



CAIRN INDIA LIMITED

GLOBAL EXPRESSION OF INTEREST (EoI) UNDER INTERNATIONAL COMPETITIVE BIDDING FOR PROCUREMENT OF ELECTRICAL & INSTRUMENTATION, HSE AND TELECOM BULK ITEMS UNDER LONG TERM RATE CONTRACT FOR RAJASTHAN, RAVVA & CAMBAY (CB/OS-02) BLOCKS

Cairn India Ltd. ("CIL") is the Operator of the Onshore RJ-ON-90/1 block, on behalf of itself and its Joint Venture (JV) partners Cairn Energy Hydrocarbons Limited (CEHL) and Oil and Natural Gas Corporation Limited located in Barmer district, in the state of Rajasthan, India, Offshore Ravva Oil and Gas Field (Ravva), on behalf of itself and its Joint Venture (JV) partners Oil and Natural Gas Corporation Limited (ONGC), Videocon Industries Limited (VIL) and Ravva Oil (Singapore) Pte Ltd. (ROS), located off the east coast of the state of Andhra Pradesh, India and Offshore CB/OS-02 block, on behalf of itself and its Joint Venture (JV) partners Oil and Natural Gas Corporation Limited (ONGC) and Tata Petro dyne Limited, located off the west coast of the state of Gujarat, India.

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 (ICB) process for the packages listed below. **Stand-alone Stockist / Trader / Distributor need NOT apply.** CIL shall enter into Long Term Rate contract for the supply of the Bulk Items / Packages on call-out order basis.

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

Sub Package Ref No.	Item Description	Brief Technical specification
Package Ref No: E - Miscellaneous		
E 1	PPE Items	Coveralls, Safety Eyewear, Safety Footwear, Masks, Earplugs, Helmet / Hard Hat
Package Ref No: F - Electricals		
F 1	Transformers	Oil-filled transformers up to 3.15 MVA, up to 33kV/433 V with OCTC 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.
F 2	Transformers	Oil-filled transformers up to 10/12 MVA, up to 33kV/6.6kV with OCTC/ OLTC 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.
F 3	Transformers	Oil-filled transformers up to 10/12 MVA, up to 11kV/6.6kV with OCTC/ OLTC 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.
F 4	Transformers	Dry type transformers up to 250kVA, up to 433/240 V with OCTC 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.

Sub Package Ref No.	Item Description	Brief Technical specification
F 5	LV Switchboard	Indoor (IP 4X) Double front, fuse less and draw-out type low voltage switchboards (415V, up to 5000 Amps, up to 65kA 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.
F 6	HV Switchgear Panels	SF6 circuit breaker panels (33kV, up to 1250A, 31.5kA for 1 sec), 33kV RMUs upto 1250A, 25kA 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.
F 7	Un-interrupted 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.
F 8	Un-interrupted Power Supply (UPS) System	Solid state parallel redundant UPS system with by-pass mains up to 100kVA, 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.
F 9	DC UPS System	110V DC System comprising of 150A, battery charger, cell booster and 300AH Ni-Cd Batteries (2X100% with 4 Hrs back up) as per IS/IEC Standards for switchgear protection, control and critical lighting, etc. 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 DC UPS at site.
F 10	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 & insulation screening formed by triple extrusion, extruded PVC-ST2 inner sheathed, galvanised steel / aluminium wire/strip 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,</p>

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F 11	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/strip 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,</p>
F12	Electrical Tracing (EHT) 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°C, piping exposure temperature of 232°C. EHT System comprises, tracers, power & control cables, RTDs, temperature Controllers, transformers, flameproof control panels, power / control JB's, 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 & 2, Gas Group IIA/B, T3 temperature code).</p>
F13	Cathodic Protection (CP) System	<p>Temporary and permanent cathodic system for underground piping up to 24" dia., pipelines up to 24" dia., and static equipment based on sacrificial anode and impressed current principle. CP System comprise, transformer / rectifier units, power & control cables, impressed current / sacrificial anodes, insulating materials, field JB's / 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, for use in hazardous area (Zone 1 & 2, Gas Group IIA/B, T3 temperature code).</p>
F14	Power & Lighting Distribution Boards (PDB/LDBs) - Flameproof Type	<p>PDBs / LDBs self-standing / wall mounted, 415/240V, 100Amps, 3P,3W or 1P, 2W, Copper bus, weatherproof IP 55 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, & approved by Directorate General of Mines Safety (DGMS) for use in hazardous area (Zone 1 & 2, Gas Group IIA/B, T3 temperature code).</p>

