



TENDER DOCUMENTS FOR

PROCUREMENT OF ROTARY GAS METERS, EVC's AND LEAKAGE CLAMPS FOR PIEDMC GAS DEPARTMENT

TENDER ENQUIRY NO. PIE/P&C/GAS-METERS/23/35

2. REFLECTION OF BIDS

- 2.1 Punjab Industrial Estate Development & Management Company (PIEDMC) reserves the right to reject any or all bids which do not meet the intent of the specifications or where there is evidence of lack of competition or where the lowest bid exceeds the cost estimate by an amount which in the opinion of Punjab Industrial Estate Development & Management Company (PIEDMC) is sufficient to justify such a course.
- 2.2 The Company will not be responsible for or pay the expenses or losses which may be incurred by any tenderer in the preparation of his tender and in case the tender is cancelled.
- 2.3 For the purpose of comparison and bid evaluation, all prices quoted in the bids shall be converted into Pakistan Rupees at the exchange rates published by the State Bank of Pakistan on the date of tender opening.

GENERAL TERMS

The bidders are expected to examine all instructions, forms, terms, conditions and specifications attached / included in the tender documents. Failure to furnish all information required by the tender documents or submission of a bid not substantially responsive to the tender documents will be at the bidder's risk and may result in the rejection of their bid.

1. CLARIFICATION TO BIDS

- 1.1 If bidders have any doubts as to the meaning of any portion of this tender, they should when submitting their bid, set out in their covering letter, the interpretation upon which they rely.
- 1.2 No bidder will be permitted to alter his bid after the bids have been opened, but clarifications not altering substance of his bid may be solicited and / or accepted. No bidder will be asked or required to alter the substance of his bid.
- 1.3 Offers may be submitted by authorized accredited representative along with their principal's offer. In case where the principals must obtain supplies from manufacturers, a letter from the manufacturers must be enclosed with the quotations authorizing the principals to quote on their behalf failing which the bid is liable to be disqualified. The whole responsibility for the supply and performance will be that of the manufacturers and supplier of goods.
- 1.4 All deviations from or exceptions to, or qualifications of specifications shall be clearly stated separately in the proposals.
- 1.5 **Bidders are required to attach all the requisite enclosures of the tender enquiry duly filled in, signed / stamped along with the bid, failing which your offer(s) will not be considered for evaluation. Bid Form attached as Annexure - I**

2. REJECTION OF BIDS

- 2.1 Punjab Industrial Estates Development & Management Company (PIEDMC) reserve the right to reject any or all bids which do not meet the intent of the specifications or where there is evidence of lack of competition or where the lowest bid exceeds the cost estimate by an amount which in the opinion of Punjab Industrial Estates Development & Management Company (PIEDMC) is sufficient to justify such a cause.
- 2.2 The Company will not be responsible for or pay the expenses or losses which may be incurred by any tenderer, in the preparation of his tender and in case the tender is cancelled.
- 2.3 For the purpose of comparison and bids evaluation, all prices quoted in the bids shall be converted into Pakistan Rupees at the exchange rates published by the State Bank of Pakistan on the date of tender opening.

3. DOCUMENTS ESTABLISHING / BIDDER'S ELIGIBILITY & QUALIFICATIONS

3.1 The Purchaser shall determine to its satisfaction based upon an examination of the documentary evidence of manufacturer's financial, technical and production capabilities submitted by the bidder along with its bid. Pursuant to the following as well as any other information as the purchaser may deem necessary and appropriate: -

- (a) The documentary evidence of the Bidder's eligibility to bid shall establish to the Purchaser's satisfaction that the Bidder at the time of submission of its bid is from an eligible source country as defined under clause 13.
- (b) That, in the case of a bidder offering to supply goods under the contract which the bidder did not manufacture or otherwise produce the bidder has been duly authorized by the goods manufacturer or producer to supply the goods in the Purchaser's country.
- (c) That, in the case of a bidder not doing business within the Purchaser's country the bidder is or will be (if possible) capable of carrying out its obligations about maintenance, repair and spare parts supply prescribed by the Conditions of the Contract and / or Technical Specifications.
- (d) The bidder will provide annual report, audited, financial reports as well as other confirmation as the purchaser deem necessary and appropriate to determine bidder's capabilities to perform satisfactorily.

3.2 (a) The Purchaser shall determine to its satisfaction whether the supplier / manufacturer selected as having submitted the responsive bid is qualified and has the capability and resources to satisfactorily perform the contract.

(b) The bidder offering goods of foreign origin (outside Pakistan) shall furnish references (name and address and telex / telefax number / Email of at least five (5) end users outside manufacturers country to whom the bidder supplied / exported goods for the last five (5) years similar to those being offered in this tender as to quantity, quality and service(s) called for herein and from the samemanufacturer in the case of goods against international tender enquiries. Simply submitting a list of customers, to whom the manufacturer has been supplying various goods, will not meet the intent and purpose of this requirement. This information must form a part of the bid and the bidder arenot encouraged to submit any of this information subsequently after public opening of the bids failure to comply with this requirement is likely to make the bid subject to rejection.

(c) The bidder shall provide documentary evidence of in the line of manufacturing/supplying of the offered items for the last (5) years.

3.3 Quotations from bidders, who are determined to have previously in Punjab Industrial Estates Development & Management Company (PIEDMC)'s judgment committed default in respect of any of its obligations against any of our previous contracts on them, will not be entertained.

An affirmative determination will be a prerequisite for award of the contract to the bidder. A negative determination will result in rejection of the bidder's bid

in which event, the Purchaser will proceed to the next lowest evaluated bid to make a similar determination of the bidder's capabilities to perform satisfactorily.

4 LATE DELIVERY CHARGES

- (a) The contract / order will include a clause on Late Delivery Charges. This interalia will state that if the materials, as given in the order, have not been shipped as per stipulated in the contract, except on account of Force Majeure, within the delivery period given in the contract Punjab Industrial Estates Development & Management Company (PIEDMC) shall be entitled to recover 1% (One percent) of the total value of the contract price (for local suppliers total value of the purchase order excluding GST) of the delayed part of the material for each week of delay by way of Late Delivery Charges and not by way of penalty subject to a maximum of 10% of the total value of the delayed part of the material.
- (b) Performance Warranty Bond Guarantee (PWBG) must be submitted within 15 days after receipt of purchase order as per clause 18 of the tender documents. Delay in L/C operativeness due to delay in submission of PWBG shall not affect delivery in any way. Further cut off date for the L/D charges calculation will be calculated after giving 21 days from receipt of order to the local agent (15 days of PWBG plus 6 days to and fro postage).
- (c) The payment of such Late Delivery Charges shall not relieve the supplier from performing and fulfilling its obligations under the contractor nor will be corresponding rights and entitlements of PIEDMC be affected to reduce in any manner.
- (d) Whenever Late Delivery Charges become payable, Punjab Industrial Estates Development & Management Company (PIEDMC) shall quantify the same and serve a written notice upon the supplier requiring immediate payment thereof. If the supplier fails to remit payment within 30 days of receipt of such notice to be served under registered postal cover, Punjab Industrial Estates Development & Management Company (PIEDMC) will become entitled to recover the same from any perspective invoice of the bidder.

5 EXTENSION OF TIME (EOT) FOR COMPLETION

In the event of, but not limited to:

- (a) The amount or nature of extra or additional work,
- (b) Any cause of delay referred to in these conditions,
- (c) Exceptionally adverse climatic conditions,
- (d) Any delay, impediment or prevention by the PIEDMC, or
- (e) Other special circumstances which may occur, other than through a default of or breach of contract by the bidder/supplier or for which he is responsible.

6 TERMINATION OF CONTRACT

In case a contract / order is placed on the basis of this tender enquiry Punjab Industrial Estates Development & Management Company (PIEDMC) may without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier terminate the Contract and cancel the Purchase Order (PO) in whole or in part:

- (a) If the supplier fails to deliver any or all of the goods within the time period(s) specified in the Contract / Order, or any extension thereof granted by Punjab Industrial Estates Development & Management Company (PIEDMC)
 - (b) If the supplier fails to perform any other obligations(s) under contract/order, or.
 - (c) If the supplier, in either of the above circumstances, does not cure its failure within a period of 30 days after receipt of the default notice from PIEDMC.
- 7 In the event PIEDMC terminates the contract in whole or in part, pursuant to para 6, PIEDMC will process the PWBG for encashment and may procure, upon such terms and in such manner as it deems appropriate, goods like those undelivered, and the supplier shall be liable to PIEDMC or any other excess cost for such contract to the extent not executed.

8 FORCE MAJEURE

Notwithstanding any provision to the contrary contained for damages a part shall not be deemed in default of the provisions of the contract / order for failure to perform or delay in the performance of obligations assumed by such party pursuant hereto in so far as the said affected party can clearly establish that its performance has been prevented or delayed by force majeure. The term "Force Majeure" as employed herein shall mean acts of Government in their sovereign capacity, riots, strikes, lock outs, fires occurring in the supplier's establishment, political disturbance, mobilization, wars, unprecedented flood, storms, hurricanes or other acts of God.

If a party wishes to claim relief by reasons of Force Majeure, it shall within ten days of its occurrence serve a written notice of occurrence of such a force majeure on the other party through registered mail. The two parties shall consult each other and agree upon the measures to be taken as soon as the force majeure ends. The affected party shall promptly resume performance of its obligations under the agreements and inform the other party about this.

9 TRANSPORTATION

9.1 Where the supplier is required under the contract to deliver the goods at Ex-QABP site (Quaid-e-Azam Business Park (QABP), Sheikhpura, Pakistan, transport of the goods, upto and including the point from where the goods can be put on the vessel at the specified port of loading, shall be arranged and paid for by the supplier, and the cost thereof shall be included in the contract price.

9.2 Where the supplier is required under the contract to deliver the goods of CFR or to a specified destination within the country, transport of goods to the port of discharge of such other point in Pakistan as shall be specified in the contract shall be arranged and paid for by the supplier and the cost there of shall be include in the contract price.

9.3 Where the supplier is required to affect delivery under any other terms, for example by port or to another address in the source country, the supplier shall be required to meet all transport and storage expenses until delivery alongside the ship.

9.4 All ocean consignments would be required to be shipped to Ex-QABP Site, Lahore (Pakistan). Shipment / dispatch detail are to be confirmed by telex/telefax.

9.5 The ages of vessel carrying the consignment should not be over 15 years in case of chartered vessels and 25 years in case of other vessels belonging to regular shipping line and playing as liner.

9.6 Shipment on deck shall not be allowed.

9.7 Shipment through "Post Parcel" is also not allowed.

10 INSPECTION

(a) Mill Test Certificate and Mill Inspection Certificate will be required for which no additional cost will be paid (where applicable).

(b) Pre shipment inspection (Factory Assessment Test - FAT) will be carried out by our technical team (comprising of 02 Nos. of professionals) at manufacturer's factory site before the delivery of equipment's/goods, for which the complete expenses/cost will be governed by the supplier/manufacturer. Moreover, Visa stamping from concerned embassy, ticketing, boarding, lodging and local transportation will be the sole responsibility of bidder. No additional cost incurred against pre-inspection and testing of equipment's/goods at manufacturer's factory site will be paid by the PIEDMC.

Notwithstanding the requirement of para (a) as above, we reserve the right to have the item(s) inspected at supplier's works before dispatch by our technical team. It shall, however, not absolve the suppliers to supply the goods according to the specifications of the purchase order.

(c) The cost of additional intervention to inspect stores offered at the supplier's works at more than on location and to inspection replacement of stores rejected in the first intervention or due to stores not being ready as advised will be payable by the supplier. The same shall also apply to the loading supervision when supervision of loading is stipulated in purchase order.

11 SHIPPING DOCUMENTS BY SEA

(a) Advance copies of the following shipping documents in quintuplicate, with number and date of the contract would be required to reach at least 7 days before the expected arrival of the vessel at Lahore at the address Punjab Industrial Estates Development & Management Company (PIEDMC), Commercial Area (North), Sundar Industrial Estate, Sundar Raiwind Road, Lahore (Pakistan):- Ph: # 042-35297203-6, Fax 042-35297207.

