



شركة توزيع الكهرباء المساهمة العامة
Electricity Distribution Company



Ref : _____

الرقم : 15176/79/22/9

Date : _____

التاريخ : 2022/10/23

السادة _____ المحترمين

الموضوع: تمديد موعد إغلاق العطاء (2022/79) لتوريد نظام إدارة العدادات

إشارة الى الموضوع اعلاه ، يرجى العلم بأنه تقرر تمديد موعد إغلاق العطاء (2022/79) و المتعلق بتوريد نظام إدارة العدادات، والذي يصادف موعد إغلاقه يوم الثلاثاء الموافق 2022/10/25 إلى يوم الثلاثاء الموافق 2022/11/8.

واقبلوا الإحترام ،،،

نائب المدير العام للشؤون الفنية

م. سامي الزواتين

FQp18-02,Rev.c



هاتف : 5331330 (+962-6) الناسوخ 5341213 (+962-6) - ص.ب 830878 عمان 11183 الأردن
Tel.: (+962-6) 5331330 - Fax.: (+962-6) 5341213 - P.O. Box 830878 Amman 11183
Jordan



**ELECTRICITY DISTRIBUTION COMPANY.
SPECIFICATIONS FOR METER DATA MANAGEMENT SYSTEM
MDM “TURNKEY PROJECT”**

Tenderer:

Name: _____

Address: _____

Telephone/ Cellular: _____

Fax _____

Website _____

E-Mail: _____

Contact Person: _____

Director General

Electricity Distribution Company (EDCO)

P.O. BOX: 830878.

Amman – 11183 – Jordan.

The Hashemite Kingdom of Jordan.

TABLE OF CONTENTS

INVITATION LETTER	3
I. GENERAL CONDITIONS	4
1. Preamble	4
2. Formation of Contract	4
3. Drawings and Descriptive Documents	5
4. Packing of the materials and shipping marks	5
5. Inspection and Tests	6
6. Passing of Risk	8
7. Delivery	8
Force Majeure	10
8. Terms of Payment	10
9. Guarantee	12
10. Relief	13
11. Limitation of Damages	13
12. Rights at Termination	14
13. Arbitration and Law Applicable	14
II. SPECIAL CONDITIONS OF CONTRACT	14
III. TENDERING INSTRUCTIONS	15
IV. FINANCIAL DOCUMENTS	19
1. Tender agreement summary	19
2. Form of bid bond	20
3. Form of performance bond	21
4. Form of maintenance bond	22
V. TECHNICAL SPECIFICATIONS AND SCHEDULES	23
1. Abbreviations	23
2. Scope in Brief	25
3. EDCO High-Level AMI Architecture	26
4. General Requirements	26
5. Advanced Requirements	34
6. System Usability	35
7. Technology Requirements	36
8. Security Requirements	41
9. Project Requirements	45
10. Installation and Set Up Period	48
11. Other Requirement	48
VI. EVALUATION AND QUALIFICATION CRITERIA	49
1. Qualification Requirements	50
2. Qualification Information	51
3. Method Statement	52
4. Work Plan	52
5. Financial Proposal Forms	53
6. Activity Schedule	53
7. Price Schedule	53
Eligible Bidders	54

INVITATION TO TENDER

(79 /2022)

Dear Sir,

You are kindly requested to tender for the supply of the below mentioned materials as per the quantities and technical specifications enclosed herewith, by filling in the schedules, signing the form of tender, and forwarding the complete tender documents to the attention of **EDCO-Director General** addressed as seen on the cover page, to be **received not later than 2: 00 pm (local time) (8/ 11 /2022)**.

All bids must be accompanied with a bid bond of a value not less than **5%** of the highest alternative tender price, otherwise your tender will not be considered. The bid bond shall be enclosed in the same envelope of the tender and must be delivered to the above office **not later than 2:00 pm (local time) (8/ 11 /2022)**.

- The winning bidders/bidder shall bear the announcement costs in the local newspapers, no matter how often the announcement has been posted.

I. GENERAL CONDITIONS

The below are general conditions of contract for the supply and delivery of plant and materials based on United Nations economic commission for Europe publication ref.: me/ 188 Geneva. March, 1953 And/or according to FIDIC 1999 if there is a constructions works.

1. Preamble

1.1. These General Conditions shall apply, save as varied by express agreement accepted in writing by both parties.

1.2. Definition of Terms:

The "**Purchaser**" shall mean "**ELECTRICITY DISTRIBUTION COMPANY.**" Hereinafter called "**EDCO**", and shall include **EDCOS** legal personal representatives and duly appointed engineers. The "**Engineer**" shall mean ". **ELECTRICITY DISTRIBUTION COMPANY** " or persons for the time being or from time to time duly appointed in writing by the purchaser to act as Engineer for the purpose of the contract.

The words "approved" and "approval" where used in these conditions or in the specification shall mean "**approved by**" and "**approval of**" the purchaser respectively. The "Vendor" shall mean the "Contractor" who's tender has been accepted by the purchaser and shall include the **Vendor's**. (Contractor's) legal personal representatives, successors and permitted assigns, "**F.O.B. Price**" shall mean the cost of the equipment delivered free on board the ship or truck or aircraft, all port charges and handling charges (also heavy lift if applicable) included .

The contractor must insure the material against all risks from the time it leaves the works until it is placed F.O.B "**CFR price**" shall mean F.O.B. price plus freight including unloading at the port of destination. All Marine Insurance will be affected by the purchaser.

NOTE:-The contractor must provide full details of the material to be shipped in good time for **EDCO** to arrange for Marine Insurance before the material is actually shipped.

2. Formation of Contract

2.1.The contract shall be deemed to have been entered into when the purchaser has sent an acceptance in writing before the time set in the tender for acceptance or any such later date extended by the tenderer at the request of the purchaser.

2.2.Notwithstanding that the contract and correspondence in connection with the contract shall be in the English language, the contract shall be and be deemed to be a Jordan contract and shall accordingly be governed by and construed according to the laws for the time being in force in the Hashemite Kingdom of Jordan.

2.3.**Power to Vary The Work:** no alternations, amendments, omissions, additions, suspensions, or variations of the work, (hereinafter referred to as "variations") under the contract as shown by the contract drawings or the specification shall be made by the contractor except as directed in writing by the purchaser, but the purchaser shall have full power, subject to the provision hereinafter contained, from time to time during the execution of the contract by notice in writing to instruct the contractor to make such variation without prejudice to the contract and the contractor shall carry out such variations, and be bound by the same conditions, as far as applicable, as though they said variations occurred in the specification. If any suggested variations would, in the opinion of the contractor, if carried out, prevent him from fulfilling any of his obligations or guarantees under the contract, he shall notify the purchaser thereof in writing, and the purchaser shall decide forthwith whether or not the same shall be carried out, and if the purchaser confirms his instructions, the contractor's obligations and guarantee shall be modified to such an extent

as may be justified. The difference in cost, if any, occasioned by any such variations, shall be added to or deducted from the contract price as the case may require. The amount of such difference, if any, shall be ascertained and determined in accordance with the rates specified in the schedule of prices so far as the same may be applicable, and where the rates are not contained in the said Schedule, or are not applicable they shall be settled by the purchaser and the contractor jointly.

But the purchaser shall not become liable for the payment of any charge in respect of any such variations, unless the instruction for the performance of the same shall have been given in writing by him. In the event of the purchaser requiring any variation, such reasonable a proper notice shall be given to the contractor as will enable him to make his arrangements accordingly, and in cases where goods or materials are already prepared, or any designs, drawings, or patterns made or work done that requires to be altered a reasonable sum in respect thereof shall be allowed by the purchaser. Provided that no such variations shall, except with consent in writing of the contractor, be such as will involve an increase or decrease of the total price payable under the contract by more than 25 percent thereof. The power given to the purchaser to make any alteration, amendment, omission, addition or variation to, from or in any part of the works shall include power to vary from time to time the date for the completion of the works or any part thereof, **also the purchaser shall have the absolute right to increase the quantities in such manner that the increment does not exceed the amount of 25% of the total price payable under the contract, however; the same prices awarded and any other relevant conditions shall remain the same for this purpose. This right is valid during the delivery period of the ordered material, implementation of works, or (90) days from the date of the letter of award, which is come later.**

2.4. **Precedence:** In the event of any discrepancy or contradiction between the provisions of the conditions of contract and of the specification, the conditions of contract shall take precedence. Further more in case of discrepancy between unit and total prices then unit price will be considered.

2.5. **Prices:** the tender calls for firm prices, unless; otherwise mentioned in the special requirements schedule.

3. Drawings and Descriptive Documents

3.1. The weights, dimensions, capacities, prices, performance rating and other data included in catalogues, prospectuses, circulars, advertisement, illustrated matter and price lists constitute an approximate guide. These data shall not be binding save to the extent that they are by reference expressly included in the contract.

3.2. Any drawings or technical documents intended for use in the construction of the material or of part thereof and submitted to the purchaser prior or subsequent to the formation of the contract remain the exclusive property of the Vendor. They may not, without the Vendor's consent, be utilized by the purchaser or copied, reproduced, transmitted or communicated to a third party. Provided, however, that the said plans and documents shall be the property of the purchaser.

a. If it is expressly so agreed, or

b. If they are referable to a separate preliminary development contract on which no actual construction was to be performed and in which the property of the Vendor in the said plans and documents was not reserved.

3.3. Any drawings or technical documents intended for use in the construction of the material or of part thereof and submitted to the Vendor by the Purchaser prior or subsequent to the formation of the contract remain the exclusive property of the Purchaser. They may not, without his consent be utilized by the Vendor or copied, reproduced, transmitted or communicated to a third party.

3.4. The Vendor shall, if required by the purchaser, furnish free of charge to the purchaser at the commencement of the Guarantee Period, as defined in clause 9, information and drawings other than manufacturing drawings of the material in sufficient detail to enable the purchaser to carry out the erection, commissioning, operation and maintenance (including running repairs) of all parts of the material. Such information and drawings shall be the property of the purchaser and the restrictions on their use set out in paragraph 2 hereof shall not apply thereto. Provided that if the Vendor so stipulates, they shall remain confidential.

4. Packing of the materials and shipping marks

4.1. All materials, equipment and goods shall be very well packed, in seaworthy containers and/or wooden

cases, etc. These should protect the material during shipping, handling, unloading for a reasonable period of storage at Aqaba and latter storage at EDCO stores.

- 4.2. Packing for indoor materials should be done in such manner as to adequately ensure no ingress of moisture, during the shipping and storage periods.
- 4.3. Packing of fragile equipment (e.g. including instruments and porcelain) should be done in a way which ensures a reasonable resistance to impact breakage during transport.
- 4.4. Packing shall in general be adequate and in compliance with the best international practice.
- 4.5. A descriptive and fully itemized list shall be prepared for the contents of each packing case. A copy of this list shall be placed in a waterproof envelope under a metal or other suitable plate and securely fastened to the outside of one end of the case. And its position adequately indicated by stenciling on the case. Where appropriate drawing showing the erection marking of the items concerned shall be placed inside the case.
- 4.6. **EDCO** will supply the successful tenderer with a drawing of its shipping mark for utilization.
- 4.7. All packing cases, crates, barrels, and drums shall remain the property of the purchaser.

5. Inspection and Tests

All inspections and tests of the Plant and materials shall be performed to the extent and in the manner as stipulated in the Standards specified. Type test certificates shall be submitted for all important items supplied. They shall contain all major technical particulars which are mentioned in the Technical Data Sheets.

Routine test certificates showing the results of all tests performed on the individual Plant and materials shall be furnished to the Purchaser before dispatch of such equipment. The Purchaser reserves the right to have certain tests performed in the presence of his representative or an independent testing authority. A suitable program for such inspections and tests shall be agreed upon and adequate notice (at least 21 days) shall be given when the Plant and/or materials are ready for inspection or test and every facility shall provide by the Contractor to enable the Purchaser to carry out the necessary inspections and tests. The performance of any such inspections and tests in the presence of the Purchaser and/or an independent testing authority does not relieve the Contractor from his Contractual obligations.

5.1 General Inspection Requirement

The whole of the material by the contract will be subject to inspection and testing by the engineer during manufacture and on completion. The approval of the engineer or the passing of any such inspection or test will not, however; prejudice the right of the purchaser to reject the material if it fails to comply with the specification when erected or to give complete satisfaction in service. The costs of all tests and inspection shall be borne by the contractor and shall be deemed to be included in the contract price. Before any material is packed or dispatched from the main or sub-contractor's works, all tests called for are to have been successfully carried out in presence of the engineer. Adequate notice shall be given when the material is ready for inspection or test and every facility shall be provided by the contractor and his inspection and his sub-contractors to enable the Engineer to carry out the necessary inspections and tests.

Triplicate copies of all principal test records and test certificates shall be supplied to the Engineer for all tests carried out in accordance with the provisions of the contract.

- 5.1.1 If expressly agreed in the contract, the purchaser shall be entitled to have the quality of the materials used and the parts of the instruments, both during manufacture and when completed, inspected and checked by his authorized representatives. Such inspection and checking shall be carried out at the place of manufacture during normal working hours after agreement with the Vendor as to date and time.
- 5.1.2 If as a result of such inspection and checking the purchaser shall be of the opinion that any materials or parts are defective or not in accordance with the contract, he shall state in writing his objections and the reasons therefore.
- 5.1.3 **Sub-Contractors:** Within two months of acceptance of the tenders the contractor shall forward to the engineer a list of all sub-orders placed or intended. The contractor shall submit three copies of all sub-orders or selected by the engineer for progress or inspection. One copy of all drawings

referred to in the sub-order is to be submitted unless otherwise agreed by the engineer. The drawings and sub-orders submitted to the engineer will cover all major components which are subject to electrical and mechanical pressure or stress when the material is in operation and also auxiliaries and stores which will be dispatched to site direct from the sub-contractor's work. For the purpose of this clause inter-works orders are to be treated as sub-order. Sub-orders are to include a statement advising the sub-contractor that the items being order will be subject to inspection and test by the Engineer. It is important that all copies of such orders are clearly marked with the main contractor's name and the following reference:

ELECTRICITY DISTRIBUTION COMPANY. CONTRACT No. (79 /2022)

Sub-Contractors are to comply with all the applicable requirements of this specification. Orders issued by the sub-contractor are also to include the main contractor's reference on their sub-order in addition to the above-mentioned heading.

5.2 TESTS:

All tests should meet the requirements of latest international standard mentioned in the contract or any relevant standard

- 5.2.1 Acceptance tests will be carried out and, unless otherwise agreed, will be made at the Vendor's works and during normal working hours. If the technical requirements of the tests are not specified in the contract, the tests will be carried out in accordance with the general practice obtaining in the appropriate branch of the industry in the country where the material is manufactured.
- 5.2.2 The Vendor shall give to the purchaser sufficient notice of the tests to permit the purchaser's representatives to attend. If the purchaser is not represented at the tests, the tests report shall be communicated by the Vendor to the purchaser and shall be accepted as accurate by the purchaser.
- 5.2.3 If on any test (other than a test site, where test on site are provided for in the contract) the material shall be found to be defective or not in accordance with the contract, the Vendor shall with all speed make good the defect or ensure that the plant complies with the contract. Thereafter, if the purchaser so requires, the test shall be repeated.
- 5.2.4 Unless otherwise agreed, the Vendor shall bear all the expenses of tests carried out in his works.
- 5.2.5 If the contract provides for tests on site, the terms and conditions governing such tests shall be such as may be specially agreed between the parties
- 5.2.6 **Material Tests:** The contractor shall provide test pieces as required by the engineer to enable him to determine the quality of the material supplied free of charge and any cost of the tests shall be borne by the contractor. If any test piece fails to comply with the requirements of the appropriate specifications for the material in question, the engineer may reject the whole of the material represented by that piece, the contractor's designers and metallurgists will be consulted before any material is so rejected. In the event of the engineer being furnished with the certified particulars of the tests which have been carried out for the contractor by the suppliers of the material, he may, at his own discretion, dispense with the previously mentioned tests entirely.
- 5.2.7 **Tests at Manufacture's Works:** Works tests shall include all routine, electrical, mechanical and hydraulic tests in accordance with the relevant IEC standard or other standard may be approved except where departures there from and modifications thereto are embodied in this specification. For material not covered by an IEC or British standard or specifically mentioned

in this specification the tests shall be agreed with the Engineer. After satisfactory completion of the witnessed tests at the works, the material shall be submitted for the engineer's approval preparatory to shipping. No item of material is to be dispatched to site until the Engineer has given his approval in writing.

5.2.8 **Test Certificates:** Triplicate sets of all principal test records test certificates and performance curves shall be supplied for all tests carried out in accordance with the provisions of this contract. These test records, certificates and performance curves shall be supplied for all tests, whether or not they have been witnessed by the engineer. The information given in such test certificates and curves shall be sufficient to identify the material or equipment to which the certificates refer and should also bear the contract reference and heading as given in clause 7.2 of this section.