Sub Package Ref No.	Item Description	Brief Technical specification
F15	Power & Lighting Distribution Boards (PDB/ LDBs) - Indoor/Outdoor	<p>PDBs / LDBs self-standing / wall mounted, 415V/240V, 630Amps, 3P,3/4W, Copper bus, IP4X enclosures for indoor and IP55(Min.) for outdoor with canopy,, 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>
F16	Lighting Mast with Light fixtures - up to 30 meters height	<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. Fixtures shall be supplied along with Mast.</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 & 2, Gas Group IIA/B, T3 temperature code).</p>
F17	Street Lighting Poles	<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 & 2, Gas Group IIA/B, T3 temperature code).</p>
F18	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 & 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 & 2, Gas Group IIA/B, T3 temperature code).</p>

Sub Package Ref No.	Item Description	Brief Technical specification
F19	Safe Area Lighting Fixtures	<p>Industrial general purpose indoor & 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>
F20	Hazardous Area Lighting Fixtures (FLP)	<p>Industrial indoor & 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 & 2, Gas Group IIA/B, T3 temperature code) in Oil & 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 & 2, Gas Group IIA/B, T3 temperature code).</p>
F21	Local Control Station	<p>Weatherproof(IP 55) / 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, canopy 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 & 2, Gas Group IIA/B, T3 temperature code).</p>
F22	Local Control Station (with Emergency Stop PB ONLY)	<p>Weatherproof(IP 55) / flameproof local control station with Emergency Stop Push Button mounting brackets, flameproof/ double compression cable glands, reducers / adapters, stopper plugs, canopy 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 & 2, Gas Group IIA/B, T3 temperature code).</p>

Sub Package Ref No.	Item Description	Brief Technical specification
F23	Safe Area Power Receptacles	<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>
F24	Hazardous Area Power Receptacles	<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 & 2, Gas Group IIA/B, T3 temperature code).</p>
F25	Bus Ducts	<p>Indoor (IP 4X) and Outdoor (IP 55 min.), sandwich type for medium voltage up to 415V/5000A/65kA(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>
F26	Cable Trays	<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>
F27	Neutral Grounding Resistors	<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>
F28	Junction Boxes	<p>Flameproof junction boxes, suitable for hazardous area zone 1&2, gas group IIA/IIB, T3, upto 4 way type with different cable entries complete with FLP double compression brass material nickel plated cable glands, FLP dummy plug etc.</p> <p>JB 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 & 2, Gas Group IIA/B, T3 temperature code).</p>

Sub Package Ref No.	Item Description	Brief Technical specification
F29	EHT power distribution panel	<p>Flameproof EHT DB suitable upto 20KVA dry type Dyn11 415/230V (p-p) transformer, upto 5 outgoing feeders of rating upto 32A, with microprocessor based CBCT and ELR in outgoing feeders. EHT controller shall be programmable type and approved OEM make. Transformer shall have winding insulation F and temperature rise shall be limited to class B.</p> <p>Safe Area EHT DB alongwith outdoor type dry type 150KVA 415/230V (p-p) transformer, upto 18 outgoing feeders of rating upto 63A, with microprocessor based CBCT and ELR in outgoing feeders. EHT controller shall be programmable type and approved OEM make. Transformer secondary shall be considered with CBCT and ELR.</p> <p>FLP EHT DB 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 & 2, Gas Group IIA/B, T3 temperature code).</p>
F30	HT Termination Kit	Indoor/Outdoor type HT termination kit suitable for 3 core/1 core cable, upto 300sqmm for 3 core/630 sqmm for 1 core, voltage label upto 33kV.
F31	Cable Glands	<p>Flameproof / double compression, Brass material, nickel plated cable glands suitable upto 630 sqmm cable.</p> <p>FLP Cable glands should have been type tested at Central Institute of Mines and Fuel Research (CIMFR), Dhanbad - India or equivalent and approved by CCOE for use in hazardous area (Zone 1 & 2, Gas Group IIA/B, T3 temperature code).</p>