- i) Signed packing list showing measurement, quality and weight of packages and their numbers.
- ii) Freight memo.
- iii) Inspection Certificate.
- iv) Guarantee Certificate.

IN CASE OF AIR DESPATCH

Destination of all Air Consignments will be Ex-QABP site at Lahore, Pakistan, advance copies of the following shipping documents in quintuplicate with number and date of this contract (purchase order) should be sent to us on this same day on booking of the consignment through courier service and to be faxed on the same day.

ADVANCE SHIPPING DOCUMENTS

- i) Signed packing list showing measurement quantity and weight of packages and their numbers.
- ii) Inspection Certificate.
- iii) Guarantee Certificate.

(b) The above documents would be required to be dispatched through courier services to the address mentioned at para (a) above under an intimation to us.

12 PACKING / PROTECTION

Packing must be sufficiently robust enough to withstand rough handling during ocean shipment and up-country journey, protection of the paint and equipment against corrosion / deterioration ingress of sea / water must be given special attention.

13 STANDARDS

13.1 Where tests are to be undertaken and where reference is made to National / International Testing Standards the defined test procedure must be adopted. In case any alternate test is suggested the bidder in that case must provide complete literature in English on the suggested testing standards.

13.2 Where definition is given in terms of specific National / International Testing Standards, these should be taken as every close approximation of the requirements to be met.

13.3 In case where the Metric of Foot-Pond-Second (FPS) system is specified only those standards will be acceptable and no alternative will be considered.

13.4 No reconditioned equipment or any part of the ordered material shall be accepted by the purchaser and all equipment's supplied must be attached with certificate from the manufacturers / suppliers authenticating that only new and genuine equipment's(s) and spares parts have been supplied.

14 ARBITRATION / RESOLUTION OF DISPUTES

14.1 Any difference or dispute arising out of or in connection with the contract between the purchaser and the supplier which cannot be amicably resolved shall be referred to Arbitration in Lahore, Pakistan in accordance with the Pakistan Arbitration Act, 1940 as amended from time to time.

14.2 Prior to the exercising of any right by the purchaser to terminate the contract under the conditions stipulated above, a written notice shall be required to be given to the other party specifying such default(s) and calling for submission of an explanation within seven (7) days of receipt of such notice. If such explanation is not furnished within the stipulated time or if so furnished, is found to be unsatisfactory, and the default(s) continues, the contract may be terminated with notice to the other party before outerring upon the reference.

14.3 The agreement shall be governed by Pakistan Law and the arbitration language shall be English.

14.4 During the course of arbitration, the supplier shall not suspend the performance of his responsibilities and allegations under the Contract unless authorized by the purchaser in writing to do so.

15 In tender where acquisition of services are involved the word "goods" wherever appearing in the tender enquiry shall also imply "SERVICES" if required.

16. QUALITY ASSURANCE MANUALS

Please provide a quality assurance manual and evidence of adequate testing facilities at your works. Please note that such a facility may be subject to inspection by our technical team.

All the terms and conditions of this tender enquiry would be made a part of our purchase order if placed on you against this tender enquiry, and the material supplied against that purchase order would be required to be in conformity with the stipulation provided in this tender enquiry.

17. BID CURRENCIES

The prices shall be quoted in the Pakistan Rupees as per BOQ items/goods.

18. BID EVALUATION CRITERIA

- a. The technical specification and financial terms and conditions attached to the tender enquiry shall form the basis for selection/rejection of the bids.
- b. Delivery period mentioned in the schedule of requirement shall also form the basis of the bids.
- c. The lowest quotation out of the bids meeting the technical specification and commercial terms and condition of the tender shall be accepted for placement of purchase order.

INSTRUCTION OF BIDDERS

1. Bidders are required to complete attached Annexures "I", "II", "III", "IV", "V", "VI", "VII" and "VIII" and return those duly signed and stamped with their respective quotation. Failure to do so will be at bidder's risk and may result in rejection of his bid. Bids must be submitted by the bidders by filling in and completing the set of tender documents received from the purchaser indicating concurrence or otherwise against each clause /item of the tender enquiry.

In case of shortage of space addition write-up can be made on the additional pages to be annexed with it, giving clear reference to the clause/ item to which it relates to.

2. The bidders shall quote firm and irrevocable prices and shall indicate on the appropriate Bill of Quantity (BOQ) (Annexure-II) as applicable attached to these bidding documents, the unit prices and total bid price of the goods, it proposes to supply under the contract. This price schedule must be properly filled in/completed, signed and stamped. The prices given on attached Bill of Quantity (Annexure-II) would preferably be read out at the time of public opening of bids. The Technical Specifications of all items/goods are attached with tender documents (Annexure – IX, X, XI)

a) FOR GOODS OFFERED FROM WITHIN PAKISTAN:-

- (i) The Ex-QABP site price of the goods, quoted including, all custom duties, Sales Tax and other taxes already paid or payable:-

- (a) On the components and raw material used in the manufacture or assembly of goods quoted ex-factory or.

- (b) On the previously imported goods of foreign origin quoted ex-show room, ex-warehouse or off the shelf.

- (ii) Any Pakistani Sales and other taxes which will be payable on the goods if the contract is awarded must be indicated separately where applicable and the basis at which it has been arrived at.

- (iii) In the event of contract on local manufacturer(s) they will be responsible for transportation of the contracted goods to various sites to be advised in the contract.

- (iv) Bids will be evaluated at the Ex-QABP site prices quoted by the bidders.

- (v) Suppliers are required to adhere to above clauses.

b) FOR GOODS OFFERED FROM ABROAD

- (i) You are invited to quote prices on Ex-QABP site Lahore, Pakistan basis.
- (ii) Bids will be evaluated at the Ex-QABP site Lahore /FOR Prices quoted by the bidders.
- (iii) Bid offered on FOB basis will not be considered for evaluation.
- (iv) Suppliers are requested to adhere to the above clauses.

3. FIXED PRICES

Bids that do not indicate firm and irrevocable prices as indicated in clause 2 above will be rejected. The bidder must adhere to the instruction mentioned at para 2 above and failure to do so will make their bids liable to rejection. The prices quoted by the bidder which become the basis for placement of a purchase order shall remain fixed during the bidder's performance of the purchase order and be not subject to variation on any account. A bid submitted with variable or conditional prices will be treated as non-responsive and will be rejected.

4. BID CURRENCIES

- (a) The prices shall be quoted in the Pakistan Rupees as per attached BOQ items/goods.

5. INSURANCE

Insurance of the consignment will be arranged by the bidder/supplier.

6. PERIOD OF VALIDITY OF BIDS.

- 6.1 Bids must remain valid at least for a period of 90 days from the closing date of the tender failing which such offers having shorter validity period will be rejected.
- 6.2 The purchaser may solicit that bidder's consent to an extension of the period of validity. The request and the response there to shall be made in writing. The bids security shall also be suitably extended.
- 6.3 Once orders are placed (Contracts) are signed within the original/extended validity period of bids, the quoted prices would remain firm and irrevocable and will not be subject to any revision in prices till shipment of goods.

- 7. Bids will be accepted and evaluated for each item separately. No bid will be accepted for lesser quantities than specified. Bidders may bid for one or all the items as further defined in the "Schedule of Requirement".

8. The bids should be prepared in triplicate (with only one original copy). These along with bid bond should be addressed and forwarded direct to:-

**THE CHIEF ENGINEER (P&C)
PUNJAB INDUSTRIAL ESTATES DEVELOPMENT
AND MANAGEMENT COMPANY**

**COMMERCIAL AREA (NORTH), SUNDAR INDUSTRIAL
ESTATE, SUNDAR RAIWIND ROAD, LAHORE, PAKISTAN**

UAN: 042-111-743-743, Tel: 092-042 35297203-6,

9. PAYMENT

In the event of your quotation being accepted against this invitation to bid, the following terms will be included in the terms and conditions of our purchase order for you.

- i) Payment of your bills will be made by PIEDMC's Account Department within a month's time after satisfactory completion of the delivery as given in the purchase order.
- ii) Supplier's bill in duplicate accompanied by a receipted copy of delivery challan should be submitted within 30 days of the date of delivery of the material. Any delay in submitting the bills will result in corresponding delay in payment.
- iii) In case the local suppliers desire payment through inland Letter of credit they should state so in their respective bid. In that case all bank charges relating thereto would be borne by the suppliers.
- iv) Income Tax and other applicable taxes will be deducted from supplier's bills as per the prevailing rate of taxes at the time of payment. If a bidder is exempted from deduction of advance tax, they may state so and enclose a attested copy of any such Exemption Certificate.
- v) Bidders are also requested to submit valid Sales Tax Registration Certificate, National Tax Number along with Offer. The amount of Sales Tax will be paid upon submission of documentary evidence.
- vi) The local suppliers/ manufacturers must quote in Pak rupees on F.O.R. Lahore basis. They should also indicate separately the amount of GST included in their quoted prices. Failing which price quoted shall be considered as inclusive of GST.

10.1 In case the bidder is not able to fully comply with the Technical/Commercial Specifications of tender enquiry, he must indicate his reservations in the offer.

Bids will be liable to be disqualified if relevant literature / specifications are not attached to the offer.

10.2 In case the bidder is not able to fully comply with terms and conditions of the tender enquiry he must in that case indicate his reservation in his offer clearly indicating the terms and conditions which he is unable to comply with and reasons (if possible). However, requirements pertaining to bid bond, Performance/Warranty Bond Guarantee, and late delivery charges as mentioned in this tender must be fully met without offering any exception failing which the offer will be disregarded.

In case the bidder meets the tender specifications and complies with all the terms and conditions of this enquiry, it must be indicated so in the bid stating that the bid fully conforms to the technical specifications and to all the terms and conditions of the tender enquiry. **In this case also the bidder must enclose relevant catalogue/ technical literature along with his quoted specifications and for the purpose of facilitating technical evaluation of each item offered.**

11 PURCHASER'S RIGHT TO VARY QUANTITIES

PIEDMC reserve the right to increase/decrease the tender quantities or cancel this enquiry in whole or in part before tender opening should our requirements change in the meantime. After tender opening, the quantities may be increased/ decreased by 15% of the tender quantities. However, the decrease beyond 15% shall be subject to concurrence by the successful bidder.

12 COST OF BIDDING

The bidder shall bear all costs associated with the preparation and submission of its bid, and PIEPMC, here in after referred to as "**The Purchaser**" will in no case be responsible or liable for any such cost (s) regardless of the conduct or outcome of the bidding/ evaluation process.

13 LANGUAGE OF BID

The bid prepared by the bidder and correspondence and documents relating to the bid exchange between the bidder and the purchaser shall be written in English Language.

14 DOCUMENTS ESTABLISHING GOOD'S ELIGIBILITY AND CONFORMITY TO BIDDING DOCUMENTS.

14.1 The bidder shall furnish, as part of their bid documents establishing the eligibility and conformity to the bidding documents of all goods and services which the bidder proposes to supply under the contract/ purchase order.

14.2 The documentary evidence of the goods and eligibility shall establish to the purchaser's satisfaction that they will have their origin in an eligible source. A

certificate of origin issued at the time of shipment will satisfy the requirements of this paragraph.

14.3 The documentary evidence of the conformity of goods and service to the bidding documents may be in the form of literature/ drawing and data (to be submitted in original) and shall furnish:-

- (a) A detailed description of the goods, essential technical and performance characteristics of goods;
- (b) A list, giving full particulars including available source and current prices, of all spare parts, special tools, etc, necessary for the proper and continuing functioning of the goods used by the purchaser.
- (c) A clause-by-clause commentary demonstrating substantial responsiveness of the goods and services to the purchaser's technical specifications or a statement of deviation (s) there from and exceptions to the provisions of the technical specifications.
- (d) For purpose of the commentary to be furnished pursuant to clause 14.3 above, the bidder shall note those standards for workmanship, material and equipment and references to brand names or catalogue numbers, designated in the technical specifications are intended to be descriptive and not restrictive.