5.2.9 **Rejection of the materials:** If Any item of material or component which fails comply with the requirements of this specification in any respect whatsoever at any stage of manufacture, test, erection or on completion at site may be rejected by the engineer either in whole or in part as he considers necessary, and after adjustment or modification if so directed by the Engineer, the contractor shall submit the item for the item for the further inspection and / or test.

5.2.10 In the event defects of such a nature that the requirements of this specification cannot be fulfilled by adjustment or modification shall be replaced by the contractor, at his own expense, to the entire satisfaction of the engineer.

5.3 Maintenance:

The contractor is to guarantee the efficient and good working of the material supplied under the contract for a period of 12 months (Gregorian) from the date of delivery of the material to EDCO SORES in accordance with the General conditions of contract.

6. Passing of Risk

Save as provided in paragraph 7.6, the time at which the risk shall pass shall be fixed in accordance with the International Rules for the Interpretation of Trade Terms (Incoterms) of the International Chamber of Commerce in force at the date of the formation of the contract.

7. Delivery:

7.1. Unless otherwise agreed the delivery period shall run from the latest of the following dates:

- a. The date of the formation of the contract as defined in clause 2.
- b. The date on which the Vendor receives notice of the issue of a valid import license where such is necessary for the execution of the contract.
- c. The date of the receipt by the Vendor of such payment in advance of manufacture as stipulated in the contract.

7.2. Should delay in delivery be caused by any of the circumstances mentioned in clause 10 or by an act or omission of the purchaser and whether such cause occur before or after the time or extended time for delivery, they shall be granted subject to the provisions of paragraph 5 hereof such extension of the delivery period as is reasonable having regard to all the circumstances of the case.

7.3. If a fixed time for delivery is provided for in the contract and the Vendor fails to deliver within such time or any extension thereof granted under paragraph 2 hereof, the purchaser shall be entitled, on giving to the Vendor within a reasonable time notice in writing, to **claim a deduction of the price**

payable under the contract. Such deduction shall be calculated at the rate of one half of one percent(0.5%) of that part of the price payable under the contract which is properly attributable to such portion of the plant as cannot in consequence of the said failure be put to the use intended for each complete week of delay commencing on the due date of delivery, but shall not exceed a maximum percentage deduction of ten percent . Such deduction shall be allowed when a payment becomes due on or after delivery. Save as provided in paragraph 5 hereof, such deduction of price shall be to the exclusion of any other remedy of the purchaser in respect of the Vendor's failure to deliver as aforesaid.

- 7.4.** If the time for delivery mentioned in the contract is an estimate only, either party may after the expiration of two thirds of such estimated time require the other party in writing to agree a fixed time. Where no time for delivery is mentioned in the contract, this course shall be open to either party after the expiration of six months from the formation of the contract. If in either case the parties fail to agree, either party may have recourse to arbitration, in accordance with the provisions of clause 13, to determine a reasonable time for delivery and the time so determined shall be deemed to be the fixed time for delivery provided for in the contract and paragraph 3 hereof shall apply accordingly.
- 7.5.** If any portion of material in respect of which the purchaser has become entitled to the maximum deduction provided for by paragraph 3 hereof, or in respect of which he would have been so entitled had he given the notice referred to therein, remains undelivered, the purchaser may by notice in writing to the Vendor require him to deliver and by such last mentioned notice fix a final time for delivery which shall be reasonable taking into account such delay as has already occurred.
- 7.6.** If for any reason whatever the Vendor fails within such time to do everything that he must do to effect delivery, the purchaser shall be entitled by notice in writing to the Vendor, and without requiring the consent of any court, to terminate the contract in respect of such portion of the material and thereupon to recover from the Vendor any amount not exceeding that part of the price payable under the Contract which is properly attributable to such portion of the material as could not in consequence of the Vendor's failure be put to the use intended.
- 7.7.** If the purchaser fails to accept delivery on due date, he shall nevertheless make any payment conditional on delivery as if the material had been delivered. The Vendor shall arrange for the storage of the material at the risk and cost of the purchaser. If required by the purchaser, the Vendor shall insure the material at the cost of the purchaser. Provided that if the delay in accepting delivery is due to one of the circumstances mentioned in clause 10 and the Vendor is in a position to store it in his premises without prejudice to his business, the cost of storing the material shall not be borne by the purchaser.
- 7.8.** Unless the failure of the purchaser is due to any of the circumstances mentioned in clause 10, the Vendor may require the purchaser by notice in writing to accept delivery within reasonable time. If the purchaser fails for any reason whatever to do so within such time, the Vendor shall be entitled by notice in writing to the purchaser, and without requiring the consent of any court, to terminate the contract in respect of such portion of the material as is by reason of the failure of the purchaser aforesaid not delivered and thereupon to recover from the purchaser any loss, suffered by reason of such failure up to an amount not exceeding the value of the material, the delivery of which has not been accepted.
- 7.9.** If the winner contractor in the tender, refrained for supply the material or execution of works which award for him or failed to execute the contract on the limited time, or failed to replace the rejected material or works in another applying materials on his account, the tenders committee which take its previous design to award the tender for this supplier has the right to Confiscation the bid bond or the performance bond or part of them as commensurate with the material & works value.
- 7.10.** If refrained bidder to comply with his offer or did not complete the necessary contract and signing of the purchase order and did not submitted the performance bond

within 15 days from the date of the order, the tender s committee has the right to confiscated the bid bond.

Force Majeure

- Notwithstanding the provisions of clauses 7, the supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the contract is the result of an event of Force Majeure.
- For purposes of this clause, "Force Majeure" means an event beyond the control the supplier not involving the supplier's fault or negligence. Such events may include, but are not restricted to, acts to the purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and fright embargoes.
- If a Force Majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall all reasonable alternative means for performance not prevented by the Force Majeure event.

8. Terms of Payment:

Subject to any deduction which the purchaser may be authorized to make under the contract or subject to any additions or deductions provided for under clause 2-3 above, The Company (EDCO) prefers to deal with the supplier on an **open account basis**, and the payment to be made as the following:

- a. (10%) of the CFR contract value (as shown by the supplier's invoice/contractor invoice) on receipt of the following **legalized shipping** documents by EDCO:
 - (Original Invoice + five copies)
 - (Certificate of origin + five copies)
 - (Bill of lading 3-negotiable + 5 non-negotiable)
 - (Test certificate (where applicable) + 6 copies).
 -

The original shipping documents must arrive to EDCO or to our bank before (5) days at least prior the materials arrival.

- b. (80%) of the invoice value to be paid within 60 days of Receipt of EDCO's certificate of acceptance, Receipt of goods at EDCO stores.
- c. (10%) of the contract value within 60 days from expiration of the guarantee period.
If the bidder insists on L/C (letter of credit) as a method of payment, all L/C charges will be on his own expense, in all respects all banking charges are at vendor account, the terms will be as follows:
 - a. The L/C will be confirmed and irrevocable but has to be **acceptance L/C**, and the supplier has to send the following **legalized shipping** documents:
 - (Original Invoice + five copies),
 - (Certificate of origin + five copies),
 - (Bill of lading 3-negotiable + 5 non-negotiable),
 - (Test certificate (where applicable) + 6 copies).
 - (Release of shipment (where applicable) – fax copy is accepted).
 - b. Payment will be released after submitting EDCO's certificate of acceptance to the bank within (30) days after receipt of goods at EDCO's stores.

In the case of a Jordanian Supplier (materials are delivered from local companies), payment will be made through presentation of the invoice as following:

- a. (90%) of the contract value to be paid within 30 days from date of receipt and acceptance of the materials at our EDCO stores.

- b. (10%) of the contract value within 30 days from expiration of the guarantee period (one year from the date of receipt and acceptance of the materials at EDCO stores)

NOTE:

- In case the supplier has better terms of payment than those mentioned above the purchaser will discuss such terms.
- Any deviation on the payment methods mentioned above, will negatively affect the evaluation of tenderer's offer.
- In case the payment by acceptance L/C, The performance bond should be valid for a period expiring at least one year after receipt of the last consignment in EDCO stores.
- EDCO has the right to request an additional bank guarantee equal to (5%) five percent to cover the guarantee period.

Currency of Payment:

The contract price will normally be paid in the currency or currencies in which the price has been stated. The purchaser, however, reserves the right to make payments in the currencies of the countries of origin of goods and services at the exchange rates applicable at the time of payment of the contract price.

Shipping documents shall comprise the following documents: -

- 1) **Invoices** – one original, five copies.
- 2) **Shipping specification (packing list)** – six copies.
- 3) **Certificate of origin** – one original, five copies.
- 4) **Bill of lading** – 3 three negotiable, five non-negotiable.
- 5) **Test certificates (where applicable)** – six copies.
- 6) **Release of shipment (where applicable)** – fax copy is accepted.
- 7) **EDCO's Certificate of Acceptance** - fax copy is accepted

- 8.1. Any advance payments made by the Purchaser are payments on account and do not constitute a deposit, the abandonment of which would entitle either party to terminate the Contract.
- 8.2. If delivery has been made before payment of the whole sum payable under the Contract, plant delivered shall, to the extent permitted by the law of the country where the plant is situated after delivery, remain the property of the Vendor until such payment has been effected. If such law does not permit the Vendor to retain the property in the plant, the Vendor shall be entitled to the benefit of such other rights in respect thereof as such law permits him to retain. The Purchaser shall give the Vendor every assistance in taking any measures required to protect the Vendor's right of property or such other rights as aforesaid.
- 8.3. A payment conditional on the fulfillment of an obligation by the Vendor shall not be due until such obligation has been fulfilled, unless the failure of the Vendor is due to an act or omission of the Purchaser.
- 8.4. If the Purchaser delays in making any payment, the Vendor may postpone the fulfillment of his own obligations until such payment is made, unless the failure of the Purchaser is due to an act or omission of the Vendor.
- 8.5. If delay by the Purchaser in making any payment is due to one of the circumstances mentioned in clause 10, the Vendor shall not be entitled to any interest on the sum due.
- 8.6. Save as aforesaid, if the Purchaser delays in making any payment, the Vendor shall on giving to the Purchaser within a reasonable time notice in writing be entitled, and without requiring the consent of any Court, to terminate the Contract and thereupon to recover from the Purchaser the amount of his loss up to the value of the plant, the payment for which has been unreasonably delayed.

9. Guarantee:

9.1. Subject as hereinafter set out; the Vendor undertakes to remedy any defect resulting from faulty design, materials or workmanship.

9.2. This liability is limited to defects which appear during the period

(hereinafter called the Guarantee Period) of **fifteen** months from date of dispatch ex-works or twelve months from the date of accepting the materials at EDCO stores whichever shall be later.

Or in case of turn key projects eighteen months from the date of setting to work.

9.3. In fixing this period due account has been taken of the time normally required for transport as contemplated in the contract.

9.4. In respect of such parts (whether of the Vendor's own manufacture or not) of the material as are expressly mentioned in the contract, the Guarantee Period shall be such other period (if any) as is specified in respect of each of such parts.

9.5. The Guarantee period is based on the continuous use of the plant in services for 24 hours every day.

9.6. A fresh Guarantee Period equal to that stated in paragraph 2 hereof shall apply, under the same terms and conditions as those applicable to the original material, to parts supplied in replacement of defective parts or to parts renewed in pursuance of this clause. This provision shall not apply to the remaining parts of material, the Guarantee Period of which shall be extended only by a period equal to the period during which the material is out of action as result of a defect covered by this clause.

9.7. In order to be able to avail himself of his rights under this clause the purchaser shall notify the Vendor in writing without delay of any defects that have appeared and shall give him every opportunity of inspecting and remedying them.

9.8. On receipt of such notification the Vendor shall remedy the defect forthwith and at his own expense. Save where the nature of the defect is such that it is appropriate to effect repairs on site, the purchaser shall return to the Vendor any part in which a defect covered by this clause has appeared, for repair or replacement by the Vendor, and in such case the delivery to the purchaser of such part properly repaired or a part in replacement thereof shall be deemed to be a fulfillment by the Vendor of his obligations under this paragraph in respect of such defective part.

9.9. The Vendor shall bear all the costs and risks of the transport of defective parts or equipment's and their replacements.

9.10. Where, in pursuance of paragraph 9 hereof, repairs are required to be effected on site, the conditions covering the attendance of the Vendor's representatives on site shall be such as may be specially agreed between the parties.

9.11. Defective parts replaced according to this clause shall be placed at the disposal of the Vendor.

9.12. If the Vendor refuses to fulfill his obligations under this clause or fails to proceed with due diligence after being required so to do, the purchaser may proceed to do the necessary work at the Vendor's risk and expense, provided that he does so in a reasonable manner.

9.13. The Vendor's liability does not apply to defects arising out of materials provided, or out of a design stipulated, by the purchaser.

9.14. The Vendor's liability shall apply only to defect that appears under the conditions of operation provided for by the contract and under proper use. It does not cover defects due to causes arising after the risk in the material has passed in accordance with clause 6. In particular it does not cover defects arising from the purchaser's faulty maintenance or erection, or from alterations carried out

without the Vendor's consent in writing, or from repairs carried out improperly by the purchaser, nor does it cover normal deterioration.

9.15. Save as in this clause expresses, the Vendor shall be under no liability in respect of defects after the risk in the material has passed in accordance with clause 6, even if such defects are due to causes existing before the risk so passed. It is expressly agreed that the purchaser shall have no claim in respect of personal injury or of damage to property not the subject matter of the contract or of loss of profit unless it is shown from the circumstances of the case that the Vendor has been guilty of gross misconduct.

9.16. All defective and/ or not complying materials shall be evacuated from EDCO stores within a maximum of one month by the vender from the date of notifying him. All costs and expenses of transportation shall be borne by the vendor. Unless otherwise agreed.

Otherwise; EDCO has the right to deal with the defective materials in a proper way.

9.17. Gross misconduct "does not comprise any and every lack of proper care or skill, but means an act or omission on the part of the Vendor implying either a failure to pay due regard to serious consequences which a conscientious contractor would normally foresee as likely to ensue, or a deliberate disregard of any consequences of such act or omission.

10. Relief

10.1. The following shall be considered as cases of relief if they intervene after the formation of the contract and impede its performance: industrial disputes, and any other circumstances (e.g. fire, mobilization, requisition, embargo, currency restrictions, insurrection, shortage of transport, general shortage of materials and restrictions in the use of power) when such other circumstances are beyond the control of the parties.

10.2. The party wishing to claim relief by reason of any of the said circumstances shall notify the other party in writing without delay on the intervention and on the cessation thereof.

10.3. The effects of the said circumstances so far as they affect the timely performance of their obligation by the parties, are defined in clauses 7 and 8. Save as provided in paragraph 7.5, 7.7, and 8.7, if by reason of any of the said circumstances, the performance of the contract within a reasonable time becomes impossible, either party shall be entitled to terminate the contract by notice in writing to the other part without requiring the consent of any court.

10.4. If the contract is terminated in accordance with paragraph 3 hereof, the division of the expenses incurred in respect of the contract shall be determined by agreement between the parties.

10.5. In default of agreement it shall be determined by the arbitrator which party has been prevented from performing his obligations and that party shall bear the whole of the said expenses.

Where the purchaser is required to bear the whole of the expenses and has before termination of the contract paid to the Vendor more than the amount of the Vendor's expenses, the purchaser shall be entitled to recover the excess. If the arbitrator determines that both parties have been prevented from performing their obligation, he shall apportion the said expenses between the parties in such manner as to him seems fair and reasonable, having regard to all the circumstances of the case.

10.6. For the purposes of this clause "expenses" means actual out of pocket expenses reasonably incurred, after both parties shall have mitigated their losses as far as possible. Provided that as respects material delivered to the purchaser the Vendor's expenses shall be deemed to be that part of the price payable under the contract which is properly attributable thereto.

11. Limitation of Damages:

11.1. Where either party is liable in damages to the other these shall not exceed the damage which the party in default could reasonably have foreseen at the time of the formation of the contract.

11.2. The party who sets up a breach of the contract shall be under a duty to take all necessary measures

to mitigate the loss which has occurred provided that he can do so without unreasonable inconvenience or cost. Should he fail to do so, the party guilty of the breach may claim a reduction in the damages.

12. Rights at Termination:

Termination of the contract from whatever cause arising shall be without prejudice to the rights of the parties accrued under the contract up to the time of termination.