Sub Package Ref No.	Item Description	Brief Technical specification
F32	E-House/E-house cum Control Room	<p>Electrical Power House shall be walk-in type, weatherproof / dustproof building made of corrosion resistant steel comprising followings:</p> <ol style="list-style-type: none"> 1) Up to 33kV, 630A, 25kA for 1 Sec Switchgear 2) Oil filled type 33kV/433V transformers up to 3MVA capacity with earth fault limiting resistor 3) Oil filled type 33KV/6.9KV transformer up to 2 MVA capacity with earth fault limiting resistor 4) Oil filled type 6.9KV/433V transformer up to 2.5 MVA capacity with earth fault limiting resistor 5) 6.6KV MV Switchboard up to 1250A, 40KA for 1 Sec. 6) 415V Switchboard up to 4500A and up to 100kA for 1 sec comprising ACB, MCCB, MCCB + Contactor motor and power feeders. 7) 415V Emergency Switchboard up to 3200A and up to 65KA for 1 sec. 8) 415V Sandwich type bus duct up to 4500A and up to 100kA for 1 sec 9) Parallel Redundant Uninterruptible Power Supply (UPS) System up to 30kVA rating suitable for 415V, 3ph, 3W input power supply / 240V, 1ph, 2W output power supply with power back-up using ultra-low maintenance Nickel-Cadmium battery. 10) Oil filled type 415V/240V transformers up to 250kVA capacity 11) Electrical Heat Tracing System Control Panels 12) AC/DC Distribution Boards 13) Inter-unit power/control/data cabling 14) Cable support trays system for internal and external cabling 15) Lighting, HVAC, Fire & Gas Detection / Suppression / Alarm, Access Control Systems etc 16) Separate room for ICSS and Telecom facility shall be provided for E-House cum Control Room package. <p>Electrical Power House Package shall be pre-assembled, integrated with equipment & systems and performance tested at manufacturer's facility, shipped in transportable units for rapid re-assembly and commissioning at site.</p> <p>Bidders shall furnish type test certificates from Central Power Research Institute (CPRI) – India or equivalent, proving guaranteed performance of the Electrical Power House Package at site.</p>
F33	VFD	<p>415V low voltage VFD, Outdoor type, IP55 rated, canopy with output filters to limits harmonics and voltage/current spikes up to 160kW.</p> <p>VFD 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.</p>

Sub Package Ref No.	Item Description	Brief Technical specification
F34	VFD	6.6kV Medium voltage VFD up to 4MW, Indoor / Outdoor type, IP42 / IP55 rated, Input/ Output isolation transformer, canopy with output filters to limits harmonics and voltage/current spikes, etc. VFD 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.
F35	Soft Starter	6.6kV soft starter upto 4MW, Indoor type IP4X with all components. Soft starter 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.
Package Ref No: G - Instruments		
G 1	Emergency Shutdown Valves (ESDV)	Ball valve fire safe design, Sizes ranging from 2" to 30", ANSI class 150/300/900/1500/2500, MOC: CS/SS body with DSS/Hastelloy-C ball, leakage class V with metal seat, Atex certified, explosion proof Electric motorised actuators 240VAC / 24VDC supply and accessories like open/close position limit switchbox, torque switches, local operation pushbuttons etc. Some of the valve shall be provided with partial stroke facility using electronic valve controller.
G 2	Motor Operated Valves (MOV)	Ball valve fire safe design, Sizes ranging from 2" to 30", ANSI class 150/300/900/1500/2500, MOC: CS/SS body with DSS/Hastelloy-C ball, leakage class V with metal seat, Atex certified, explosion proof Electric motorised actuators 240VAC / 24VDC supply and accessories like open/close position limit switchbox, torque switches, local operation pushbuttons etc.
G 3	Control Valves	Globe/Ball/Rotary style body, sizes ranging from 1" to 30", ANSI Class 150/300/600/900/1500/2500, MOC : CS/SS body with DSS/Hastelloy-C trim, including anti cavitation and anti noise trims, leakage class IV, Pneumatic actuator with Atex certified Explosion proof, Electro-pneumatic smart positioner and AFR. Trim design. Valve sizing shall be as per ISA 75.01
G 4(a)	Electronic Transmitters	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. MOC- SS 316/Hastelloy-C.
G 4(b)	Temperature Elements and Thermowells	RTDs/Thermowells assembly. 2" -150#/300#/600#/900#/1500#/2500# RF/RTJ. U lengths ranging from 280-500mm. MOC - SS 316/Hastelloy-C