15 The successful suppliers/ manufacturers on whom purchase order(s)/ contract(s) will be placed. Shall provide a certificate as under:-

"No extra payment in the form of commission, over and above the contracted value has neither been paid nor shall be paid to any authority in Pakistan."

16 In case local manufacturer turns out to be the lowest evaluated bidder, the company will have the option to finance purchase of the goods under the State Bank of Pakistan scheme for financing of locally manufactured machinery.

17 BID BOND

17.1 The Bid Bonds (as per Annexure-V) in the amount as per invitation to Bid Documents in favor of PIEDMC, shall be in the form of Bank Guarantee from a scheduled bank operating in Pakistan or by a foreign bank with guarantee underwritten by a scheduled bank operating in Pakistan or in the shape of Pay Order/ Demand Draft/ Cash Deposited Receipt issued by Scheduled banks operating in Pakistan as bid bond/ Bid security must be enclosed/ received along with the respective bid of a bidder at the time of bids opening. If a bid security/ bid bond from a bidder is received separately from its bid, PIEDMC shall not be responsible in any way.

This will serve as a guarantee in case bidder subsequently either withdraw, or unilaterally modify, vary or alter their bids after opening of bids and before expiry of bid validity period, or fail to accept purchase order placed on them within the

validity of their bid or its extended validity in case his bid turns out to be the lowest evaluated bid. Cable/ telex/ letter/ Fax advice from banks intimating issuance of bid bonds, and that those would follow in due course will not be entertained in lieu of actual bid bond for whatsoever be the reasons for delay in their submission. Bid Bond of the successful bidder will be retained until supplier furnishes the required Performance/ Warranty Bond Guarantee. PIEDMC reserves the right to retain the Bid bond of the next lowest bidders until PIEDMC enter into an agreement or until 120 days after Bid Opening, whichever is shorter. All Bid Bond shall thus be valid for a period of 120 days after the opening of bids or until 30 days after the expiry date (or extended expiry date) of quotation submitted by the bidders whichever is later. In case of any subsequent extension in the validity of a bid, the Bid Bond will also be revalidated correspondingly. Bids submitted without bid bond shall not be accepted and hence will not be read out at the same time of public tender opening.

17.2 The Company reserves the right to reject offer(s) accompanied by Bid Bonds of insufficient value.

17.3 The Bid Bond of the successful bidder will be returned only after the formal agreement has been signed and the specified Performance/ warranty Bond guarantee has been furnished by him. Should the successful bidder refuse or fail for any reason to execute the Agreement or to furnish the Performance/ Warranty Bond Guarantee, as required, the Bid bond shall be retained or shall become payable to PIEDMC, as compensation for such default.

17.4 The cost of the above bonds shall be borne by the bidder.

17.5 The Bid Bond may be forfeited:-

(a) If bidder withdraws its bid during the period of bid validity specified by the bidder on the form of bid or :

(b) In the case of successful bidder, if the bidder fails:-

(i) To sign the Contract/ Purchase order or

(ii) To furnish Performance Bond.

18.1 PERFORMANCE WARRANTEE BOND GUARANTEE

(As per Annexure-VI) within 15 days after the release of the contract, the supplier shall furnish Performance Security to the purchaser in the amount of 10 percent of the total value of the contract. For local suppliers offering bid on Ex-QABP site basis, the amount of Performance Security to be in the amount 10% of the total value of the contract including GST.

18.2 WARRANTY

The supplier warrants that the goods and services supplied under the Contract shall conform to the specifications printed in this tender enquiry. The supplier also warrants that the goods and services supplied under the contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and material unless provided otherwise in the contract.

The supplier further warrants that the goods and services supplied under this contract shall have no defect arising from the design, material or workmanship (Except in so far as the design or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions obtaining in the country of final destination.

- 18.2.1 This Performance/Warranty Bond Guarantee shall remain valid for 12 months after the last portion of the goods and services have been shipped to the final destination indicated in the contract. The purchaser shall promptly notify the supplier in writing of any claim arising under this warranty. Upon receipt of such notice, the supplier shall replace the defective goods or part thereof, without costs to the purchaser other than, where applicable, the cost of inland transportation of the repaired or replaced goods or parts from the port of entry to the final destination. If the supplier having been notified, fails to replace the defective goods and pay all costs / expenses and damages within a period of 90 days; the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract, including partial or complete forfeiture of the Performance Security.
- 18.2.2 In case any material is found being not in conformity with the specifications provided in the tender enquiry Purchase Order placed on you either on account of inferior quality, defective workmanship, faulty design, faulty packing or is short received, the supplier apart from replacing the short-supplied, faulty or defective material and/or paying the full costs of replacement, would also pay extra custom duties and sales tax paid by PIEDMC on account of payment such duties for the second/or more time on re-import as free replacement(s). Full cost of replacement shall mean the cost of locating the failure cutting out, removal of faulty pipe, supply and insertion of new pipe, coating and wrapping, hydrostatic test, back filling and commissioning.
- 18.2.3 In the event an item has been wrongly supplied or short supplied or is found not in conformity as per specifications provided in the tender enquiry or Purchase Order placed on you, the supplier will under-take to replace the item (s) free of charge but shall pay all cost expenses and damages incurred by PIEDMC due to breach of warranty. The defective item will be handed over by us to the supplier's representative in Pakistan. Please note that the company cannot arrange export of the defective items back to their suppliers. The company can, however, render all possible cooperation to the supplier's local representative by way of any factual written certifications in this regard.

19. FOR LOCAL AGENTS ONLY.

19.1 Quotations from local agents must be accompanied by a letter in original from manufacturer / principals authorizing them to act as their agents in Pakistan failing which their quotation is likely to be disqualified.

19.2 Only one representative of bidder / accredited Agents, who have submitted their bids, shall be allowed to attend public opening of bids. Purchase of Tenders, but without offering a bid, will not be a sufficient qualification for participation in the public bids opening.

19.3 Please indicate element of your local agency commission included in Ex- Works/FOR prices offered by you for payment directly by us in Pak Rupees in case an order is placed on you on the basis of this tender. A certificate from your principals, in support of the agency commission quoted, shall accompany your bid confirming that no commission shall be paid to their local agents in any other currency in case of an order on them.

19.4 Your offer(s) must be supported by the original copy of offer (s) received from your principals against this tender enquiry. In case your principal's offer (s) indicated amounts of local agency commission payable to you, no separate certificate from them in support of the local agency commission quoted in your bid would be required. Payment of agency commission bill will however be made on the exchange rate of (Documents Retirement Date).

19.5 In case of breach of contract, apart from the penalties incorporated at clauses 6 and 7 mentioned on page 3 & 4 of Appendix "A" attached to this tender, future business dealing with the respective local agents may be stopped.

19.6 Firms / Companies registered with relevant Registration Authorities are only entitled to participate in the tender.

20. TECHNICAL LITERATURE

Complete technical literature / relevant brochure (in English Version) on the goods offered be accompanied with the offer. **Bids not supported by relevant technical literature may be rejected.**

21. CANVASSING

After the public opening of the bids information relating to examination, clarification and evaluation of bids and recommendation concerning award is strictly confidential. Any effort on the part of the bidder or his agent to extract information or canvassing at any stage of the tender evaluation is strictly prohibited.

22. AWARD OF CONTRACT

Contract for supply of equipment / services as per detailed requirements and technical specifications shall be awarded to the supplier (s) whose bid (s) has been determined to be the lowest evaluated bid (s) with acceptable and assured delivery period and whose product meet the required specifications and technical, commercial and reliability standards.

23. CONVERSION TO SINGLE CURRENCY

To facilitate evaluation and comparison, the Purchaser will convert all Bid Prices expressed in the amount in various currencies in which bid price is payable in Pakistan Rupees at the Bank Credit selling rates published by the State Bank of Pakistan on the tender closing date.

24. AWARD CRITERIA

The Purchaser will award the contract to the successful bidder whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid.

25. DELIVERY

For the purpose of determining the lowest evaluated bid, guaranteed delivery period will also be taken into account. The goods under this invitation are required to be shipped/ delivered upto 16 weeks from the date of Purchase Order (PO) issuance.

26. APPLICABLE LAW

The Contract / Purchase order shall be interpreted in accordance with the laws of the Purchaser's country.

27. TAXES AND DUTIES

27.1 The supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the Purchaser's country.

27.2 A local supplier shall be entirely responsible for all taxes, levies, license fees, etc. applicable on remuneration payable in the purchaser's country regarding the service rendered inside the purchaser's country.

28. Please indicate approximate shipping specification, i.e. weight and measurements of the packages / bundles and also total gross weight (in terms of metric tons), and total gross volume (in terms of cubic meters) of each consignment separately.

29. PIEDMC reserves the right to accept and / or reject any offer or cancel the tender enquiry altogether or to extend closing date of this tender enquiry without assigning any reason whatsoever.

30. For evaluation of bids customs duty, taxes and all other charges prevailing on the date of public opening of bids will be used, where applicable.

31. That in case the bidder fail to supply the goods within stipulated period and seeks extension from the company and that in the event of extension granted by the company in completion of the supply of goods, in case the existing taxes, custom/excise duties either increased or new tax is imposed by the Government during the extended period, payment where of will be the sole liability of the bidder and the company shall not be liable to pay any such amount to the bidder on account of imposition of new custom or excise duties or taxes on increase in existing rate of custom, excise duties or taxes.

32. Part quantities against an item will not be accepted.

33. FOR LOCAL MANUFACTURERS ONLY

In an event of any custom / excise duties or tax on any goods is imposed or increased, either by the provincial or Federal Government, the PIEDMC shall not be liable to pay the amount so charged from the supplier / bidder. The supplier/bidder shall have no right to claim repayment or any amount from PIEDMC paid by him on account of imposition of new custom excise duties or tax or increase in the existing rate of custom excise duty or tax.

34. FOR LOCAL AGENTS ONLY

Please also provide your Import Registration Number, GST No. and NTN No. and the validity of these registrations in your offer. Also enclose the attested photocopies of the said registrations along with your quotations / bids.

PUNJAB INDUSTRIAL ESTATE DEVELOPMENT AND MANAGEMENT COMPANY
(INSTRUCTIONS APPLYING TO THE ATTACHED TENDER)

1. **Climate Condition:** The equipment may have to work anywhere in Pakistan where the worst climate conditions are as follows:-

Shade Temperature	...	122° F	F. MAX.
Shade Temperature	...	25°	F. MAX.
Humidity @ 70° F	...	85°	%
Humidity @ 95° F	...	78°	%
Humidity @ 105° F	...	76°	%
Humidity @ 120° F	...	70°	%
Altitude above sea level	...	400 to 1700 feet	
Atmosphere	...	Saliniferous Corrosive and dusty	

STANDARD ANALYSIS OF PROCESSED SUL GAS

Moll	%
Methane (C ₂ H ₄)	94.42
Ethane (C ₂ H ₆)	1.05
Propane (C ₂ H ₈)	0.28
(1 Butane (C ₄ H ₁₀))	0.06
(N-Butane)	0.06
(I-Pentane) (C ₅ H ₁₂)	0.03
(N-Pentane)	0.02
Nitrogen (N ₂)	3.89
Carbon dioxide (CO ₂)	0.02
Oxygen (O ₂)	0.17
	<u>100.00</u>

Total SULPHUR	0.3889 GRAIN PER 100 cu. ft.
Hydrogen Sulphate	Cot Present
Specific gravity (Air-1) (30" Hg 60° F)	0.0449 lbs. per cu. ft.
Gross calorific volume (30" & 60 F wet)	997.9 But/cu. ft.

2. **Electrical**

All electrical equipment must be suitable for site conditions specified above and be specially treated / furnished to prevent deterioration / corrosion. Insulator is to be non-hydroscopic and preferably vacuum dried and pressure impregnated. Substances such as Bakelite, etc; which are impervious to moisture and attack by insects must be used instead of fiber.