13. Arbitration and Law Applicable:

- 13.1. If Any dispute, question or controversy shall arise between the purchaser and the contractor concerning this contract the matter in dispute shall be referred to an arbitration committee composed of three (3) arbitrators
- 13.2. One arbitrator shall be nominated by the purchaser and one by the contractor, and the third arbitrator shall be appointed by both parties.
- 13.3. If either party fails to appoint his arbitrator within one month of the appointment of the arbitrator by the other party, or if the two parties fail to agree on the third arbitrator within two months of the date of the request to refer the dispute to arbitration, such arbitrator shall be appointed by the president of the highest court in Jordan at the request of either or both parties.
- 13.4. The decision of the arbitrators shall be final and binding on both the purchaser and the contractor. Any such reference shall conform to the statutory enactment or regulation governing arbitration as may be in force in Jordan at the time. The assessment of costs incidental to the reference and award respectively shall be at the discretion of the arbitration committee.

II. SPECIAL CONDITIONS OF CONTRACT

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
1.1	The words “in the Government’s country” are amended to read “in the Hashemite Kingdom of Jordan”.
1.1(a)	The Adjudicator is; Jurisdiction of the courts of Central Amman (Qasr Al-Adl)
1.1(d)	The contract name is: EDCO..79.../2022Meter Data Management System (MDMS).
1.1(g)	The Employer is EDCO(EDCO)
1.1(n)	The Member in Charge is:
1.1(p)	The Service Provider is: _____
1.2	The Applicable Law is: Laws of Kingdom of Jordan.
1.3	The language is English
1.4	The addresses are: Employer: EDCO.....Please fill
1.5	The Authorized Representatives are: For the Employer: Director General– Eng. Reem Hamdan For the Service Provider:
2.1	The date on which this Contract shall come into effect is Contract signing date.
2.2	The Starting Date for the commencement of Services is 10 days after Contract signature.
2.3	The Intended Completion Date is 9 (nine) months after commencement date. Mentioned completion date is the latest date and Bidders are encouraged to present their own estimation which is earlier than mentioned completion date.
3.1	Health and safety manual is not required
3.2.	Activities prohibited after termination of this Contract are: Any activity which may lead to the conflict of interest or to be a harmful for the Employer.
3.4	The risks and coverage by insurance shall be: (i) Third Party motor vehicle: USD100,000

	(ii) Third Party liability: USD150,000 (iii) Employer's liability and workers' compensation USD150,000 (iv) Professional liability 100% of the Contract price (v) Loss or damage to equipment and property USD100,000
3.5	The other actions are N/A.
3.6	Restrictions on the use of documents prepared by the Service Provider are: The Service provider in no case can use those documents and software without getting prior consent from the Employer.
3.7.1	The liquidated damages rate is 0,1% per day The maximum amount of liquidated damages for the whole contract is 10% percent of the final Contract Price.
3.7.2	The percentage for lack of performance to be used for the calculation of Lack of performance Penalty(ies) is 15% calculated from the defect estimated cost.
3.8	A Performance Security shall be required. The Performance Security shall be in the form of a Bank Guarantee The Performance security shall be in the amount equal to a 10% of the Contract price in the same currency as Contract is signed. The performance security should be issued through a bank in Jordan
3.9	Sustainable procurement contractual provisions are not applicable.
3.10	The Service Provider shall not be responsible for the security at the locations in the Employer's country where the Services are carried out.
4.	The amount in foreign currency or currencies is 100% of Contract price.
5.1	Bidders' offered prices shall be without sales and custom taxes.
5.2	Payment shall be made within 30 days of receipt of the invoice and the relevant documents specified in Sub-Clause 6.4, and within 60 days in the case of the final payment. The interest rate is: No interest rate applies.
5.3	Price adjustment is not acceptable.
6	The principle and modalities of inspection of the Services by the Employer are as follows: will be discussed with service provider during Contract negotiations. The Defects Liability Period is 18 months after handover by the Employer.
7.1	The Adjudicator is Jurisdiction of the courts of Central Amman (Qasr Al- Adl)
7.2	The Adjudicator is Jurisdiction of the courts of Central Amman (Qasr Al-Adl) The place of Arbitration shall be: Kingdom of Jordan.
7.3	The designated Appointing Authority for a new Adjudicator is Jurisdiction of the courts of Central Amman (Qasr Al-Adl).
9.	Custom bonds in case of requested by custom department are completely bidder responsibilities.

III. TENDERING INSTRUCTIONS

1. The Tender shall be made in one copy of the accompanying form; however, all blanks and schedules shall be filled up in ink, and signed without alteration to the form of tender. If any such alteration were made, or if these Instructions were not fully complied with, the tender may be rejected. The tenderer; however, is at liberty to add any further details that he may deem desirable and, in the event of his so doing, shall print or type such details and annex the added matter to the tender submitted by him. Such additional details shall not be binding upon the purchaser unless they shall be subsequently incorporated in the contract.
2. One copy of the tender, and its accompanying documents, filled up as directed, together with the drawings, catalogs, and relevant documents called for, must be enclosed in a secure envelope endorsed **(Tender for Contract) No. (79 /2022)**.
3. All correspondences in connection with this tender and all matters accompanying the tender that are relevant to its examination shall be in English language and expressed in metric units.

4. The tender is to be held open for acceptance or rejection for a validity period of (90) days from the time fixed for opening the tenders.
5. Tenders received prior to the time fixed for opening of tenders will be securely kept, unopened. Tenders received after that time will be rejected. The purchaser bears no responsibility for premature opening of tenders not properly addressed or identified.
6. Tenders may be withdrawn by formal request received in writing from the tenderer prior to the time fixed for opening. If for any reason the tender should be withdrawn after the time fixed for opening and before expiry of the said validity period, the purchaser has the right to retain the full value of the tender bond.
7. The successful tenderer shall abide by the commercial and professional regulations as required by the Ministry of Industry & Trade, Engineering Association and other relevant Institutions in Jordan.
8. Tenderers attention is drawn to the action of customs officers in the discharge of their duties. Whereby air parcels are frequently opened In their own interests and in order to preserve the confidential nature of the tender price, tenderers are urged to pay attention to the:
 - a. To dispatch the completed tender document and any covering letter only by Air Mail which should be endorsed and labeled in the manner laid down in paragraph 10 of the Instructions to Tendering.
 - b. Technical literature and the like may reasonably be sent by Air Parcel or Air Freight but since this would then be separated from the actual Tender, each parcel should contain specific evidence identifying the tender to which the contents refer.
 - c. The purchaser will not consider late or incompletely delivered tenders or literature supporting tenders due to the action of any customs officer.
9. In the event that the intending signatory does not manufacture one or more of the main sections of equipment and materials, then the tender submitted should give evidence to show that all the obligations imposed by the documents on the intending signatory have been fully understood and accepted, where applicable, by the manufacturer(s) to whom it would be intended to sub-contract one or more of the main sections of the equipment and materials.
10. For overseas transport of the contractor and his Sub-contractors, suppliers and manufactures must give priority to Jordan shipping national lines, and to Arab shipping companies and their subsidiaries for the shipping of goods, materials provided such companies ships call at the port of export. The contractor shall also give priority to the Royal Jordanian Airlines for air freight shipment and transport of personnel.
11. Tenderer must submit country of origin and name of manufacturer for the offered goods.
12. The foreign bidders who participate in this tender must submit their bids through a registered local agent or through their registered office in Jordan.
13. For all manufacturers from inside Jordan it is quite essential that they have JQM for their products and the purchaser will have the right to accept or reject their offer if they did not submitted the JQM certificate with their offer.
14. If samples were not re-claimed by the tenderer within one month from date of order all samples shall remain the property of the purchaser.
15. The purchaser will not be responsible for, nor to pay for, any expenses or losses which may be incurred by a tenderer in the preparation of his tender.
16. If the tenderer has any doubt about the meaning of any portion of the General Conditions, Specifications, Drawings, he shall clarify such doubts before submitting his tender, or in case of any further information can be obtained by an application in writing to the director general.

17. Tenderers are particularly directed that the amount entered on the form of tender shall be a fixed price for performing the contract strictly in accordance with the bound document, and shall be the sum total of all the amounts printed into and entered by the tenderer upon the schedule of prices.
18. Tender price shall include all incidental and contingent expenses.
19. The tender shall be accompanied by a tender bond in the form of a Bank Guarantee valid for at least 90 days from the time fixed for opening the tenders or certified check in favor of and payable to the purchaser for a sum of **5% Of Your Offer** _____ as a guarantee of good faith. This bond is to be issued by any approved bank in Jordan. The bond will be returned to the unsuccessful tenderer within (90) days from the time fixed for opening the tenders or at such earlier time as a tender shall have been accepted by the purchaser. In the case of the successful tenderer, the bond will, subject to the conditions of contract, be returned as soon as a formal contract agreement and a performance bond have been entered into.
20. The successful tenderer has to submit a performance bond equal to (10%) ten percent of the total amount of the order within (15) days from date of receipt of the order. Any delay will be subject to delay penalty.

If the successful tenderer fails for any reason to submit the required performance bond within (15) days, the purchaser will confiscate the bid bond and the awarding letter will be cancelled too.
21. The performance bond should be valid for a period; expiring at least one month after receipt of the last consignment in EDCO stores.
22. The tenderer shall state in his tender the name or names of the sureties, insurance company, or bank proposed for guaranteeing the performance of the contract.
23. Prices are highly recommended to be on the basis of C&F EDCO STORES. However CFR Aqaba port or Amman customs are also accepted. All prices offered shall be exempted from custom duties, sales taxes, import license fees and any other tariffs.
24. The tenderer may state the tender price in Jordanian Dinars. If however, a portion of the tenderer's expenditure under the contract is expected to be made in countries other than Jordan he may state a corresponding foreign currency portion of the tender price in the currencies of those other countries.
25. Stamp duty and award fees are payable on Jordanian contracts according to Jordanian laws and, after the placing of a contract, it is the contractor's responsibility to purchase legal stamps to the requisite amount depending on the contract value.
26. If after receipt of tenders, the purchaser finds any difference between prices shown on the form of tender in writing and in numerals, then the price shown in writing shall be considered correct by the purchaser and the tenderer. If any discrepancies are found between the total in the price schedule and the total obtained by adding the products of each quantity and its particular rate then, whether the price shown on the form of tender in numerals or in writing corresponds or not, the total obtained by adding the products of the quantities and their particular rates shall be considered by the purchaser and the tenderer as the tender price.
27. Tender evaluation will be consistent with the terms and conditions set forth in the tender document. In addition to the tender price adjusted to correct arithmetical errors, other relevant factors such as the time of completion of delivery or construction, operating costs where applicable, or the efficiency and compatibility of the equipment, the availability of service and spare parts, and reliability of construction methods proposed will be taken into consideration, to the extent and in the manner specified in the tender documents, in determining the evaluated tender most advantageous to the purchaser. For comparison of all tenders, the currency or currencies of the tender price for each tender will be valued in terms of Jordanian Dinars. The rates of exchange to be used in such valuation will be the selling rates published by the CENTRAL BANK OF JORDAN and applicable to similar transactions, on the day tenders are opened unless there should be a change in the value of the currencies before the award is made. In the latter case, the exchange rates prevailing at the time of the decision to notify the award to the successful tenderer may be used.

28. The purchaser does not bind himself to accept the lowest offers of any tender, nor to assign any reason for the rejection of any tender, nor to purchase the whole of the equipment and materials specified. The purchaser has the right to purchase part of the tender, even if it is only one item from the schedule of rates and prices.
29. The tenderer shall submit with his tender in order of the relevant clauses, a statement of any departures from specifications, or he can fill in the related schedule attached herewith. Notwithstanding any description, drawings, or literature which may be submitted, all details other than those in the statement of departures shall be assumed to be in accordance with the specification.
30. Although IEC standards for workmanship, equipment and materials, have been selected in this specification as a basis of reference, standards and specifications of other countries and recommendations of other international standard organizations will be acceptable provided that they are substantially equivalent to the designated standards and provided further that the tenderer submits for approval detailed specification which he proposes to use.
31. References to brand names or catalog numbers, if any, in this specification have been made only for that equipment for which it has been determined that a degree of standardization is necessary to maintain certain essential features. In certain instances such references have also been made for purpose of convenience to specify the requirements. In either case offers of alternative goods which have similar characteristics and provide performance and quality at least equal to those specified are acceptable.
32. Where compliance with a specific standard specification is called for the standard specification used shall be that in force at the time of tender.
33. The Tenderer should submit a type test certificate from independent testing laboratory similar to the Tender materials as an evidence of his capability to manufacture such materials also to submit a reference list showing his past supply and he should prove that he supplied similar materials to more than one firm and operated for more than 3 years without problems otherwise his offer will not be considered.
34. A nonrefundable fee of (160) JD will be charged for each set comprising one copy of the Tender Documents.

IV. FINANCIAL DOCUMENTS

1. TENDER AGREEMENT SUMMARY

Tender No. (79 /2022)

Dear Sir;

1. Having examined the conditions of Contract, specification and schedule for the above Works, the undersigned, offer to manufacture, supply, work, test, and deliver the said works described in the specification and schedules and in accordance with the said conditions of contract, for the sum of _____ or such other sum as may be ascertained in accordance with the said conditions.
2. We agree that this tender shall be held open for acceptance or rejection for the validity period of **(90) days** from the date fixed for opening tenders and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
3. Unless and until a formal agreement is prepared and executed, this tender, together with your written acceptance thereof, shall constitute a binding contract between us.
4. If our tender is accepted, we will deliver to **ELECTRICITY DISTRIBUTION COMPANY**. Within **(15) days** of being called upon to do so a performance bond by bank or insurance company (to be approved in either case by the purchaser) to be jointly and severally bound with us in a sum equal to **10%** of the value of the contract. The form of the performance bond will be as attached hereto. We propose the following Bank or insurance company as surety (or sureties) in this respect:
.....
5. We undertake if our tender is accepted and on receipt of your acceptance to commence and manufacture, works test, and complete for delivery **ex-works** the whole of the Works offered within (_____) weeks calculated from the date of **Order Letter Awarding**, and to deliver on the dock at (_____ port) - Jordan the whole of the works offered within a further (_____) weeks, or to **EDCO stores** within a further (_____) weeks.
6. We undertake to insure the materials against all risks from the time they leave the works until they are placed on board ship. We understand that marine insurance will be affected by **ELECTRICITY DISTRIBUTION COMPANY**. And we will provide details of the materials to be shipped in good time for **ELECTRICITY DISTRIBUTION COMPANY** to arrange for the said marine insurance.
7. A guarantee Period will apply to each section of the works of 15 months from the date of dispatch ex-works or 12 months from the date of setting to work whichever shall be later.
8. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this _____ day of / / 2022.

Signature_____ in the capacity of _____

Duly authorized to sign Tender for and on behalf of _____

ADDRESS _____ OCCUPATION _____

ELECTRICITY DISTRIBUTION COMPANY.

2. Form of Bid Bond

Tender No. (79 /2022)

Dear Sir,

We are pleased to inform you that we guarantee M/S _____ for the amount of _____ in order to allow them to submit an offer for the due performance of the undertaking and obligation as specified in their Tender for Contract No. _____. This Guarantee shall remain valid for a period of **(90)** days from the time fixed for opening the Tenders by **ELECTRICITY DISTRIBUTION COMPANY.**

This Guarantee shall be free from any interest and will be extended or paid in cash upon your first request in any or required, without the need for natural warning or judicial proceedings and without any rights to delay, oppose, or stop payment on our part, or on the part of the Tenderer or any of his representatives whomever.

This Guarantee shall be deemed valid until the submittal of a duly executed Performance Bond.

Signed _____ **Bank (Surety)**

ELECTRICITY DISTRIBUTION COMPANY.

3. Form of Performance Bond

Tender No. (79 /2022)

Dear Sirs,

At the request of _____ bank (the Foreign Bank) and on behalf of M/S _____ (Contractor's Name and Address), we _____ Bank (the Local Bank) issue in your favor our irrevocable and unconditional Performance Bond No. _____ in the amount of. _____ (In words), in this connection we _____ Bank (the Local Bank) hereby consider ourselves responsible forth unconditional payment to you or to your authorized representatives of the above sum on your first written demand in whole or in part notwithstanding any objections on the part of the above named contractor and without any need for natural warning or judicial proceedings.

This Bond will expire on _____ and shall be renewed automatically for a period of _____ months and for consecutive similar periods until it is returned by you to us.

Signed _____ *Bank (Surety)*

ELECTRICITY DISTRIBUTION COMPANY.

4. Form of Maintenance Bond

Tender No. (79 /2022)

M/S. ELECTRICITY DISTRIBUTION CO. (EDCO)

Amman – Jordan

At the request of _____ Bank (the foreign bank) and on behalf of M/S :
_____ (The Contractor name and address),
we _____ Bank (the local bank) issue in your favor our irrevocable and
unconditional maintenance bond No.(_____) in the amount of
_____ (In words) valid until _____ covering
_____ PCT value of the _____
(Contract No. Name), in this connection we the _____ Bank (local bank),
hereby consider ourselves responsible for the unconditional payment to you or your authorized
representatives of the above sum on your first written demand in whole or in part notwithstanding
any objections on the part of the above named Contractor and without any need for notarial warning
or judicial proceedings.

