil and gas projects in Desert environment
- Confirm compliance with ATEX requirements
- Issue list of sub suppliers for manifolds and tube fittings, where applicable.
- Demonstrated delivery performance
- Details of Frame Agreement with local and international Clients if any.

For items G1 to G5

- Past track record (PTR) for instruments supplied to EPC upstream Oil and gas projects in Desert environment.
- Issue list of sub suppliers
- Demonstrated delivery performance
- Details of Frame Agreement with local and international Clients if any.
- Licences for Softwares.

For items C1 to C 6

- Demonstration of supplies of 5000 MT of Seamless and/ or 7000 MT of HSAW/LSAW of API 5L X-65 grade Pipe in the above size range for a single Project.
- Demonstration of manufacturing capability of 5000 tonnes/per month of X-65 grade Pipe in above size range.
- Capabilities of external coating shop in terms of proven track record and availability for the pipes sizes as specified above.

Only those contractors (both Indian & International) possessing substantial and proven record in manufacturing/supply of above items/packages of similar scale with excellent delivery schedule & 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 A to G.

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

Contractors are requested, as a minimum, to submit the following documents and details:

1. Letter of interest with detailed company information
2. Technical Catalogue of the Item/Package with lead time for manufacturing
3. Lists of similar supplies successfully executed in the last five years and those of currently under execution with delivery performance records, job value, client certification, client references etc. (With emphasis of work carried out in Oil and Gas Sector)
4. Company's manufacturing set up with Capacity details and Geographical location.
5. Current Shop floor loading chart.
6. Experience of working in remote onshore location & desert terrain.
7. Quality assurance/control practices and certifications to manufacture such items.
8. Health, Safety and Environment (HSE) policies, certifications, procedures and statistics on HSE performance covering the last four (4) years.
9. Company's financial performance documents (Audited Balance sheets and Profit and Loss statements etc.) for last 3 years.

CIL requests interested contractors to submit their Expression of Interest for any / all of the above packages, clearly specifying the **Package Ref. No./Sub-package Ref. No. with item description** {example - Ref No. F/1- Emergency Shutdown Valves} on the envelop along with pre-qualification documents by email as attached PDF File and also via courier. }

The envelope containing the pre-qualification documents should be subscribed with the title "**Pre-qualification for Procurement of skids and bulks items under long term contract for Rajasthan block**" and submitted to the below address within fourteen (14) days of the publication of this Eol.

**HEAD – P&SCM**

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