



Bangladesh Power Development Board

Tender Document For

Design, Supply, Installation, Testing & Commissioning of 50,000 Nos. of Single Phase Smart Prepayment Meters with BPLC Module for the replacement of existing postpaid meters under Distribution Zone Sylhet with 3 years operational support service.

(International)

**Open Tendering Method
(One Stage Two Envelope)**

Invitation for Tender No:.....

Issued on:

Tender Package No: GRF-32

Tender Lot No:.....

**Directorate of Purchase,
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Section 1. Instructions to Tenderers

A. General

1. Scope of Tender	<p>1.1 The Purchaser named in the Tender Data Sheet (TDS) (hereinafter referred to as the “Purchaser”) wishes to issue these Tender Documents for the supply and installation of plant & equipment incidental thereto, as specified in the TDS and as detailed in Section 6: Employer’s Requirements.</p> <p>1.2 The name of the Tender and the number and identification of its constituent lot(s) are stated in the TDS.</p> <p>1.3 Unless otherwise stated, throughout this Tender Document definitions and interpretations shall be as prescribed in the Section 3: General Conditions of Contract.</p>
2. Interpretation	<p>2.1 Throughout this Tender Document</p> <ul style="list-style-type: none"> (a) the term “in writing” means communication written by hand or machine duly signed and includes properly authenticated messages by facsimile or electronic mail; (b) if the context so requires, singular means plural and vice versa; and (c) “day” means calendar days unless otherwise specified as working days; (d) "Tender Document ", means the Document provided by a Purchaser to a Tenderer as a basis for preparation of its Tender; (e) "Tender ", depending on the context, means a Tender submitted by a Tenderer for delivery of Goods and Related Services to a Purchaser in response to an Invitation for Tender ;
3. Source of Funds	<p>3.1 The Purchaser has been allocated public funds from the source as indicated in the TDS and intends to apply a portion of the funds to eligible payments under the contract for which this Tender Document is issued.</p> <p>3.2 For the purpose of this provision, “public funds” means any funds allocated to a Purchaser under Government budget, or loan, grants and credits placed at the disposal of a Purchaser through the Government by the development partners or foreign states or organizations.</p> <p>3.3 Payments by the development partner, if so indicated in the TDS, will be made only at the request of the Government and upon approval by the development partner in accordance with the applicable Loan/Credit/Grant Agreement, and will be subject in all respects to the terms and conditions of that Agreement.</p>

<p>4. Corrupt, Fraudulent, Collusive, Coercive (or Obstructive in case of Development Partner) Practices</p>	<p>4.1 The Government and the Development Partner, if applicable requires that the Procuring Entity as well as the Tenderers and Contractors (including , sub-contractors, agents, personnel, consultants, and service providers) shall observe the highest standard of ethics during implementation of procurement proceedings and the execution of Contracts under public funds.</p> <p>4.2 For the purposes of ITT Sub Clause 4.3, the terms set forth below as follows:</p> <ul style="list-style-type: none"> (a) “corrupt practice” means offering, giving or promising to give, receiving, or soliciting either directly or indirectly, to any officer or employee of the Procuring Entity or other public or private authority or individual, a gratuity in any form; employment or any other thing or service of value as an inducement with respect to an act or decision or method followed by the Procuring Entity in connection with a Procurement proceeding or Contract execution; (b) “fraudulent practice” means the misrepresentation or omission of facts in order to influence a decision to be taken in a Procurement proceeding or Contract execution; (c) “collusive practice” means a scheme or arrangement between two (2) or more Persons, with or without the knowledge of the Procuring Entity, that is designed to arbitrarily reduce the number of Tenders submitted or fix Tender prices at artificial, non-competitive levels, thereby denying the Procuring Entity the benefits of competitive price arising from genuine and open competition; (d) “coercive practice” means harming or threatening to harm, directly or indirectly, Persons or their property to influence a decision to be taken in the Procurement proceeding or the execution of a Contract, and this will include creating obstructions in the normal submission process used for Tenders. (e) “Obstructive practice” (applicable in case of Development Partner) means deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and /or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation. <p>4.3 Should any corrupt, fraudulent, collusive, coercive (or obstructive in case of Development Partner) practice of any kind is determined by the Procuring Entity or the Development Partner, if applicable, this will be dealt in accordance with the provisions of the Public Procurement Act and Rules and Guidelines of the Development Partners as stated in the ITT sub-clause 3.3.</p>
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	<p>In case of obstructive practice, this will be dealt in accordance with Development Partners Guidelines.</p>
	<p>4.4 If corrupt, fraudulent, collusive, coercive (or obstructive in case of Development Partner) practices of any kind is determined by the Procuring Entity against any Tenderer or Contracts (including sub-contractors, agents, personnel, consultants, and service providers) in competing for, or in executing, a contract under public fund:</p> <ul style="list-style-type: none"> (a) Procuring Entity and/or the Development Partner shall exclude the concerned Tenderer from further participation in the concerned procurement proceedings; (b) Procuring Entity and/or the Development Partner shall reject any recommendation for award that had been proposed for that concerned Tenderer; (c) Procuring Entity and/or the Development Partner shall declare, at its discretion, the concerned Tenderer to be ineligible to participate in further Procurement proceedings, either indefinitely or for a specific period of time; (d) Development Partner shall sanction the concerned Tenderer or individual, at any time, in accordance with prevailing Development Partner' sanctions procedures, including by publicly declaring such Tenderer or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Development Partner-financed contract; and (ii) to be a nominated sub-contractor, consultant, manufacturer or Contractor, or service provider of an otherwise eligible firm being awarded a Development Partner-financed contract; and (e) Development Partner shall cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Procuring Entity or of a beneficiary of the loan engaged in corrupt, fraudulent, collusive, coercive or obstructive practices during the procurement or the execution of that Development Partner financed contract, without the Procuring Entity having taken timely and appropriate action satisfactory to the Development Partner to remedy the situation. <p>4.5 Tenderer shall be aware of the provisions on corruption, fraudulence, collusion, coercion (and obstruction, in case of Development Partner) of the Public Procurement Act, 2006, the Public Procurement Rules, 2008 and others as stated in GCC Clause 38.</p> <p>4.6 In further pursuance of this policy, Tenderers, Contractors and their sub-contractors, agents, personnel, consultants, service providers shall permit the Government and the Development Partner to inspect any accounts and records and other documents relating to the Tender submission and</p>

	<p>contract performance, and to have them audited by auditors appointed by the Government and/or the Development Partner during the procurement or the execution of that Development Partner financed contract.</p>
<p>5. Eligible Tenderers</p>	<p>5.1 This Invitation for Tenders is open to all potential Tenderers from all countries, except for any specified in the TDS.</p> <p>5.2 Tenderers shall have the legal capacity to enter into the Contract under the Applicable law.</p> <p>5.3 Tenderers shall be enrolled in the relevant professional or trade organisations registered in Bangladesh.</p> <p>5.4 Tenderers may be a physical or juridical individual or body of individuals, or company, association or any combination of them in the form of a Joint Venture(JV) invited to take part in public procurement or seeking to be so invited or submitting a Tender in response to an Invitation for Tenders.</p> <p>5.5 Tenderers shall have fulfilled its obligations to pay taxes and social security contributions under the provisions of laws and regulations of the country of its origin.</p> <p>5.6 Tenderers should not be associated, or have been associated in the past, directly or indirectly, with a consultant or any of its affiliates which have been engaged by the Procuring Entity to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the works to be performed under this Invitation for Tenders.</p> <p>5.7 Tenderers in its own name or its other names or also in the case of its Persons in different names shall not be under a declaration of ineligibility for corrupt, fraudulent, collusive or coercive practices as stated under ITT Sub Clause 4.4 (or obstructive practice, in case of Development Partner) in relation to the Development Partner's Guidelines in projects financed by Development Partner.</p> <p>5.8 Tenderers are not restrained or barred from participating in Public Procurement on grounds of poor performance in the past under any Contract.</p> <p>5.9 Tenderers shall not be insolvent, be in receivership, be bankrupt, be in the process of bankruptcy, be not temporarily barred from undertaking business and it shall not be the subject of legal proceedings for any of the foregoing.</p> <p>5.10 Government-owned enterprise in Bangladesh may also participate in the Tender if it is legally and financially autonomous, it operates under commercial law, and it is not a dependent agency of the Procuring Entity.</p> <p>5.11 Tenderers shall provide such evidence of their continued eligibility satisfactory to the Procuring Entity, as the Procuring Entity will reasonably request.</p>

	<p>5.12 These above requirements for eligibility will extend, as applicable, to each JV partner and Subcontractor proposed by the Tenderers.</p> <p>5.13 Tenderers shall have the up-to-date valid license(s), issued by the corresponding competent authority, as specified in the TDS.</p>
<p>6. Eligible Plant and Services</p>	<p>6.1 The plant and services to be supplied under the contract are eligible, unless their origin is from a country specified in the TDS and all expenditures under the contract will be limited to such plant, and services.</p>
	<p>6.2 For purposes of this Clause, the term “plant” means permanent plant, equipment, machinery, apparatus, articles and things of all kinds to be provided in the facilities; and “installation services” means all those services ancillary to the supply of the Plant for the Facilities, such as transportation and provision of marine or other similar insurance, inspection, expediting, site preparation, installation, testing, pre-commissioning, commissioning, operations, maintenance, the provision of operations and maintenance manuals, training etc</p>
	<p>6.3 For purposes of this clause, “origin” means the place where the plant, or component parts thereof are mined, grown, produced or manufactured, and from which the services are provided. Plant components are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that is substantially different in its basic characteristics or in purpose or utility from its components or country where the goods have been mined, grown, cultivated, produced, manufactured or processed; or through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its components.</p>
	<p>6.4 The origin of plant & equipment is distinct from the nationality of the Tenderer. The nationality of the firm that produces, assembles, distributes, or sells the goods shall not determine their origin.</p>
<p>7. Site Visit</p>	<p>7.1 The Tenderer is advised to visit and examine the site where the plant is to be installed and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the tender and entering into a contract for the provision of Plant and Installation Services.</p>
	<p>7.2 The Tenderer and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Tenderer, its personnel, and agents will release and indemnify the</p>

	Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.
	7.3 The Tenderer should ensure that the Purchaser is informed of the visit in adequate time to allow it to make appropriate arrangements.
	7.4 The costs of visiting the Site shall be at the Tenderer's own expense.
B. Tender Document	
8. Tender Document: General	8.1 The Sections comprising the Tender Document are listed below, and should be read in conjunction with any Addendum issued under ITT Clause 11. <ul style="list-style-type: none"> • Section 1 Instructions to Tenderers (ITT) • Section 2 Tender Data Sheet (TDS) • Section 3 General Conditions of Contract (GCC) • Section 4 Particular Conditions of Contract (PCC) • Section 5 Tender and Contract Forms • Section 6 Employer's Requirements • Section 7 Drawings
	8.2 The Purchaser shall reject any Tender if the Tender Document was not purchased directly from the Purchaser, or through its agent as stated in the TDS .
	8.3 The Tenderer is expected to examine all instructions, forms, terms, and specifications in the Tender Document as well as addendum to Tender Documents.
9. Clarification of Tender Document	9.1 A prospective Tenderer requiring any clarification of the Tender Document shall contact the Purchaser in writing at the Purchaser's address indicated in the TDS before two-third of time allowed for preparation and submission of Tender elapses.
	9.2 The Procuring Entity is not obliged to answer any clarification request received after that date as stated under ITT Sub Clause 9.1.
	9.3 The Procuring Entity shall respond in writing within five (5) working days of receipt of any such request for clarification received under ITT Sub Clause 9.1.
	9.4 The Procuring Entity shall forward copies of its response to all those who have purchased the Tender Document, including a description of the enquiry but without identifying its source.
	9.5 Should the Procuring Entity deem it necessary to revise the Tender Document as a result of a clarification, it will do so following the procedure under ITT Clause 11.