This bond will expire on _____ and shall be renewed automatically for a
period of (_____) months and for consecutive similar periods until it is returned by
you to us.

Signed _____ *Bank (Surety)*

V. TECHNICAL SPECIFICATIONS AND SCHEDULES

1. ABBREVIATIONS

ABAP	ADVANCED BUSINESS APPLICATION PROGRAMMING
AMI	ADVANCED METERING INFRASTRUCTURE
API	APPLICATION PROGRAM INTERFACE
CIM	COMMON INFORMATION MODEL
CIS	CUSTOMER INFORMATION SYSTEM
CT	CURRENT TRANSFORMER
CT/VT	CURRENT TRANSFORMER/VOLTAGE TRANSFORMER
FTP	FILE TRANSFER PROTOCOL
GIS	GEOGRAPHICAL INFORMATION SYSTEM
GUI	GRAPHICAL USER INTERFACE
HES	HEAD END SYSTEM
HHU	HANDHELD UNIT
HTTP	HYPERTEXT TRANSFER PROTOCOL
HTTPS	HYPERTEXT TRANSFER PROTOCOL SECURE
IDE	INTEGRATED DEVELOPMENT ENVIRONMENT
IWA	INTEGRATED WINDOWS AUTHENTICATION
JDBC	JAVA DATABASE CONNECTIVITY
EDCO	ELECTRICITY DISTRIBUTION COMPANY
JSON	JAVASCRIPT OBJECT NOTATION
JSP	JAVA SERVER PAGES
LDAP	LIGHTWEIGHT DIRECTORY ACCESS PROTOCOL
MDM	METER DATA MANAGEMENT SYSTEM
NTP	NETWORK TIME PROTOCOL
ODBC	OPEN DATABASE CONNECTIVITY
OleDb	OBJECT LINKING AND EMBEDDING DATABASE
REST	REPRESENTATIONAL STATE TRANSFER
SAN	STORAGE AREA NETWORK
SDK	SOFTWARE DEVELOPMENT KIT
SFTP	SSH FILE TRANSFER PROTOCOL
SMI	SMART METERING INFRASTRUCTURE
SMOC	SMART METERING OPERATIONS CENTER
SOA	SERVICE ORIENTED ARCHITECTURE
SOAP	SIMPLE OBJECT ACCESS PROTOCOL
SQL	STRUCTURED QUERY LANGUAGE

SSH	SECURE SHELL
SSO	SINGLE SIGN-ON
SAN	STORAGE AREA NETWORK
TCP	TRANSMISSION CONTROL PROTOCOL
TLS	TRANSPORT LAYER SECURITY
TOU	TIME-OF-USE
UOM	UNIT OF MEASURE
VEE	VALIDATION, ESTIMATION, AND EDITING
WADL	WEB APPLICATION DESCRIPTION LANGUAGE
WSDL	WEB SERVICES DESCRIPTION LANGUAGE
WSFL	WEB SERVICES FLOW LANGUAGE
XML	EXTENSIBLE MARKUP LANGUAGE

2. SCOPE IN BREIF.

This document describes the minimum requirements for MDM turnkey project including and not limited to:

- I. Design
- II. Implementation and configuration
- III. Integration with EDCO systems (*):
 - 1. Head End Systems (Mandatory)
 - a. Huawei HES : V200R009C10SPC200B600
 - b. Holley HES : ESEP10
 - c. Hexing HES : HES6.2
 - d. Future HES will be declared later.
 - 2. SAP system: (Mandatory)
 - a. Customer Information System - SAP ECC - CIS
 - b. Billing System - SAP ECC EHP8
 - 3. SCADA, & Outage management of DMS MICROSCADA PRO 600 4.4 FP1 HF5
 - 4. GIS: (Optional)
 - a. ArcGIS Desktop 10.8.2 by ESRI.
 - b. ArcFM 10.8.2 by Schneider.
 - 5. CYME : CYMdsit 8.2 (Optional)
 - 6. Call Center (AVAYA IP Office Server Edition R11). (Optional)
 - 7. Any other system & S/W updates can be implemented to comply with smart grid.
- IV. Migration
- V. Testing & commissioning up to right operation (**).
- VI. Training.
- VII. Warranty and Maintenance (1.5 Years & 5 Years)

(*) Bidders must offer an integrated MDM solution including above systems that enables EDCO to reach and comply with the smart grid. Then, EDCO highly recommends all Bidders to perform a site survey before bidding.

(**) Right operation: EDCO official approval for MDM complete operation with respects of above systems & meters (& meters growth).

As an option in separate items, bidders are encouraged to propose a clear enhancement or additional works that may be seen necessary to maximize the benefits of the project or to cover any deficiency in the tender's scope, functional and technical requirements detailed hereunder.

EDCO, as a part of its smart meter roll-out project, is issuing a proposal for MDMs solutions with the following high-level characteristics:

- (1) Receive meters' data from Head end systems of **300,000** meters e.g the system shall be expandable where this number **300,000** is expected to grow by 4% yearly.
- (2) Act as the system of record for meter data including collection, validation, estimation, aggregation, and delivery of data to the billing system:
 - a) Store at least 36 months of interval data.
 - b) Act as the system of record for raw meter data.
 - c) Ensure data quality through validation, editing, and estimation (VEE).
 - d) Summarize data for billing purposes.
- (3) Make data available to users and upstream systems.
- (4) Manage meter reading schedules and process meter events, including routing them to appropriate systems.

The MDM is a scalable enterprise application which centralizes the collection, storage, and processing of meter and other meter related data.

The MDM is the system of record and provides long term storage for meter data including:

- Registers' readings including kWhr, kVARHr, tariffs, maximum demand
- Voltage data & Current.
- Tampering cases and outage flags (Voltage Dip & Current Loss).
- Energy & Power curves.

MDM is broadly configurable to enable the storage of any data that an electric meter can provide through the HES system. The MDM will process the data using a VEE engine and store all raw, validated, and estimated data in a relational database. The MDM isolates business systems and processes from the implementation details of the metering system and the collection of meter data.

MDM shall immediately flag for the tampering cases based on received data and data processing such as covers open, unbalance status, current loss, voltage dip, overloads, electrical losses, reverse power for nonrenewable energy meters...etc. Flags must be categorized in four levels.

Further to MDM functionalities, the MDM must be capable to perform mathematical operations as needed.

3. EDCO HIGH-LEVEL AMI ARCHITECTURE

The MDM will receive meter data from Head End Systems and after the verification of the data, will transmit the billing information to the EDCO's SAP system.

Bidder shall submit a clear architecture of offered bid(s) clarifying the HESs, Meters, SAP, CYME, SCADA, GIS , Call center and communication.

4. GENERAL REQUIREMENTS

4.1 Meter Configuration

- 4.1.1. The MDM shall have the functionality to create master data for all types of devices
- 4.1.2. The MDM shall provide the flexibility to add the required fields in the respective master data as per EDCO requirements
- 4.1.3. The MDM shall allow the device types to be configurable and new device types to be added without customization
- 4.1.4. The MDM shall allow the communication with the meters and the monitoring and control of the devices in real time
- 4.1.5. The MDM shall be able to communicate with compatible end devices indoors and outdoors
- 4.1.6. The MDM shall have the functionality to identify the meters or communication equipment based on their status (shipped, deployed, removed etc.), location (area wise as per address structure) and include technical network structure
- 4.1.7. The MDM shall be able to edit or correct the wrong entries during installation or in any process related to equipment
- 4.1.8. The MDM shall have the ability to add as many registers as required for each meter configuration
- 4.1.9. The MDM shall have the ability to add and modify new configurations for all types of meters
- 4.1.10. The MDM shall have the ability to define and simulate test meters/meter configurations
- 4.1.11. The MDM shall have the ability to define derived channels/registers from received channels/registers for any meter
- 4.1.12. The MDM shall allow the definition of at least 3 types of load profiles with the possibility of defining unlimited number of registers/factors as per EDCO requirement
- 4.1.13. The MDM shall allow the configurability of the frequency of recording interval data with respect to profiles
- 4.1.14. The MDM shall be able to perform aggregations of recorded consumptions based on configurable dimensions
- 4.1.15. The MDM shall have the ability to capture network location for system meters (e.g., feeder, distribution transformers)

- 4.1.16. The MDM shall have the ability to create virtual meter in system based on data aggregation for meters
- 4.1.17. The MDM shall have the ability to define reference / check meter for any meter in system
- 4.1.18. The MDM shall be able to synchronize meter configurations from CIS/SAP billing system
- 4.1.19. The MDM shall support mass master data synchronization
- 4.1.20. The MDM shall allow to search meters depending on different configuration information such as meter serial number, account number, custom fields, etc.
- 4.1.21. The MDM shall support device management functionalities which include (but not limited to) firmware update, remote access, remote configuration, etc.
- 4.1.22. The MDM shall have the ability to show meter data on graphs and tabular formats

4.2 Meter Data Collection

- 4.2.1. The MDM shall be a scalable system with the capability to handle up to 300,000 electricity meters (with 15, 30, and 60 minute intervals) considering that this number is expected to grow by 4% yearly
- 4.2.2. The MDM shall support multiple channel meters with capability to record electricity meter data, events and flags like kWh, KVAH, KVARH, flow rate and other data
- 4.2.3. The MDM shall support multiple Unit of Measure (UOM) for electricity meters, including custom UOM if required
- 4.2.4. The MDM shall support net meters
- 4.2.5. The MDM shall support bi-directional (import/export) meters
- 4.2.6. The MDM shall support power quality data, voltage, etc. if available from AMI system/meters
- 4.2.7. The MDM shall support the provisioning of meters (new meter, exchange, removal, etc.)
- 4.2.8. The MDM shall have the ability to collect all meter reads – register, interval, demand, and any other tariff-based reads for electricity meters
- 4.2.9. The MDM shall have the ability to ping meters to check the status
- 4.2.10. The MDM shall have the ability to get real time ‘On Demand Reads’
- 4.2.11. The MDM shall support remote connection and disconnection of electricity smart meters (depends on availability of these functionalities in the meter)
- 4.2.12. The MDM shall have the ability to verify the AMI network connectivity of installed meters via the HESs
- 4.2.13. The MDM shall have the ability to collect data from data collectors based on push or pull method
- 4.2.14. The MDM shall have the ability to support the deployment, planning and logistics modules for a smart meter mass rollout project
- 4.2.15. The MDM shall have the ability to select time zone (local time zone would be used)
- 4.2.16. The MDM shall be able to maintain the hierarchies of meters installed by EDCO (such as main and sub meters) and distribution network elements (such as transformers, feeders, etc.)
- 4.2.17. The MDM shall have the ability to define and maintain reference meter/consumption for different customers or meter types as required by EDCO
- 4.2.18. The MDM shall accept all data from the HES or HHU
- 4.2.19. The MDM shall support data coming from single phase and poly phase electricity meters as well as CTs and CTs/VTs meters
- 4.2.20. The MDM shall identify and store the usage data source (e.g., manual read, AMR, AMI, ...etc)
- 4.2.21. The MDM shall set the initial status of the received data to “raw”
- 4.2.22. The MDM shall set the interval timestamp at the beginning of the interval
- 4.2.23. The MDM shall timestamp the data for each interval represented
- 4.2.24. The MDM shall timestamp the time data is received
- 4.2.25. The MDM shall recognize the receipt of interval(s) that already exist in the MDM database
- 4.2.26. The MDM shall handle duplicate data based on pre-defined criteria (e.g., raw meter data will not replace billed data)
- 4.2.27. The MDM shall allow the user to select existing or duplicate data to be stored or processed while working with duplicate data for a specific meter

4.2.28. The MDM shall log the actions taken by the user in relation to the duplicated data

4.2.29. The MDM shall have the ability to import data from a variety of data sources (e.g., pick-up read, 3rd party) and formats (e.g., MS Excel, MS Access, text files)

4.3 Channel Configuration

4.3.1. The MDM shall identify the type of data represented by each channel within the meter (e.g., kWh consumed, kVARh consumed, gross kWh generated, net kWh generated, voltage, and timing), the MDM shall support at least the following quantities per each TOU rate, each in a separate register:

Measured item			Unit
Active Energy	Billing period m -Total import	(QI+QIV)	kWh+
	Billing period m –Tariff n import	(QI+QIV)	kWh+
	Billing period m -Total export	(QII+QIII)	kWh+
	Billing period m –Tariff n export	(QII+QIII)	kWh+
	Billing period m – Absolute total	abs(QI+QIV)+ abs(QII+QIII)	kWh+
	Billing period m –Net Total	abs(QI+QIV)- abs(QII+QIII)	kWh+
Measured item			Unit
Reactive Energy	Billing period m –Total import	(QI+QII)	kVARh+
	Billing period m –Tariff n import	(QI+QII)	kVARh+
	Billing period m –Total export	(QIII+QIV)	kVARh-
	Billing period m –Tariff n export	(QIII+QIV)	kVARh-
Active Power	Billing period m – Total Import Max Demand with Time Stamp	(QI+QIV)	kW
	Billing period m –Tariff n – Total Import Max Demand with Time Stamp	(QI+QIV)	kW
	Billing period m –		
	Total Export Max Demand with Time Stamp	(QII+QIII)	kW
	Billing period m –Tariff n –		
	Total Export Max Demand with Time Stamp	(QII+QIII)	kW
Reactive Power	Billing period m – Total import Max Demand with Time Stamp	(QI+QII)	kVAR
Measured item			Unit
	Billing period m –Tariff n –		
	Total import Max Demand with Time Stamp	(QI+QII)	kVAR
	Billing period m –		
	Total export Max Demand with Time Stamp	(QIII+QIV)	kVAR
	Billing period m –Tariff n –		

	Total export Max Demand with Time Stamp	(QIII+QIV)	kVAR
m: billing period index n: tariff index			

4.3.2. The MDM shall be capable to collect data from all meter data channels for all data type (scalar or interval) that the electricity meter can handle

4.3.3. The MDM shall support measurements including but not limited to:

- Active energy
- Reactive energy
- Apparent energy

4.3.4. The MDM shall receive updated channel configuration from the system of record and update its database accordingly (this may be triggered by a meter change, re-program, or other actions)

4.3.5. The MDM user shall have the ability to easily view and identify the type of data represented by each channel

4.3.6. The MDM shall have the ability to keep the history of which data was represented in which channel over time (i.e., keep track of the changes to channel configuration and of the date of the change)

4.4 Register Reads

4.4.1. The MDM shall pass all register dial reads (including all decimal points, without rounding/truncating) to the billing system

4.4.2. The MDM shall control the frequency and/or conditions for retrieving a meter register read (e.g., retrieve register read with every interval read), retrieving register read during post-VEE (when calculating billing determinants), retrieving a smart meter register read when requested

4.4.3. The MDM shall control the frequency of meter register read to be set globally, for a set of meters based on pre-defined criteria, or for an individual meter

4.4.4. The MDM shall be able to initiate a request to an external system to schedule meter read requests for non-smart meters based on the billing cycle received from the CIS

4.4.5. The MDM shall provide the register read for a specific meter or group of meters real time when requested by an authorized user (i.e., on-demand register read)

4.4.6. The MDM shall calculate engineering units using the meter-specific pulse multiplier

4.4.7. The MDM shall store interval data in engineering units

4.4.8. The MDM shall maintain the entire decimal in each interval (no rounding)

4.4.9. In addition to the floating-point decimal, the MDM shall store at least the same number of values after the decimal point in alignment with the pulse multiplier for each specific meter.

4.5 Validation, Editing and Estimation (VEE)

4.5.1. The bidder is requested to provide the full range of the pre-built VEE rules available in the proposed MDM solution

4.5.2. The MDM shall perform validation and estimation routines that account for energy and demand imports from customers

4.5.3. The MDM shall validate meter determinants prior to billing for both interval and register data

4.5.4. The MDM shall validate asset information for each meter data file received (e.g., meter-to-premise validation, meter relative to meter determinants, compare and validate between same type of customers/area, etc.)

4.5.5. The MDM shall perform validations on interval meter data (all tiers)

4.5.6. The MDM shall create specific validation groups based on various parameters and rules. The rules for these validation groups can be created to account for specific validations

4.5.7. The MDM shall perform automated estimation and/or substitution of interval and register usage data based on a series of programmatic rules and historical data

4.5.8. The MDM shall support manual estimation and substitution of data. This includes adding or replacing values on screen, estimating, and substituting multiple channels on screen, etc.