Sub Package Ref No.	Item Description	Brief Technical specification
G 5	Orifice Plates	Flow & restriction orifice complete with carrier flanges and pressure tappings. Sizes ranging from 1"-30". Pressure rating 150#, 300#, 600# , 900#,1500#, 2500#. Sizing of orifice as per ISO 5167. MOC of orifice shall be SS316/Hastelloy-C and CS/SS flanges to meet piping specification.
G 6	Instrument Rotameters	Variable area type metallic rotameters with local analogue/digital display. Accuracy class shall be 1%. Sizes ranging from 1/2" - 10". MOC - SS316 and flange rating to match with piping. Pressure rating 150#, 300#, 600#, 900#, 1500#, 2500#.
G 7	Pressure Safety Valves/Rupture Discs	Safety valves to API RP 520. Sizes ranging from ½" thru 8" to suit the flow rates. Flange rating 150#, 300#, 600# ,900#,1500# & 2500#. MOC: A216 WCB/A105 (CS)/A 182 F304/316, DSS
G 8	Self Acting Pressure Regulators	Flanged self acting regulators per project specification complete with pneumatic pilots and diaphragm actuated. Flange rating: 150#, 300#, 600#, 900#,1500#, 2500#. MOC: Carbon steel/SS body with SS316/Hastelloy-C trim.
G 9	Pressure Gauges	SS 304/316 body with SS316/Monel/Hastelloy-C Bourdon/diaphragm pressure 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. Without or with Diaphragm Seals. Diaphragm Seal type with Hastelloy-C diaphragms, 150#, 300#, 600#, 900#,1500# & 2500# rating.
G10	Temperature Gauges	SS 304/316 body gauges, 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. RTDs/Thermowells assembly, 2" - 150#/300#/600#/900#/1500#/2500# RF/RTJ. MOC - SS 316/Hastelloy-C U lengths ranging from 280-500mm.
G11	Programmable Logic Controller	Programmable Logic Controllers, alongwith redundant controllers SIL3 rated complete with I/O cards, marshalling racks/cabinets, system racks/cabinets, power supply units, operator consoles, engineering consoles, servers, software with licenses.
G 12	Wireless Transmitter with gateway & Seamless Control System Connectivity	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 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

Sub Package Ref No.	Item Description	Brief Technical specification
G13	Instrument and Serial Communication Cables	<p>Single pair /Single Triad/Multipair(2P/5P/10P/20P)/ Multitriad(2T/5T/10T/20T), Two core /Multi-core (20C/40C) instrumentation cables of stranded copper conductor, XLPE insulated, screened, Low smoke zero halogen compound inner sheathed, Mica tape wrapped over conductor, Polyamide sheathed, Galvanised steel wire armoured and overall Low smoke zero halogen compound sheathed Fire Retardant/ Fire-Resistant Instrument and serial communication cables 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.</p>
G14	Plant Fire and Gas detectors	A. IR type point gas detector for methane/H ₂ S, SIL2, Triple band IR type or MOS type/Electrochemical 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.
	Substation Fire and Gas System	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 & battery back, shall be communicating to DCS system over Modbus and signal to a central location over Ethernet network.
G15	Fire Fighting Equipments	Fire hydrants, extinguishers, Monitor, Eye wash stations, Hoses, Hose Couplings, Hydrant Post Landing Valves, Foam Branch Pipe, Multipurpose Nozzle, Mobile Foam trolley 200 lit , DCP extinguisher 10kg , DCP extinguisher 50kg , Co2 fire extinguisher , Eye Wash and Safety Shower Station with Insulated Tank , etc.
G16	Instrumentation Tubes and Fittings	All instrumentation tubes and fittings MOC: SS316/Alloy Steel/Hastealloy 276/C20. Sizes 1/4", 1/2" thickness 0.039", 0.065".
G17	Instrument Cable Trays	Hot dip Galvanised cable Tray perforated / ladder type tray - 50mm, 100mm, 150mm, 200mm, 300mm, 600mm wide with height - 50 mm - 75 mm alongwith tray covers and all the accessories like couplers, washers, nut/bolts etc.
G18	Junction Boxes	SS 316/LM6 instrument junction boxes - 40 terminals / 75 terminals. Certified Explosion proof Eexd and Eexe with for 10P/10Triad , 20P/20Triad.
G19	Ultrasonic Flowmeters	Multipath inline Ultrasonic flowmeters with accuracy <0.5%, line size 2" - 30" - 150# , 300#, 600#, 900#, 1500#, 2500#. Body CS/SS- InternalsSS /Hastelloy-C. ATEX certified- explosion proof Eexd with CCOE and DGMS approval.
G20	Magnetic Flowmeters	Magnetic flowmeters ranging from 2" - 14" - 150#,300#,600#,900#,1500#/2500# rating Body CS/SS- InternalsSS /Hastelloy-C ATEX certified- explosion proof Eexd with CCOE and DGMS approval.
G21	Coriolis Flowmeters	Coriolis flowmeters ranging from 2" - 10" - 150#,300#,600#,900#,1500,2500# rating.Body CS/SS- InternalsSS /Hastelloy-C. ATEX certified- explosion proof Eexd with CCOE and DGMS approval.