<p>10. Pre-Tender Meeting</p>	<p>10.1 To clarify issues and to answer questions on any matter arising in the Tender Document, the Purchaser may, if stated in the TDS, hold a Pre-Tender Meeting at the place, date and time as specified in the TDS. All Potential Tenderers are encouraged to attend the meeting, if it is held.</p> <p>10.2 Minutes of the pre-Tender meeting, including the text of the questions raised and the responses given, together with any responses prepared after the meeting, will be transmitted within one week (7 days) after holding the meeting to all those who purchased the Tender Document and even those who did not attend the meeting.</p> <p>10.3 Any amendment to the Tender Documents listed in ITT Sub-Clause 8.1 that may become necessary as a result of the pre-Tender meeting shall be made by the Purchaser exclusively through the issue of an Addendum as stated under ITT Sub-Clause 11 and not through the minutes of the pre-Tender meeting.</p> <p>10.4 Non-attendance at the Pre-Tender meeting will not be a cause for disqualification of a Tenderer.</p>
<p>11. Addendum to Tender Document</p>	<p>11.1 At any time prior to the deadline for submission of Tenders, the Purchaser on its own initiative or in response to a clarification request in writing from a Tenderer, having purchased the Tender Document or as a result of a Pre-Tender meeting, may revise the Tender Document by issuing an addendum pursuant to Rule 95 of the Public Procurement Rules, 2008.</p> <p>11.2 The addendum issued under ITT Sub-Clause 11.1 shall become an integral part of the Tender Document and shall have a date and an issue number and shall be circulated by fax, mail or e-mail, to Tenderers who have purchased the Tender Documents within five (5) working days of issuance of such addendum, to enable Tenderers to take appropriate action.</p> <p>11.3 The Tenderer shall acknowledge receipt of an addendum.</p> <p>11.4 Tenderers who have purchased the Tender Documents but have not received any addendum issued under ITT Sub-clause 11.1 shall inform the Purchaser of the fact by fax, mail or e-mail before two-third of the time allowed for the submission of Tenders has elapsed.</p> <p>11.5 Procuring Entities shall also ensure posting of relevant addenda with the reference number and date on their website.</p> <p>11.6 To give a prospective Tenderer reasonable time in which to take an amendment into account in preparing its Tender, the Purchaser may, at its discretion, extend the deadline for the submission of Tenders, pursuant to Rule 95(6) of the Public Procurement Rule, 2008 and under ITT Clause 36.</p>

	<p>11.7 If an addendum is issued when time remaining is less than one-third of the time allowed for the preparation of Tenders, a Purchaser shall extend the deadline by an appropriate number of days for the submission of Tenders, depending upon the nature of the Procurement requirement and the addendum. The minimum time for such extension shall not be less than seven (7) days.</p>
<p>C. Qualification Criteria</p>	
<p>12. General Criteria</p>	<p>12.1 The Tenderer shall possess the necessary professional and technical qualifications and competence, financial resources, equipment and other physical facilities, managerial capability, specific experience, reputation, and the personnel, to perform the contract.</p>
	<p>12.2 In addition to meeting the eligibility criteria, as stated in ITT Clause 5, the Tenderer must satisfy the other criteria stated in ITT Clauses 13 to 15 inclusive.</p>
	<p>12.3 To qualify for multiple number of contracts/lots in a package made up of this and other individual contracts/lots for which tenders are invited in the Invitation for Tenders, the Tenderer shall demonstrate having resources and experience sufficient to meet the aggregate of the qualifying criteria for the individual contracts.</p>
<p>13. Litigation History</p>	<p>13.1 The maximum number of arbitration awards against the Tenderer over a period shall be as specified in the TDS.</p>
<p>14. Experience Criteria</p>	<p>14.1 Tenderers shall have the following minimum level of supply experience to qualify for supplying the Plant and Services under the contract:</p> <ul style="list-style-type: none"> (a) a minimum number of years of general experience in the role of Contractor or Subcontractor or Management Contractor as specified in the TDS; and (b) Specific experience as a Contractor or Subcontractor or Management Contractor that are similar to the proposed plant and services in at least a number of contract(s) and of a minimum value over the period, as specified in the TDS.
<p>15. Financial Criteria</p>	<p>15.1 Tenderers shall have the following minimum level of financial capacity of qualify for the supply, execution and performance of plant and services under the contract.</p> <ul style="list-style-type: none"> (a) the average annual turnover as specified in the TDS calculated as total certified payments received for contracts in progress or completed, during the period specified in the TDS; (b) availability of minimum liquid assets or working capital or credit facilities, as specified in the TDS;

	<p>and;</p> <p>(c) Satisfactory resolution of all claims, arbitrations or other litigation cases and shall not have serious negative impact on the financial capacity of the Tenderer.</p>
16. Personnel Capacity	<p>16.1 The Tenderer shall have the following minimum level of personnel capacity to qualify for the performance of the plant and services under the Contract.</p> <p>A Project Manager, Engineers, and other key staff with qualifications and experience as specified in the TDS;</p>
17. Equipment Capacity	<p>17.1 The Tenderer shall own suitable equipment and other physical facilities or have proven access through contractual arrangement to hire or lease such equipment or facilities for the desired period, where necessary or have assured access through lease, hire, or other such method, of the essential equipment, in full working order, as specified in the TDS.</p>
18. Joint Venture, Consortium or Association	<p>18.1 The Tenderer may participate in the procurement proceedings forming a Joint Venture, Consortium or Associations (JVCA) by an agreement,executed case by case on a non judicial stamp of value as stated in TDS or alternately with the intent to enter into such an agreement supported by a Letter of Intent along with the proposed agreement duly signed by all partners of the intended JVCA and authenticated by a Notary Public.</p>
	<p>18.2 The figures for each of the partners of a JVCA shall be added together to determine the Tenderer's compliance with the minimum qualifying criteria; however, for a JVCA to qualify, lead partner and its other partners must meet the criteria stated in the TDS. Failure to comply with these requirements will result in rejection of the JVCA Tender. Subcontractors' experience and resources will not be taken into account in determining the Tenderer's compliance with the qualifying criteria.</p>
	<p>18.3 Each partner of the JVCA shall be jointly and severally liable for the execution of the Contract, all liabilities and ethical and legal obligations in accordance with the Contract terms.</p>
	<p>18.4 The JVCA shall nominate a Representative (partner-in-charge/Lead Firm) who shall have the authority to conduct all business for and on behalf of any and all the partners of the JVCA during the tendering process and, in the event the JVCA is awarded the Contract, during contract execution including the receipt of payments for and on behalf of the JVCA.</p>
	<p>18.5 Each partner of the JVCA shall complete the JVCA Partner Information (Form PG5A-2b)for submission with the Tender</p>
19. Subcontractor(s)	<p>19.1 Tenderer, pursuant to Rule 53 of the PPR2008, is allowed to sub-contract a portion of the Supply.</p>
	<p>19.2 The Tenderer shall specify in its Tender all portion of the</p>

)	<p>Plant and Services that will be subcontracted, if any, including the entity(ies) to whom each portion will be subcontracted to, subject to the maximum allowable limit for subcontracting of Plant and Services specified in the TDS.</p>
19.3	<p>The Purchaser may require Tenderers to provide more information about their subcontracting arrangements. If any Subcontractor is found ineligible or unsuitable to carry out the subcontracted tasks, the Procuring Entity may request the Tenderer to propose an acceptable substitute.</p>
19.4	<p>The Purchaser may also select nominated Subcontractor(s) to execute certain specific components of the Works and if so, those will be specified in the TDS.</p>
19.5	<p>The successful Tenderer shall under no circumstances assign the goods/works/services or any part of it to a Subcontractor</p>
19.6	<p>Subcontractors must comply with the provision of ITT Clause 5. For this purpose contractor shall complete the Subcontractor's information in Form PG5A-2c for submission with tender</p>
19.7	<p>If the Purchaser determines that a subcontractor is ineligible, the subcontracting of such portion of the Plants and Services assigned to the ineligible subcontractor shall be disallowed</p>
<p>D. Tender Preparation</p>	
<p>20. Only one Tender</p>	<p>20.1 If a Tender for Plant and Services is invited on 'lot-by-lot' basis, each lot shall constitute a tender. A Tenderer shall submit only one (1) Tender for each lot, either individually or as a JVCA. The Tenderer who submits or participates in more than one (1) Tender for each lot will cause all the Tenders with that Tenderer's participation to be rejected.</p>
<p>21. Cost of Tendering</p>	<p>21.1 Tenderers shall bear all costs associated with the preparation and submission of its Tender, and the Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the Tendering process.</p>
<p>22. Issuance and Sale of Tender Document</p>	<p>22.1 A Purchaser, pursuant to Rule 94 of the Public Procurement Rules, 2008 shall make Tender Documents available immediately to the potential Tenderers, requesting and willing to purchase at the corresponding price if the advertisement has been published in the newspaper pursuant to Rule 90 of the Public Procurement Rules, 2008.</p> <p>22.2 Full contact details with mailing address, telephone and facsimile numbers and electronic mail address, as applicable, of those to whom Tender Documents have been issued shall be recorded with a reference number by the Purchaser or its agent.</p> <p>22.3 There shall not be any pre-conditions whatsoever, for sale</p>

	of Tender Document and the sale of such Document shall be permitted up to the day prior to the day of deadline for the submission of Tender.
23. Language of Tender	23.1 Tenders shall be written in the English language. Correspondences and documents relating to the Tender may be written in English or <i>Bangla</i> . Supporting documents and printed literature furnished by the Tenderers that are part of the Tender may be in another language, provided they are accompanied by an accurate translation of the relevant passages in the English or <i>Bangla</i> language, in which case, for purposes of interpretation of the Tender, such translation shall govern.
	23.2 Tenderers shall bear all costs of translation to the governing language and all risks of the accuracy of such translation.
24. Contents of Tender(Document establishing the tender's qualification)	24.1 The Tender prepared by the Tenderers shall comprise Two Envelope submitted simultaneously, one called the Technical Offer (Envelope-01) containing the documents listed in ITT 24.2 and other called the Financial Offer containing the documents listed in 24.3, both envelopes enclosed together in an outer Single envelope.
	24.2 The Technical Offer (Envelope-01) prepared by the Tenderers will comprise the following: <ul style="list-style-type: none"> (a) Technical Submission Letter (Form PG5A-1a) as furnished in Section 5: Tender and Contract Forms. This form must be completed without any alterations to its format, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested (b) Tenderer Information Sheet (Form PG5A-2) as furnished in Section 5: Tender and Contract Forms; (c) Tender Security as stated under ITT Clause 32,33 and 34; (d) Technical Proposal (Form PG5A-4) as furnished in Section 5: Tender and Contract Forms. (e) Alternatives, if permitted, as stated under with ITT Clause 25; (f) Written confirmation authorising the signatory of the Tender to commit the Tenderer, as stated under ITT Sub-Clause 37.3; (g) The completed eligibility declarations, to establish its eligibility as stated under ITT Clause 5, in the Tender Submission Sheet (Form PG5A-1a & 1b), as furnished in section 5: Tender and Contract Forms; (h) An affidavit confirming the legal capacity stating that there are no existing orders of any judicial court that prevents either the Tenderer or employees of

