

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION C

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

ANNEXURE 'A'

Material UPGRADTION OF RIC PACKAGE I & II AT KUNNER PLANT
Tender Enquiry No PROC-FC/CB/P&P/KPD-4366/2019
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	Control Panel comprising of Engine Controller, I/O Modules, HMI, Transmitters, Panel accessories and 2-Year Spares of proposed Controller as per TOR & BOQ.	Unit	2					
2	FAT As Per TOR	Number	1					
3	Lump-Sum Charges of Installation Supervision, Commissioning Services and Performance Testing for proposed Control System as per TOR.	Number	2					

Note:

Note: Bidders are advised that Payment will be made as per the Foreign Procurement Payment Terms available at OGDCL Website (Tenders Tab) effective from February 27, 2018.

- 1) PURSUANT TO TENDER CLAUSE # 2.2, 11.4, 13 & 35.3.2, BID BOND AMOUNTING TO USD 1360/- OR EQUIVALENT TO PAK RUPEES MUST BE SUBMITTED WITH THE TECHNICAL BID AND VALID FOR 150 DAYS FROM THE DATE OF OPENING OF THE BID.
- 2) **TOR:** ATTACHED TOR IS INTEGRAL PART OF SOR.
- 3) **EVALUATION CRITERIA:** FULL CONSIGNMENT WISE ON CFR BY SEA KARACHI BASIS.
- 4) **TERMS AND CONDITIONS:** BIDDER IS ADVISED TO CAREFULLY READ ALL THE TERMS AND CONDITIONS OF THE TENDER DOCUMENT AVAILABLE AT OGDCL WEBSITE IN THE MASTER TENDER DOCUMENT.

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

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	8	ISA 4 marks, IEC 4 marks, CSIA 3 marks, ISO 4 Marks Certificate status in process will not be considered.
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	Comply 10 marks
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= 68

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 68. Any contractor who will score less than 68 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.

2.0 FINANCIAL BID FORMAT

Sr. No.	Description	Price in USD
01.	Control Panel comprising of Engine Controller, I/O Modules, HMI, Transmitters, Panel accessories, Commissioning Spares and 2-Year Spares of proposed Controller.	
02.	Lump-Sum Charges of Installation Supervision, Commissioning Services and Performance Testing for proposed Control System	
03	FAT Charges (for 1 engineer which includes boarding lodging travelling etc)	
04	2 years spares with price breakup	
	Total Cost	
Note: <ul style="list-style-type: none">i. Contract will be awarded to technically qualified and financially lowest evaluated bidder on lump sum basis.ii. OGDCL may or may not purchase 2 year spares.iii. Inclusion of FAT will be at sole discretion of OGDCL.iv. 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).



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

**TOR for Up-Gradation of Control System for Reinjection
Compressor Package I & II**

Annexure-1



OIL AND GAS DEVELOPMENT COMPANY LTD

KUNNAR LPG PLANT & OIL FIELD

Below specifications cover requirement for up-gradation of existing Control System for Reinjection Compressor Packages I and II (RIC I & II) installed at Kunnar Plant. Each RIC Package comprises of three stage Ariel Compressor model JGH/4 which is driven by Waukesha Engine model L7042. Each of the RIC Packages has its own dedicated Control System which is independent from the other RIC unit. The existing control system of the package is Amot Microguard II and Amot Scanner is being used for temperature scanning. As per the packager (Enerflex) these Amot Scanners & Microguard II model is obsolete; it is therefore intended to up-grade the control systems of both the Packages to Brand new and latest available Engine Controllers for trouble-free and smooth operation of the units. Bidder needs to supply identical and separate control systems for both the RIC units. The below specifications are for one unit; the control system for second unit should also be identical.

Design, supply, assembling, FAT, Installation Supervision, programming / configuration, commissioning, start-up, SAT, 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, 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 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 and sequence of operation for existing system is enclosed with this scope.

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:

Bidder to include in technical quotation separately, list of 2-Year spares necessary for smooth operation of offered control system (with price break up in financial bid as per financial bid format). However, OGDCL may or may not purchase 2 years spares.