3. **Storage & Shelf life of Rubber/Synthetic Materials/Polymers Products**

The supplier shall supply equipment/product keeping in view the climate/storage conditions stated above and will advise PIEDMC of any special storage requirements and the shelf life of the supplier at the above stated storage/climate conditions.

BID FORM

ANNEXURE - I

Date: _____

Contract No. _____

To: (Name and Address of Purchaser)

Gentleman:

Having examined the terms and conditions of your tender enquiry No. _____ and specifications including addenda No. **(Insert Number)** the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver **(Description of goods and services)** in conformity with the said Condition of Contract and specifications for the sum of (total Bid amount in Words and Figures) or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this bid.

We undertake, if our bid is accepted, to commence delivery within (Number) days and to complete delivery of all the items specified in the contract with (Number) days calculated from the date of receipt of your letter of acceptance / letter of credit.

If our bid accepted we will obtain the guarantee of a Bank in a sum not exceeding (_____) % of the Contract sum for the due performance of the Contract.

We agree to abide by this bid for a period of **(Number)** days from the date fixed for bid opening and / or upto any further date of revalidation of our bid (if so revalidated by us subsequently) and it shall remain binding upon us and may be accepted at any time before the expiration of that period / date.

Until a formal contract is prepared and executed, this bid together with acceptance thereof in your notification of award shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest or any bid you may receive.
Date this _____ day of _____ 20 _____

Signature

(In the capacity of)

Duly authorized to sign bid for and on behalf of _____
(Stamp)

Witness

Address

Signatures

ANNEXURE - II

TENDER ENQUIRY NO. _____

BILL OF QUANTITY (BOQ)

Sr. No.	Description	Unit	Quantity	Unit Rate (PKR)	Amount (PKR) including 18% GST
1	Supply of 7M 175 B3 Gas Rotary Meter along with accessories (Technical Specifications are attached)	Nos.	2		
2	Supply of 11M 175 B3 Gas Rotary Meter along with accessories (Technical Specifications are attached)	Nos.	5		
3	Supply of 16M 175 B3 Gas Rotary Meter along with accessories (Technical Specifications are attached)	Nos.	6		
4	Supply of 23M 175 B3 Gas Rotary Meter along with accessories (Technical Specifications are attached)	Nos.	7		
5	Supply of 38M 175 B3 Gas Rotary Meter along with accessories (Technical Specifications are attached)	Nos.	2		
6	Supply of 56M 175 B3 Gas Rotary Meter along with accessories (Technical Specifications are attached)	Nos.	2		
7	Supply of Electronic Volume Corrector (EVC) (Technical Specifications are attached)	Nos.	5		
8	Supply of Leakage Clamps M.S Pipeline CL-150				
	a) 16"dia	Nos.	4		
	b) 12"dia	Nos.	5		
	c) 10"dia	Nos.	5		
	d) 8"dia	Nos.	10		
	e) 6"dia	Nos.	10		
	Make: SealXpert (Singapore) or approved equivalent				
9	Packing, Handling, Documentation & Air Freight Charges	-	-	-	
Total Amount (PKR)					

*Technical Specifications of items/goods are attached with bidding documents.

Signature of Bidder

Stamp of Bidder

Date _____

Date _____

PUNJAB INDUSTRIAL ESTATES
BIDDERS ARE REQUIRED TO COMPLETE THIS FROM AND
RETURN IT WITH THEIR QUOTATION. FAILURE TO DO SO
WILL BE AT THE BIDDER'S RISK AND MAY RESULT IN
REJECTION OF BID.

1.	Is your offer firm and irrevocable?	
2.	Is your offer on Ex-QABP site, Lahore basis and inline with the requirements of clause of our "Instruction to Bidders"?	
3.	Is your offer valid for a period of 90 days from the closing date of the tender?	
4.	Amount and reference of Bid Bond.	
5.	Name of the Bank executing the Bid Bond.	
6.	Would you execute Performance/ Warranty Bond Guarantee in line with the requirements stipulated in this Instruction to Bidders.?"	
7.	Do you agree to the clause 4 on "Late Delivery Charges" stipulated in Appendix „A“?	
8.	Do you agree to meet the delivery schedule stipulated in Appendix "B"?	
9.	Have you provided technical literature (in English), covering the tendered products.	
10.	Have you submitted documentary evidence for post tender qualification as stipulated in Appendix „A“?	
11.	Have you provided name and address (with name of contact and Telephone Nos.) of the companies to whom the tendered products have been sold during the last five years?	
12.	Have you enclosed requisite data covering financial and technical capability of bidder (s) that would supply goods offered?	
13.	Full name and address of your Principals.	
14.	Full name and address of your manufacturer's processors and producers.	

15.	Country of Products origin.	
16.	Port of shipment.	
17.	Local agents, if any, in Pakistan?	
18.	Local agency commission (in case of local agents) included in your quotation to be paid in Pak Rupees Please specify?	
19.	Do you agree to abide by all other commercial terms and conditions of this tender enquiry?	
20.	Have you indicated unit C & F Lahore/ (F.O.R) Prices? (where applicable)	
21.	Do you agree to the evaluation of each item separately for placing of order?	
22.	Have you filled in and signed, stamped (with official seal of your Company) and enclosed with your bid Appendices 'B', 'C', 'D' & 'E'?	
23.	Do you guarantee for the supply of spare parts for 10 years from the date of purchase order?	
24.	Do you agree to deliver the all items/equipment's within stipulated time i.e 16 Weeks from the date of PO issuance?	
25.	Do you agree to conduct pre inspection of items/good before delivery to our technical team at manufacturers factory site at your own expense?	

Date: _____

Stamp / Signature _____

ANNEXURE -IV

(To be typed on Company's Letter Head, by the same signatory / signatories, who have signed the bid (s).

AUTHORITY LETTER

M/s. Punjab Industrial Estates Development & Management Company, Lahore.

We M/s _____ representing M/s. _____

are/have submitted Quotation Ref. _____ dated _____

against PIEDMC's tender Ref. _____ dated _____

due for opening on _____ at _____ hours

We here by authorize Mr./Miss/Mrs. _____
(Name)

_____ to attend the Public opening of the bids on our behalf. He /She has
(Designations)

been further authorized to correct erased / fluided figure (s) if any, in the bid.

Signature _____

Stamp _____

Bid Bond No. _____

Date: _____

M/s. Punjab Industrial Estates Development & Management Company,Commercial Area (North), Sundar Industrial Estate, Sundar Raiwind Road,
Lahore, Pakistan**BID BOND**

As per request of M/s _____

we hereby issue our letter of Guarantee No. _____ dated _____

in favor of Punjab Industrial Estates Development & Management Company in the sum of (Amount) _____

on account of Customer as Bid Bond as per requirement of your tender Enquiry.

No. _____ Due on _____ for supply of (Name) _____

This surety is being issued to enable the Accountee to participate in the Tender as per requirement of the Tender.

We, thereof, hereby undertake to make an unconditional payment of _____ to Punjab Industrial Estates Development & Management Company on your first written call and without recourse to Customer, in case the Customer subsequently either withdraw, or unilaterally modify, vary or alters its Bid after opening of the tenders and before expiry of bid validity period, or fail to accept purchase order placed by Punjab Industrial Estates Development & Management Company on the customer, within validity Period of the Customer's Bid or fails to provide Performance /Warranty Bond Guarantee within 30 day of the telefax of intent to place an order.

This Bid Bond shall remain valid and in full force till 30 days after the expiry of the bid validity or till after 120 days after the Bids opening, whichever is later, after which date no claim will be entertained.

Any claim arising out of this Guarantee must be lodged in writing within the validity period of this Bond certifying that the customer failed to meet the requirements that were covered by this Bid Bond.

Performance / Warranty bond Guarantee
No. _____

Date: _____

Valid up to 12 months after the last portion
of the goods have been delivered as contract
till _____ whichever is later.

**M/s Punjab Industrial Estates
Development & Management Company.**
Commercial Area (North), Sundar
Industrial Estate, Sundar Raiwind Road,
Lahore, Pakistan

Dear Sirs,

PERFORMANCE / WARRANTY BOND GUARANTEE

As per request of M/s _____
Hereinafter referred to as the "CUSTOMER"

We hereby issue our letter of Guarantee No. _____

in favor of Punjab Industrial Estates Development & Management Company account of the customer

for a sum not exceeding (Currency) _____

_____ being 10% of the total value of PIEDMC purchase order
(in words)

No. _____ dated _____ as a Performance / Warranty Bond Guarantee
as per requirements and specifications mentioned in the Purchase order under the following terms and
conditions:-

1. This guarantee is available for payment, without recourse to the customer against Punjab Industrial Estates Development & Management Company first written call to do accompany by a written statement certifying that, the customer failed to comply with the terms and conditions of the purchase order.
2. This guarantee bond shall remain valid till 12 months after the last portion of the goods has been delivered to the final destination indicated in the contract or till _____ whichever is later.

All claims under this guarantee must be submitted to us not later than the said validity date after which guarantee becomes automatically null and void, and the bank will stand discharged and released from all its liabilities here under.

Name of Bank
Sd

Officer (Seal) Manager

INTEGRITY PACT

_____ (the Seller/Supplier) hereby declares its intention not to obtain or induce the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GOP) through any corrupt business practice.

Without limiting the generality of the foregoing, (the Seller/Supplier) represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultation fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GOP, except that which has been expressly declared pursuant hereto.

(The Seller/Supplier) certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GOP and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

(The Seller/supplier) accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other rights and remedies available to GOP under any law, contract or other instrument, be voidable at the option of GOP.

Notwithstanding any rights and remedies exercised by GOP in this regard, (the Seller/Supplier) agrees to indemnify GOP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation, to GOP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by (the Seller/Supplier) as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever from GOP.

Signature & Stamp of Bidder

Rs. 100/-
(Non Judicial Stamp Paper)

CERTIFICATE OF FULL DISCLOSURE AND NON-COLLUSION

We, _____, a company/firm registered under the laws of Pakistan and having registered office at hereby declare, confirm and as follows:

1. We have neither offered, given, received or solicited anything of value to influence the actions of any and all parties involved in the procurement process nor misrepresented or concealed any facts in order to influence the procurement process or accomplish the award of contract; nor have we been part of any corrupt or collusive practices prior to or after bid submission which might restrict, reduce or prevent free and open competition, and fair and transparent award of contract.
2. We neither had at the time of submitting the bid nor presently have any relationship, association or link with another bidder nor have we been involved in any arrangement or understanding that directly or indirectly restricted, reduced or prevented free and open competition or a fair and transparent award of contract; and we have made all the disclosures that may be necessary in this regard and nothing has been withheld or concealed from PIEDMC.
3. At any stage of the procurement process or after award of the contract, PIEDMC may, having evidence of any misrepresentation, inaccuracy, inconsistency or non-conformity in the disclosures, data or other information provided by us, withdraw the letter of award or terminate the contract at our sole cost and expense, and without any liability on the part of PIEDMC.
4. This certificate shall form integral part of the contract documents and we shall remain bound by it at all material times.

(DEPONENT)

Verification:

Verified on oath that the contents of this Certificate are true to the best of our understanding, knowledge and belief and nothing has been concealed or misstated herein above.

(DEPONENT)

Date this _____ day of _____ 20 _____

PIEDMC GAS DEPARTMENT	SPECIFICATIONS TERM SHEET	SPECIFICATION NO. DM-RME-ROTARY
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**ROTARY TYPE GAS POSITIVE DISPLACEMENT METERS WITH MECHANICAL INSTRUMENT DRIVE
(ID)**

DESCRIPTION:

Rotary Type Gas Positive Displacement Meters with Mechanical Instrument Drive (ID) are required to be installed at Consumer Meter Stations (CMSs) for measurement of gas.