	<p>a Tenderer entering into or signing a Contract with the Purchaser as stated under ITT clause 5;</p> <p>(i) An affidavit confirming that the Tenderer is not insolvent, in receivership or not bankrupt or not in the process of bankruptcy, not temporarily barred from undertaking their business for financial reasons and shall not be the subject of legal proceedings for any of the foregoing as stated under ITT Clause 5;</p> <p>(j) A certificate issued by the competent authority stating that the Tenderer is a Tax payer having valid Tax Identification Number (TIN) and VAT registration number or in lieu any other document acceptable to the Purchaser demonstrating that the Tenderer is a genuine Tax payer and has a VAT registration number as a proof of fulfillment of taxation obligations as stated under ITT Clause 5. In the case of foreign Tenderers, a certificate of competent authority in that country of which the Tenderer is citizen shall be provided ;</p> <p>(k) Documentary evidence demonstrating that they are enrolled in the relevant professional or trade organizations registered in Bangladesh or in case of foreign tenderer in their country of origin or a certificate concerning their competency issued by a professional institution in accordance with the law of the country of their origin, as stated under ITT Clause 5;</p> <p>(l) The country of origin declarations, to establish the eligibility of the Plant and Services as stated under ITT Clause 6, in the Price Schedule for Plant and Services (Form PG5A-3) as, applicable, furnished in Section 5: Tender and Contract Forms;</p> <p>(m) Documentary evidence as stated under ITT Clauses 28, that the Goods and Related Services conform to the Tender Documents;</p> <p>(n) Documentary evidence as stated under ITT Clause 29 that the Tenderer's qualifications conform to the Tender Documents;</p> <p>(o) Documents establishing legal and financial autonomy and compliance with commercial law, as stated under ITT Sub-clause 5.3 in case of government owned entity; and</p> <p>(p) In addition to the requirements stated under ITT Sub Clause 18.1, Tenders submitted by a JVCA or proposing a Subcontractor shall include.</p> <p>i. a Joint Venture Agreement entered into by all partners, executed on a non-judicial stamp of value or equivalent as stated under ITT Sub</p>
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	<p>Clause 18.1; or</p> <ul style="list-style-type: none"> ii. a Letter of Intent along with the proposed agreement duly signed by all partners of the intended JVCA with the declaration that it will execute the Joint Venture agreement in the event the Tenderer is successful; iii. the JVCA Partner Information (Form PG5A-2b); iv. the Subcontractor Information (Form PG5A-2c). <p>(q) the completed Specifications Submission and Compliance Sheet (Form PG5A-4a) as stated under ITT clause 28.1;</p> <p>(r) Any other document as specified in the TDS.</p> <p>24.3 The Financial Offer (Financial Envelope -02) prepared by the Tenderers shall comprise the following:</p> <ul style="list-style-type: none"> (a) The Financial offer Submission Letter (Form PG5A-1b) as furnished in Section 5: (b) The Tenderer shall submit the completed Price Schedule for Plant and Services (Form PG5A-3), according to their origin as appropriate as furnished in section 5: Tender and Contract Forms. (c) the written confirmation authorizing the signatory of the Tender to commit the Tenderer, as stated under ITT Sub Clause 37.3; (d) any other document as specified in the TDS.
<p>25. Alternatives</p>	<p>25.1 Unless otherwise stated in the TDS, alternatives shall not be considered.</p>
<p>26. Tender Prices, Discounts & Price adjustment</p>	<p>26.1 Unless otherwise specified in the TDS, tenderers shall quote for the entire Plant and Installation Services on a “single responsibility” basis such that the total tender price covers all the Contractor’s obligations mentioned in or to be reasonably inferred from the tender document in respect of the design, manufacture, including procurement and subcontracting (if any), delivery, construction, installation and completion of the plant. This includes all requirements under the Contractor’s responsibilities for testing, pre-commissioning and commissioning of the plant and, where so required by the tender document, the acquisition of all permits, approvals and licenses, etc.; the operation, maintenance and training services and such other items and services as may be specified in the Tender Document, all in accordance with the requirements of the General Conditions of Contract. Items against which no price is entered by the Tenderer will not be paid for by the Purchaser when executed and shall be deemed to be covered by the prices for other items.</p> <p>26.2 Tenderers are required to quote the price for the commercial, contractual and technical obligations</p>

	<p>outlined in the tender document</p> <p>26.3 Tenderers shall give a breakdown of the prices in the manner and detail called for in the Price Schedules included in Section 5, Tender and Contract Forms.</p> <p>26.4 Depending on the scope of the Contract, the Price Schedules may comprise up to the six (6) schedules listed below. Separate numbered Schedules included in Section IV, Tender Forms, from those numbered 1-4 below, shall be used for each of the elements of the Plant and Installation Services. The total amount from each Schedule corresponding to an element of the Plant and Installation Services shall be summarized in the schedule titled Grand Summary, (Schedule 5), giving the total tenderprice(s) to be entered in the Letter of Tender.</p> <p>Schedule No. 1 Plant (including Mandatory Spare Parts) Supplied from Abroad</p> <p>Schedule No. 2 Plant (including Mandatory Spare Parts) Supplied from within the Purchaser's Country</p> <p>Schedule No. 3 Design Services</p> <p>Schedule No. 4 Civil works part</p> <p>Schedule No. 5 Installation Services</p> <p>Schedule No. 6 Grand Summary (Schedule Nos. 1 to 4)</p> <p>Schedule No. 7 Recommended Spare Parts</p> <p>Tenderers shall note that the plant and equipment included in Schedule Nos. 1 and 2 above exclude materials used for civil, building and other construction works. All such materials shall be included and priced under Schedule No. 4, Installation Services.</p> <p>26.5 In the Schedules, tenderers shall give the required details and a breakdown of their prices as follows:</p> <p>a) Plant to be supplied from abroad (Schedule No. 1): The price of the plant shall be quoted on CIP-named place of destination/CIF basis as specified in the TDS and as applicable.</p> <p>(b) Plant manufactured within the Purchaser's country (Schedule No. 2):</p> <p>i) The price of the plant shall be quoted on an EXW INCOTERM basis (such as "ex-works," "ex-factory," "ex-warehouse" or "off-the-shelf," as applicable),</p> <p>(ii) Sales tax and all other taxes payable in the Employer's country on the plant if the contract is awarded to the Tenderer, and</p> <p>(iii) The total price for the item.</p> <p>(c) Design Services (Schedule No. 3).</p> <p>(d) Installation Services shall be quoted separately (Schedule No. 4) and shall include rates or prices for local transportation to named place of final destination as specified in the TDS, insurance</p>
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	<p>and other services incidental to delivery of the plant, all labor, contractor's equipment, temporary works, materials, consumables and all matters and things of whatsoever nature, including operations and maintenance services, the provision of operations and maintenance manuals, training, etc., where identified in the Tender Document, as necessary for the proper execution of the installation and other services, including all taxes, duties, levies and charges payable in the Employer's country as of twenty-eight (28) days prior to the deadline for submission of tenders.</p> <p>(e) Recommended spare parts shall be quoted separately (Schedule 6) as specified in either subparagraph (a) or (b) above in accordance with the origin of the spare parts</p> <p>26.6 The current edition of INCOTERMS, published by the International Chamber of Commerce shall govern.</p> <p>26.7 The prices shall be either fixed or adjustable as specified in the TDS.</p> <p>26.8 In the case of Fixed Price, prices quoted by the Tenderer shall be fixed during the Tenderer's performance of the contract and not subject to variation on any account. A tender submitted with an adjustable price quotation will be treated as non-responsive and rejected.</p> <p>26.9 In the case of Adjustable Price, prices quoted by the Tenderer shall be subject to adjustment during performance of the contract to reflect changes in the cost elements such as labor, material, transport and contractor's equipment in accordance with the procedures specified in the corresponding Appendix to the Contract Agreement. A tender submitted with a fixed price quotation will not be rejected, but the price adjustment will be treated as zero. Tenderers are required to indicate the source of labor and material indices in the corresponding Form in Section 5, Tender and Contract Forms</p> <p>26.10 If so indicated in ITT 1.2, tenders are to be invited for individual lots or for any combination of lots (packages). Tenderers wishing to offer any price reduction (discount) for the award of more than one lot shall specify in their Tender Submission Letter the price reductions applicable to each package, or alternatively, to individual Contracts within the package, and the manner in which the price reductions will apply.</p> <p>26.11 Tenderers wishing to offer any unconditional discount shall specify in their Letter of Tender the offered discounts and the manner in which price discounts will apply.</p> <p>26.12 If so indicated under ITT Sub Clause 26.9, Tenders are being invited with a provision for price adjustments. The unit rates or prices quoted by the Tenderer are subject to</p>
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	<p>adjustment during the performance of the Contract in accordance with the provisions of the relevant GCC Clause and, in such case the Employer shall provide the indexes and weightings or coefficients in Appendix to the Tender for the price adjustment formulae specified in the PCC.</p> <p>26.13 The Employer may require the Tenderer to justify its proposed indexes, if any of those as stated under ITT Sub Clause 26.12, are instructed to be quoted by the Tenderer in Appendix to the Tender.</p> <p>26.14 The price adjustment stated under ITT Sub Clause 26.9 and 26.12 shall be dealt with in accordance with the provisions in Section 12 and 22 of the Public Procurement Act, 2006 and Rule 5 and 38 of the Public Procurement Rules, 2008.</p>
<p>27. Tender Currency</p>	<p>27.1 For expenditures that will be incurred in Bangladesh, the Tenderer shall quote the prices in Bangladesh Taka</p> <p>27.2 Suppliers offering Goods manufactured or assembled in Bangladesh are permitted to submit their Tender in a combination of local and foreign currencies.</p> <p>27.3 In case of National Tender, all quoted price shall be in local currency.</p> <p>27.4 In case of international competitive tender, for expenditures that will be incurred outside Bangladesh, the Tenderer may quote the prices as specified in TDS.</p>
<p>28. Documents Establishing the Conformity of Plant, and Services</p>	<p>28.1 To establish the conformity of the plant and services to the Tender Documents, the Tenderer shall furnish as part of its Tender the documentary evidence that the Goods and Related services conform to the technical specifications and standards in Section 6, Employer's Requirement.</p> <ol style="list-style-type: none"> a. a detailed description of the essential technical and performance characteristics of the plant and services, including the functional guarantees of the proposed plant and services, in response to the Specification b. a list giving full particulars, including available sources, of all spare parts and special tools necessary for the proper and continuing functioning of the plant for the period named in the TDS, following completion of plant and services in accordance with provisions of contract; and c. a commentary on the Employer's Specification and adequate evidence demonstrating the substantial responsiveness of the plant and services to those specifications. Tenderers shall note that standards for workmanship, materials and equipment designated by the Employer in the Tender Document are intended to be descriptive (establishing standards of quality and performance) only and not restrictive. The Tenderer may substitute alternative standards,