Sub Package Ref No.	Item Description	Brief Technical specification
G22	GWR Level Transmitters	2"/3" - 14" - 150#,300#,600#,900#,1500#,2500# rating.Body CS/SS- InternalsSS /Hastelloy-C. ATEX certified- explosion proof Eexd with CCOE and DGMS approval.
G23	Integrated Control System (ICS)	ICS comprising of DCS for control of well pad/Terminals, SIL-3 certified emergency shutdown system (ESD) with associated marshalling cabinets and power distribution cabinets housed in an air conditioned instrument containerized room. It shall also include Operator Console, engineering consoles, required servers, software with licenses.
G24	Well Head Control Panel	Pre-wired, assembled & tested SS316 Hydraulic Well head control panel suitable for IP65. ATEX/CCOE/DGMS certified EExd. 6 modules type with each module suitable for one well shutdown valves (3 nos. for each well) operation. Self-contained hydraulic reservoir along with HP/LP pumps/ auxiliary pumps, trip /reset push buttons and status lamps. Complete sequence/logic shall be built in the system using microprocessor based SIL-2 controller/relays. The well head control shall be supplied completely assembled/wired alongwith all the tubes/fittings/ instrumentation-transmitters/gauges/relief valves, junction boxes/cable glands.
Package Ref No: H Telecom		
H 1	CCTV System	<p data-bbox="704 842 1146 869">Network Video Management System:</p> <ul data-bbox="753 905 971 968" style="list-style-type: none"> • DVTEL • MILESTONE <p data-bbox="704 1010 906 1037">Core Equipment:</p> <ul data-bbox="753 1073 1446 1476" style="list-style-type: none"> • Servers Quad Core or better • Operating Systems: As required • Network attached storage (capacity as required to record live video at full resolution for 30 days) • High End Work Stations for Client machines (i7 or better with high end Graphics card) • 50" or better LED monitors • Network Switch (Ethernet 10/100/1000MB) • Rack mounted media converter chassis with media converters - approved OEM - Allied Telesis, AMG, Comnet, Moxa and Optical Design Systems.

Sub Package Ref No.	Item Description	Brief Technical specification
		<p>Camera Exd:</p> <ul style="list-style-type: none"> • Certified for Operation in Zone 1, 2 areas. • Ingress Protection: IP66 or better • Operating Temperature 0°C to 60°C or better • Integral Washer & Wiper • Integral Sun shield • Housing: Stainless Steel 316L • Full IP, HD 1080 or better • Pan (360°), Tilt and Zoom (>20X) • Day/Night Operation (0.7 lux or better) • Attached Exd IR Illuminator (100m or better) • ONVIF compliant • Approved OEM - Oxalis, Pelco, Bosch • Other OEM meeting above specification can be considered after necessary approvals. <p>Camera IP66:</p> <ul style="list-style-type: none"> • Ingress Protection: IP66 or better • Operating Temperature 0°C to 70°C or better • Full IP, HD 1080 or better • Resolution: 2 Megapixels or better • Pan (360°), Tilt and Zoom (>20X) • Day/Night Operation (0.7 lux or better) • Integral/attached IP66 IR Illuminator (100m or better) • Built in Video Analytics • ONVIF compliant • Approved OEM - Axis, Pelco, Moxa, Samsung, Honeywell • Other OEM meeting above specification can be considered after necessary approvals. <p>Camera Accessories:</p> <ul style="list-style-type: none"> • 6m high mid hinged/fixed GI camera mounting poles. • Junction Box SS316 (Exd or IP66) of approximate size 500X500X200 mm (LXBXD) • Media Converters (Ethernet to Fiber) - Ethernet 10/100/1000MB - Fiber SM, Duplex, 100FX, 5 KM - Preferably SC connectors - Operating Temperature 0°C to 75°C - Approved OEM - Allied Telesis, AMG, Comnet, Moxa, Optical Design Systems. • Power Supplies for Camera, IR illuminator & Media converters • Fiber Termination closures • Flexible armoured IP66 conduits for cabling between junction box and camera/ IR illuminator

