

**OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, KARACHI
FOREIGN SECTION I**

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material UP-GRADATION OF CONTROL SYSTEM REFRIGERATION PACKAGE OF KUNNER PLANT
Tender Enquiry No PROC-FE/CB/P&P/KPD-4507A/2020
Due Date
Evaluation Criteria FULL

SCHEDULE OF REQUIREMENT

Sr No	Description	Unit	Quantity	Unit Price (FOB)	Total Price (FOB)	Unit Price C & F BY SEA	Total Price C & F BY SEA	Deviated From Tender Spec. If Any
1	Charges of Installation Supervision, Commissioning Services and Performance Testing for proposed Control System as per TOR.	Unit	1					
2	Control Panel comprising of Engine Controller, I/O Modules, HMI, Transmitters, Panel accessories, as per TOR & BOQ.	Unit	1					
3	List of 2 year recommended spare parts to be provided with Tech bid. Unit price to be shown in financial bid only.	Unit	1					

- Note:**
- 1. Bid Bond Amount:** USD 1000/= (United States Dollar One Thousand only) or equivalent Pak Rupees
 - 2. Evaluation Criteria:** - Full Consignment wise C&F by Sea Karachi basis
 - 3. Delivery Period:** 20 weeks from establishment of LC
 - 4.** "Master Set of Foreign Tender Document (Press-Single Stage Two Envelope) - Updated" available on OGDCL website is integral part to this Schedule of Requirement

SM
10-04-2020

Verified

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OIL AND GAS DEVELOPMENT COMPANY LTD
KUNNAR LPG PLANT & OIL FIELD

TOR for Up-Gradation of Control System for Refrigeration
Package

Annex - 1



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KUNNAR LPG PLANT & OIL FIELD

The below specifications cover requirement for up-gradation of existing Control System for Refrigeration Package at Kunnar Plant. The Refrigeration Package at Kunnar Plant comprises of **CAT 3412** Engine driven **MYCOM** Screw Compressor. Existing Controller for this package is **MURPHY Selectronics 500** microcontroller which is now discontinued; it is therefore intended to up-grade the control system of Refrigeration Package to Brand new and latest available Control System for trouble-free and smooth operation of the unit.

Design, supply, assembling, Installation Supervision, programming / configuration, commissioning, start-up, performance testing, documentation and inclusion of all the hardware and software for the system which needs to be supplied as part of the Control System for packaged skid in accordance with, but not limited to this scope /relevant documents shall be included in bidder's scope.

The required Control System should be housed in panel with solid hinged front door. Enclosure should be built to NEMA4 specifications and shall be capable of being placed outdoor in hazardous area with electrical area classification of at-least Class 1, Division 2, Groups B, C, D, T3. Panel shall come prefabricated in all respect with factory installed controller and all required accessories/necessary components (Power Supply, Terminal Blocks, Push buttons, emergency stop buttons, circuit breakers, relays, fuses, holders, etc.). The Panel should be pre-wired with all I/O's of Controller and other components wired up to Terminal Blocks. All cable entries should be provided with Cable Shrouds and suitable Cable Glands/plugs in view of Electrical Area Classification. The Panel is to be installed on the compressor skid located in above mentioned Hazardous Area.

The system design is entirely in scope of bidder and the bidder may offer equivalent / better Controller than the one listed below, depending upon system design and product suitability. If any equivalent / better Controller is being offered, bidder should provide justification along with relevant technical literature listing the advantages of offered product; without proper justification and relevant technical literature, it will not be acceptable and the bid shall be liable to rejection. The wiring drawing for existing system is enclosed with these specifications.

Ambient conditions:

1. Humidity 20% to 77%
2. Max Wind Velocity 100 mph
3. Ambient Temperature, Maximum 118 °F (48° C)

Utilities available at site:

1. Electric Power Source, 230 VAC, 1 Phase, 50 Hz
2. Instrument Air, 100 Psi

Documentation:

Bidder to provide (3) sets of all As-Built Documents and softcopy on CD comprising, but not limited to following:

- 1) Control Sequence of operation
- 2) Cause & Effect Diagram / Matrix
- 3) Panel wiring diagram
- 4) Factory test certificates
- 5) Instruction and Operation Manual of offered system

Two-Year Spares:

Revision 0

Date: 13-05-2019

Refrigeration Package Issued for Indent

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KUNNAR LPG PLANT & OIL FIELD

Bidder to include in quotation, required Commissioning Spares as well as 2-Year spares necessary for smooth operation of offered control system. **However, OGDCL may or may not purchase 2 years spares.**

Installation Supervision, Commissioning, SAT/Performance Testing:

- 1) Installation Supervision, Cold loop testing, hot loop testing, commissioning, successful start-up and operation of complete system will be in bidder's scope. Transportation for deputed Engineers between Karachi and Site will be provided by OGDCL. Boarding and lodging of Bidder's Engineers at site will also be arranged by OGDCL.
- 2) Dismantling of existing control system, wiring / termination of field instruments with new system will be performed by OGDCL staff under supervision of bidder's representative.
- 3) After successful commissioning, Start-up and SAT the C&E verification and 48-hours performance testing will be in scope of bidder.
- 4) All the logic development, Configuration for controller and HMI screens development required for the monitoring, commissioning and operation of the unit will be in bidder's scope.
- 5) The serial port (RS-485) of Controller should be configured for communication with PLC installed in Central Control Room via Modbus RTU. The Serial Port shall be configured and made to test through Modbus Simulation Software. The Port settings and Modbus Map of Serial Port shall be provided by bidder's representative.
- 6) Bidders will be responsible for on-site training of OGDCL operation and maintenance personnel regarding operation, maintenance and troubleshooting of offered system after successful completion of job.
- 7) Bidder should be able to provide technical support and troubleshooting services after up-gradation of system (if required in future).
- 8) All necessary tools/equipment for completing the job will be in bidder's scope.
- 9) Logic retrieval/ collection of data from old controller (if required) will be in bidder's scope.

Requirements from bidder:

1. Major scope of supply and required services have been mentioned. **However, bidders are encouraged to visit the site to evaluate and clarify the scope as this will be awarded as turnkey project and bidder shall be liable to furnish all the necessary material and services for the up-gradation of the control system with successful startup, smooth operation and subsequent performance testing of the system.**
2. It shall be bidder's responsibility in all aspects to supply and commission complete control system; provide services for efficient and complete function of system or equipment required deemed necessary for efficient and successful operation of refrigeration package in accordance with but not limited to this scope and related specifications. However, this scope of supply and services does not relieve the bidder of any responsibility to provide equipment and services that are best suited to the intended duty.
3. Proposed system should be specifically designed for Oil & Gas Sector with successful track record.
4. Bidder must mentioned estimated number of days to complete the job in quotation. However maximum 12-15 days will be given to bidder for hookup and installation.
5. Bidder to ensure that offered system will remain in production for at-least ten (10) years and that the spares of offered system would be available for at-least Fifteen (15) years.
6. Bidder to submit all the relevant technical literature of offered system along with bid.

Warranty:


Warranty period of offered system shall be at-least (18) eighteen months from the date of shipment or (36) thirty six weeks from the date of successful commissioning, whichever is earlier.

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BOQ & Modifications required Annexure-2

Sr. No	Description	Quantity/compressor
1	Centurion plus control system; make: FW Murphy production controls or equivalent/better. The I/O count is 17 nos. of Digitals inputs (NO / NC), 16 nos. of Digital Outputs, 7 nos. Analog Inputs (4 – 20 mA), 1 no. Analog Output (4 – 20 mA), 5 nos. Thermocouple Inputs (K-type) and 1 no. Magnetic Pick-up input. The DI and DO should have LED indicators for status indication of relevant DI/DO. Moreover, there should be at-least 25% spare I/O capacity in offered system. Offered controller should have feature to accommodate different types of additional I/O modules for future possible expansion (if required). The Engine Controller should have at-least 1 no. RS-232 Serial Port, 1 no. RS-485 Serial Port for communication with Third-Party system (PLC) via Modbus RTU. USB and Ethernet Ports should also be available.	01
2.	Panel mounted HMI, suitable for installation in Hazardous Area, at least 10", compatible with offered Engine Control System for monitoring and control of Package. The required Control System should be housed in panel with solid hinged front door. Enclosure should be built to NEMA4 specifications and shall be capable of being placed outdoor in hazardous area with electrical area classification of at-least Class 1, Division 2, Groups B, C, D, and T3 . Panel shall come prefabricated in all respect with factory installed controller and all required accessories/necessary components (Power Supply, Terminal Blocks, Push buttons, emergency stop buttons, circuit breakers, relays, fuses, holders, etc.). The Panel should be pre-wired with all I/O's of Controller and other components wired up to Terminal Blocks. All cable entries should be provided with Cable Shrouds and suitable Cable Glands. The Panel is to be installed on the compressor skid located.	01
3.	Power Supply (Input: 220VAC, Output: 24 VDC / any other voltage required for the offered system) of suitable rating depending upon overall system load. System load calculation is in bidder's scope.	01
4.	Pressure Transmitters (included in bidder's scope of supply) to be installed inside the offered Control Panel. Detail of pressure range is mentioned on page 2.	10
5.	The programming / configuration software for offered controller and HMI shall also be included in scope of supply.	01


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Modifications required in existing system:

It may be noted that some modifications in existing control philosophy are required listed as follows which needs to be incorporated in offered system:

The ranges of required Pressure Transmitters are as follows:

- a) Suction Pressure (Range: -15 to 30 Psig)
- b) Inter-stage Pressure (Range: 0 to 300 Psig)
- c) Discharge Pressure (Range: 0 to 500 Psig)
- d) Engine Oil Pressure (Range: 0 to 100 Psig)
- e) Manifold Pressure (Range: -15 to 30 Psig)
- f) Compressor Oil Pressure (Range: 0 to 100 Psig)
- g) Compressor Increase Speed Oil Pressure (Range: 0 – 100 Psig)
- h) Engine Fuel Gas Pressure (Range: 0 – 200 Psig)
- i) Chiller Process Gas Inlet Pressure (Range: 0 – 1000 Psig)
- j) Chiller Process Gas Outlet Pressure (Range: 0 – 1000 Psig)

At present, Shutdown Valve (SDV) at outlet of suction scrubber is not connected and configured on existing Controller however, this SDV is required to be configured in new controller; the required I/Os for this SDV are already incorporated in I/O count mentioned above. Bidder will be responsible to incorporate this SDV in logic / configuration of offered controller. Rest of the control philosophy shall remain same as per existing system, enclosed wiring drawing and other relevant documents.