	brand names and/or catalog numbers in its tender, provided that it demonstrates to the Employer's satisfaction that the substitutions are substantially equivalent or superior to the standards designated in the Specification.
29. Documents Establishing Eligibility of the Tenderer	29.1 Tenderers, if applying as a sole Tenderer, shall submit documentary evidence to establish its eligibility as stated under ITT Clause 5 and, in particular, it shall: <ul style="list-style-type: none"> (a) complete the eligibility declarations in the Tender Submission Letter (Form PG5A-1a); (b) complete the Tenderer Information (Form PG5A-2a); (c) complete Subcontractor Information (Form PG5A-2c), if it intends to engage any Subcontractor(s).
	29.2 Tenderers, if applying as a partner of an existing or intended JV shall submit documentary evidence to establish its eligibility as stated under ITT Clause 5 and, in particular, in addition to as stated under ITT Sub Clause 29.1, it shall: <ul style="list-style-type: none"> (a) provide for each JV partner, completed JV Partner Information (Form PG5A-2b); (b) provide the JV agreement or Letter of Intent along with the proposed agreement of the intended JV as stated under ITT Sub Clause 18.1
30. Validity Period of Tender	30.1 Tender validities shall be determined on the basis of the complexity of the Tender and the time needed for its examination, evaluation, approval of the Tender and issuance of the Notification of Award (NOA).
	30.2 Tenders shall remain valid for the period specified in the TDS after the date of Tender submission deadline prescribed by the Purchaser, as stated under ITT Clause 39. A Tender valid for a period shorter than that specified will be rejected by the Purchaser as non- responsive.
31. Extension of Tender Validity and Tender Security	31.1 In justified exceptional circumstances, prior to the expiration of the Tender validity period, the Purchaser following Rule 21 of the Public Procurement Rules, 2008 may solicit, not later than ten (10) days before the expiry date of the Tender validity, compulsorily all the Tenderers' consent to an extension of the period of validity of their Tenders.
	31.2 The request for extension of Tender validity period shall state the new date of the validity of the Tender.
	31.3 The request from the Purchaser and the responses from the Tenderers will be made in writing.
	31.4 Tenderers consenting in writing to the request made by the Purchaser under ITT Sub-Clause 30.1 shall also correspondingly extend the validity of its Tender Security

	<p>for twenty-eight (28) days beyond the new date for the expiry of Tender validity.</p> <p>31.5 Tenderers consenting in writing to the request under ITT Sub-Clause 31.1 shall not be required or permitted to modify its Tender in any circumstances.</p> <p>31.6 If the Tenderers are not consenting in writing to the request made by the Purchaser under ITT Sub-Clause 31.1, its Tender will not be considered for subsequent evaluation.</p>
32. Tender Security	<p>32.1 The Tender Security and its amount shall be determined sufficient to discourage the submission of frivolous and irresponsible tenders pursuant to Rule 22 of the Public Procurement Rule 2008 and shall be expressed as a rounded fixed amount and, shall not be stated as a precise percentage of the estimated total Contract value.</p> <p>32.2 The Tenderer shall furnish as part of its Technical offer (envelope-1) Tender, in favour of the Purchaser or as otherwise directed on account of the Tenderer, a tender security in original form (not copy) and in the amount as specified in TDS.</p> <p>32.3 If the Tender is a Joint Venture, the Tenderer shall furnish as part of its Tender, in favour of the Procuring Entity or as otherwise directed on account of the title of the existing or intended JVCA or any of the partners of that JVCA or in the names of all future partners as named in the Letter of Intent of the JVCA, a Tender Security in original form and in the amount as stated under ITT Sub Clause 32.1.</p>
33. Form of Tender security	<p>33.1 The Tender Security shall:</p> <p>(a) In case of NCT, at the Tenderer's option, be either;</p> <p>(i) In the form of a Bank Draft, Pay order or</p> <p>(ii) in the form of an irrevocable bank guarantee issued by any scheduled Bank of Bangladesh, in the format (Form PG5A-6) furnished in Section 5: Tender and Contract Forms.</p> <p>(b) In case of ICT, in the form of an irrevocable bank guarantee issued by an internationally reputable bank and shall require to be endorsed by its any correspondent bank located in Bangladesh, to make it enforceable, in the format (Form PG5A-6) furnished in Section 5: Tender and Contract Forms;</p> <p>33.2 Tender security shall be payable promptly upon written demand by the Purchaser in the case of the conditions listed in ITT Clause 36 being invoked; and</p> <p>33.3 Tender security shall remain valid for at least twenty eight (28) days beyond the expiry date of the Tender Validity in order to make a claim in due course against a Tenderer in the circumstances detailed under ITT Clause 36.</p>
34. Authenticity of	<p>34.1 The authenticity of the Tender security submitted by a Tenderer shall be examined and verified by the Purchaser</p>

<p>Tender Security</p>	<p>in writing from the Bank issuing the security, prior to finalization of the Evaluation Report pursuant to Rule, 24 of the Public Procurement Rule, 2008.</p> <p>34.2 If a Tender Security is found to be not authentic, the Tender which it covers shall not be considered for subsequent evaluation and in such case the Purchaser shall proceed to take punitive measures against that Tenderer as stated under ITT Sub-Clause 4.6, pursuant to Rule 127 of the Public Procurement Rules, 2008 and in accordance with Section 64(5) of the Public Procurement Act, 2006.</p> <p>34.3 Tender not accompanied by a valid Tender Security as stated under Sub-Clause 29, 30 and 31, shall be considered as non-responsive.</p>
<p>35. Return of Tender Security</p>	<p>35.1 No Tender security shall be returned by the Tender Opening Committee (TOC) during and after the opening of the Tenders pursuant to Rule 26 of the Public Procurement Rules 2008.</p> <p>35.2 No Tender security shall be returned to the Tenderers before contract signing, except to those who are found non-responsive.</p> <p>35.3 Tender securities of the non-responsive Tenders shall be returned immediately after the Evaluation Report has been approved by the Purchaser.</p> <p>35.4 Tender securities of the responsive Tenderers shall be returned only after the lowest evaluated responsive Tenderer has submitted the performance security and signed the contract, that being even before the expiration of the validity period specified in Clause 30.</p> <p>35.5 Tender Securities of the Tenderers not consenting within the specified date in writing to the request made by the Purchaser under ITT Sub-Clause 31.1 in regard to extension of its Tender validity shall be discharged or returned forthwith.</p>
<p>36. Forfeiture of Tender Security.</p>	<p>36.1 The Tender security pursuant to Rule 25 of the Public Procurement Rules,2008 may be forfeited if a Tenderer:</p> <ul style="list-style-type: none"> (a) withdraws its Tender after opening of Tenders but within the validity of the Tender as stated under ITT Clauses 30, and 31, pursuant to Rule 19 of the Public Procurement Rules 2008; or (b) refuses to accept a Notification of Award as stated under ITT Sub-Clause 65.3, pursuant to Rule 102 of the Public Procurement Rules 2008; or (c) fails to furnish performance security as stated under ITT Sub-Clause 66.2, pursuant to Rule 102 of the Public Procurement Rules 2008; or (d) refuses to sign the Contract as stated under ITT Sub-Clause 70.2 pursuant to Rule 102 of the Public Procurement Rules 2008; or (e) does not accept the correction of the Tender price following the correction of arithmetic errors as stated under ITT Clause 55, pursuant to Rule

	98(11) of the Public Procurement Rules 2008.
37. Format and Signing of Tender	37.1 Tenderers shall prepare one (1) original of the documents comprising the Technical Offer as described in ITT Clause 24.2 and clearly mark it “ ORIGINAL OF TECHNICAL OFFER ” In addition, the Tenderers shall prepare the number of copies of the Technical Offer, as specified in the TDS and clearly mark each of them “ COPY OF THE TECHNICAL OFFER. ” In the event of any discrepancy between the original and the copies, the ORIGINAL shall prevail.
	37.2 Tenderers shall prepare one (1) original of the documents comprising the Financial Offer as described in ITT Clause 24.3 and clearly mark it “ ORIGINAL OF FINANCIAL OFFER ” In addition, the Tenderers shall prepare the number of copies of the Financial Offer, as specified in the TDS and clearly mark each of them “ COPY OF THE FINANCIAL OFFER ” In the event of any discrepancy between the original and the copies, the ORIGINAL shall prevail.
	37.3 Alternatives, if permitted under ITT Clause 25, shall be clearly marked “Alternative”.
	37.4 The original and each copy of the Offer shall be typed or written in indelible ink and shall be signed by the Person duly authorized to sign on behalf of the Tenderer. This Tender specific authorization shall be attached to the Technical Offer Submission Letter (Form PW5A-1a) and Financial Offer Submission Letter (Form PW5A-1b). The name and position held by each Person(s) signing the authorization must be typed or printed below the signature. All pages of the original and of each copy of the Tender, except for un-amended printed literature, shall be numbered sequentially and signed by the person signing the Tender.
	37.5 Any interlineations, erasures, or overwriting will be valid only if they are signed or initialled by the Person (s) signing the Tender.
E. Tender Submission	
38. Sealing, Marking and Submission of Tender	38.1 Tenderers shall enclose the original of Technical Offer in one (1) envelope and all the copies of the Technical Offer , including the alternatives, if permitted under ITT Clause 25, in another envelope, duly marking the envelopes as “ ORIGINAL OF TECHNICAL OFFER ” “ ALTERNATIVES ” (if permitted), “ COPY OF TECHNICAL OFFER ”, “ ALTERNATIVES ” (if permitted) These sealed envelopes for the original and copies of the technical Tender shall then be enclosed and sealed in one single envelope and clearly mark it “ Envelope-01: TECHNICAL OFFER ”.
	38.2 The inner and outer envelopes of Technical Offer shall:

	<ul style="list-style-type: none"> (a) be addressed to the Procuring Entity at the address as stated under ITT Sub Clause 39.1; (b) bear the name of the Tender and the Tender Number as stated under ITT Sub Clause 1.1; (c) bear the name and address of the Tenderer; (d) bear a statement “DO NOT OPEN BEFORE -----” the time and date for Tender opening as stated under ITT Sub Clause 45.2 (e) bear any additional identification marks as specified in the TDS.
	<p>38.3 Tenderers shall enclose the original of Financial Offer in one (1) envelope and all the copies of the Financial Offer in another envelope, duly marking the envelopes as “ORIGINAL OF FINANCIAL OFFER” & “COPY OF FINANCIAL OFFER”. These sealed envelopes for the original and copies of the Financial Tender shall then be enclosed and sealed in one single envelope and clearly mark it “ENVELOPE-02: FINANCIAL OFFER”.</p>
	<p>38.4 The inner and outer envelopes of Financial Offer shall:</p> <ul style="list-style-type: none"> (a) be addressed to the Procuring Entity at the address as stated under ITT Sub Clause 39.1; (b) bear the name of the Tender and the Tender Number as stated under ITT Sub Clause 1.1; (c) bear the name and address of the Tenderer; (d) bear a statement “DO NOT OPEN BEFORE THE TECHNICAL OFFER EVALUATION AND APPROVAL”. (e) bear any additional identification marks as specified in the TDS.
	<p>38.5 The Envelope-01 as stated in ITT Clause 38.1 and Envelope-02 as in ITT Clause 38.3 shall then be enclosed and sealed in one single outer envelope which shall contain the information as stated under ITT Clause 38.2 (a) to (e) & ITT Clause 38.4 (a) to (e)</p>
	<p>38.6 Tenderers are solely and entirely responsible for pre-disclosure of Tender information if the envelope(s) are not properly sealed and marked.</p>
	<p>38.7 Tenders shall be delivered by hand or by mail, including courier services at the address(s) as stated under ITT Sub Clause 39.1.</p>
	<p>38.8 The Procuring Entity will, on request, provide the Tenderer with acknowledgement of receipt showing the date and time when it’s Tender was received.</p>
<p>39. Deadline for Submission of</p>	<p>39.1 Tenders shall be delivered to the Purchaser at the address specified in the TDS and no later than the date and time</p>

<p>tenders</p>	<p>specified in the TDS.</p> <p>39.2 The Purchaser may, at its discretion on justifiably acceptable grounds duly recorded, extend the deadline for submission of Tender as stated under ITT Sub Clause 39.1, in which case all rights and obligations of the Purchaser and Tenderers previously subject to the deadline will thereafter be subject to the new deadline as extended.</p> <p>39.3 If submission of Tenders is allowed in more than one location, the date and time, for submission of Tenders for both the primary and the secondary place(s), shall be the “same and not different” as specified in the TDS.</p> <p>39.4 The Procuring Entity shall ensure that the Tenders received at the secondary place(s) are hand-delivered at the primary place as stated under ITT Sub Clause 39.1, within THREE (3) HOURS after the deadline for submission of Tenders at the secondary place (s), in case of MULTIPLE DROPPING as stated under ITT Sub Clause 39.3, as specified in the TDS.</p>
<p>40. Late tender</p>	<p>37.6 Any Tender received by the Purchaser after the deadline for submission of Tenders as stated under ITT Clause 39, shall be declared LATE, rejected, returned unopened to the Tenderer.</p>
<p>41. Modification, Substitution or Withdrawal of Tenders</p>	<p>41.1 Tenderers may modify, substitute or withdraw its Tender after it has been submitted by sending a written notice duly signed by the authorized signatory and properly sealed, and shall include a copy of the authorization; provided that such written notice including the affidavit is received by the Procuring Entity prior to the deadline for submission of Tenders as stated under ITT Clause 39</p>
<p>42. Tender Modification</p>	<p>42.1 Tenderers shall not be allowed to retrieve its original Tender, but shall be allowed to submit corresponding modification either to its original Technical Offer or Financial Offer or both, marked as “MODIFICATION FOR TECHNICAL OFFER(MTO)” or “MODIFICATION FOR FINANCIAL OFFER (MFO)”with two separate envelopes. The envelope/envelopes marked as MTO and/or MFO then be enclosed and sealed in one single outer envelope with a written notice duly as stated under ITT Sub Clause 41.1. The outer envelope shall contain the information as stated under ITT Sub Clause 38.2(a) to (d) and clearly marked as “MODIFICATION (M)”.</p>
<p>43. Tender Substitution</p>	<p>43.1 Tenderers shall not be allowed to retrieve its original Tender, but shall be allowed to submit another Technical Offer or Financial Offer or both, marked as “SUBSTITUTION FOR TECHNICAL OFFER (STO)” or “SUBSTITUTION FOR FINANCIAL OFFER (SFO)”with two separate envelopes. The envelope/envelopes marked as STO and/or SFO then be enclosed and sealed in one single outer envelope with a written notice duly as stated under ITT Sub</p>

	Clause 41.1. The outer envelope shall contain the information as stated under ITT Sub Clause 38.2(a) to (d) and clearly marked as “ SUBSTITUTION (S) ”.
44. Withdrawal of Tender	44.1 The Tenderer shall be allowed to withdraw its Tender by a Letter of Withdrawal marked as “WITHDRAWAL” prior to the deadline for submission of Tenders as stated under ITT Clause 39.
F. Tender Opening and Evaluation	
45. Tender Opening	<p>45.1 Only the Technical Offer(Envelope-01) shall be opened immediately after the deadline for submission of Tenders at the primary place as specified in the TDS but not later than ONE HOUR, after expiry of the submission deadline at the same primary place unless otherwise stated under ITT Sub Clause 39.2. But with inTHREE HOURS after the dateline of submission of tender at primary place in case of multiple dropping. Tender opening shall not be delayed on the plea of absences of Tenderers or his or her representatives. Financial offer (Envelope-02) shall not open with Technical offer (Envelope-01) and shall be kept unopened at the Custody of the Head of the Procuring Entity or his Authorised Officer (AO).</p> <p>45.2 Persons not associated with the Tender may not be allowed to attend the public opening of Technical Offers.</p> <p>45.3 Tenderers’ representatives shall be duly authorised by the Tenderer. Tenderers or their authorised representatives will be allowed to attend and witness the opening of Technical Offers, and will sign a register evidencing their attendance. Technical Offers Opening shall not be delayed on the plea of absence of Tenderers or his or her representatives.</p> <p>45.4 The authenticity of withdrawal or substitution of, or modifications to original Tender, if any made by a Tenderer in specified manner, shall be examined and verified by the Tender Opening Committee (TOC) based on documents submitted as stated under ITT Sub Clause 41.1. Any envelope related to financial modification, substitute shall be recorded but not open with technical offer.</p> <p>45.5 Verify (M), (S), (W), (A), (O) by following step by steps</p> <p>(a) Step 1: envelopes marked “Withdrawal (W)” shall be opened and “Withdrawal” notice read aloud & recorded in the opening sheet. After verify the withdrawal letter is genuine, corresponding tender shall not be opened, but returned unopened to the Tenderer by Procuring Entity (PE) at a late time. No Tender withdrawal shall be permitted unless the corresponding withdrawal notice shall be as stated in 41.1& 44.1 and in such case the Tender shall be opened and recorded.</p> <p>(b) Step 2: the remaining Tenders will be sorted out and those marked “SUBSTITUTION (S)” or</p>

	<p>“MODIFICATION (M)” of Tender will be linked with their corresponding Original Tender.</p> <p>(c) Step 3: outer envelopes marked “SUBSTITUTION (S)” shall be opened. The inner envelopes containing the “Substitution of Technical Offer (STO)” and/or “Substitution of Financial Offer (SFO)” shall be exchanged for the corresponding envelopes being substituted, which are to be returned to the Tenderer unopened by the Procuring Entity at a later time immediately after opening of Technical Offers. Only the Substitution of Technical Offer, if any, shall be opened, read out, and recorded. Substitution of Financial Offer will remain unopened in accordance with ITT Sub Clause 45.1. No envelope shall be substituted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out and recorded at Technical Offer opening.</p> <p>(d) Step 4: outer envelopes marked “MODIFICATION (M)” shall be opened. No Technical Offer and/or Financial Offer shall be modified unless the corresponding modification notice contains a valid authorization to request the modification and is read out and recorded at the opening of Technical Offers. Only the Technical Offers, both Original as well as Modification, are to be opened, read out, and recorded at the opening. Financial Offers, both Original as well as Modification, will remain unopened in accordance with ITT Sub Clause 45.1</p> <p>(e) Step 5: if so specified in this Tender Document, the envelopes marked “Alternative of Technical Offer (ATO)” shall be opened and read aloud with the corresponding Technical Offer and recorded.</p> <p>45.6 Ensuring that only the correct (MTO), (STO), (ATO), (OTO) envelopes are opened, details of each Technical Offer will be dealt with as follows:</p> <p>(a) the Chairperson of the TOC will read aloud each Technical Offer and record in the Technical Offer Opening Sheet (TOOS):</p> <ul style="list-style-type: none"> (i) the name and address of the Tenderer; (ii) state if it is a withdrawn, modified, substituted or original Technical Offer; (iii) any alternatives; (iv) record the rejection of the Tender which submitted Technical Offer and Financial Offer together in one envelope. (v) the presence or absence of any requisite Tender Security; and (vi) such other details as the Procuring Entity, at its discretion, may consider appropriate. <p>(b) Only Technical Offer and alternatives read aloud at</p>
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	<p>the Technical Offer Opening will be considered in evaluation.</p> <p>(c) all pages of the original version of the Technical Offer, except for un-amended printed literature, will be initialled by members of the TOC. Remember, No financial Offer shall be open with Technical Offer</p> <p>45.7 Upon completion of Technical Offer opening, all members of the TOC and the Tenderers or Tenderer's duly authorised representatives attending the Technical Offer opening shall sign by name, address, designation, the TOS, copies of which shall be issued to the Head of the Procuring Entity or an officer authorised by him or her and also to the members of the TOC and any authorised Consultants and, to the Tenderers immediately.</p> <p>45.8 The omission of a Tenderer's signature on the record shall not invalidate the contents and effect of the record under ITT Sub Clause 45.7</p> <p>45.9 No Tender i.e., Technical or Financial Offer shall be rejected at the Tender opening stage except the LATE Tenders as stated in the ITT Clause 40.</p>
<p>46. Evaluation of Tenders</p>	<p>46.1 Technical Offers shall be examined and evaluated only on the basis of the criteria specified in the Tender Document.</p> <p>46.2 Tender Evaluation Committee (TEC) shall examine, evaluate and compare Tenders that are responsive to the requirements of Tender Documents in order to identify the successful Tenderer.</p>
<p>47. Evaluation Process</p>	<p>47.1 TEC may consider a Tender Offer as responsive in the Evaluation, only if it is submitted in compliance with the mandatory requirements set out in the Tender Document. The evaluation process should begin immediately after Technical Offer opening following Two steps:</p> <ul style="list-style-type: none"> (a) Preliminary examination (b) Technical examination and responsiveness
<p>48. Preliminary Examination</p>	<p>48.1 Compliance, adequacy and authenticity of the documentary evidences for meeting the qualification criterion specified in the corresponding section of the Tender document shall have to be preliminarily examined and verified.</p> <p>48.2 The TEC shall firstly examine the Tenders to confirm that all documentation requested in ITT Clause 24 has been provided. Examination of the compliance, adequacy and authenticity of the documentary evidence may follow the order below:</p> <ul style="list-style-type: none"> (a) verification of the completeness of the eligibility declaration in the Tender Submission Letter (Form PG5A-1), to determine the eligibility of the tenderer as stated under ITT Sub-Clause 24(h). Any alterations to its format, filling in all blank spaces with the information requested, failing which the