Sub Package Ref No.	Item Description	Brief Technical specification
H 2	PA/GA System	<p>Core Equipment::</p> <ul style="list-style-type: none"> • Completely redundant system • Broadcast live voice and alarm tones • Capable of Zoning • Microprocessor based controllers • Amplifiers - 100V Line, Short /Open circuit protection, over temperature protection • Beacon Controllers • Capable of accepting digital/analog audio inputs • Ten or more programmable alarm tones • Speaker/Beacon line monitoring • Capable of Black Start • Telephone line interface for recorded messages • Stored message broadcast • Fault indications • Call Station (for Voice and Alarm annunciation) • Cable marshalling cabinets • Approved OEM: Bartec Vodec, Gaitronics, Industronics, Oxalis • Other OEM meeting above specification can be considered after necessary approvals. • Supplied equipment where interface with existing system is required should be possible. <p>Field equipment:</p> <ul style="list-style-type: none"> • Speakers Exd - 25W tuneable to 1W, 100V line driven • Speakers IP66 - 6W tuneable to 1W, 100V line driven • High Power Sirens IP66 - 125W, 100V line driven • Beacons Exd - Xenon/LED - flashing - Red • Call Stations (Exd/IP66)
H 3	Access Control System (ACS)	<p>Core Equipment::</p> <ul style="list-style-type: none"> • ID Cube Access/Attendance/Muster/Visitor Management Software • Server Quad core or better • Network Switch (Ethernet 10/100/1000MB) • Network Attached Storage 8 TB • Rack mounted media converter chassis with media converters - approved OEM - Allied Telesis, AMG, Comnet, Moxa and Optical Design Systems.

Sub Package Ref No.	Item Description	Brief Technical specification
		<p>Individual Buildings:</p> <ul style="list-style-type: none"> • HID V1000 Network Controller • Junction box (IP66) to house HID V100 Door Controller, with power supply and battery back up • HID Miniprox 5365 RFID Card Readers (125 kHz) • Exit Push Button • Magnetic Door Locks (600/1200 lbs holding force) • Emergency Break Glass (at locations where entry & exit card readers are used) • Passive Infrared Sensors • Media Converters (Ethernet to Fiber) - Ethernet 10/100/1000MB - Fiber SM, Duplex, 100FX, 10 KM - Preferably SC connectors - Operating Temperature 0°C to 60°C - Approved OEM - Allied Telesis, AMG, Comnet, Moxa, Optical Design Systems. <p>Field Equipment:</p> <ul style="list-style-type: none"> • SS316 Full Height Turnstile Gates - Single/Dual Lane - Entry & Exit card Readers (HID Miniprox 5365) - Door Controller (HID V100 per lane) • SS316 IP66 junction box with Muster Card Reader (HID Miniprox 5365), controllers (HID V100 & V1000 as required), media converters and power supply units for the same with battery back up.
H 4	Data Network System (DNS)	<ul style="list-style-type: none"> • Core Switch: Cisco 6500 series or better (1G/10G) • Distribution Switch: Cisco 4500 series or better (1G/10G) • Edge/Access Switch: Cisco 3560 Series (PoE 802.3af 24/48 ports as required (1G/10G) • Wireless Access Points - Cisco Aironet series
H 5	PABX System	<ul style="list-style-type: none"> • Alcatel Lucent OmniPCX platform • VOIP Phones: 8 series IP Touch Phones • Hotline phones (lift to talk) based on Alcatel OmniPCX platform • Alcatel Lucent Analog Media Gateway shelves
H 6	Radio System	<ul style="list-style-type: none"> • TAIT UHF Trunked Radio Base Stations • TAIT UHF Trunked Radios