4.5.9. The MDM shall check for missed reads and send corrected data to the CIS when the reads are received

4.5.10. The MDM shall flag estimated meter data to highlight this in other systems

4.5.11. The MDM shall store meter data in designated repository to act as system of record

- 4.5.12. The MDM shall automatically edit the data where no/missing data was recorded with the complete acquired data
- 4.5.13. The MDM shall allow the manual editing of the data where no/missing data was recorded with the complete acquired data
- 4.5.14. The MDM shall validate and edit the meter reads
- 4.5.15. The MDM shall complete estimations on meter data
- 4.5.16. The MDM shall have the ability to manually edit the automatically corrected/estimated readings
- 4.5.17. The MDM shall allow the easy configuration of rules for validation, estimation and editing without the need for coding or customization
- 4.5.18. The MDM shall allow the definition of separate set of rules for distinct types of meters/customers
- 4.5.19. The MDM shall provide standard validations and estimations rules and shall allow for the customization of validation and estimation rules to fulfil EDCO business need (if required)
- 4.5.20. The MDM shall have the ability to show raw and estimated data comparison on graph and option to restore raw data (if required)
- 4.5.21. The MDM shall have the ability to define distinct set of rules for different data sources (direct from source, manually uploaded, etc.)
- 4.5.22. The MDM shall have the ability to generate and store logs for VEE and manual edits
- 4.5.23. The MDM shall provide a user interface portal with filters (e.g., date, exception type, etc.) to see failed validation and estimation meter reads and user options to validate data manually
- 4.5.24. The MDM shall have the ability to identify/flag the actual, edited, estimated, and manually corrected readings separately with established priorities for bill determinant calculations
- 4.5.25. The MDM shall have the ability to correlate abnormal interval data patterns
- 4.5.26. The MDM shall perform certain interval data validations immediately upon receipt of interval data (these are validations that do not require a full day of interval data to be executed)
- 4.5.27. The MDM shall perform VEE rules when the data required to perform a specific validation is available
- 4.5.28. The MDM shall have the ability to support unique validation rules for each operating area
- 4.5.29. The MDM shall provide validation processes to handle variable interval lengths
- 4.5.30. The MDM shall allow the validation results to be logged, including the results of pre and post VEE processes
- 4.5.31. The MDM shall allow the validation log entries to be time stamped
- 4.5.32. The MDM log shall record whether the validation exception is handled by a user (store user ID) or automatically by the system
- 4.5.33. The MDM shall automatically summarize validation result data according to pre-defined parameters
- 4.5.34. The MDM shall recognize data status (e.g., actual vs. estimated data)
- 4.5.35. The MDM shall validate the account information prior to sending summarized billing determinants to the billing system

4.6 Events and Incident Management

- 4.6.1. The MDM shall support theft and tamper detection based on meter flags and events
- 4.6.2. The MDM shall provide event correlation functionalities
- 4.6.3. The MDM shall support theft and revenue loss identification through analytics and reports (such as single phasing in 3-phase meters, usage pattern, zero consumption, irregular consumptions in electricity meters, etc.)
- 4.6.4. The MDM shall provide alert and event features
- 4.6.5. The MDM shall have the ability to define categories, priorities, and criticality for each event
- 4.6.6. The MDM shall have the ability to configure workflow based on events
- 4.6.7. The MDM shall have the ability to send mail & SMS alerts for any alert, if configured

4.7 Work Queues

- 4.7.1. The MDM shall have the ability to create work queues based off failed meter data validations during the VEE process
- 4.7.2. The MDM shall automatically close work queues individually and in bulk as part of the normal work item life cycle

- 4.7.3. The MDM shall track the status of all service orders/ work queues that relate to meter data and meter maintenance and shall be able to generate reports which include (but are not limited to) open orders (orders by type, orders by age, past due orders, and closed orders).
- 4.7.4. The MDM shall identify specific meter diagnostic flag/event combinations and automatically generate work queues
- 4.7.5. The MDM shall allow appropriate and authorized users to easily create new work queues through a graphical user interface
- 4.7.6. The MDM shall allow appropriate and authorized users to easily create and edit new workflow processes through a graphical user interface that will specify the steps of the workflow, business rules around each step, authorized users, and control points that require manual authorization
- 4.7.7. The MDM shall monitor and identify specific events flag/event combinations and automatically generate work queues
- 4.7.8. The MDM shall allow the configuration of message queues based on (but not limited to) priority, time validation, and other parameters as required

4.8 Meter Diagnostics

- 4.8.1. The MDM shall identify specified meter diagnostic and event combinations occurring within a specific time window and automatically generate field service requests, reports, and work queues
- 4.8.2. The MDM shall have the ability to flag, generate alarms, and trigger VEE rules when anomalies occur such as:
 - Anomalies in interval reads
 - Anomalies in cumulative register reads
 - Anomalies in TOU/ interval register reads
 - Anomalies in demand register reads
- 4.8.3. The MDM shall flag data changes from manual edits, VEE rules, and data source corrections
- 4.8.4. The MDM shall interpret the alert messages into various categories such as power outage, tamper, etc.
- 4.8.5. The MDM shall automatically receive the information regarding failures to upgrade firmware and correct for corrupted interval data due to upgrades
- 4.8.6. The MDM shall identify tamper events, faulty meter (etc.), and trigger field investigations

4.9 Aggregation

- 4.9.1. The MDM shall allow the aggregation process to take multiple meter devices (contributors) from multiple service accounts and to aggregate (combine) the pre-determined value (minimally: kWh, kW) for the specified tariff program
- 4.9.2. The MDM shall provide pre-built hierarchies and shall allow the creation of custom hierarchies for the aggregation
- 4.9.3. The MDM shall validate that all contributors are present before proceeding with aggregation
- 4.9.4. The MDM shall validate that all contributors have the same start and end date and time before proceeding with aggregation
- 4.9.5. The MDM shall validate that all usage data, for each contributor, has completed all primary validations before proceeding with aggregation
- 4.9.6. The MDM shall be able to calculate coincident demand or combine peak demand to determine maximum demand (aggregate demand by aggregating individually by time then finding the highest sum by time)

4.10 Totalization

- 4.10.1. The MDM shall determine if the service contract has multiple billing meter devices (contributors)
- 4.10.2. The MDM shall validate that all contributors are present before proceeding with totalization
- 4.10.3. The MDM shall validate that all contributors have the same start and end date and time before proceeding with totalization
- 4.10.4. The MDM shall validate that all usage data, for each contributor, has completed all individual validations before totalization is attempted

- 4.10.5. Upon completion of the totalization process, the usage data shall be summarized at an account level rather than an individual meter device (contributor) level
- 4.10.6. The MDM shall store a summarized record for the totaled account as well as the individual meter device contributor record
- 4.10.7. The MDM shall be able to calculate coincident demand (aggregate demand by aggregating individually by time then finding the highest sum by time)

4.11 Meter/Bill Determinants Calculation and Correction

- 4.11.1. The MDM shall calculate billing determinants based on tariffs (slab based currently) for electricity meters
- 4.11.2. The MDM shall provide register reads to SAP/CIS if required (for current conventional meters or for records/validations)
- 4.11.3. The MDM shall have the ability to store multiple TOU calendars if required
- 4.11.4. The MDM shall frame billing determinants based on multiple TOU tariffs, CPP, and other future requirements
- 4.11.5. The MDM shall frame billing determinants for commercial and industrial customers based on slab tariffs, demand-based tariffs, power factor tariffs, etc.
- 4.11.6. The MDM shall frame billing determinants for net metering (future)
- 4.11.7. The MDM shall frame billing determinants for generator billing (future)
- 4.11.8. The MDM shall frame billing determinants for co-generators (future)
- 4.11.9. The MDM shall deliver billing determinants to CIS/SAP based on scheduled billing cycle (push)
- 4.11.10. The MDM shall deliver billing determinant to CIS based on ad hoc requests (pull) for move-in/move-out or other cases
- 4.11.11. The MDM shall perform billing related validations like sum check, high/low usage, zero consumption (etc.), and generate alerts/events
- 4.11.12. The MDM shall compare customer consumption to historical high/low and generate alerts in case of unexpected mismatches
- 4.11.13. The MDM shall check for recent version of data available before completing billing exports
- 4.11.14. The MDM shall generate alerts for missing reads in case of legacy manual reading system
- 4.11.15. The MDM shall store billing cycle schedule in a calendar for the entire year
- 4.11.16. The MDM shall apply transformer loss factors if required (or any other factors)
- 4.11.17. The MDM shall allow authorized users to generate manual billing data or edit billing determinants
- 4.11.18. The MDM shall calculate meter determinants from register, time of use, and interval data based on billing cycles, allowing for consumption and demand data
- 4.11.19. The MDM shall identify the meter determinants to be generated based on the billing meter configuration that has been assigned to the service point
- 4.11.20. The MDM shall store and send (pushes out) the meter determinants to SAP billing once meter determinants are generated and validated (for on cycle and off cycle reads)
- 4.11.21. The MDM shall save all meter determinants and mark them "Sent to SAP Billing" once they have been sent to SAP for billing
- 4.11.22. The MDM shall store meter data in the repository
- 4.11.23. The MDM shall generate meter determinants for both on-cycle and off-cycle billing
- 4.11.24. The MDM shall recalculate determinants based on any change in source or edited/estimated readings
- 4.11.25. The MDM shall allow for the easy configuration of calculation rules without requirement of coding or customizations
- 4.11.26. The MDM shall allow the definition of distinct set of calculation rules for different meter or customer types
- 4.11.27. The MDM shall generate and store logs for bill determinants calculation process
- 4.11.28. Ability to define multiple Time of Use structures regardless of configurations at meter side
- 4.11.29. The MDM shall allow the definition of exceptions for the time of use for unique events/days or special customers
- 4.11.30. The MDM shall provide a user interface portal for the definition of data conditions and time lag/lead for bill determinant calculation

4.11.31. The MDM shall be able to support the dynamic billing. Special rates for day/time could be dynamically decided by EDCO: this dynamic billing scenario shall be highly configurable

4.12 Data Import/Export

- 4.12.1. The MDM shall receive manual reads that include interval data or only register data
- 4.12.2. The MDM shall receive meter readings from head end upon meter installation
- 4.12.3. The MDM shall verify the connection and data flow from the AMI meter via the head-end system
- 4.12.4. The MDM shall retry pulling of failed data every hour for regular reads and notify after multiple failed attempts fail/pass status whether the system can retrieve reading
- 4.12.5. The MDM shall generate exception reports for missing/incomplete meter data
- 4.12.6. The MDM shall identify and log meters where missing/incomplete meter data for the previous day was successfully recovered through the automated on-demand read request
- 4.12.7. The MDM shall execute a mass on demand read for all meters which are missing data within a specified timeframe
- 4.12.8. The MDM shall maintain original received raw data in a non-manipulated state
- 4.12.9. The MDM shall receive data from multiple data collection systems having different file formats and data structures including AMI, AMR, handhelds, and service order systems
- 4.12.10. The MDM shall receive, and store meter readings associated with both consumed and delivered energy (e.g. distributed generation), as well as net energy (e.g. consumed minus delivered)
- 4.12.11. The MDM shall receive, process and store all metered parameters and associated status or diagnostic data from meter data collection systems
(to the extent supported by the various data collection systems)
- 4.12.12. The MDM shall receive and store quantities such as kW, kVARh, kVA, kVAh, coincident values, amps, volts, kVAR, phase angle, and kWh (with decimal positions)
- 4.12.13. The MDM shall collect data from non-meter sources, including customer premise equipment, distribution automation devices, home area networks, etc.

4.13 Audit

- 4.13.1. The MDM shall store all version history and audit trail for data collected from meters and other devices
- 4.13.2. The MDM shall store all billing data versions (includes rebilling data based on new/estimated data or manual edits)
- 4.13.3. The MDM shall store version history of all VEE settings with audit trail
- 4.13.4. The MDM shall have the ability to log and audit all application and database access throughout the system, capture usernames, timestamp, success/failure of transactions and transaction descriptions as appropriate

4.14 Reporting

- 4.14.1. A pre-built set of dashboards need to be provided by the proposed solution: the bidder is requested to specify the list of pre-built dashboards and reports
- 4.14.2. The MDM shall generate reports, including but not limited to:
 - Device installation status
 - List of devices with issues in communication
 - Timeliness of meter data collection
 - Distribution of collected data (interval, scalar, ToU, ...) and trends □ Distribution of data stored (actual, validated, estimated, edited, ...) and trends
 - Distribution of exception types and trends
 - Distribution of device events and trends
 - Distribution of VEE exceptions and exception analysis
- 4.14.3. The bidder is requested to provide the full range of the MDM reporting capabilities (vendor specific)
- 4.14.4. The bidder is requested to provide details about all administrative reports and audit logs available in the proposed solution
- 4.14.5. The MDM shall have flexible reporting tool to generate report as per the user needs
- 4.14.6. The MDM shall provide management reports (dashboards), analytical reports, status reports, data import/export with advanced/flexible search and filter criteria

- 4.14.7. The MDM shall provide functionalities to export the data into excel sheet for the reports or any screen which is comprised of data
- 4.14.8. The MDM shall provide operational reports related to daily operations of the system and processes
- 4.14.9. The MDM shall provide analytical reports based on the meter data, flag, events, usage patterns, billing calculations, and other areas
- 4.14.10. The MDM shall have the capability for creation of custom reports
- 4.14.11. The MDM shall allow authorized users to run analytics on the data

5. ADVANCED REQUIREMENTS

5.1 Meter Event Message Handling

- 5.1.1. The MDM shall store all meter event messages in a table
- 5.1.2. The MDM shall support at least the following meter event categories:
 - Tampering
 - Voltage-related events
 - Current-related events
 - Control events
 - Time- related events
 - Meter status events
 - Security related events
 - Meter diagnostic
- 5.1.3. The MDM shall have the ability to process certain meter event messages in a real-time manner (e.g., last gasp, over temperature, inversion, tamper)
- 5.1.4. The MDM shall have the ability to filter and send a sub-set of meter event messages to the recipient system (e.g., outage management system)
- 5.1.5. The MDM shall have the ability to treat each specific meter event message type or a sequence of events in a unique manner (i.e., after X occurrences of a specific event, take specific action; tamper event recorded during meter maintenance might not be considered a tamper risk)
- 5.1.6. The MDM shall have the ability to route meter event messages to other systems based on the message type

5.2 Rebilling

- 5.2.1. The MDM shall receive requests for reversals and rebills from the billing system and shall communicate results back to the billing system
- 5.2.2. The MDM shall have the ability to recognize and process a reversal independently from other actions (i.e., rebill)
- 5.2.3. The MDM shall have the ability to recognize and process a rebill independently from other actions (i.e., reversal)
- 5.2.4. The MDM shall have the ability to recognize and process a reverse/rebill as a paired action
- 5.2.5. The MDM shall have the ability to process reversals and/or rebills for any account that it originally billed
- 5.2.6. The MDM shall allow for bill period changes, with no change in interval level usage, which shall be fully automated without requiring manual processing
- 5.2.7. The MDM shall log all manual updates to usage data including user ID, timestamp, and before and after values
- 5.2.8. The MDM shall not run the validation process on data requested by the billing system for rebilling unless the interval usage data has changed

5.3 Net Energy Metering and Distributed Energy

- 5.3.1. The MDM shall have the ability to recognize channel configuration
- 5.3.2. The MDM shall have the ability to recognize the meter and usage type
- 5.3.3. The MDM shall have the ability to include generation in the summarization process
- 5.3.4. Based on channel configuration, the MDM shall recognize gross, net, and excess generation
- 5.3.5. The MDM shall have the ability to recognize NEM (net energy metering) eligible generation vs. non-eligible generation for summarization

5.4 Demand Response

- 5.4.1. The MDM shall automatically process specific usage information during a demand response event based on the specific requirements of the demand response program
- 5.4.2. The MDM shall have the ability to accept interruption information from outside sources
- 5.4.3. The MDM shall be able to handle multiple demand response events in a single bill period
- 5.4.4. The MDM shall deliver to external systems (i.e., advanced distribution management system) interval data for all meters participating in demand response events at the frequency of the meter's interval for the duration of the event (e.g., 5-minute interval meter every 5 minutes during event, 15-minute interval meter every 15 minutes during event, 30-minute interval meter every 30 minutes during event, 60-minute interval meter every 60 minutes); data delivery will stop after the event(s) has concluded
- 5.4.5. The MDM shall notify the responsible system (internal or external) in case the pricing or event participation information is not received as expected.
- 5.4.6. The MDM shall have the ability to determine comparative calculations for programs as needed for dynamic pricing or other demand-based event calculations (e.g., identify three highest days, average usage during like event hours for three highest days)
- 5.4.7. The MDM shall have the ability to calculate kW reduced for a demand response event