SPECIFICATIONS

A- METERS:

Clause No.	Latest Description
A-1	<u>DESIGN AND DIMENSIONS:</u> Specifications are based on International Standards ANSI B 109.3 (latest Edition) and O.I.M.L. R 137-1&2 (latest Edition) of Gas meters and Company's specific requirement for Rotary type positive displacement gas meters. Wherever the specific requirements differ from ANSI B 109.3 (latest Edition) and O.I.M.L. R137 -1&2 (latest Edition), the specific requirements shall prevail.
A-2	<u>FLOW MEASUREMENT ACCURACY:</u> Between Q min and 0.1 Q max = $\pm 2\%$ Between 0.1 Q max and Q max = $\pm 1\%$
A-3	<u>OPERATING & AMBIENT TEMPERATURE:</u> -20° C to 60° C (-4° F to 140° F)
A-4	<u>INDEX: MECHANICAL COUNTER/ODOMETER:</u> 6-10 digits direct reading built-in counter in cubic meter. - Bidder is required to confirm that the offered design has suitable provision to avoid condensation at ambient condition. Such information is required with reference to the legibility/read of mechanical counter digits rolls. However, in case of vent, such information should be provided in technical literature. - Digit roll of counter and pinions should be strong enough to avoid any slippage/roll over of digit roll during intended life of the meter.
A-5	All internal components should be capable to withstand throughout Operating & Ambient Temperature entire range and should be corrosion resistant.
A-6	<u>METER BODY / IMPELLERS:</u> Should be made of High Pressure Die-Cast Aluminum with hardened machined surfaces.
A-7	<u>CAPACITIES:</u> Should be in cubic meter per Hour (CMH) of Natural Gas.
A-8	<u>DRIVE RATE:</u> The drive rate of Meter should be in cubic meter and compatible for mounting Volume Correctors of MICRO Z-3 & Z-5 RFLO/ El-gas /Mercury / Dresser etc.
A-9	<u>CONNECTION:</u> Flanged connection according to ASME B-16.5, with all dimensions of the threaded hole with imperial units as per standard. Bidder is required to provide corresponding number of bolts with each meter.
A-10	<u>BACK RUN PROTECTION:</u> Preferable to have protection against back run (Reverse flow) of gas by any suitable device that should not be accessed/removed externally without evidence / damaged.
A-11	<u>Installation:</u> Line Mounted Horizontal/Vertical.
A-12	<u>Mechanical Instrument Drive:</u> - i- Mechanical Instrument Drive should be completely housed in a metal case with Bevel Gear Assembly for Clockwise/reversible Rotation to Drive Electronic Volume Corrector. - ii- It should be compatible for mounting Volume Correctors of MICRO Z-3/Z-5/ Mercury / Dresser / El-gas etc. and meter should have provision at the inlet & outlet of the meter to take pressure sensing for the EVCs. - iii- Mechanical instrument drive preferably have Provision to change the direction of driving dock/dog(Clock wise and anti-Clockwise) - iv- The instrument drive and counter assembly must have a rigid attachment with the meter body, preferably by screws. Loose arrangement or any rotatable attachment shall not be acceptable. - v- The counter should not accessible from outside through any filter drain or any other point. - vi- Linkage between measuring chamber (Meter) to the counter assembly should be designed, so that it must not allow any slippage causing loss of gas measurement. (Technical literature having details to elaborate the mechanism of transmission of drive from measuring chamber to counter without slippage). - vii- Magnetic coupling should be immediately after impellers without involvement of intermediate gears or any other mechanism. - viii- Bidder should provide the exploded view of the offered product with labeling of each part, especially about fitment and detailed understanding of the design/attributes of the offered product. - ix- Driving dog/dock should be strong to avoid any deformity.
A-13	<u>SEALING:</u> Sealing screws with drilled Heads should be provided of all points for running sealing wire.
A-14	<u>STRAINER GASKET:</u> One Suitable Strainer shall be supplied with each meter.

A-15	<u>SINGLE CHAMBER;</u> Shall be single chamber with one set of impellers.
A-16	<u>MAGNETIC INFLUENCE;</u> Meter normal operation/working should not be influenced/impact by an external magnet/magnetic field.
A-17	<u>RANGEABILITY;</u> The Range ability of the meters should be defined along with literature mentioning minimum and maximum flow capacities without affecting the accuracy of the meter as mentioned above in Clause A-2.
A-18	<u>METER OIL;</u> The specification of oil required for meters should be provided along with the literature for operation and repair of these meters.
A-19	<u>BEARING;</u> Manufacturer should specifically mention the bearing No. with clearance group and manufacturer name like NTN, FAG, SKF etc.
A-20	<u>THERMOWELL;</u> A thermowell of 316SS or equivalent corrosion resistant material should be supplied with meter having suitable dimensions to cater at least 3.5 inches long (depth) and up to 6 mm dia of temperature sensing bulb of EVC and should be able to be fixed at the outlet/at line pipe of the meters. The hexagonal part for tightening of the thermowell should have a sealing hole for running the sealing wire.
A-21	<u>MARKING;</u> Meter No./Type/Year of manufacturing should be mentioned on the Meter body.
A-22	<u>TIMING GEAR;</u> Preferably timing gears teeth should be helical and strong enough to cater impact load during pressurizing of the meter.
A-22	<u>CERTIFICATION;</u> The bidder should provide the calibration certificates of the same product with valid date of calibration.
A-23	<u>TECHNICAL LITERATURE;</u> Detailed technical literature should be attached with the bid document with reference to understanding the design, details and identification of parts, safety, maintenance /repair, troubleshooting (such as excessive noise/vibration & measurement beyond permissible limits). <u>Bidder should provide Auto CAD /3D drawings of its design.</u>
A-24	<u>DIFFERENTIAL PRESSURE TEST CONDITIONS;</u> Bidder is required to submit test results of differential pressure across the meter in accordance with the requirement of ANSI B109.3, clause 3.7.1 & 3.7.2 that is for starting differential pressure & running differential pressure accordingly.

B- General

B-1	The Bidder should provide list of spares parts complete with part Nos. and item description/nomenclature that will be required for post repairing /maintenance along with respective unit cost of each spare part.
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C-Latest Description / Quantity of Meter with Mechanical Instrument Drive

Sr. No.	Capacity	Description	MAOP	Size	Quantity
1	3000 CFH or Equivalent in Cubic Meter	Meter with Mechanical Instrument Drive having maximum meter capacity (Qmax) 3000 CFH or more	Class 150	2" X 2"	
2	5000 CFH or Equivalent in Cubic Meter	Meter with Mechanical Instrument Drive having maximum meter capacity (Qmax) 5000 CFH or more	Class 150	3" X 3"	
3	7000 CFH or Equivalent in Cubic Meter	Meter with Mechanical Instrument Drive having maximum meter capacity (Qmax) 7000 CFH or more	Class 150	3" X 3"	
4	11000 CFH or Equivalent in Cubic Meter	Meter with Mechanical Instrument Drive having maximum meter capacity (Qmax) 11000 CFH or more	Class 150	4" X 4"	
5	16000 CFH or Equivalent in Cubic Meter	Meter with Mechanical Instrument Drive having maximum meter capacity (Qmax) 16000 CFH or more	Class 150	4" X 4"	
6	23000 CFH or Equivalent in Cubic Meter	Meter with Mechanical Instrument Drive having maximum meter capacity (Qmax) 23000 CFH or more	Class 150	4" X 4"	
7	38000 CFH or Equivalent in Cubic Meter	Meter with Mechanical Instrument Drive having maximum meter capacity (Qmax) 38000 CFH or more	Class 150	6" X 6"	
8	56000 CFH or Equivalent in Cubic Meter	Meter with Mechanical Instrument Drive having maximum meter capacity (Qmax) 56000 CFH or more	Class 150	8" X 8"	
9	102000 CFH or Equivalent in Cubic Meter	Meter with Mechanical Instrument Drive having maximum meter capacity (Qmax) 102000 CFH or more	Class 150	10" X 10"	

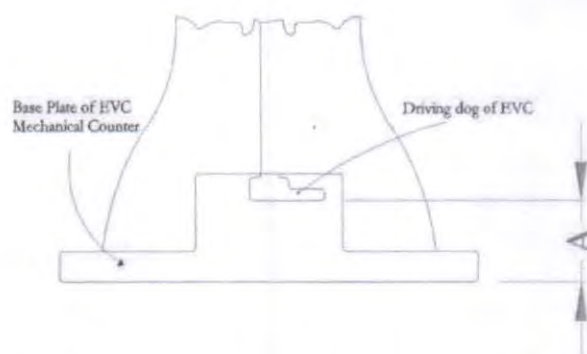
TECHNICAL BID EVALUATION CRITERIA:

Offer of the bidders will be evaluated strictly in accordance with the above stated technical specifications.

PIEDMC GAS DEPARTMENT

Clause No.	Specifications
1	<u>DESCRIPTION</u> Electronic Volume Correctors with Built in GPRS Modem for measuring and converting uncorrected volume of natural gas at line conditions to the corrected volume of gas in standard cubic feet units at base conditions and application of necessary super compressibility factor.
2	<u>Correction:</u> 2.1- EVC unit shall be capable of applying following corrections 2.1.1- Pressure (Live or fixed) 2.1.2- Temperature (Live or fixed) 2.1.3- Super compressibility (Live or fixed) 2.2- Capable of calculating and applying super compressibility correction in accordance with following methods: - AGA NX-19 or - AGA-8 At following conditions: • Base Pressure: 14.65psia (shall be configurable) • Base Temperature: 60°F(shall be configurable) • Specific Gravity of Gas between 0.55 to 0.75 (Density of Air = 1) Note: Shall provide super compressibility calculation method as a selectable option 2.3 Equipment shall be approved for legal metrology in accordance with International Measurement Standards such as OIML R140 or Equivalent. 2.3.1 Bidder is required to submit certificate for the above.
3	<u>Environment:</u> 3.1- Intended Location: Open 3.2- Operating temperature Range: 0-158°F 3.3. Ambient temperature range: 0-158°F 3.4. Humidity:95% non-condensing. 3.5. Shall not be affected by mechanical shock, vibration or electromagnetic disturbance.
4	<u>Materials and Manufacturing:</u> <u>4.1.Essential parts:</u> 4.1.1 <u>Key pad:</u> Must have a key pad that only allows scrolling information on the display. 4.1.2 <u>Display:</u> 4.1.2.1 Shall preferably have alphanumeric LCD/electronic display for reading values. 4.1.2.2 Number of display digits shall be configurable (preferably up to 09 digits with leading zeroes). 4.1.3 <u>Enclosure:</u> 4.1.3.1 EVC enclosure and mechanical counter shall be IP-66 rated i.e., it shall be weather proof. 4.1.3.2 Bidder is required to submit certificate for the above. 4.1.3.3 All the connecting conduits/fittings shall be weather proof. Enclosure Material: 4.1.3.4 Enclosure material should be robust enough to resist crack development due to aging, impact of UV light and effects of weather so as to cope up with the operating conditions of our region. 4.1.4 <u>Safety:</u> Intrinsically safe for measurement of Natural Gas. The Equipment shall conform to Class 1 Division 2 hazardous location or European equivalent (ATEX) or better. 4.1.5.Mechanical Counter:

- 4.1.5.1 Shall have built-in mechanical index (counter) that registers volume by the rotation transmitted by the meter and built in pulsar assembly to convert the mechanical motion to electrical pulses.
- 4.1.5.2 The built in pulsar assembly shall preferably be opto-coupler based.
- 4.1.5.3 The built-in pulsar index assembly shall be compatible with positive displacement rotary meters such as M/s GE (Dresser), Romet, Honeywell etc. and diaphragm meters such as Itron, Rockwell, Honeywell etc. having 0.01, 0.1, 1, 10, 100 & 1000 proving units and option to change the proving unit to any user defined value. The units of volume measurement shall also be interchangeable between ft³ and m³ and shall be visible on the display.
- 4.1.5.4 EVC shall properly register the minimum and maximum flow rates of all types of gas meters installed in SNGPL network in which provision of EVC mounting is available.
- 4.1.5.5 Depth of driving dog with reference to base plate of EVC mechanical counter (i.e., interface of EVC mechanical counter with meter) should be within 9-10mm which is further elaborated in below drawing as annotation 'A':