	<p>tender may lead to rejection of the Tender;</p> <ul style="list-style-type: none"> (b) verification of that the Tenderer is enrolled in the relevant professional or trade organisations as stated under ITT Clause 24(l); (c) verification of the eligibility in terms of legal capacity and fulfilment of taxation obligation by the tenderer in accordance as stated under ITT Sub-Clause 24(i) and 24(k); (d) verification of eligibility that the tenderer is not insolvent, in receivership, bankrupt, not in the process of bankruptcy, not temporarily barred as stated under ITT Sub-Clause 24(j); (e) verification of eligibility of Tenderer's country of origin as stated under ITT Sub-Clause 24(b); (f) verification of the written authorization confirming the signatory of the Tenderer to commit the Tender has been attached with Tender Submission Letter (Form PG5A-1) as stated under ITT Sub-Clause 24(g); in order to check the authenticity of Tender and Tenderer itself ; (g) verification of the Tender Security as stated under ITT Sub-Clause 24(d); and <p>48.3 The TEC shall confirm that the above documents and information have been provided in the Tender and the completeness of the documents and compliance of instructions given in corresponding ITT Clauses shall be verified, failing which the tender shall be considered rejection of that tender.</p>
<p>49. Technical Evaluation and Responsiveness</p>	<p>49.1 Only those Tenders surviving preliminary examination need to be examined in this phase.</p> <p>49.2 Secondly, the TEC will examine the adequacy and authenticity of the documentary evidence which may follow the order below:</p> <ul style="list-style-type: none"> (a) verification of the completeness of the country of origin declaration in the Price Schedule for Plant and Services (Form PG5A-3) as furnished in Section 5: Tender and Contract Forms to determine the eligibility of the Goods and Related Services as stated under ITT Sub Clause 24(m). (b) verification and examination of the documentary evidence and completed Technical Proposal (Form PG5A-4) as furnished in Section 5: Tender and Contract Forms to establish the conformity of the Goods and Related Services to the Tender Documents as stated under ITT Sub Clause 24(e) and 24(n). (c) verification and examination of the documentary evidence that the Tenderer's qualifications conform to the Tender Documents and the

<p style="text-align: center;">Tenderer meets each of the qualification criterion specified in Sub-Section C, Qualification Criteria as stated under ITT Sub Clause 24(o).</p> <p>(d) verification and examination of the documentary evidence that Tenderer has met all the requirements in regards under Section 6, Employer's Requirements, without any material deviation or reservation.</p> <p>(e) verification and examination of the documentary evidence and completed Specification Submission Sheet (Form PG5A-4a) to determine the conformity of the Goods and related services .</p>
<p>49.3 TEC may consider a Tender as responsive in the evaluation, only if comply with the mandatory requirements as stated under Clause 49.2.</p>
<p>49.4 The TEC's determination of a Tender's responsiveness is to be based on the documentary evidence as requested in Clause 49.2 without recourse to extrinsic evidence.</p>
<p>49.5 Information contained in a Tender, that was not requested in the Tender Document shall not be considered in evaluation of the Tender.</p>
<p>49.6 If a Tender is not responsive to the mandatory requirements set out in the Tender Document it shall be rejected by the TEC and shall not subsequently be made responsive by the Tenderer by correction of the material deviation, reservation.</p>
<p>49.7 A material deviation or reservation is one-</p> <p>(a) which affects in any substantial way the scope, quality, or performance of the Goods and Related Services and Tenderer's qualifications mentioned in the Tender Document</p> <p>(b) which limits in any substantial way, inconsistent with the Tender Documents, the Purchaser's rights or the Tenderer's obligations under the Contract; or</p> <p>(c) whose rectification would anyway affect unfairly the competitive position of other Tenderers presenting responsive Tenders.</p>
<p>49.8 During the evaluation of Tender, the following definitions apply:</p> <p>(a) "Deviation" is a departure from the requirements specified in the Tender Document;</p> <p>(d) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Tender Document;</p>
<p>49.9 A TEC may regard a Tender as responsive, even if it contains-minor or insignificant deviations, which do not meaningfully alter or depart from the technical specifications, characteristics and commercial terms and</p>

	<p>conditions or other requirements set out in the Tender Document; errors or oversights, which if corrected, would not alter the key aspects of the Tender.</p>
<p>50. Clarification on Technical Offer</p>	<p>50.1 TEC may ask Tenderers for clarification of their Technical Offers in order to facilitate the examination and evaluation of Technical Offers. The request for clarification by the TEC and the response from the Tenderer shall be in writing, and Technical Offers clarifications which may lead to a change in the substance of the Technical Offers or in any of the key elements of the Technical Offers as stated under ITT Sub Clause 49.2, will neither be sought nor be permitted.</p> <p>50.2 Any request for clarifications by the TEC shall not be directed towards making an apparently non-responsive Tender responsive and reciprocally the response from the concerned Tenderer shall not be articulated towards any addition, alteration or modification to its Technical Offer.</p> <p>50.3 If a Tenderer does not provide clarifications of its Technical Offer by the date and time, its Tender shall not be considered in the evaluation</p>
<p>51. Restrictions on Disclosure of Information</p>	<p>51.1 Following the opening of Technical Offers until issuance of Notification of Award no Tenderer shall, unless requested to provide clarification to its Tender or unless necessary for submission of a complaint, communicate with the concerned Procuring Entity</p> <p>51.2 Tenderers shall not seek to influence in anyway, the examination and evaluation of the Tenders</p> <p>51.3 Any effort by a Tenderer to influence the Procuring Entity in its decision concerning the evaluation of Tenders, Contract awards may result in the non-responsiveness of its Tender as well as further action in accordance with Section 64 (5) of the Public Procurement Act, 2006.</p> <p>51.4 All clarification requests shall remind Tenderers of the need for confidentiality and that any breach of confidentiality on the part of the Tenderer may result in their Tender being non-responsive.</p>
<p>52. Approval of Technical Offer</p>	<p>52.1 TEC shall prepare the Technical Offer Evaluation Report and shall directly submit the Evaluation Report to the Head of the Procuring Entity (HOPE) or Authorized Officer for approval.</p>
<p>53. Financial Offer Opening</p>	<p>53.1 After receiving approval of the Technical Offer Evaluation Report, Financial Offer (Envelope-2) of only the Responsive Tenderers who have been determined as qualified to the requirements of the Technical Offer, shall be opened publicly, The Date, time and place of Financial Offer Opening shall be communicated to the Responsive Tenderers in writing by issuing a Financial Offer Opening notice not less than SEVEN DAYS before the opening.</p>

	<p>53.2 Ensuring that only the correct MFO, SFO, OFO envelopes of the Responsive Tenderers shall be opened, in the presence of the Responsive Tenderer's representatives who choose to attend, on the date, time and at the place as notified by the Procuring Entity in accordance with ITT Clause 53.1. Details of each Financial Offer will be dealt with as follows:</p> <p>(a) the Chairperson of the Tender Evaluation Committee will read aloud each Financial Offer and record in the Financial Offer Opening Sheet (FOOS):</p> <ul style="list-style-type: none"> (i) the name and address of the Tenderer; (ii) state if it is a modified, substituted or original Financial Offer; (iii) the Tender Price; (iv) the number of initialled corrections; (v) any discounts; and (vi) any other details as the Procuring Entity, at its discretion, may consider appropriate <p>(b) only the discounts and alternatives read aloud and recorded at the Financial Offer Opening will be considered in Financial Offer Evaluation. No Tenders shall be rejected at the opening of the Financial Offer.</p> <p>(c) all pages of the original version of the Financial Offer, except for un-amended printed literature, will be initialled by members of the Tender Evaluation Committee.</p> <p>(d) The Procuring Entity shall, in writing, notify the Non-responsive Tenderers who have not been determined as qualified to the requirements of the Technical Offer and shall return their Financial Offers (Envelope-02) unopened after signing of the contract.</p>
<p>54. Clarification on Financial Offer</p>	<p>54.1 TEC may ask Tenderers for clarification of their Financial Offers, about the breakdowns of unit rates, in order to facilitate the examination and evaluation of Financial Offers. The request for clarification by the TEC and the response from the Tenderer shall be in writing.</p>
	<p>54.2 Changes in the Tender price shall not be sought or permitted, except to confirm the correction of arithmetical errors discovered by the TEC in the evaluation of the Tenders, as stated under ITT Sub Clause 55.1.</p>
	<p>54.3 If a Tenderer does not provide clarifications of its Financial Offer by the date and time, its Tender shall not be considered in the evaluation.</p>
	<p>54.4 Requests for clarifications on Financial Offers shall be duly signed only by the TEC Chairperson.</p>
<p>55. Correction of</p>	<p>55.1 The TEC shall correct any arithmetic errors that are discovered during the examination of Tenders, and shall</p>

<p>Arithmetical Errors</p>	<p>promptly notify the concerned Tenderer(s) of any such correction(s) pursuant to Rule 98(11) of the Public Procurement Rule, 2008.</p> <p>55.2 Provided that the Tender is responsive, TEC shall correct arithmetical errors on the following basis:</p> <p>(a) If there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the <u>unit price</u> shall prevail and the line item total shall be corrected, unless in the opinion of the TEC there is an obvious <u>misplacement of the decimal point</u> in the unit price, in which case the total price as quoted will govern and the unit price will be corrected;</p> <p>(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the <u>sub-totals</u> shall prevail and the total shall be corrected.</p> <p>55.3 Any Tenderer that does not accept the correction of the Tender amount following correction of arithmetic errors as determined by the application of ITT Sub-Clause 55.2 shall be considered as non-responsive.</p>
<p>56. Conversion to Single Currency</p>	<p>56.1 For evaluation and comparison purpose, TEC shall convert all Tender prices expressed in the amounts in various currencies into an amount in Bangladeshi Taka currency, using the selling exchange rates established by the Bangladesh Bank, on the date of Tender opening.</p>
<p>57. Financial Evaluation</p>	<p>57.1 Thirdly the TEC, pursuant to Rule 98 of the Public Procurement Rules, 2008 shall evaluate each Tender that has been determined, up to this stage of the evaluation, to be responsive to the mandatory requirements in the Tender Document..</p> <p>57.2 To evaluate a Tender in this stage , the Purchaser shall consider the following</p> <p>(a) Verification and examination of the Price Schedule for Plant and Services (Form PG5-3) as furnished by the Tenderer and checking the compliance with the instructions provided under ITT Clause 26;</p> <p>(b) Evaluation will be done for Items or lot by lot as stated under ITT Clause 26 and the Total Tender Price as quoted in accordance with Clause 26;</p> <p>(c) Adjustment for correction of arithmetical errors as stated under ITT Sub-Clause 55.2;</p> <p>(d) Adjustment for price modification offered as stated under ITT Clause 41;</p> <p>(e) Adjustment due to discount as stated under ITT Sub-Clauses 26.11 and 57.3;</p> <p>(f) Adjustment due to the application of economic factors of evaluation as stated under ITT Sub-</p>