5.5 Pre-Payment Services

- 5.5.1. The MDM shall have the ability to deliver messages received from the pre-payment function to the customer's display device, if one is utilized (e.g., pre-payment balance in dollars, kWh, and estimated time remaining (days/hours/minutes))
- 5.5.2. The MDM shall send to upstream systems the results of messages it delivers to the customer's pre-payment device (e.g., success/failure) based on user-defined rules which may include the need to "bundle" messages and send them to CIS based on subsequent actions (i.e., once the customer has exceeded their pre-pay balance and the system proceeds with a remote disconnect, return a message to CIS with the date and time of the disconnect and a summary of all of the messages and alerts sent to the customer)
- 5.5.3. The MDM shall have the ability to deliver meter commands requested by the pre-payment function to the meter (e.g., connect, disconnect, reconnect, limit service)
- 5.5.4. The MDM shall send pre-payment command results to the billing/CIS systems (e.g., success/failure)
- 5.5.5. The MDM shall log pre-payment message and command results with the timestamp and message code/command type
- 5.5.6. The MDM shall have the ability to send raw or VEE interval data to the pre-payment function such that the pre-payment function can calculate the pre-payment balance
- 5.5.7. The MDM shall be able to receive, log and process requests and information related to the pre-payment function (e.g., connect, disconnect, demand limit request, meter tests) from other utility systems (e.g., CIS)

6. SYSTEM USABILITY

6.1 User Interface

- 6.1.1. MDM GUI screen layouts, workflow, alerts, menus, etc., must be designed to mirror business processes
- 6.1.2. The business rules that support the creation of data must be integrated and logically flow within the MDM GUI from one screen to the next
- 6.1.3. The business rules that support the updating of data must be integrated and logically flow within the MDM GUI from one screen to the next
- 6.1.4. The business rules that support the deletion of data must be integrated and logically flow within the MDM GUI from one screen to the next
- 6.1.5. The MDM GUI access will be based on user role and profile, and will control view/update access to MDM data as well as access to functions and commands (e.g., ping meter, request on-demand read, issue on/off commands, retry commands, etc.)
- 6.1.6. The MDM shall display engineering units and unit type (e.g., kWh) whenever interval data is displayed

- 6.1.7. The MDM shall allow authorized users to customize their screen views and save customized settings for future sessions
- 6.1.8. The MDM users shall be identified via a unique ID and support single sign-on
- 6.1.9. The MDM GUI shall present a similar look and feel of its tools such as help, notes, hot keys, graphs, and reports
- 6.1.10. The MDM GUI shall be able to perform user input validation and reasonableness checking based on industry standards and user-defined rules (e.g., input sanitization, filtering, canonicalization, through use of regex, character escaping schemes)
- 6.1.11. The MDM GUI shall prompt the user when exiting if edits have not been saved
- 6.1.12. The MDM GUI shall warn the user prior deleting any information from the system
- 6.1.13. The MDM GUI shall provide a drop-down selection list for specific fields
- 6.1.14. The MDM GUI shall be able to be configured to permit the operator to navigate an electrical connectivity hierarchy (e.g., substation by name/ID, transformer by name/ID, feeder by name/ID, meter by ID, etc.)

7. TECHNOLOGY REQUIREMENTS

7.1 General Requirements

- 7.1.1. The MDM shall provide web based or client-server access and shall not have a remote desktop console access
- 7.1.2. The MDM shall provide server and application-level monitoring tools
- 7.1.3. The MDM database setup shall support high-availability and clustering
- 7.1.4. All production and quality servers shall have high-availability system and quality and production landscape shall have disaster recovery (DR). DR Setup shall have continuous data protection with zero downtime and data loss
- 7.1.5. The bidder shall provide load balancer mechanism and provide load balance appliances details
- 7.1.7. The bidder shall provide the list of pre-requisite third-party mandatory software licenses which has to be purchased running the proposed MDM

7.2 Data Management

- 7.2.1. The MDM shall access data through a data object rather than directly from the database
- 7.2.2. The MDM shall include a data access utility that can be used to directly manage the data (business) object
- 7.2.3. The MDM shall include built-in data import/export utilities
- 7.2.4. The MDM shall support extract, transform, load capabilities directly or via close integration with other common extract, transform, load tools
- 7.2.5. The MDM shall allow for designating levels of confidentiality to be associated with data fields such that data users can readily comply with EDCO data labelling and handling requirements

7.3 Database Architecture

- 7.3.1. The MDM database shall be Open Database Connectivity (ODBC) compliant
- 7.3.2. The MDM database shall be Java Database Connectivity (JDBC) compliant
- 7.3.3. The MDM database shall be Object Linking and Embedding, Database (OLEDB) compliant
- 7.3.4. The MDM database shall be able to accommodate and respond properly to standard SQL queries run against the database

7.4 Componentization and Service Oriented Architecture (SOA) Support

- 7.4.1. The MDM shall employ the use of application development tiers to separate major functions or layers; at a minimum, three tiers (database, application, client) shall be supported
- 7.4.2. The MDM data shall be stored in a separate tier distinct from other aspects of the application architecture
- 7.4.3. Beyond the separation of data from the application, the MDM shall specifically avoid storing (other than short-term caching) of any 'content' information on web servers
- 7.4.4. The MDM shall support the segregation of reporting functionality to allow the use of mainstream external tools for generating reports from the data
- 7.4.5. The MDM shall employ substantial to full separation of the presentation layer from the application layer

- 7.4.6. The MDM shall allow alternative presentation options such as fat vs. thin client options without affecting fundamental system functionality
- 7.4.7. Individual system functions within the MDM shall be modular, thereby providing individual business functions in a componentized fashion
- 7.4.8. The MDM program modules shall allow the individual modules to be called from one another or from a main program reusing functionality across the system
- 7.4.9. The MDM shall allow business functions/processes to be defined in Web Services Description Language (WSDL) or Web Application Description Language (WADL)
- 7.4.10. When applicable, the MDM shall allow workflow attributes to be described in Web Services Flow Language (WSFL)
- 7.4.11. The MDM shall allow for important system functions to be called via SOAP (Simple Object Access Protocol) or REST (Representational State Transfer) protocol

7.5 Development Environment

- 7.5.1. The MDM shall allow development or maintenance work to be performed using a mainstream Integrated Development Environment (IDE)
- 7.5.2. The MDM shall provide an organized, programmatic interface or software development kit (SDK) to perform any system configuration or to access and modify system information or accounts
- 7.5.3. Any user configurable or exposed development language within the MDM used for customization and maintenance shall be based on one of the following: .Net, Java, or Advanced Business Application Programming (ABAP)
- 7.5.4. The MDM shall be based on a modern development technology framework such as .Net, ASP.Net, Java EE, or Java Server pages (JSP)
- 7.5.5. The MDM shall allow for the preservation of prior customizations during product upgrades

7.6 System Configurability

- 7.6.1. The MDM shall support distributed processing across multiple network zones and data centers, with application and database processes distributed on multiple servers with dynamic resource allocation and automatic failover and load balancing as appropriate
- 7.6.2. The MDM shall support enhancements and upgrades in a modular fashion
- 7.6.3. The MDM shall allow EDCO to set up or change data validation and estimation rules, user screens, and alarm/event notifications without modifying source program code and without any proprietary language skills
- 7.6.4. The MDM shall include a toolset to make configuration changes to reflect new business rules for data validation and estimation
- 7.6.5. The MDM shall include a toolset to change format, content or functionality of user screens and online help contents
- 7.6.6. The MDM shall include a toolset to group, prioritize, filter, and send the system generated alarms and events to predetermined email addresses, text pagers, cellular text messages, and/or phone numbers

7.7 Integration Capabilities

- 7.7.1. The bidder is requested to provide the full range of the pre-built integration adapters available in the proposed MDM solution
- 7.7.2. The bidder is requested to provide the list of HESs and billing solutions it has integrated with in previous projects
- 7.7.3. All user accessible data within the MDM shall be capable of being accessed via documented APIs (with the preferred method of access being a data access model)
- 7.7.4. The MDM shall support open standards and CIM 61968 based integration with CIS and other enterprise systems
- 7.7.5. The MDM shall provide web services, application programming interfaces (API), and/or adaptors to support system integrations with other enterprise information systems
- 7.7.6. The MDM shall support an enterprise integration strategy using Service Oriented Architecture/Enterprise Service Bus

- 7.7.7. The propose integration with the SAP billing system shall follow asynchronous processes and shall synchronize with all SAP inbound & outbound services
- 7.7.8. The MDM shall consume SAP WSDLs for both Inbound and Outbound Services
- 7.7.9. The MDM shall be compatible to use SAP services with minimum customization
- 7.7.10. The MDM shall use HTTPS (with basic authentication or client certificate) for communication with SAP system
- 7.7.11. The MDM shall allow the configuration of the number of retries and delays to reprocess the request if any failure happens
- 7.7.12. The MDM shall provide a proper queuing mechanism to be in place. A time stamp validation shall exist in the MDM to process or cancel the request; the requests shall not be reprocessed if the request failed or got cancelled as per time stamp validation
- 7.7.13. The bidder shall provide the detailed flow chart and actions to be performed in all the stages from request creation to success/fail request and archiving
- 7.7.14. The bidder shall provide details about the protocols used for integration like SOAP, FTP, etc.
- 7.7.15. The MDM shall provide various error handling techniques for errors that may appear during the integration
- 7.7.16. The MDM shall support all the SAP data types
- 7.7.17. The bidder must detail its approach for disaster recovery plan to communicate with primary/high-availability MDM in case of system failure
- 7.7.18. MDM shall support (for all the services) individual and bulk requests based on individual/bulk requests from the requested integrated systems such as SAP (or others in future)
- 7.7.19. The MDM shall allow business functions/processes to be defined in WSDL and/or WADL as per requirements during design stage
- 7.7.20. The MDM shall call important system functions via SOAP and/or R-EST protocol as per requirements which will be finalized during design stage
- 7.7.21. The MDM shall allow the user-accessible data in the system to be accessed via documented APIs as per the requirements which will be finalized during design stage
- 7.7.22. The MDM shall support XML and/or JSON messages to present data or to transfer information in and out of the system as per the requirements which will be finalized during design stage
- 7.7.23. The MDM shall support integration flexibility at the web services layer such as allowing XML/WSDL/WADL calls or the interactive use of portlets as per the requirements which will be finalized during design stage
- 7.7.24. The MDM shall support interoperability with MS Exchange for e-mail functions which will be finalized during design stage
- 7.7.25. The MDM shall support standard interfaces, adaptors and file formats for data exchanges which will be finalized during design stage
- 7.7.26. The MDM shall allow the configuration and modification of data fields used in data exchanges which will be finalized during design stage
- 7.7.27. The MDM shall support an enterprise integration strategy using Service Oriented Architecture (SOA)
- 7.7.28. The MDM shall consume and expose web services for both inbound and outbound services and compatible to use WSDL and/or WADL file
- 7.7.29. The MDM shall log all service requests and publishing between MDM and other systems/applications
- 7.7.30. The MDM shall allow the configuration of several retries and delays to reprocess any request failures
- 7.7.31. The MDM shall provide time stamp validation to process or cancel message requests
- 7.7.32. The MDM shall prevent the data reprocessing if the request failed or cancelled as per time stamp validation
- 7.7.33. The MDM shall provide a web service client interface for all outbound alerts to send alerts through an enterprise message brokering system (service)
- 7.7.34. The MDM shall provide support for open, documented, and upgradeable industry standards for message structures

- 7.7.35. The MDM shall provide support for standard messaging structures to ensure request, acknowledgement, and response
- 7.7.36. The MDM shall develop message structures, protocols, and common information models that adhere to the industry standard
- 7.7.37. The MDM shall synchronize meter master data with various HES systems in EDCO
- 7.7.38. The MDM shall synchronize reading frequency and schedule with various HES systems in EDCO
- 7.7.39. The MDM shall send on demand read request and other meter commands to different HES systems in EDCO
- 7.7.40. The MDM shall receive and process meter data, events, and alarms from various HES systems in EDCO
- 7.7.41. The MDM shall provide a user interface portal and logs to track any exception in master data sync, meter commands, or meter data processing between MDM and HESs
- 7.7.42. The MDM shall have a configuration panel to select the frequency, registers, timeline for the data import from HES systems; a log of all the configuration changes to be available as part of audit trail and reporting
- 7.7.43. The MDM shall receive ad-hoc meter data requests from head-end for specific date and time range for meter groups
- 7.7.44. The MDM shall integrate with meter data analytics system and send data based on a predefined schedule
- 7.7.45. The MDM shall read meters periodically (as per predefined billing cycle) and on demand
- 7.7.46. The MDM shall receive messages from customer portal either directly or via SAP
- 7.7.47. The MDM shall determine whether data for the requested period is in MDM or must be retrieved from the meter
- 7.7.48. The MDM shall store meter billing configuration profiles
- 7.7.49. The MDM shall issue an on-demand read request to retrieve missing/incomplete data for any period(s) present in the meter (i.e., at least [6 months]), for all meters with missing/incomplete data
- 7.7.50. The MDM shall collate consumption data into relevant billing cycles
- 7.7.51. The MDM shall support billing reading of at least 2 to 4 times a day
- 7.7.52. The MDM shall track the source of read information and issue on-demand reads
- 7.7.53. The MDM shall log the request's related information (e.g., time received, customer ID, etc.)
- 7.7.54. The MDM shall receive and send messages from customer portal either directly or via SAP
- 7.7.55. The MDM shall send data to customer portal near real-time
- 7.7.56. The MDM shall convert data into a compatible format to EDCO systems, which can be sorted and organized
- 7.7.57. The MDM shall uniquely identify each meter and track multiple meters read requests
- 7.7.58. The MDM shall track the source of read information and issue on-demand reads
- 7.7.59. The MDM shall have version control for the stored data
- 7.7.60. The MDM shall inform the subscribing (integrated) systems about any change in previously shared bill determinants
- 7.7.61. The MDM shall track/log the end-to-end communication for all requests and responses
- 7.7.62. The MDM shall provide user interface portal to track request and response and to present proper messages for any error case
- 7.7.63. The MDM shall be able to update master data as and when change is implemented at the source system

7.8 Network/Communication Architecture

- 7.8.1. The MDM shall support TCP/IP for network transport
- 7.8.2. The MDM shall support HTTP and HTTPS web data transport protocol

7.9 Scalability and Performance

- 7.9.1. The MDM shall be capable of being scaled vertically by adding CPU power and/or memory
- 7.9.2. The MDM shall be capable of being scaled horizontally by adding servers
- 7.9.3. The MDM shall be "cluster aware" at the application layer and can fully leverage server-based clustering techniques

- 7.9.4. The MDM shall be capable of being recreated and brought back to prior state through manual restoration processes while also using system logs or other outside messaging/broker services to understand which transactions may have failed
- 7.9.5. The MDM shall support semi-automated failover protection that allows a replacement platform to be brought up with an audit log of failed transactions
- 7.9.6. The MDM shall support high availability failover protection that provides for unattended with complete transaction recovery and seamless re-processing of failed transactions in progress
- 7.9.7. The MDM shall support separate environments (such as sandbox, development, QA, production environments, etc.)
- 7.9.8. The MDM shall support EDCO's entire electricity meter population, plus an annual growth of around 4%
- 7.9.9. The MDM shall store minimum 3 years (or a period specified by EDCO) of all meter read data including register reads corrected and uncorrected electricity consumption and interval data
- 7.9.10. The MDM shall be scalable to support interval reads from all EDCO's electricity meters in addition to the cumulative consumption data
- 7.9.11. The MDM shall support the number of users as suggested by EDCO to access the system, plus 50% capacity for growth and contingencies
- 7.9.12. The proposed system shall support the scalability through multiple locations with high-availability and disaster recovery

7.10 Server Platforms

- 7.10.1. The web related MDM services shall operate using the web server
- 7.10.2. The MDM shall run on 64 bit and latest Operating System version for Windows Server, REDHAT/ ORACLE LINUX, or AIX
- 7.10.3. The MDM shall have the capability to monitor and generate notifications and alarms for individual processes, group of processes, and work or data flows within the system to ensure reliable operation
- 7.10.4. The MDM shall expose the status of internal processes to external process monitoring systems supported by EDCO

7.11 System Operation and Management

- 7.11.1. The MDM shall be capable of effective operation in a virtual server environment
- 7.11.2. The bidder shall mention whether there is any limitation of the proposed MDM to run with specific hardware solutions or architectures
- 7.11.3. The MDM shall be capable of effective operation in concert with on-line data backup procedures including awareness of open transactions and files
- 7.11.4. The MDM shall support database and application backup using stored procedures and other tools for the production environment
- 7.11.5. The backup shall include all versions of the database, configuration data, register data, and event data. The backup shall be performed without any interruption of service
- 7.11.6. The MDM shall support local storage, network attached storage, and storage area networks
- 7.11.7. The MDM shall have adequate online data storage capacity to ultimately support the system scalability
- 7.11.8. The MDM shall support automated data archiving, purging, and restoration
- 7.11.9. The solution shall support the latest database versions such as Oracle 19c or MS-SQL 2019 or later