The system shall be tested at factory before being shipped and relevant factory test certificates should be provided with shipment.

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1.0 MINIMUM REQUIREMENTS FOR CONTRACTOR QUALIFICATION

All the interested parties intending to participate must fulfil all the requirements / parameters for Contractor qualification as per tender document in their bids. The evaluation of the bids shall be finalized through grading of the Contractors according to marks calculated as per criteria defined in Annexure-A. Contractor should earn minimum 68 marks as overall in order to qualify. The minimum qualifying marks in each category are also defined in Annexure-A. The Contractors are required to provide the following documents for Contractor qualification:

- i. Bidder must have at least 05 years proven experience of this type of control system up-gradation/installation/modification. Bidder to provide at-least (5) references with contact details for performing similar up-gradation/installation/modification job in Oil & Gas Sector of Pakistan. Documentary proof of having provided satisfactory services for minimum 05 years for control system up-gradation/installation/modification for compressors/turbine.
- ii. Certified copy of valid ISO 9000 certification.
- iii. Company profile, which may also include the list of all offices and service agencies, available tools & equipment.
- iv. Method statement for control system up-gradation/installation/modification of compressors/turbines.
- v. Verifiable copy of purchase orders & satisfactory performance certificate from clients where Contractor has provided such type of services.
- vi. Contractor declared as black listed at PPRA website will not be entertained.
- vii. Contractor must submit quality control procedures.

Annexure-A

Contractor Qualification Criteria

Sr No	Evaluation Item	Description of Criteria	Max Marks	Min Marks	Remarks
1.	Contractor must have minimum 05 Year experience in control system up-gradation/installation/modification job.	Contractor should provide evidence of experience.	35	15	Each year : 03 marks

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Sr No	Evaluation Item	Description of Criteria	Max Marks	Min Marks	Remarks
2.	Technical Compliance.	Contractor must fully comply with technical specifications mentioned in the TOR & BOQ as per annexure 1 & 2 Submit method statement.	20	20	Comply technical specifications : 15 marks Method statement: 05 Marks
4.	Certifications.	ISA,IEC,CSIA,ISO	15	7	ISA 4 marks, IEC 4 marks, CSIA 3 marks, ISO 4 Marks Certificate status in process will not be considered. Comply 10 marks
5.	Contractor facilities/workshop	Contractor should have or confirm to arrange the following: i. Facilities for the job & Local support should be available for after sales issues, troubleshooting & rectification.	10	10	
6	Relevant projects	Bidder must have successfully completed 03 no of similar projects.	20	15	05 marks for each project.

Total Marks = 100

Minimum Qualifying Marks= 67

Note:

All Contractors / Bidders are requested to provide all required documents in the technical bid, points calculation will be carried out as per available record / evidence in the bid.

Contractor should get minimum qualifying marks in each category as mentioned in above table. Contractor will not be qualified if above mentioned minimum qualifying marks in any category will not be scored by the contractor. In addition, the total marks should also be not less than 67. Any contractor who will score less than 67 marks shall not be considered for qualification.

In case of JV, JV agreement to be provided by the contractor. Experience of lead partner will be considered for marks calculation.

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2.0 FINANCIAL BID FORMAT

Sr. No.	Description	Price in USD
01.	Control Panel comprising of Engine Controller, I/O Modules, HMI, Transmitters, and Panel accessories.	
02.	Charges of Installation Supervision, Commissioning Services and Performance Testing for proposed Control System	
03.	List of 2 year recommended spare parts to be provided with Tech bid. Unit price to be shown in financial bid only.	
	Total Cost	
Note: i. OGDCL may or may not purchase 2 year spares. ii. Financial evaluation will be done on serial No 1 & 2 only.		

3.0 Payment Terms

70 % after shipment of material and remaining 30 % after receipt & inspection of material. Installation commissioning charges will be paid upon submission of job completion certificate (issued from site).

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1. Item must be in original OEM Packing.
2. Item must be new & free from any defect.
3. If bidder found any ambiguity in model/serial number, it should be cleared prior to bid submission.
4. Item must have standard OEM warranty/guarantee.
5. In case of equivalent/replacement items or superseded part/serial number, 100 % replacement with same fits & tolerances is required. Bidder must provide the literature, relevant documents & documentary evidence (from OEM) that supplied item is exact replacement of item mentioned in SOR for equivalent items.
6. Warranty test certificate, confirmity certificate, material test report & all relevant factory test certificates are required.

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