	<p>Clause 57.5 if any;</p> <p>(g) Adjustment due to the assessment of the price of unpriced items as stated under ITT Clause 58 if any;</p> <p>57.3 If Tenders are invited for a single lot or for a number of lots as stated under ITT Sub-clauses 26.10, TEC shall evaluate only lots that have included at least the percentage of items per lot. The TEC shall evaluate and compare the Tenders taking into account:</p> <p>(a) Lowest evaluated tender for each lot ;</p> <p>(b) The price discount/reduction per lot;</p> <p>(c) Least cost combination for the Purchaser, considering discounts and the methodology for its application as stated under ITT Sub-clauses 26.10 and 26.11 offered by the Tenderer in its Tender.</p> <p>57.4 Only those spare parts and tools which are specified as a item in the List of Goods and Related Services in Section 6, Employer’s Requirement or adjustment as stated under ITT Sub-clause 54.5, shall be taken into account in the Tender evaluation. Supplier-recommended spare parts for a specified operating requirement as stated under ITT Sub-clause 28.2(b) shall not be considered in Tender evaluation.</p> <p>57.5 The Purchaser’s evaluation of a tender may require the consideration of other factors, in addition to the Tender Price quoted as stated under ITT Clause 26. The effect of the factors selected, if any, shall be expressed in monetary terms to facilitate comparison of tenders. The factors, methodologies and criteria to be used shall be as specified in TDS. The applicable economic factors, for the purposes of evaluation of Tenders shall be:</p> <p>(a) Adjustment for Deviations in the Delivery and Completion Schedule.</p> <p>(b) Cost of major replacement components, mandatory spare parts, and service.</p> <p>57.6 Variations, deviations, and alternatives and other factors which are in excess of the requirements of the Tender Document or otherwise result in unsolicited benefits for the Purchaser will not be taken into account in Tender evaluation.</p>
<p>58. Price Comparison</p>	<p>58.1 The TEC shall compare all responsive Tenders to determine the lowest-evaluated Tender, as stated in ITT 57.2.</p> <p>58.2 In the extremely unlikely event that there is a tie for the lowest evaluated price, the Tenderer with the superior past performance with the Purchaser shall be selected, whereby factors such as delivery period, quality of Goods delivered, complaints history and performance indicators could be</p>

	<p>taken into consideration.</p>
	<p>58.3 In the event that there is a tie for the lowest price and none of the Tenderers has the record of past performance with the Purchaser, then the Tenderer shall be selected, subject to firm confirmation through the Post-qualification process described in ITT Clause 61, after consideration as to whether the quality of Goods that is considered more advantageous by the end-users.</p>
	<p>58.4 The successful Tenderer as stated under ITT Sub Clauses 58.1, 60.2 and 60.3 shall not be selected through lottery under any circumstances.</p>
<p>59. Post-qualification</p>	<p>59.1 After determining the lowest-evaluated responsive tender as sated under ITT Sub-Clause 58.1, the Purchaser’s TEC pursuant to Rule 100 of the Public Procurement Rules, 2008, shall carry out the Post-Qualification of the Tenderer, using only the requirements specified in Sub-Section C, Qualification Criteria.</p> <p>59.2 The TEC shall contact the references given by Tenderers about their previous Supply experiences to verify, if necessary, statements made by them in their Tender and to obtain the most up-to-date information concerning the Tenderers.</p> <p>59.3 The TEC may visit the premises of the Tenderer as a part of the post-qualification process, if practical and appropriate, to verify information contained in its Tender.</p> <p>59.4 The TEC shall determine to its satisfaction whether the Tenderer that is selected as having submitted the lowest evaluated responsive Tender is qualified to perform the Contract satisfactorily.</p> <p>59.5 The objective of any visit under ITT Sub-Clause 59.3 shall be limited to a general and visual inspection of the Tenderer’s facilities and its plant and equipment, and there shall be no discussion concerning the Tender or its evaluation with the Tenderer during such visit(s).</p> <p>59.6 In the event that the Tenderer with lowest evaluated cost fails the post-qualification, the TEC shall make a similar determination for the Tenderer offering the next lowest evaluated cost and so on from the remaining responsive Tenders, provided that,</p> <ul style="list-style-type: none"> (a) such action shall only be taken if the evaluated costs of the Tenders under consideration are acceptable to the Purchaser; (b) when the point is reached whereby the evaluated costs of the remaining responsive Tenders are significantly higher than that of the official estimate, or the market price, the Purchaser may take action pursuant to Rule 33 of the PPR 2008 and may

	<p>proceed for re-Tendering, using a revised Tender Document designed to achieve a more successful result.</p>
<p>60. Negotiation</p>	<p>60.1 No negotiations shall be held during the financial offer evaluation or award, with the lowest or any other Tenderer.</p> <p>60.2 The Procuring Entity through the TEC may, however, negotiate with the lowest evaluated Tenderer with the objective to reduce the Contract Price by reducing the scope of works or a reallocation of risks and responsibilities, only when it is found that the lowest evaluated Tender is significantly higher than the official estimated cost; the reasons for such higher price being duly investigated.</p> <p>60.3 If the Procuring Entity decides to negotiate for reducing the scope of the requirements under ITT Sub Clause 60.2, it will be required to guarantee that the lowest Tenderer remains the lowest Tenderer even after the scope of work has been revised and shall further be ensured that the objective of the Procurement will not be seriously affected through this reduction.</p> <p>60.4 In the event that the Procuring Entity decides because of a high Tender price to reduce the scope of the requirements to meet the available budget, the Tenderer is not obliged to accept the award and shall not be penalised in any way for un-accepting the proposed award.</p>
<p>61. Rejection of All Tenders</p>	<p>61.1 The Purchaser may, in the circumstances as stated under ITT Sub-Clause 61.2 and pursuant to Rule 33 of the Public Procurement Rules 2008, reject all Tenders following recommendations from the Tender Evaluation Committee only after the approval of such recommendations by the Head of the Purchaser. rejected, if –</p> <p>61.2 All Tenders can be rejected, if -</p> <ul style="list-style-type: none"> (a) the price of the lowest evaluated Tender exceeds the official estimate, provided the estimate is realistic; or (b) there is evidence of lack of effective competition; such as non-participation by a number of potential Tenderers; or (c) the Tenderers are unable to propose completion of the delivery within the stipulated time in its offer, though the stipulated time is reasonable and realistic; or (d) all Tenders are non-responsive; or (e) evidence of professional misconduct, affecting seriously the Procurement process, is established pursuant to Rule 127 of the Public Procurement Rules, 2008. <p>61.3 Notwithstanding anything contained in ITT Sub-Clause 61.2 Tenders may not be rejected if the lowest evaluated price is in conformity with the market price.</p>

	<p>61.4 A Purchaser may pursuant to Rule 35 of the Public Procurement Rules, 2008, on justifiable grounds, annul the Procurement proceedings prior to the deadline for the submission of Tenders.</p> <p>61.5 All Tenders received by the Purchaser shall be returned unopened to the Tenderers in the event Procurement proceedings are annulled under ITT Sub-Clause 61.4.</p>
62. Informing Reasons for Rejection	62.1 Notice of the rejection, pursuant to Rule 35 of the Public Procurement Rules, 2008, will be given promptly within <u>seven (7) days</u> of decision taken by the Purchaser to all Tenderers and, the Purchaser will, upon receipt of a written request, communicate to any Tenderer the reason(s) for its rejection but is not required to justify those reason(s).
G. Contract Award	
63. Award Criteria	<p>63.1 The Purchaser shall award the Contract to the Tenderer whose offer is responsive to the Tender Document and that has been determined to be the lowest evaluated Tender, provided further that the Tenderer is determined to be Post-Qualified as stated under ITT Clause 59.</p> <p>63.2 A Tenderer shall not be required, as a condition for award of contract, to undertake obligations not stipulated in the Tender Document, to change its price, or otherwise to modify its Tender.</p>
64. Notification of Award	<p>64.1 Prior to the expiry of the Tender validity period and within <u>seven (7)</u> working days of receipt of the approval of the award by the Approving Authority, the Purchaser pursuant to Rule 102 of the Public procurement Rules, 2008, shall issue the Notification of Award (NOA) to the successful Tenderer.</p> <p>64.2 The Notification of Award, attaching the contract as per the sample (Form PG5A-7) to be signed, shall state:</p> <ul style="list-style-type: none"> (a) the acceptance of the Tender by the Purchaser; (b) the price at which the contract is awarded; (c) the amount of the Performance Security and its format; (d) the date and time within which the Performance Security shall be submitted; and (e) the date and time within which the contract shall be signed. <p>64.3 The Notification of Award shall be accepted in writing by the successful Tenderer within <u>seven (7)</u> working days from the date of issuance of NOA.</p> <p>64.4 Until a formal contract is signed, the Notification of Award shall constitute a Contract, which shall become binding upon the furnishing of a Performance Security and the signing of the Contract by both parties.</p>