Installation Supervision, Commissioning SAT and Performance Testing:



OIL AND GAS DEVELOPMENT COMPANY LTD

KUNNAR LPG PLANT & OIL FIELD

- 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) Bidder 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 compressor 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. **These RICs are in continuous operation therefore, Bidders will be given around 15-20 days to complete the modification/installation job on both the compressors. Job will be carried out one by one on each RIC. Bidder must submit their project schedule along with their bids.**
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.

FAT

Bidder will arrange Factory Acceptance Test at vendor's premises for 01 Engineers of OGDCL. All the expenses such as transportation, boarding/loading etc. will be borne by the bidder. Inclusion of FAT will be at sole discretion of OGDCL.

Site Conditions:

Kunnar plant which is situated near Tando Jam, Hyderabad Sindh Pakistan. The general environment data is as below.

Ambient Temperature Data

Revision 0	Date: 19-03-2019	Annex-1	Page 3 of 4
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OIL AND GAS DEVELOPMENT COMPANY LTD

KUNNAR LPG PLANT & OIL FIELD

Ambient Temperature, Minimum Average:	64 °F (18° C)
Ambient Temperature, Maximum Average:	93 °F (34° C)
Ambient Temperature, Maximum:	118 °F (48° C)
Ambient Temperature, Minimum:	36 °F (2.2° C)
Wet Bulb Temperature:	88 °F (31 °C)

Rainfall Data

Maximum Daily Rainfall (24 hours):	10 in (251 mm)
Highest Average Monthly Rainfall:	11.26 in (286 mm)

Wind Data

Maximum Velocity:	100 mph,
Design Velocity:	100 mph

Exposure factor C – flat open terrain, importance factor 1.15 – essential facility.

Humidity

Relative Humidity: 20% to 77%

Elevation

69 ft. (21 m)

Earthquake Design Data

Zone 2A of Uniform Building Code UBC 1997.

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 comprises, 23 nos. of Digital inputs (NO / NC), 13 nos. of Digital Outputs, 8 nos. Analog Inputs (4 – 20 mA), 2 nos. Analog Output (4 – 20 mA), 14 nos. Thermocouple Inputs (K-type), 13 nos. Thermocouple Inputs (J-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 each
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 Each
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 Each
4.	Pressure Transmitters (included in bidder's scope of supply) to be installed inside the offered Control Panel.	08 Each
5.	The programming / configuration software for offered controller and HMI shall also be included in scope of supply.	01 Each

Annex-2

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:

1. In existing system, switches are being used for tripping of following signals which are intended to be replaced with Pressure Transmitters for continuous monitoring as well as tripping of these critical parameters. The Pressure Transmitters are intended to be installed in Panel and Customer's supplied Tubing from Package will be connected with these Pressure Transmitters inside Panel. Bidder shall be responsible for supply of required Pressure Transmitters (already included in scope of supply) programming / configuration of these signals for continuous monitoring as well as tripping of below mentioned signals:
 - a) Suction Pressure (Range: 0 to 250 Psig)
 - b) 1st Stage Discharge Pressure (Range: 0 to 500 Psig)
 - c) 2nd Stage Discharge Pressure (Range: 0 to 1500 Psig)
 - d) 3rd Stage Discharge Pressure (Range: 0 to 3000 Psig)
 - e) Compressor Oil Pressure (Range: 0 to 100 Psig)
 - f) Engine Oil Pressure (Range: 0 – 100 Psig)
 - g) Engine Manifold Pressure (Range: 0 – 200 Psig)
 - h) Engine Fuel Gas Pressure (Range: 0 – 150 Psig)
2. Existing temperature scanners are obsolete therefore in up-gradation, Thermocouples will be used for monitoring/shutdown on high temperature of engine and compressor cylinders. The required Thermocouples will be supplied and installed by OGDCL personnel; however configuration / programming of these Thermocouples with offered Controller will be in bidder's scope.
3. In existing control philosophy, recycle valve is controlled via 3-15 psi control signal. Since after up-gradation this control signal will be electronic based 4-20mA from Controller's Analogue output module.
4. In existing control governor is controlled via 3-15 psi control signal. Since after up-gradation this control signal will be electronic based 4-20mA from Controller Analogue output module therefore 01 no. I/P convertor is required for converting 4-20mA signal to 3-15psi control signal for existing Governor Assembly. The required I/P Converter with Air Filter / Regulator will be in Bidder's scope of supply.

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.