7.12 Testing Tools

- 7.12.1. The MDM shall allow for the use of a testing tool for test case development, automation, and tie to defect management software. Also, this shall include performance testing capabilities
- 7.12.2. The MDM shall allow for the use of automated change management
- 7.12.3. The MDM shall provide for easy use of log files to track events during testing or debugging operations
- 7.12.4. The MDM (under its proposed licensing provisions) shall be configured and sized to support multiple environments (including development, staging, and training) that fully emulate the production environment including connectivity to other key systems

- 7.12.5. The MDM (under its proposed licensing provisions) shall allow for the hosting of development, staging, or training versions/implementations of the system within a virtual server environment

7.13 User Interface (UI) Standards – Cross Platform

- 7.13.1. Browser based components of the MDM shall work with EDCO adopted web browsers which are Microsoft Edge and Google Chrome
- 7.13.2. Browser based components of the MDM exposed to public facing internet shall work with MS Explorer 11 and higher, Firefox 89 and higher, and Chrome 91 and higher to be inclusive of all external users

7.14 Web Content Management Architecture

- 7.14.1. The MDM shall either provide or integrate with an application to add, edit and remove data that is presented and collected on-line via the web application
- 7.14.2. The MDM shall either provide or integrate with an application to manage and update web content. Web content includes images, style sheets, multimedia files, etc. that typically do not come from the database but rather from other file systems. Applications involved in presenting such content on the web shall have tools for organizing, versioning, changing and updating content

8. SECURITY REQUIREMENTS

8.1 User Access Management

- 8.1.1. The MDM shall provide or allow for user authentication and identification
- 8.1.2. The MDM shall be capable of interfacing with Integrated Windows Authentication (IWA) to provide for user authentication and identification for any web-based components
- 8.1.3. The MDM shall support standard LDAP (Lightweight Directory Access Protocol) services
- 8.1.4. The MDM shall be capable of enforcing strong password handling for all external customer users and for EDCO's users (employees or contractors), and the ability to enforce different rules based on account type (e.g., internal, customer, supervisor, administrator)
- 8.1.5. The MDM shall support Single Sign-On (SSO)
- 8.1.6. The MDM shall be capable of removal of all generic accounts and default logins
- 8.1.7. The MDM shall provide multiple levels of access control based on user profiles
- 8.1.8. The MDM shall provide task or role-based access control tied to user profiles and group definitions
- 8.1.9. The MDM shall provide task or role-based data import/export control tied to user profiles and group definitions
- 8.1.10. The MDM shall support both Active Directory and MDM systemdefined user authentication; the MDM shall allow for single sign-on using Active Directory, which can then be linked to user's EDCO ID or account
- 8.1.11. The MDM shall have the capability to authenticate against a hybrid solution that shall combine authentication either locally or using single sign-on; EDCO uses Microsoft Windows Active Directory
- 8.1.12. The MDM shall provide role-based security function, where multiple users can be grouped for a specific role within the system. The change in the privileges of any role will be dynamically reflected to the users within the particular role
- 8.1.13. The MDM shall have the capability to redefine the role-based security for a user through the system administrator
- 8.1.14. The association between a role and its users shall be done at the directory level and the association shall be maintained within the MDM application and stored in the MDM database
- 8.1.15. The MDM shall have the capability to define access rules (such as particular time of the day, weekend, holiday, etc.) for distinct roles
- 8.1.16. The role-based security shall have strict access controls (definition and management of rules) for MDM functionality use in the MDM system. The strict control requires that the list of personnel responsible for changing the parameters of the access is limited, and that there exists an access control reinforced to be able to modify the list, and the modifications are logged and audited. Typically, primary and backup system administrators are

designated to manage the security rules for all the users of the systems. Security roles shall be assigned by group and workgroup, not individual users.

- 8.1.17. The MDM shall store and track the login and logout entry in the system
- 8.1.18. The MDM shall have the capability to allow the creation of ad hoc reports against the tracking data, which can be used for internal audits or in case of unauthorized entry or breaches into the system
- 8.1.19. The MDM authorization system shall have the capability to re-validate authentication prior to any sensitive operations such as meter reconnect/disconnect commands to the AMI network
- 8.1.20. In case of specific period of inactivity (absence of exchange of information in a defined time) of a user, the MDM authorization system shall automatically log the user out of the system, and make it mandatory to require new identification (re-login)
- 8.1.21. The logging process on the MDM shall be protected, where no additional information, besides the user ID and password, is presented to the user
- 8.1.22. The passwords stored in the system shall be encrypted
- 8.1.23. The MDM shall have strong authentication (crypto logical process) in place for authenticating the administrators or owners of sensitive information
- 8.1.24. The MDM shall not be susceptible to be breached due to visual observation or listening of network, and not breakable by special tools (password cracking tools)
- 8.1.25. The MDM shall not only strictly control the access to the system and roles of each user, but also strictly control the data each user can access. Users except for database administrators and system administrators shall have no direct access to the database or system directories.
- 8.1.26. The MDM shall maintain the accuracy, authenticity, and integrity of the data stored in the system. The MDM system shall be capable of maintain the security of sessions
- 8.1.27. The MDM shall allow the user to change his/her password. The system shall disable the account after 45 days (this number shall be configurable in the MDM) on non-utilization. The system must request for new password after 90 days (this number shall be configurable in the MDM) and prompt user for change of password in advance

8.2 Security Monitoring

- 8.2.1. The MDM shall allow the synchronization of the network time protocol (NTP) clock
- 8.2.2. The MDM shall log the security events and other application transactions to a centralized allocated directory in the MDM application or database servers. At least the following activities shall be logged:
 - Access to the critical MDM components
 - Access to the confidential information
 - Access to the sensitive resources (customer information files, databases, etc.)
 - Modifications of parameters and definitions that manage login rules and usernames.
 - The sensitive system calls (utility sensitive information requiring privileged rights, access to the security files, security parameters administrations, etc.)
- 8.2.3. The MDM shall cover essential components of event logs that record all activity in the system. The MDM shall record all actions taken by the MDM, as well as all users and external systems. Logs shall include:
 - Audit Log: MDM shall provide a way to view changes that have been made to configuration data in the system over a selected period. This identifies which users in the system changed data and the time at which they changed it
 - Task Log: MDM shall log all task activity in the database. EDCO shall be able to view log data for individual tasks or by log
 - Edit Log: MDM shall maintain an edit log for all edited data, including start and end date of each edit operation, edit estimation mode that was applied, edit code, username of the editor, user comments, and additional channels subject to the same edit
 - Validation Log: MDM shall store the results of each validation rule or validation set
 - Communications Log: MDM shall store communications data from meter cross-examination sessions

- 8.2.4. The MDM shall maintain a comprehensive audit trail of all users and external system activity. The MDM shall have the ability to provide this information as a standard operational report. The MDM shall have the ability to restrict the viewing, printing, and moving of the security logs based on the MDM role-based security permissions
- 8.2.5. The MDM shall have the capability to audit not only changes to master data (such as meters) but also changes to system settings and configurations. Among these the MDM shall have the capability to monitor the disabling of audit logging settings. If the user disables logging, an audit entry shall be generated in the database which can be reviewed by a system administrator
- 8.2.6. Any disabling of the audit functionality shall generate an entry in the audit log table. The monitoring tools can monitor the logs for any security event and alert notifications shall be set up for any anomalies

8.3 Software and Services

- 8.3.1. The MDM shall allow for all software components that are not required for the operation and/or maintenance of the MDM to be removed. If removal is not technically feasible, then software features that are not required for the operation and/or maintenance of the MDM shall be capable of being disabled
- 8.3.2. The MDM shall allow for services and ports not required for operation of the system to be removed and disabled
- 8.3.3. The MDM shall provide the ability to view and report all versions for software, configurations, firmware, scripts, macros and enabled ports and services

8.4 Connection and Data Transport Security

- 8.4.1. The MDM shall support the Transport Layer Security (TLS) protocol for internet session security for web-based components
- 8.4.2. The MDM shall support large file transfer utilizing a SSH File Transfer Protocol (SFTP) server
- 8.4.3. The MDM shall enforce security policies from the critical side when inter process communication is initiated from a less privileged application

8.5 Encryption

- 8.5.1. The MDM shall support secure transmission (encryption) of all nonpublic data
- 8.5.2. The MDM shall provide encryption mechanism for the cached data and elimination of the cached data when are no longer needed to assure that residual data is not left in caches or on local hard drives when any confidential data is processed on the system
- 8.5.3. The MDM shall provide encryption mechanism for the cached data and elimination of the cached data when are no longer needed to assure that residual data is not left in caches or on local hard drives when any confidential data is processed on the system
- 8.5.4. The MDM shall allow for confidential and restricted data to be encrypted
- 8.5.5. The MDM shall store PINS and passwords hashed and never in clear text
- 8.5.6. The MDM shall use robust encryption mechanisms for the access to the consoles of administration and/or operations. In the case of Active Directory, the user and authentication type shall be stored in the MDM database, while the credentials shall be stored in Active Directory. In the case of MDM based authentication, the username and password shall be stored in MDM, and the passwords shall be one-way hashed and encrypted. MDM users shall only be able to access the functions and screens that are allowed for the role that they have been assigned
- 8.5.7. The encryption mechanism shall protect against any violation. Majority of the interaction in the MDM shall be done via web services. These web services shall be configured to enable transport or message level encryptions to prevent tampering of messages while in transit. These mechanisms shall be based on standard security technologies platform such as Microsoft and shall be configured as part of the deployment of the MDM. Any passwords used in the product shall never be exposed in clear and shall be masked in the user interface
- 8.5.8. The MDM shall immediately detect the disabling or the by-pass of the encryption mechanism. Once configured, the encryption mechanism for API interaction with the MDM shall only be allowed to be disabled via the system settings interface. This interface shall be isolated using the authorization

mechanism so that only system administrators can access those settings. The changing of those settings shall be logged in the audit tables.

8.6 Session Management for Web-based Application

- 8.6.1. The MDM shall provide automated session terminations after configurable periods of inactivity
- 8.6.2. The MDM shall allow the configuration of limits on the number of concurrent sessions allowed for any user
- 8.6.3. The MDM shall lock out users after a configurable number of unsuccessful log-on attempts
- 8.6.4. The MDM shall support a session logout that will terminate the user session with a configurable session timeout value
- 8.6.5. The MDM shall support a session kill on browser freezing and browser closing
- 8.6.6. The MDM shall support encryption and random generation of the session ID
- 8.6.7. The MDM shall not allow more than one active session for the same user from multiple machines. However, it shall allow multiple sessions for the same user from the same machine

8.7 Audit, Alert and Reporting Safeguards

- 8.7.1. The MDM shall be able to report real time on all active users outlining all their permissions and roles
- 8.7.2. The MDM shall support tracking of new access, modification of access and security permissions for a configurable period
- 8.7.3. The MDM shall provide customizable audit logs and produce customizable reports detailing user and administrator activities and security events. Event logging must be enabled
- 8.7.4. The MDM shall be capable of alerting each user as to the time and location of their previous log on(s)

8.8 System Integrity Assurance

- 8.8.1. The MDM shall employ methods that minimize the impact and risks from 'Denial-of-Service' attacks (e.g., load balancing, packet filtering, connection throttling)
- 8.8.2. The MDM shall be compatible with and interoperate with host-based intrusion detection system (HIDS) and network-based intrusion detection systems (NIDS)
- 8.8.3. The bidder shall inform EDCO whether there is any limitation for the proposed MDM to work with any of the anti-virus and anti-malware tools available in the market; if so, the vendor shall detail the list of these tools with which the proposed MDM is not compatible with
- 8.8.4. The MDM shall be able to provide heartbeat signals to other systems such as outage management solutions

8.9 Privacy Compliance

- 8.9.1. The MDM shall allow for the purging of individual customers' data after a period as defined by EDCO
- 8.9.2. The MDM shall allow for the archiving of individual customers' data after a period as defined by EDCO

8.10 Security Compliance

- 8.10.1. The MDM shall be compliant with existing EDCO's Commvault version 11 data backup systems
- 8.10.2. The MDM shall allow for the protection of audit logs via back-up and provisions to prevent and detect tampering with logs
- 8.10.3. If the MDM solution being proposed is hosted at external sites managed by the vendor or vendor's agent, the vendor must ensure proper ongoing backup and storage of electronic data records
- 8.10.4. The MDM shall provide a method to remotely update encryption certificates on a EDCO defined and configurable frequency without disrupting normal system operation
- 8.10.5. The MDM shall provide a method of updating the encryption method (algorithm/primitive) throughout the service life of the MDM
- 8.10.6. The vendor shall provide documentation of third-party vulnerability assessments of their development, test and product delivery environments and systems
- 8.10.7. The bidder shall inform EDCO whether there is any limitation for the proposed MDM to work with any of the mobile device management suites available in the market; if so, the vendor shall detail the list of these suites with which the proposed MDM is not compatible with.

9. PROJECT REQUIREMENTS

9.1 Project Delivery Components

9.1.1. Project Management

9.1.1.1. The PMO shall have dedicated project manager (PM) only for IT tasks

9.1.1.2. The high-level project plan and the resources' CVs must be shared

9.1.1.3. The PM shall submit daily and weekly reports

9.1.1.4. Relevant project documentation must include (but not limited to) the following:

- Risk register
- Issue register
- Action log
- Communication matrix
- Change request
- Process and system hand over

9.1.1.5. The bidder shall provide project resources, roles and responsibilities. The project team shall comprise (but not limited to) the following:

- Product Architect
- Integration Manager
- Communication Engineer
- Application Engineer
- SAP Integration Expert
- Security Expert
- Security Engineer
- Network engineer
- Database Expert

9.1.1.6. The bidder shall provide the risk matrix for the entire program for the various components of the project

9.1.1.7. The bidder shall provide details about its competency center and support team

9.1.1.8. The bidder shall provide the support mechanism for the application and software monitoring after implementation

9.1.1.9. The bidder shall provide details about maintenance window and software release policy to be mentioned

9.1.1.10. The bidder shall provide testing resource requirements

9.1.1.11. The bidder shall provide the test plan

9.1.1.12. The bidder shall mention the list of tools (if any) that are required for testing

9.1.1.13. All test scripts shall be provided by the bidder

9.1.1.14. UAT sign off is the responsibility of the bidder

9.1.1.15. Regarding governance and communication, the following items need to be covered during the project:

- Communication matrix
- Daily/weekly meetings
- Steering committee meetings
- Escalation matrix
- Governance model
- Proposed project team (from the bidder side)

9.1.1.16. All bidder's resources shall bring their own laptops and necessary equipment to carry out their day-to-day work

9.1.1.17. The bidder shall deliver the following documents (but not limited to) as per the project phases:

- Requirement document
- Solution documents and presentation as required during various phases of the project
- Integration specification document (sequence/line diagram of end-to-end process with time intervals)
- SAP integration specification document

- Test scripts (test scripts containing the acceptance criteria of performance and success rate of process or request)
- Training manuals and recordings
- System hand over
- Other documents as required by the project (such as minute of meetings, solution presentation to management, etc.)
- Architecture design
- Hardware sizing and failover methodology ○ GAP analysis document ○ Incident reports
- Application installation and security certificate installation ○ Functional Specification document ○ Technical Specification document

9.1.1.18. The bidder is required initiating the process of integration study at the beginning of the project

9.1.1.19. The bidder is mandated furnishing a detailed project plan with parallel activities to this effect

9.1.1.20. The delivery of the project must be concluded in 9 months from the date of contract

9.1.2. System Testing

9.1.2.1. The bidder shall provide SOAP UI service testing tools for stress testing and performance testing

9.1.2.2. The purpose of this test shall be to exercise the implemented MDM to verify the correct functional operation of all the supplied software and the supplied configuration. The system functional test shall include, but not be limited to, the following:

- Verification of all operational and maintenance functions
- Verification of all software functionality
- Verification of all secure access functions
- Demonstration of failover and restart processing

The bidder shall provide as-needed assistance in running the tests

9.1.2.3. Verification of system performance shall be demonstrated. The Supplier shall discuss in the test procedure the method and any assumptions that will be used to verify that the MDM meets the performance specifications that will be agreed with EDCO

9.1.2.4. The MDM shall be subjected to an acceptance test by EDCO to satisfy the requirements given in this specification

9.1.2.5. The MDM shall be subjected to a routine test by EDCO or the vendor to ensure continued satisfaction of functional and performance-based requirements given in this specification

9.1.2.6. The bidder shall perform load, HA and DR tests. provide solution to ensure capacity, performance, and business continuity before go-live and use the same during production for diagnostic and testing purpose

9.1.3. Training:

9.1.3.1. The bidder shall provide trainings on the delivered HW and SW to EDCO team with detailed documentation and training materials

9.1.3.2. The bidder shall supply a training plan and associated onsite training classes

9.1.3.3. The bidder shall supply a copy of the proposal, user's guide, configuration guide, administration guide, installation guide, support guide for help desk, and training materials