Sub Package Ref No.	Item Description	Brief Technical specification
H 7	Cables & Accessories	<ul style="list-style-type: none"> • Fiber Optic Cables: Single mode, armoured and unarmoured, LSOH, core numbers from 6, 12, 24, 48, 120 • Fiber Optic Patch Panels: 24 port, 1U high, 19" rack mount, FC connectors, Single mode pigtails • Cat 6 cables and Patch panels • Cable Copper: 4 core, 2.5 sq. mm. armoured, CI Cable, IEC 60331, LSOH • Cable Copper: 2 pair, 1 sq. mm. armoured, shielded, LSOH • Cable Copper: 9 core, 22 AWG, LSOH • Cable Copper: 2 pair, 22AWG, LSOH

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

Generic Pre-Qualification criteria for all items:

- Past track record for equipments to be supplied and customer satisfaction certificates atleast from two customers in O&G field.
- All items should have proven performance in desert conditions in India

For items E1

- 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.

For items F1, F2, F3, F4, F5, F6, F7, F8, F9, F25

- 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 F10, F11,

- CPRI type test certificates for thermal withstand, short circuit withstand, di-electric withstand, UV, FRLS and FR properties on outer sheath

For items F14, F15, F16, F19, F20, F21, F22, F23, F24, F27, F28, F29, F31, F33, F34, F35

- 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 for use in Zone 1 & 2, Gas Group IIA/B, Temperature Group T3

For items F12, F13

- 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 F17, F18, F26, F30

- Should have in-house design, development, manufacturing capabilities

For items F32

- Bidders are requested, as a minimum, to submit the following pre-qualification documents and details:

- A. Letter of interest with detailed company information
- B. Detailed information of the Company including
 - a. Company's financial performance documents (Audited Balance sheets and Profit and Loss statements) for last five years.
 - b. Company ownership details – Private / Public, Shareholding details
 - c. Organization structure
 - d. Manpower resources at management and operating level
 - e. Equipment manufacturing location and capacity (definition of units of capacity to be clearly specified)
 - f. Office and branch locations
- Plant and Machinery list mentioning year of manufacturing, Support agencies and other facilities & resources.
- 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 US\$
 - c) Contractual Duration
 - d) Actual completion of Project
 - e) Clients name
 - f) Contact details of the Client (CIL may approach the client directly for the feedback)
 - g) Safety Certification / Inspection of plant and machineries
 - h) HSE statistics, LTI graph
 - i) Completion Certificate
- Typical Project Planning and Execution methodology. Technical Catalogue with lead time in line with the project requirement for supply of above items
- Details regarding manufacturing/fabrication capabilities for above items
- Percentage of total annual capacity currently booked for other projects
- Quality assurance/control practices and certifications to manufacture such items.
- Health, Safety and Environment (HSE) policies, certifications, procedures and statistics on HSE performance covering the last 4 years.
- Quality assurance, Quality manual & Quality control practices currently in place for the execution of similar work.
- Only those bidders (Indian and International) possessing substantial and proven record in design, engineering, integration, supply and installation of Electrical Power House Package of similar scale with demonstrated HSE performance shall submit their EoI along with pre-qualification documents.

For items G1 to G14 and G16 to G24

- Past track record (PTR) for instruments supplied and working satisfactorily (for 6 months as a minimum) to EPC upstream Oil and gas projects in hot and 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.
- Details of DGMS and CCOE approvals, if available.
- Details of SIL certification with available certificates for ESD valves, solenoids , Fire and Gas Detectors and PLC.

For items G15

- Past track record (PTR) for items supplied and working satisfactorily (for 6 months as a minimum) to EPC upstream Oil and gas projects in hot and Desert environment
- Demonstrated delivery performance

For items H1 to H7

- 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 Software.
Details of DGMS and CCOE approvals, if available.

GENERAL:

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 **E to H**.

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, Auditors Report and Notes to Accounts etc.) for last Two (2) years. Latest financial statement should not be older than 12 months on the date of Expression of Interest. The following financial evaluation criteria will be used for evaluation of financial standing and the vendors not meeting any of the criteria shall be disqualified from the bidding process -
 - a) **Turnover** in each of the immediately preceding Two (02) financial years should be equal to or more than the estimated average annual contract value.
 - b) **Positive Net Worth** in each of the immediately preceding Two (02) financial years.
 - c) **Liquidity ratio** in each of the preceding Two (02) financial years shall not be less than 0.60.

Also, note -

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 such 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 contractors should evince interest to participate in Eoi within Twenty Eight (28) days of publication of Expression of Interest.