- 4.1.5.6 The built-in mechanical index pulsar assembly shall be bi-directional i.e., Index to meter couplings shall be designed such that meter drive rotation can be changed in both directions i.e., forward or reverse (clockwise or counter clockwise).
- 4.1.5.7 EVC shall be protected against any debouncing effect. Moreover, configurable debounce filter shall be provided to eliminate spurious pulses caused by relay contact bounce etc.
- 4.1.5.8 Supplier shall preferably specify the maximum torque of their mechanical index. Amount of force required to drive mechanical counter of EVC shall be so minimal that it would not affect the measuring accuracy of gas meter. To recapitulate above, it is desirable that high torque required to drive EVC shall not cause a shift of meter flow proving results from their OEM results.
- 4.1.5.9 Transfer torque from gas meter to index shall not be affected by mechanical shock and vibrations and electric or magnetic interference. Supplied equipment must qualify the following test conditions:
- a) Mechanical: free fall on each bottom edge from 50 cm to wooden test surface
 - b) Vibration:
 - i. Frequency range: 10-150 Hz
 - ii. Total R.M.S. Level: 7 m/s^2
 - iii. A.S.D. Level: $1\text{ m}^2/\text{s}^2$ for 10-20Hz, 3dB/octave for 20Hz to 50Hz
 - iv. Number of axes: 3
 - c) Electromagnetic susceptibility (radiated):
 - i. Frequency: 80-2000 MHz
 - ii. Field strength: 10V/m, class-A (no effect in instrument operation during and after applying disturbance)
 - iii. Modulation: 80%AM, 1kHz sine wave
 - d) Electromagnetic susceptibility (conducted):
 - i. Frequency: 0.15-80 MHz
 - ii. Field strength: 10V/m, class-A (no effect in instrument operation during and after applying disturbance)
 - iii. Modulation: 80%AM, 1kHz sine wave

e) Electrostatic discharge (ESD) immunity:

- i. Contact discharge: 8kV, 10 discharges, (no affect in instrument operation during and after applying discharges)
- ii. Air discharge: 15kV, 10 discharges (no affect in instrument operation during and after applying discharges)

Bidder is preferably required to submit certificate for the above.

- 4.1.5.10 First digit roll of mechanical counter shall have opto-reflective silvered zero for the purpose of automated flow proving.
- 4.1.5.11 Index to meter couplings shall be designed such that it allows the provision to decouple the mechanical counter so that it can be used to translate pulses only when needed.
- 4.1.5.12 Retaining mechanisms shall be strong enough to carry frictions caused by dust/moisture/rust.
- 4.1.5.13 Use of adhesive for positional retaining of mechanical parts is not allowed to weed out the possibility of adhesive failure with aging.
- 4.1.5.14 Driving dog of mechanical counter shall require at least π radians to generate one pulse. Generation of pulse at less than π radians is not acceptable.
- 4.1.5.15 The mechanical index (counter) shall not be affected by failure of battery or damage to electronic system.
- 4.1.5.16 Mechanical counter shall preferably have digitizer which shall store pulses and can give back up in case of failure of pulsar board.
- 4.1.5.17 Tamper Protection: In case of magnetic pulse generating system, the pulsar assembly shall be shielded with some suitable material to safeguard against the influence of electric / magnetic field applied from outside.
- 4.1.5.18 Relative permeability of shielding material shall preferably be 6000~7000.

4.2 Pressure transducer

4.2.1.1 (a): Gauge pressure sensor (Vented gauge type) alongwith a separate barometric sensor to measure actual atmospheric pressure (Bidder shall preferably submit separate MID parts certificate or equivalent).

(b): Pressure used for calculation of correction factor shall be selectable such that either

$$P_{\text{used for correction}} = P_{\text{gauge}} + P_{\text{barometric sensor}} \quad \text{or}$$

$$P_{\text{used for correction}} = P_{\text{gauge}} + \text{User defined fixed atmospheric pressure.}$$

(c): Capable of operating at altitudes up to 8000 feet above sea level. Sensor shall give zero reading when open to atmosphere regardless of altitude i.e., vented gauge. If gauge calibration is carried out at 2000 ft above sea level then sensor shall measure the same reading at the higher altitude say 8000 ft or above without requiring any calibration.

OR

(d) Provide absolute pressure transducer (Bidder shall preferably submit separate MID parts certificate or equivalent).

{Note either option 1 (a, b & c) or option 2 only (d) may be provided}

4.2.1.2: Range: 0-200 psig

4.2.1.3: Accuracy: $\pm 0.2\%$ of measured value.

4.2.1.4: Long term stability: $\pm 0.1\%$ of full scale for a period of 12 months.

	4.2.1.5: Shall be able to be calibrated in the workshop. EVC must provide multi point calibration. 4.2.1.6 Note: Pressure sensor pipe threads NPT/BSP shall preferably be tapered so as to prevent the leakage of gas from the threads of pressure sensor. Note: Pressure transducer can also be provided externally.
4.5	4.3 Temperature transducer: 4.3.1 RTD sensor 4.3.2 Accuracy: $\pm 0.5^{\circ}\text{C}$ 4.3.3 Dimensions: 4.3.3.1 Diameter: 5.5 to 6.5 mm 4.3.3.2 Length: 3-3.5 inches 4.3.4 Shall be able to be calibrated in the workshop. EVC must provide multi point calibration. 4.4 Power Requirements: 4.4.1 Type: Suitable Lithium batteries 4.4.2 The battery pack shall be intrinsically safe and leak-proof and it shall be fully covered by whatever is the method. Battery must preferably be certified for explosion safety and for leakage safety as well. 4.4.3 Service Life: EVC batteries shall power EVC for atleast five years. 4.4.4 Complete literature for batteries nominal ampere hours, usable ampere hours, useful life and break up of EVC current consumption for performing different functions in graphical form shall be provided. 4.4.5 Cut off voltage of the battery (at which EVC display turns off and calculations are stopped) and corresponding battery percentage at constant drainage rate shall be specified. 4.4.6 EVC shall measure and display battery voltage. 4.4.7 EVC shall have the provision to display low battery alarm on LCD well ahead of the cut off voltage to give enough time margin so that battery can be replaced before EVC display turns off. 4.4.8 The corrector shall not lose any recorded data as well as configuration while replacing batteries. Preferably backup memory chip/non-volatile memory IC shall be present for safe data storage and recovery. 4.4.9 In case of depleted battery all indexes and data logs shall retain their values. 4.4.10 If EVC have the provision to retrieve pulses in case of power failure from primary battery, the retrieved pulses shall be stored/registered in a separate column. 4.4.11 Primary/main battery pack type: Battery pack shall be encapsulated by means of heat shrinking tube or plastic. Cells and circuits must be permanently welded and encapsulated as a whole. Battery holders are not acceptable. Battery pack must be securely mounted on EVC body. 4.4.12 Remaining battery life in ampere hours or percentage based on real battery energy usage must be available. Preferably hardware coulomb counter shall be provided. 4.5 Additional Inputs and Outputs: 4.5.1 4-20-milliamps analog input ports (at least 4-Nos. preferably.) 4.5.2 Digital inputs (at least 4-nos.) 4.5.3 Digital outputs (at least 2-nos.) 4.5.4 4-20-milliamps analog output (1-no. preferably)
5	Performance requirements: 5.1. Accuracy (Overall): Maximum Combined Instrument accuracy (MPE-maximum permissible error) shall be within $\pm 0.5\%$. 5.2. Display Parameters: Shall readily retrieve and display the following parameters or more - Time and Date - Uncorrected volume index - Corrected volume index - Fault/disturbed/error uncorrected volume index - Fault/disturbed/error corrected volume index

- f) Live pressure
- g) Live temperature
- h) Total volume correction factor
- i) Flow rate (corrected and uncorrected).
- j) Engineering units
- k) Battery capacity
- l) Battery voltage

5.3 Data storage capacity:

5.3.1. Capable of storing data as described below

- (a) Hourly log= minimum 16 months or preferably 02 years or above.
- (b) Daily logs = 02 years at least
- (c) Monthly Logs = 03 years at least
- (d) Alarm log = 1000 records at least
- (e) Event Log/Status Log = 1000 records at least
- (f) Configuration change log/Audit log/Set up Log = 1000 records at least

5.3.2 Stored data shall not be lost in case of battery failure or EVC internal faults.

5.3.3 Archive and log contents shall be permanently preserved even when EVC battery and back up battery is removed.

5.3.4 If such data is stored in flash memory of the instrument, flash memory wear out protection mechanism shall be present. Supplier shall provide detail of wear out protection mechanism.

5.4 Fault/disturbed/error Volume generation:

5.4.1 There shall be provision for fault/disturbed/error volume generation beyond any user defined/configurable pressure, temperature and flow rate limits.

5.4.2 Generation of fault volume shall not be dependent upon the measuring limits of sensors.

5.4.3 In case of occurrence of fault volume, software/configuration shall have following provisions:

- a) EVC will apply user defined pressure and temperature factor (default value) on uncorrected fault volume to generate corrected fault volume such that:
 - I. Uncorrected reading will continue incrementing while corrected reading is stopped and simultaneously uncorrected fault volume is incrementing and corrected fault volume is incrementing based on user defined pressure and/or temperature value.
 - II. Preferably, uncorrected reading will continue incrementing while corrected reading is also incrementing at user defined pressure and/or temperature values simultaneously uncorrected fault volume and corrected fault volume is incrementing at user defined pressure and/or temperature values (default values).

5.4.4 During the interval of fault/disturbed volume generation, the actual measured values of parameters shall be logged in data and the same shall be displayed on LCD while simultaneously using the default values of parameters for calculating the correction factor.

5.4.5 The indication of correction factor being calculated during fault/disturbed volume instances on EVC LCD shall be coded e.g., as "default" or any other suitable symbol such that the correction factor is not visible on the main display screen so as to avoid confusion by field metering staff.

5.5 Hysteresis:

Application of hysteresis to avoid frequent switching from fault/disturbed condition to normal condition would not affect set limit value of parameter. However, it may be applicable when the parameter normalizes and it shall not be more than $\pm 2\%$ of the limit value.

5.6 If EVC have the provision to retrieve pulses in case of power failure from primary battery, the retrieved pulses shall not add up in fault volume/disturbed volume. The retrieved pulses shall be stored in a separate column as described in sub clause 4.4.10.