9.1.3.4. The bidder shall supply digital copies of the staging table APIs specifications, manual data import/export specifications, RESTful API specifications, infrastructure, architecture, integration APIs, and data entity documents. Where applicable, these documents shall allow edits, and shall be provided in MS Office and PDF Format

9.1.3.5. The bidder shall supply functional, technical, interface and troubleshooting manuals

9.1.3.6. The bidder shall supply provide training on management of the MDM database, preparation of input and output data, and modifications to the MDM Database

9.1.3.7. The bidder shall provide training on management and maintenance of the MDM at the operating-system level inclusive of servers and workstations

9.1.3.8. The bidder shall provide training on management of communications including email, SMS from MDM and MDM communication with HES, as well as associated software and interfaces for these communications

9.1.3.9. The bidder shall provide training on controls, procedures, tools, and best practices for maintaining the security of the MDM and the systems with which it interfaces. This shall include user access management, role-based access control, and public key infrastructure (PKI) management

- 9.1.3.10. The bidder shall provide training on the back end and front-end MDM applications and their maintenance
- 9.1.3.11. The bidder shall provide training on software maintenance and patch management
- 9.1.3.12. The bidder shall provide training on details regarding systems with which the MDM interacts, the interfaces between them, the data exchanged, and the management of those interfaces and data exchanges
- 9.1.3.13. The bidder shall provide an overview of hardware and software architecture, including key components, the relationships between those components, and information on the use and management of those components
- 9.1.3.14. The bidder shall provide training on configuration of data and appearance of custom reports
- 9.1.4. Defect Liabilities Period
 - 9.1.4.1. The system software maintenance responsibility during warranty shall include, but not be limited to, the following general types of activities:
 - Corrections, including the design, implementation, and testing of modifications and corrections to any implemented system software that impacts the operation of the system and/or does not meet the technical requirements described in this document
 - Coordination of software development activities necessary to correct any problems found by EDCO. The supplier will not be responsible for development activities directed by EDCO that are exceeding the contractual requirements
 - 9.1.4.2. The vendor shall guarantee the MDM against all defects arising out of faulty design or workmanship for a period of 18 months from the date of commissioning
 - 9.1.4.3. The vendor shall be responsible for applying for and obtaining all permits and trade licenses necessary to provide the services under the agreement. The vendor shall satisfy itself as to the procedures and timeframes required for such consents and trade licenses. It is emphasized that the responsibility for identifying and obtaining the consents and licenses rests solely with the vendor

9.2 Data Migration

- 9.2.1. The bidder shall provide a detailed description of how it intends to manage the data migration process
- 9.2.2. The data migration process is related to all data from the designated master utility system(s) including data for meters and other devices, meter route, customer, premise, account, billing cycle, configuration, communication etc.: this is about the initial data loading in the MDM and can include previous usage also
- 9.2.3. The data migration process is considered optional: the bidder shall quote it and EDCO will decide whether to purchase the service or not

9.3 Hardware Requirements

- 9.3.1. The bidder shall provide the hardware sizing document to run the MDM software for EDCO's needs
- 9.3.2. The purchasing of the hardware components is considered optional: the bidder shall quote the hardware components and EDCO will decide whether to purchase the hardware components or not

9.4 Maintenance Support

- 9.4.1. The maintenance support shall cover a period of 5 years starting at the end of the 18 months period of warranty completion. Bidder shall submit 5% maintenance bond of the total offer after warranty completion.
- 9.4.2. The bidder is expected to provide support on an ongoing basis for the application, database, installation and configuration of new releases, software updates, software upgrade, patches installation and integration requirements
- 9.4.3. The bidder is expected to provide proposed service levels and response/resolution times for issues that might arise from the solution and is required to provide a commercial proposal for the 5 years maintenance support
- 9.4.4. The purchasing of the maintenance support is considered optional: the bidder shall quote it and EDCO will decide whether to purchase it or not.

10. INSTALLATION AND SET UP PERIOD

- 10.1 The project shall be handed over to EDCO within nine months from the date of official awarding letter receipt.
- 10.2 Working Methodology: Bidder shall submit a comprehensive work plan, including working staff and working staff qualifications
- 10.3 Integration works: Bidder must be capable to do the integration works if needed without any support from EDCO, integration works with existing systems are a major part of Bidder works.
- 10.4 Compliance sheet shall be submitted along with clear list of deviation.

11. OTHER REQUIREMENT

- 1.1.1 Three months Hands on training after right operation.
- 1.1.2 24/7 On call technical support for warranty and maintenance period; response time not more than 24 Hrs depends on the reported case.
- 1.1.3 All defects S/W or H/W during warranty and maintenance is Bidder responsibility.
- 1.1.4 Engineering staff shall be assigned in installation period up to warranty period completion.

VI. EVALUATION AND QUALIFICATION CRITERIA

Further to above, offers evaluation will be based on the submitted documents of :

1. Qualification Requirements
2. Qualification Information
3. Method Statement
4. Work Plan
5. Financial Proposal Forms
6. Section (V) Activity Schedule
7. Price Schedule

The Employer shall use the criteria and methodologies listed in this Section to evaluate Bids. By applying these criteria and methodologies, the Employer shall determine the most advantageous Bid. This is the Bid that has been determined to be:

- a) substantially responsive to the bidding document, and
- b) the lowest evaluated and negotiated cost (Upon EDCO interest, EDCO preserve its right to conduct negotiations with up to the lowest 3 technically viable Bidders). EDCO is not obliged to award the contract to the lowest evaluated price Bidder.

1. Evaluation

1.1 Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Employer's Requirements.

The Bidder must comply with all requirements mentioned in Employer's Requirements on pass/fail basis. Non-compliance with any of the requirements may result in the rejection of the bid. The Financial Bids will be opened of only those Bidders who complied with all requirements mentioned in Employer's Requirements.

1.2 Multiple Contracts (N/A)

1.3 Alternative Technical Solutions for specified parts of the Services is not allowed

2. Qualification

All Bidders shall include the following information and documents with their Bids:

- a) copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the Bid to commit the Bidder
- b) total monetary value of Services performed for each of the last five years.
- c) experience in Services of a similar nature and size for each of the last five years, and details of Services under way or contractually committed; and names and address of clients who may be contacted for further information on those contracts.
- d) list of major items of equipment proposed to carry out the Contract.
- e) qualifications and experience of key site management and technical personnel proposed for the Contract.
- f) reports on the financial standing of the Bidder, such as profit and loss statements and auditor's reports for the past five years.
- g) evidence of adequacy of working capital for this Contract (access to line(s) of credit and availability of other financial resources).
- h) authority to the Employer to seek references from the Bidder's bankers.
- i) information regarding any litigation, current or during the last five years, in which the Bidder is involved, the parties concerned, and disputed amount.
- j) proposals for subcontracting components of the Services amounting to more than 10 percent of the Contract Price; and Bids submitted by a joint venture of two or more firms as members shall comply with the following requirements, unless otherwise stated below:
 - The Bid shall include all the information listed above for each joint venture member.
 - The Bid shall be signed so as to be legally binding on all members.
 - The Bid shall include a copy of the agreement entered into by the joint venture members defining the division of assignments to each member and establishing that all members shall be jointly and

severally liable for the execution of the Contract in accordance with the Contract terms; alternatively, a Letter of Intent to execute a joint venture agreement in the event of a successful Bid shall be signed by all members and submitted with the Bid, together with a copy of the proposed agreement.

- One of the members shall be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all members of the joint venture; and
- The execution of the entire Contract, including payment, shall be done exclusively with the member in charge.

To qualify for award of the Contract, Bidders shall meet the following minimum qualifying criteria:

- a) annual volume of Services of at least the amount specified below;
- b) experience as service provider (experience should be shown in both, as an MDM supplier and System Integrator) in the provision of at least two service contracts of a nature and complexity equivalent to the Services over the last 5 years (to comply with this requirement, Services contracts cited should be at least 70 percent complete) as specified below;
- c) proposals for the timely acquisition (own, lease, hire, etc.) of the essential equipment listed in below;
- d) Suitably qualified key personnel specified below and other key personnel that the Bidder considers appropriate to perform the Services; and
- e) liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, of no less than the amount specified **below**.

A consistent history of litigation or arbitration awards against the Bidder or any member of a Joint Venture may result in disqualification.

1. Qualification Requirements

Joint Ventures	The information needed for Bids submitted by joint ventures is as follows: Information mentioned above for Joint Venture form (a) to (e).
Annual Volume	The minimum required annual volume of Services for the successful Bidder in any of the last five years shall be: EUR 2,000,000
Experience	<p>The experience required to be demonstrated by the Bidder should include as a minimum that he has executed during the last 5 years the following:</p> <ol style="list-style-type: none"> 1. Participation in at least two (2) contracts that has been successfully completed and that is similar in nature and scope to the supply and services as described in Employer's Requirements. The similarity of the participation shall be based on the physical size (not less than 500,000 meters for each implementation), nature of works, complexity, methods, technology, or other characteristics as described in Employer's Requirements. 2. The Contractor must show experience in the region (Middle East region). 3. The Contractor must have representation office in in the region (Middle East region).
Essential equipment	N/A
Key Personnel	<ol style="list-style-type: none"> 1. Project Manager with at least 20 years general experience and 5 years' experience in leading Teams for MDM Projects. 2. 3 Functional Specialists with at least 10 years and 3 years' experience in MDM implementation. 3. 4 Technical Implementors/Configurators with at least 10 years and 3 years' experience in MDM implementation. <p>The Contractors are encouraged to propose additional staff beside those mentioned above.</p>
Liquid Assets	The minimum amount of liquid assets and/or credit facilities net of other contractual commitments of the successful Bidder shall be: EUR600,000
Subcontractors	Subcontractors' experience shall be taken into account.

The figures for each of the members of a joint venture shall be added together to determine the Bidder's compliance with the minimum qualifying criteria of (a), (b) and (e); however, for a joint venture to qualify the member in charge must meet at least 60 percent of those minimum criteria for an individual Bidder and

other members at least 40% of the criteria. Failure to comply with this requirement will result in rejection of the joint venture's Bid. Subcontractors' experience and resources will be taken into account in determining the Bidder's compliance with the qualifying criteria.

2. Qualification Information

1. Individual Bidders or Individual Members of Joint Ventures

1.1 Constitution or legal status of Bidder: [attach copy]

Place of registration: [insert]

Principal place of business: [insert]

Power of attorney of signatory of Bid: [attach]

1.2 Total annual volume of Services performed in five years, in the internationally traded currency specified in the bidding documents: [insert]

1.3 Services performed as prime Service Provider on the provision of Services of a similar nature and volume over the last five years. The values should be indicated in the same currency used for Item 1.2 above. Also list details of Services under way or committed, including expected completion date.

Project name and country	Name of employer and contact person	Type of Services provided and year of completion	Value of contract
(a)			
(b)			

1.4 Major items of Service Provider's Equipment proposed for carrying out the Services. List all information requested below.

Item of equipment	Description, make, and age (years)	Condition (new, good, poor) and number available	Owned, leased (from whom?), or to be purchased (from whom?)
(a)			
(b)			

1.5 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data.

Position	Name	Years of experience (general)	Years of experience in proposed position
(a)			
(b)			

1.6 Proposed subcontracts and firms involved.

Sections of the Services	Value of subcontract	Subcontractor (name and address)	Experience in providing similar Services
(a)			
(b)			

1.7 Financial reports for the last five years: balance sheets, profit and loss statements, auditors' reports, etc. List below and attach copies.

1.8 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List below and attach copies of support documents. We certify/confirm that we comply with eligibility requirements as per stated in Appendix 1.

1.9 Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contacted by the Employer.

1.10 Information regarding any litigation, current or within the last five years, in which the Bidder is or has been involved.

Other party(ies)	Cause of dispute	Details of litigation award	Amount involved
(a)			
(b)			

1.11 Statement of compliance with the requirements of Appendix 1 , item 2.

1.12 Proposed Program (service work method and schedule). Descriptions, drawings, and charts, as necessary, to comply with the requirements of the bidding document.

2. Joint Ventures

2.1 The information listed in 1.1 - 1.12 above shall be provided for each member of the joint venture.

2.2 Attach the power of attorney of the signatory(ies) of the Bid authorizing signature of the Bid on behalf of the joint venture.

2.3 Attach the Agreement among all members of the joint venture (and which is legally binding on all members), which shows that :

- (a) all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms.
- (b) one of the members will be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all members of the joint venture.
- (c) the execution of the entire Contract, including payment, shall be done exclusively with the member in charge.

3. Additional Requirements

Bidders should provide any additional information required in the bidding documents.

3. Method Statement

The Bidder shall submit comprehensive and concise description of all services to be done. These strategies and plans shall describe in detail the actions, materials, equipment, management processes etc. that will be implemented by the Service Provider, and its Subcontractors. In developing these strategies and plans, the Bidder shall have regard to all provisions and statements described in the Employer's Requirements.

4. Work Plan

The Bidder shall submit comprehensive and concise work plan in accordance with (7 Employer Requirement).

5. Activity Schedule

					Date: _____ RFB No: _____ Alternative No: _____ Page N. _____ of _____	
1	2	3	4	5	6	7
Service No.	Service Description	Unit	Delivery Date	Qty & Physical Unit	Unit Price	Total Price Per Service
(Insert Number of Service)	Insert name of service		Insert delivery date at place of destination	Insert Number of units	Insert unit price per unit	Insert total price per unit
					Total Bid Price	

Name of Bidder [insert complete name of Bidder] Signature of Bidder [signature of person signing the Bid]
Date [insert date]

6. Price Schedule (*)

item	Description	Unit Price	Total Price
1	Design		
2	Implementation and Configuration		
3	Integration with EDCO systems (Please specify)		
a	Mandatory		
b	Optional		
4	Migration		
5	FAT (Please detail in separate sheet)		
6	Testing & Commissioning		
7	Training (Training plan to be submitted including instructors qualifications)		
8	Additional one year maintenance		
9	Application & License Cost		
a	MDM Software (5 Yrs Warranty and Maintenance Supported)		
b	Additional software (Migration & Integration; 5 Yrs Warranty and Maintenance Supported)		
b	License cost (300,000 Meters)		
c	License cost; additional 15,000 meters		
10	Hardware Cost (5 Yrs Warranty and Maintenance Supported)		
	Servers & Storage 300K Meters, 15Min Interval.		
	Servers & storage 300K Meters		
	Increment of extra 10K meter		
11	Others (Please Specify for any)		
			Total Price

(*) EDCO has the right in partial awarding.

7. Employer's Requirement

Data schedule shall be filled and submitted by bidder and according to EDCO Specifications for Meter Data Management System.

Appendix 1 (Eligible Bidders)

1. A Bidder may be a firm that is a private entity, a state-owned entity or institution subject to (5) in below, or any combination of such entities in the form of a Joint Venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the Bidding process and, in the event the JV is awarded the Contract, during contract execution. Unless specified in the BDS, there is no limit on the number of members in a JV.
2. A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this Bidding process, if the Bidder:
 - a) directly or indirectly controls, is controlled by or is under common control with another Bidder; or
 - b) receives or has received any direct or indirect subsidy from another Bidder; or
 - c) has the same legal representative as another Bidder; or
 - d) has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the Bid of another Bidder, or influence the decisions of the Employer regarding this Bidding process; or
 - e) if any of its affiliates participated as a consultant in the preparation of the Employer's Requirements (including Price Schedules, Performance Specifications and Drawings) for the Non-Consulting Services that are the subject of the Bid; or
 - f) if any of its affiliates have been hired (or are proposed to be hired) by the Employer for the Contract implementation; or
 - g) would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of this project that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; or
 - h) has a close business or family relationship with a professional staff of the Employer who:
 - (i) are directly or indirectly involved in the preparation of the bidding document or specifications of the contract, and/or the Bid evaluation process of such contract; or
 - (ii) would be involved in the implementation or supervision of such contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Employer's management throughout the procurement process and execution of the Contract.
3. A firm that is a Bidder (either individually or as a JV member) shall not participate in more than one Bid, except for permitted alternative Bids. This includes participation as a subcontractor. Such participation shall result in the disqualification of all Bids in which the firm is involved. A firm that is not a Bidder or a JV member, may participate as a sub-contractor in more than one Bid.
4. A Bidder that has been sanctioned by the Government of Jordan, shall be ineligible to be qualified for this Bidding.
5. Bidders that are state-owned enterprises or institutions in Jordan may be eligible to compete and be awarded a Contract(s) only if they can establish, in a manner acceptable to the Employer, that they:
 - (i) are legally and financially autonomous; (ii) operate under commercial law; and (iii) are not under supervision of the Employer.
6. A Bidder shall not be under suspension from Bidding by the Employer.
7. Firms and individuals may be ineligible:
 - a) as a matter of law or official regulations if Jordan prohibits commercial relations with that country; or
 - b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, if Jordan prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.
8. This Bidding is open for all eligible Bidders.
9. A Bidder shall provide such documentary evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request.