5.7 Data logging:

5.7.1 Unit must be capable of logging atleast the following parameters in its daily and hourly data logs:

- a) Time and date of record
- b) Pressure: average, instantaneous maximum and instantaneous minimum.

	c) Temperature: Average instantaneous maximum and instantaneous minimum. d) Uncorrected Volume –index. e) Corrected Volume-index. f) Uncorrected Volume –consumption. g) Corrected Volume-consumption. h) Fault/disturbed/error volume counters-The following counters shall be provided which shall be incrementing in accumulative manner after the occurrence of each fault instant: - i-Fault/disturbed/error volume – uncorrected. - ii-Fault/disturbed/error volume – corrected. i) Uncorrected Reverse volume (Reverse flow in data shall be indicated with a minus “-”symbol.) j) Tamper status. (only in hourly logs) 5.7.2 Must be capable to log atleast the following additional values in its daily and hourly logs: a) Average Correction factor b) Uncorrected flow rate(average, instantaneous maximum and instantaneous minimum) c) In case of fault/disturbance occurred during data logging of any parameter then respective code shall preferably appear alongwith the logged EVC data. d) Battery consumption statistics e) Monthly battery consumption history. 5.7.3 Audit log/Configuration Change log/Set up Log: 5.7.3.1 EVC must have an audit log/configuration change log/Set up log which shall record all the parameter changes that may affect the billing. 5.7.3.2 These audit log entries shall have a date and time stamp. 5.7.3.3 To ensure the integrity of the billing period, the audit log shall not be able to be deleted. 5.7.3.4 It shall have facility to record logs as described in 5.3.1 (f). 5.7.4 Alarm Log: 5.7.4.1 EVC shall preferably have an ‘ALARM LOG’ to monitor the set-point limit violations of the following parameters: 5.7.4.1.1 Low / High Pressure 5.7.4.1.2 Low / High Temperature 5.7.4.1.3 Low / High Flow Rates 5.7.4.1.4 Transducer failure 5.7.4.1.5 Low battery and other system alarms 5.7.4.2 Tamper Alarm: Detection of External Electric/Magnetic Field applied on/around the EVC to disturb its normal operation. The Alarm shall indicate time/date of application of external magnet as well as its removal shall be available in hourly and daily data logs. 5.7.4.3 These Alarm Logs shall be downloadable by using software. 5.7.4.4 Tamper alarm, once appeared, shall be constantly latched at EVC display and shall not disappear without acknowledgement through PC using configuration software. 5.7.4.5 It is the sole responsibility of the bidder to stringently test magnet tamper alarm so as to avoid occurrence of false tamper alarm while EVC is generating pulses to measure uncorrected volume. 5.7.4.6 Hardware Diagnostics: Shall preferably archive hardware diagnostic parameters such as sensor failure, memory, A/D over range and other important hardware system alarms.
	5.8 Configurable parameters: The unit must allow to configure, define and preload at least following parameters: a) Time and Date. b) Engineering Units c) Uncorrected volume index d) Corrected volume index preload e) Uncorrected fault/disturbed volume index f) Corrected fault/disturbed volume index g) Drive rate or meter scale factor preload h) High/Low Alarm limits i) Pressure and temperature values to be used in case of set limits violation.

	j) Base Pressures k) Base Temperature
	5.9 Fixed parameters: Shall have the provision to fix the following parameters: a) Pressure b) Temperature c) Super compressibility factor
	5.10 Feeding of values: 5.10.1 Shall have the provision to feed in the following as a minimum: a) EVC NO b) Name & Address of Consumer c) Consumer No./Consumer I.D up to 14 characters 5.10.2 Parameter shall be downloaded with the EVC data logs which can provide traceability of unit/consumer, this feature is essentially required as the data logs are to be produced before the court of law as evidence of tampering / overloading.
	5.11 Provision for EVC configuration/calibration EVC configuration/calibration shall be through a PC based system/software 5.12 Software: Two types of software shall be provided: 5.12.1 Software for data downloading: Software for data downloading shall allow downloading data from EVC to Laptop Computer and generation of final report to get print out. 5.12.1.1 No option of data configuration and calibration shall be available in this software. 5.12.1.2 Consumer ID/Consumer No. could be entered by using this software. 5.12.1.3 The software shall be able to download data for any specific period of time. It shall prompt for the dates of the period for which the data is required to be downloaded. 5.12.1.4 Data from EVC shall be downloaded/retrieved in non-editable format further convertible to MS Excel, MS Word, PDF etc for analysis/processing. 5.12.2 Software for configuration/calibration: Shall have provision of configuration/calibration of all the parameters as listed in clause 5.8, 5.9 and 5.10. 5.12.2.1 The software shall be able to download data for any specific period of time. It shall prompt for the dates of the period for which the data is required to be downloaded. 5.12.2.2 Data from EVC shall be downloaded/retrieved in non-editable format further convertible to MS Excel, MS Word, PDF etc for analysis/processing. 5.12.2.3 EVC firmware shall be approved as per the Welmec 7.2 covering the requirements of type-P, extension I, L, D, S and preferably T or equivalent. 5.12.2.4 EVC must support real time monitoring data acquisition from Aveva OASYS DNA 7.6 based SCADA system using MODBUS-RTU or DNP-3.0 protocol. Firmware and interface software required for the completion of this activity having all the features committed as per tender specs shall be provided by the bidder. 5.12.2.5 Bidder shall provide latest version software and firmware, release of said software/firmware shall not be older than two years. EVCs provided against current tender shall not be accessible with two year older software/firmware versions of all earlier models of EVCs. In case, manufacturer has already provided EVCs to SNGPL against previous purchase orders. Procedure/mechanism shall be provided to shift all the earlier EVCs which are older than 2 years to this new software. 5.12.2.6 In case of observed fault in design/software/hardware/firmware, the issue will be reported to manufacturer and after joint analysis of issue by manufacturer and SNGPL as well as confirmation and verification of the issue by manufacturer as an anomaly, the solution will be provided by manufacturer free of cost. Generation of printable report: 5.13.1 The EVC software shall be able to generate printable report for any period. 5.13.2 It shall prompt for the dates of the period, for which report is to be generated. 5.13.3 The printable report shall preferably contain the following information:

	a) Time and date b) Pressure: Average, maximum and minimum c) Temperature: Average, maximum and minimum d) Uncorrected Volume e) Corrected Volume f) Correction factor g) Alarms, Pressure, Temperature, and Low Battery etc.
6	<u>Security Features:</u> 6.1. Sealing: 6.1.1. Shall have suitable provision for sealing. 6.1.2. All the screw fasteners, cable glands and nuts used to secure the main enclosure's lid, mechanical counter, transducer cables or any other connections shall have holes drilled in their head/body to allow passing of sealing wire of $\varnothing 2 \pm 0.1$ mm and shall be of material rugged enough to allow repetitive use of sealing wire without breaking during re-use of sealing hole or at consumer site under field conditions. 6.1.3. Any unused ports/connection points shall be properly sealed/ blocked to prevent access to internal parts of EVC. 6.1.4. No exposed electronics are allowed. All internal parts/circuits must be protected / sealed against external access. 6.2. Software protection: 6.2.1 Windows based software for configuration of EVC must be well protected from hacking through implementation of software security measures. Bidder shall certify that said software shall not be available on the internet for downloading / familiarization. 6.2.2 Software for data downloading and software for configuration both shall be customized for SNGPL only so that EVCs supplied to SNGPL shall not be accessible by software provided to customers in other countries of world. 6.2.3 Provided software needs to be installer based 6.3. Data Downloading Port: 6.3.1. The data downloading port must be free from any kind of tampering attempt. 6.3.2. Data downloading port shall remain active and shall not sleep as long as EVC is communicating with PC. 6.3.3. EVC normal operation shall not be disturbed via data downloading port. 6.3.4. Internal parts of EVCs shall be protected and shall not be accessible (visible) through its data ports. 6.4. Configuration/Calibration protection: 6.4.1. On/Off Jumper: a) Shall have an ON/OFF JUMPER inside the body of the EVC to ENABLE and disable configuration / calibration through keyboard and software both. b) When JUMPER is at "ON" position it shall ENABLE configuration / calibration. when at "OFF" position it shall DISABLE configuration / calibration 6.4.2. Data Cable for Configuration/Calibration Two types of cables are required for EVCs. a) Cables for data downloading only: These cables shall have the provision to download data only, with no provision of performing configuration/calibration activities. Each cable shall have a unique ID b) Cables for configuration, calibration and data downloading: These cables shall have the provision to perform all three activities i.e., configuration, calibration as well as data downloading. Each cable shall have a unique ID. Unique ID and Event of optical head whenever attached with EVC shall be logged with date/time stamp for above mentioned both types of cables.

	6.5. Password: 6.5.1. The password protection in addition to "ON/OFF" JUMPER is required. 6.5.2. Password shall be changeable. 6.5.3. The password must be stored in EVC memory. 6.5.4. EVCs shall not allow changes in configuration unless the correct password is entered / communicated to the EVC and JUMPER inside the body of EVC shall be at "ON" position. No changes in configuration can be allowed by EVC unless both password and JUMPER position are fulfilled to avoid any chances of software hacking.
	6.6. Flow sense: 6.6.1 There shall be provision in the software of the EVC to sense the flow direction i.e. volume in reverse flow shall be separated from the volume calculated in forward flow. 6.6.2 There shall be separate indices/counters for measuring uncorrected reverse flow and corrected reverse flow. 6.6.3 In case of reverse flow, uncorrected and corrected readings shall Freeze/stop incrementing. 6.6.4 Upon resumption of forward flow uncorrected reading and corrected readings shall start incrementing immediately. Any compensation from uncorrected reading and corrected reading is not acceptable. In such scenario when uncorrected and corrected reading is frozen/stopped as defined in 6.6.3, there shall be mismatch between meter mechanical counter reading and EVC uncorrected reading to avoid pilferage of gas by means of reverse flow.
	7: Communications 7.1 Description: 7.1.1 Built-in GPRS modem powered by suitable Lithium battery alongwith optional solar PV system with suitable rechargeable battery bank. 7.1.2 The complete communication system shall be powered using solar panel power or solar system battery bank and must not utilize power from the EVC batteries. 7.2 Power: 7.2.1 Separate GPRS modem battery shall be provided independent from EVC battery. 7.2.2 Battery Type: Suitable Lithium battery. 7.2.3 The battery pack shall be intrinsically safe and leakage proof and it shall be fully covered by whatever is the method. Battery must preferably be certified for explosion safety and for leakage safety as well. 7.2.4 Complete literature for batteries nominal ampere hours, usable ampere hours, useful life and break up of GPRS modem current consumption for performing different functions in graphical form shall be provided. 7.2.5 Cut off voltage of the battery and corresponding battery percentage at constant drainage rate shall be specified. 7.2.6 EVC shall measure and display battery voltage (both EVC primary battery and GPRS battery voltage). 7.2.7 EVC shall have the provision to display low battery alarm on LCD well ahead of the cut off voltage to give enough time margin so that battery can be replaced before EVC display turns off. 7.2.8 Battery pack type: Battery pack shall be encapsulated by means of heat shrinking tube or plastic. Cells and circuits must be permanently welded and encapsulated as a whole. Battery holders are not acceptable. Battery pack must be securely mounted on EVC body.

	7.2.9 Remaining battery life in ampere hours or percentage based on real battery energy usage must be available. 7.2.10 GPRS modem shall support operation on both external DC power from solar power system or primary battery. 7.2.11 When external solar power is available, GPRS modem shall not consume power from its primary battery. 7.2.12 In case of solar power failure, modem shall automatically switch to its primary battery. 7.2.13 Battery life must be at least 5 years when GPRS modem runs on primary battery only. 7.2.14 Bidder must present real-time battery consumption measurements during the session of GPRS modem to exchange complete EVC data with the remote-control center when running on primary battery. 7.3 Safety: 7.3.1 GPRS modem must also be included in EVC intrinsic safety certification i.e., it shall conform to Class 1 Division 2 hazardous location or European equivalent (ATEX) or better. 7.3.2 Bidder must provide certificates for above. 7.4 Communication: 7.4.1 Communication system must be able to communicate with the Central Server / Control Room on daily basis through suitable means of communication (both outbound and inbound connections). 7.4.2 These modems shall also be compatible with mobile & wireless communications systems of Pakistan e.g. Mobilink, Ufone, Telenor, Warid, Zong etc. and the communication system must be able to communicate with the Central Server / Control Room on daily basis through suitable means of communication i.e. SMS, GPRS. The detailed mode of communication must be explained along with its viability to ensure daily communication with the Central Control Room. 7.4.3 (a) "Type Approval" & NOC of GPRS Modem from PTA/FAB shall be responsibility of the bidder. (b) If the GPRS Modem is already type approved, the bidder shall provide type approval certificate of their offered model. (c) The supplier shall facilitate SNGPL and fulfill all the pre-requisites on their part regarding registration of all the supplied IMEI devices and extend his support in all respect during the registration process at port of entry with customs and PTA. (d) The supplier shall declare the devices as IMEI based devices at port of entry to the customs along with complete list of these devices with their respective IMEI numbers. (e) The supplier shall provide complete list of these devices on PTA Device Registration System (DIRBS). (f) The supplied devices IMEIs shall be GSMA valid not duplicated/cloned. 7.4.4 Remote communication intervals and time of day must be user defined. 7.4.5 For establishing outbound connections, when specific time of the day is reached, EVC shall activate its remote communications interface (GPRS), establish connection(s) with one or more remote server(s) located at control room, transmit collected information, exchange data, receive commands, and execute any tasks defined by the system administrator, end the session and disconnect. It shall then go back to hibernation mode and shall wait for the next specified interval and repeats this operation. 7.4.6 GPRS modem shall also operate as a listening server (inbound) i.e., the server Software shall be able to automatically communicate with EVCs by means of communication system at fixed interval. When specific time of the day is reached EVC shall activate its remote communications interface (GPRS), establish connection(s) with one or more remote
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server(s) located at control room, transmit collected information, exchange data, receive commands, execute any tasks defined by the system administrator s and its remote communications interface (GPRS). At the same time, it shall remain active and accept incoming connections from control center for as long as the length of interval defined by user.

- 7.4.7 The communication shall preferably be by means of a permanent socket connection to ensure 100% data communication without any fail.
- 7.4.8 GPRS modem shall preferably support multiple concurrent outbound and multiple concurrent inbound connections.
- 7.4.9 For establishing multiple outbound connections, more than one remote server IP and port may be defined such that GPRS modem shall be able to try another remote server if one server is found inaccessible.
- 7.4.10 Simultaneous connections shall not cause EVC local communication ports to slow down, or stop, or any kind of performance degradation.
- 7.4.11 When external power is present, GPRS modem shall immediately establish continuous outbound connections and also accept continuous inbound connections, and shall maintain their stability and health.
- 7.4.12 GPRS Modem must have configurable auto reconnect feature as soon as external battery power is restored.
- 7.4.13 When external power becomes unavailable, GPRS modem shall switch from continuous mode to intermittent connection mode. It shall automatically abort existing connections and wait for user-configurable time of day. When this time of day is reached, the GPRS modem shall wake up and establish/allow the connections as described in clause No 7.4.5 and 7.4.6.
- 7.4.14 Transition between the two power modes shall be automatic and seamless.
- 7.4.15 GPRS modem and EVC shall support either Modbus RTU or Modbus TCP/IP or preferably both.
- 7.4.16 Shall be able to communicate with SCADA system and control center software simultaneously.
- 7.4.17 For easy adaptation of EVCs to existing SCADA software, Modbus addressing must be configurable and shall not require programming.
- 7.4.18 Consumer ID & EVC Serial No. length as defined in section 5.11 along with UOM must be readable on SCADA with appropriate data format e.g. BCD, float etc.
- 7.4.19 SCADA polling frequency: Minimum SCADA polling frequency shall be Every 1 hour. Maximum SCADA polling frequency shall be Every 10 minutes.
- 7.4.20 Minimum duration of each communication interval: 20 seconds.
- 7.4.21 RTC synchronization: EVC clocks shall preferably be able to be regularly synchronized by the control center software and/or by the SCADA software. Furthermore, protection mechanism shall also be provided preferably to protect against erroneous clock updates generated as a result of wrong configurations or human faults.
- 7.4.22 Modem must be capable of communicating daily, hourly and monthly logs, alarms, event logs etc., as described in Clause 5.7.
- 7.4.23 Shall provide communication statistics such as Signal Level (RSSI), TCP sockets information, number of failed TCP connections, registering GSM network and preferably Bit Error Rate.
- 7.4.24 Shall provide diagnostic information for identifying a communication problem between SCADA/Control Center and remote EVC.
- 7.4.25 Shall provide the feature of SMS reporting.
- 7.4.26 Number of authorized SMS recipients must be user defined.

7.4.27 Messages must be user configurable as alarm messages or daily/hourly reports.

7.4.28 User must be able to select/specify the alarms that trigger SMS reporting.

7.5 Communication software:

7.5.1 The Server Software shall preferably be able to integrate with existing software system i.e., AVE2 of M/s. Geovapspol. s.r.o. Czech Republic and DMASFLO of M/s. RMFTEK Inc, Turkey for smooth operations. If it cannot be integrated with existing software system then mechanism shall exist to migrate existing EVCs to the new software system.

7.5.2 Any additional software such as operating system, database or third-party software along with software licenses shall also be provided by the supplier.

7.5.3 In parallel to client-based software, the supplier shall also provide a WEB-based interface for overall management of EVCs.

7.5.4 The communication software (software for the server side to manage the remote stations) shall have a provision to accommodate data of at least 2000 EVC sites.

7.5.5 Preferably the availability of RESTful API (REST API) to retrieve/post data from the EVCs or from the EVCs server shall be provided.

7.5.6 Supplier shall provide server end software as mentioned in Clause 7.5.1 and 7.5.2 (01-No software for production environment and 01-No software for testing purpose).

7.6 Materials and manufacturing:

7.6.1 Solar PV system:

7.6.2 Shall be properly sized to support device load such that in case of solar power unavailability, the system shall be able to provide backup for a period of 21 days

7.6.3 Solar panel

7.6.3.1 Type: Mono-Crystalline.

7.6.4 Battery Pack:

7.6.4.1 Type: Suitable Li-Ion battery.

7.6.4.2 Charging temperature: 32°F to 113°F.

7.6.4.3 Discharge temperature: 32°F to 140°F

7.6.4.4 Battery Life: 05 Years minimum.

7.6.5 Solar Charger:

7.6.5.1 Type: MPPT solar charge controller.

7.6.5.2 Low voltage protection point shall be specified by the manufacturer.

7.6.5.3 Shall preferably have an electronic display for showing charge voltage, charge current, battery voltage, battery capacity, output current etc.

7.6.6 Power and safety barrier cabinet/combiner box:

7.6.6.1 Shall be IP 67 rated.

7.6.6.2 Bidder is required to submit certificate for the above.

7.6.6.3 All the connecting conduits/fittings shall be weather proof.

7.6.6.4 Cabinet shall include a suitable certified safety barrier between solar power system output and EVC/GPRS modem external DC input (Bidder is required to submit safety certificate of the safety barrier).

7.6.6.5 Antenna: High gain external antenna.

7.6.6.6 Mounting assembly/Kit for solar PV system:

7.6.6.6.1 Complete mounting assembly / kit (e.g. pipe-stand bracket etc.) alongwith suitable connecting cables shall be provided.

7.6.6.6.2 Mounting kit type: Pole mount type with adjustable tilt angle.

7.6.6.6.3 Material: Corrosion resistant material.

7.6.6.6.4 Mounting Pole dimensions:

7.6.6.6.4.1 Mounting post nominal dia. max : 2"

7.6.6.6.4.2 Mounting post outside diameter: 60mm

7.7 Operation and maintenance manuals to be provided.

7.8 Online workshop or support for communication to Central Control Room with the aspect of checking performance of 30 Nos. of EVCs with modems which are installed at site (for training of SNGPL Executive / Staff). Print out of 5 days data logs are essential.

8: ACCESSORIES WITH QUANTITIES

8.1. Description

8.1.1. Windows Based Software for Downloading EVC data: 01 No.

8.1.2. Windows Based Software for configuration of EVC: 01 No.

8.1.2.1 Softwares against 8.1.1 & 8.1.2 shall be provided through electronic link.

8.1.3 Hardware keys: 10 No.

8.1.3.1 Bidder shall provide latest model hardware keys such that software provided against subject tender shall not be accessible by hardware keys provided for all earlier model of EVCs.

8.1.3.2 Provided hardware keys shall have a unique ID.

8.1.3.3 Unique ID of hardware key shall be logged with date/time stamp against all events recorded in event log.

8.2 The bidder shall quote prices of following spares parts required for trouble free and smooth operation of the system

8.2.1 Suitable leads/cables for configuration, calibration and data downloading of EVC as per 6.4.2 shall be provided as given below:

Total = 50 Nos. (Break up of which is as under)

I. Cables for data downloading only = 40 Nos.

II. Cables for configuration/calibration and data downloading: 10 Nos.

8.2.2 LCD: 60 Nos.

8.2.3 Pressure Transducer: 120 Nos.

8.2.4 Temperature transducers: 30 Nos.

8.2.5 Battery Packs: 120 Nos.

(Battery packs shall be completely assembled and ready to be used without requiring resistance welding, soldering and wrapping in heat shrinkable sleeve. The battery pack shall have male/female connector to connect them with the circuit board of EVC).

Mechanical counter: 120 Nos.

8.2.6 Push button for EVC: 250 Nos.

8.2.7 Modem Antenna: 200

8.2.8 Modem module (Pluggable/Replaceable): 100

9: General

9.1 Supplier will be required to conduct a workshop at SNGPL office/online session to explain operation, configuration, calibration, data retrieval and troubleshooting / maintenance of the system to our engineers and staff.

9.2 After installation in the field, if SNGPL observed failure of design/software/hardware, it will be reported to manufacturer and it will be promptly scrutinized/ analyzed by the manufacturer jointly with SNGPL and necessary trouble shooting/support will be provided by manufacturer in order to use EVCs confidentially.

9.3 The Bidder may quote separately the frequently replaceable parts along with Part Nos. and budgetary prices required for trouble shooting/maintenance purposes.

9.4 The bidder shall separately quote the instruments required for calibration of EVCs (excluding Dead Weight Tester)

9.5 The bidder shall quote list of essential spares, required for trouble free and smooth operation of the system for a period of at least two years.

9.6 It is mandatory for every bidder to submit 02 Nos. samples of EVC along with necessary accessories i.e., solar panel, solar power box, mounting kit, connecting cables etc and software to test its functionality. The necessary accessories items, i.e., solar panel, solar power box, mounting kit, connecting cables etc. along with sample submission shall be exempted in case the similar accessories have already been provided with EVCs supplied by the bidder against previous purchase orders but not older than 2 years of same design, features and model as quoted against current tender.

9.7 Supplier shall provide comprehensive technical literature so as to evaluate compliance with or deviation from above technical specifications. Technical literature shall be inclusive of vendor documentation i.e. technical literature of their vendors.

9.8 Bidder is required to provide technical support, if possible, to highlight the possibilities of tampering the equipment.

TECHNICAL BID EVALUATION CRITERIA:

Offer of the bidders will be evaluated strictly in accordance with the above stated technical specifications. Bidder shall quote necessarily required quality assurance equipment to gauge the health of used EVCs.

	Distribution Specifications		Rev #	00
	Title	SPECIFICATIONS OF LEAK CLAMPS	date	01.01.2022
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Clamps with full seal for pinholes circumferential leak, breaks or cracks for 4" dia. to 16" dia. steel linepipe having following specification.

1. Accommodate wide range of outerdia variation.
2. Light weight.
3. Band shall be made from Corrosion resistant stainless steel (type 304) Min. 0.80mm Thickness for 4" and above sizes and 0.50-0.80 mm for upto 2" sizes.
4. High strength stainless steel bolts having spin-fit threads, treated with an anti-galling agent, got fast installation.
5. Lugs shall be epoxy coated and made from S.G iron ASTM A-536.
6. Stainless steel gas bridges cemented to the gasket where the band sections join, to provide the 360 clamping pressure.
7. Tapered end gridded gasket, made of specially compounded rubber, has a gridded pattern for positive sealing and tapered ends to make installation quick and easy.
8. Shelf life of sealing gasket should be three years or more.
9. Suitable at Operating pressure of 100 PSIG for 3/4" to 6" leak clamp.
10. Suitable at operating pressure of 150 PSIG for leak clamp (8" to 16")
11. Suitable for Temperature Range of 25°F to 125°F
12. Dimensions:

Nominal Pipe Size Inch	Out side diameter of pipe Inch	Length of Clamp Inch
4"	4.50	12"
6"	6.625	12"
8"	8.625	12"
10"	10.750	12"
12"	12.750	12"
16"	16.00	15"

The suppliers, must submit atleast one samples alongwith their bid to evaluate field performance and site suitability. (The manufacturers / supplier already supplied the same type of leak clamps to the company may not require to submit the samples).