	64.5 The Notification of Award establishes a Contract between the Purchaser and the successful Tenderer and the existence of a Contract is confirmed through the signature of the Contract Document that includes all agreements between the Purchaser and the successful Tenderer.
65. Performance Security	65.1 The Performance Security shall be determined sufficient to protect the performance of the Contract pursuant to Rule 27 of the Public Procurement Rules, 2008.
	65.2 Performance Security shall be furnished by the successful Tenderer in the amount specified in the TDS and denominated in the currencies in which the Contract Price is payable pursuant to Rule 102 (8) of the Public Procurement Rules, 2008.
	65.3 The proceeds of the Performance Security shall be payable to the Purchaser unconditionally upon first written demand as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.
66. Form and Time Limit for furnishing of Performance security	66.1 The Performance Security shall be in the form of irrevocable Bank Guarantee in the format (Form PG5A-9) as stated under ITT Clause 65, shall be issued by an internationally reputable bank and it shall have correspondent bank located in Bangladesh, to make it enforceable pursuant to Rule 27(4) of the Public Procurement Rules, 2008..
	66.2 Within twenty-eight (28) days from issue of the Notification of Award, the successful Tenderer shall furnish the Performance Security for the due performance of the Contract in the amount specified under ITT Sub Clause 65.2.
67. Validity of Performance Security	67.1 The Performance Security shall be required to be valid until a date twenty-eight (28) days beyond the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations.
	67.2 If under any circumstances date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations is to be extended, the Performance Security shall correspondingly be extended for the extended period.
68. Authenticity of performance Security	69.1 The Purchaser shall verify the authenticity of the Performance Security submitted by the successful Tenderer by sending a written request to the branch of the bank issuing irrevocable Bank Guarantee in specified format.
	69.2 If the Performance Security submitted under ITT Sub Clause 65.2 is not found to be authentic, the Purchaser

	shall proceed to take measures against the Tenderer in accordance with Section 64 of the Act and pursuant to Rule 127 of the Public Procurement Rules, 2008.
69. Contract Signing	<p>69.1 At the same time as the Purchaser issues the Notification of Award, the Purchaser shall send the draft Contract Agreement and all documents forming the Contract pursuant to Rule 102 of the Public Procurement Rule, 2008, to the successful Tenderer.</p> <p>69.2 Within twenty-eight (28) days of the issuance of Notification of Award, the successful Tenderer and the Purchaser shall sign the contract provided that the Performance Security submitted by the Tenderer is found to be genuine.</p> <p>69.3 If the successful Tenderer fails to provide the required Performance Security, as stated under ITT Clause 65 or to sign the Contract , as stated under ITT Sub-Clause 69.2, Purchaser shall proceed to award the Contract to the next lowest evaluated Tenderer, and so on, by order of ranking pursuant to Rule 102 of the Public Procurement Rules,2008.</p>
70. Publication of Notification of Award of Contract	<p>70.1 Notification of Awards for Contracts of Taka 10 (ten) million and above shall be notified by the Purchaser to the Central Procurement Technical Unit within 7(seven) days of issuance of the NOA for publication in their website, and that notice shall be kept posted for not less than a month pursuant to Rule 37 of the Public Procurement Rules, 2008.</p> <p>70.2 Notification of Award for Contracts below Taka 10(ten) million, shall be published by the Purchaser on its Notice Board and where applicable on the website of the Purchaser and that notice shall be kept posted for not less than a month pursuant to Rule 37 of the Public Procurement Rules, 2008..</p>
71. Debriefing of Tenderers	<p>72.1 Debriefing of Tenderers by Purchaser shall outline the relative status and weakness only of his or her Tender requesting to be informed of the grounds for not accepting the Tender submitted by him or her pursuant to Rule 37 of the Public Procurement Rule, 2008, without disclosing information about any other Tenderer.</p> <p>72.2 In the case of debriefing confidentiality of the evaluation process shall be maintained.</p>
72. Right to Complains	<p>72.1 Any Tenderer has the right to complain if it has suffered or likely to suffer loss or damage due to a failure of a duty imposed on the Purchaser to fulfil its obligations in accordance with Section 29 of the Public Procurement Act 2006 and pursuant to Part 12 of Chapter Three of the Public Procurement Rules, 2008.</p>

<p>72.2 Circumstances in which a formal complaint may be lodged in sequence by a potential Tenderer against a Purchaser pursuant to Rule 56 of the Public Procurement Rules, 2008, and the complaints, if any, be also processed pursuant to Rule 57 of the Public Procurement Rules 2008.</p>
<p>72.3 The potential Tenderer shall submit his or her complaint in writing within seven (7) calendar days of becoming aware of the circumstances giving rise to the complaint.</p>
<p>72.4 In the first instance, the potential Tenderer shall submit his or her complaint to the Purchaser who issued the Tender Document.</p>
<p>72.5 The place and address for the first stage in the submission of complaints to the Administrative Authority is provided in the TDS.</p>
<p>72.6 The Tenderer may appeal to a Review Panel only if the Tenderer has exhausted all his or her options of complaints to the administrative authority as stated under ITT Sub-Clause 72.2.</p>

Section 2. Tender Data Sheet

Instructions for completing the Tender Data Sheet are provided, as needed, in the notes in italics and under lined mentioned for the relevant ITT clauses.

ITT Clause	Amendments of, and Supplements to, Clauses in the Instruction to Tenderers
A. General	
ITT 1.1	<p>The Purchaser/The Employer is: BANGLADESH POWER DEVELOPMENT BOARD (BPDB)</p> <p>Representative Director, Directorate of Purchase, WAPDA Building (9th Floor), 12, Motijheel C/A, Dhaka-1000, Phone: +880-2223383081, Fax: +880-2-7126151</p> <p>Consignee Director, Directorate of Pre-Paid Metering System, Biddyut Bhaban (13th Floor), 1 No. Abdul Gani Road, Dhaka-1000, Phone: +880-222228759</p> <p>Engineer Director, Directorate of Design and Inspection –II, 9/B, Motijheel C/A, Dhaka-1000 Phone: +880-2223383613</p> <p>The Name and identification number of Tender are: Design, Supply, Installation, Testing & Commissioning of 50,000 Nos. of Single Phase Smart Prepayment Meters with BPLC Module for the replacement of existing postpaid meters under Distribution Zone Sylhet with 3 years operational support service. Package : GRF-32 <i>Tender No.:</i></p>
ITT 1.2	<p>The number, identification and name of lots comprising the Tender are: Single Lot on Trunkey Basis. (One Stage Two Envelope Method)</p>
ITT3.1	The source of public funds is BPDB's revenue budget.
ITT3.3	The name of the Development Partner is: none
ITT5.1	Tenderers from the following countries are not eligible: Israel and the countries having no diplomatic relation with the Government of Bangladesh
ITT 5.13	Tenderers shall have the following up to date valid License: Trade/Business Licence
ITT6.1	Materials, Equipment and associated services from the following countries are not eligible: Israel and the countries having no diplomatic relation with the Government of Bangladesh

ITT 7.5 (New Clause)	<p>Added immediate after Clause No. 7.4</p> <p>Each Tenderer before submitting his Tender will carefully examine the tender requirements and visit the site(s) to determine the existing conditions, facilities and limitations. Tenderer shall have made all necessary arrangement to carry out the Contract if awarded for the Supply & Installation of Single Phase Smart Prepayment Meters with BPLC Module to completing the Scope of Work as described in Section 6: Employer's Requirement. Any neglect to delay or failure on the part of the tenderer to obtain reliable information upon the foregoing or any matter effecting the work and completion period shall not relieve the successful tenderer of his responsibilities, risks or liabilities until final acceptance of the Supply & Installation of Plant & Equipment in case of award of the contract.</p>
B. Tender Document	
ITT8.2	<p>The following are the offices of the Purchaser or authorised agents for the purpose of providing the Tender Document</p> <p>Director, Address: Directorate of Purchase, WAPDA Building (9th Floor), 12, Motijheel C/A, Dhaka-1000, Telephone: +8802223383081, Fax No.: +880-2-7126151 e-mail address: dir.purchase@bpd.gov.bd</p>
ITT9.1	<p>For <u>clarification of Tender Document purposes</u> only, the Procuring Entity's address is:</p> <p>Attention: Director, Address: Directorate of Purchase, WAPDA Building (9th Floor), 12, Motijheel C/A, Dhaka-1000, Telephone:+8802223383081, Fax No.: +880-2-7126151 e-mail address: dir.purchase@bpd.gov.bd</p>
ITT10.1	<p>A Pre-Tender meeting shall not be held</p>
C. Qualification Criteria	
ITT 13.1	<p>The maximum Three (3) number of arbitration against the Tenderer over a period of last five (5) years.</p>
ITT14.1 (a)	<p>The Tenderer shall have a minimum of 03(Three) years of overall experience in the supply of goods and related services.</p>
ITT 14.1(b)	<p>The minimum specific experience as Supplier in supply of similar Goods of at least 02(two) contract(s) successfully completed within the last 05(five) years, each with a value of at least USD 9.00 lac (USD Nine Lac) or BDT 10.53 crore (BDT Ten crore Fifty Three lac); years counting backward from the date of publication of IFT in the newspaper.</p> <p>In addition, performance of the completed contracts as mentioned in Annexure: 5-1 shall be taken into consideration during evaluation.</p> <p>[For Tenders where the package contains more than one (1) lot, this qualification requirement shall be combined for each lot in the package.]</p> <p>Similar goods mean: Electrical equipment/Materials.</p>

ITT 15.1(a)	The required average annual turnover shall be greater than Tk. 18.00 Crore within the last 5 years.			
ITT 15.1(b)	The minimum amount of liquid assets i.e. working capital or credit line(s) of the Tenderer must satisfy the assessment of Financial Resources Availability as mentioned in Annexure: 5-4 . [For Tenders where the package contains more than one (1) lot, this qualification requirement shall be combined for each lot in the package.]			
ITT 16.1(a)	A Project Manager, Engineer, and other key staff shall have the following qualifications and experience:			
	No	Position	Total Works Experience (Years)	Experience in similar works (Years)
01		Project Manager	10	05
02		Network Specialist	08	03
03		Communication Specialist	08	03
04		Foreman	05	03
05		Technician (Electrical)	05	02
<i>[qualification of an alternative Construction Project Manager may also be requested]</i>				
<i>[for Tenders where the package contains more than one (1) lot, this qualification requirement may be necessary for each lot in the package, subject to the nature of the control required over each package]</i>				
ITT 17.1	The Tenderer shall own or have proven access to hire or lease of the major equipment, in full working order as follows : (Not Applicable)			
	No	Equipment Characteristics	Type and	Minimum Number Required
<i>[for Tenders where the package contains more than one (1) lot, this qualification requirement may be necessary for each lot in the package, subject to the nature of the control required over each package]</i>				
ITT 18.1	The value of non-judicial stamp for execution of the Joint Venture Agreement shall be Tk 300 only.			
ITT 18.2	Maximum number of partners in the JV shall be “not limited”			
The minimum qualification requirements of Leading Partner, other Partner(s) and requirements by summation of a JV shall be as follows:				
	TDS Clauses References	Requirements by summation	Requirements for Leading Partner	Requirements for other Partner(s)
ITT-14.1(a)		Summation not applicable	Same as stated in TDS	Same as for Leading Partner
ITT-14.1(b)		100%	At least one Contract	Not applicable
ITT-15.1(a)		100%	40%	25%

	ITT-15.1(b)	100%	40%	25%
	ITT-16.1(a)	100%	Not applicable	Not applicable
	ITT-17.1	100%	Not applicable	Not applicable
<p><i>[it is suggested that the Procuring Entity adheres to the above proportion of minimum qualifying requirements to meet the specific procurement needs. Percent share of business of the JVCA partners shall not be taken into account in determining the qualification of a JVCA]</i></p>				
<h3>D. Tender Preparation</h3>				
ITT 19.2	<p><i>The maximum of percentage 20% of Goods allowed to be subcontracted (Not Applicable)</i></p>			
ITT 19.4	<p>The Nominated Subcontractor(s) named [<i>insert name(s)</i>] shall execute the following specific components of the proposed Works: (Not Applicable)</p>			
ITT 20.1	<p>Tenders are being invited for Single Lot on turnkey basis.</p>			
ITT 24.2(r)	<p>The Tender shall be single stage two envelopes. Technical as well as financial proposal shall be submitted in two separate envelopes duly sealed and signed, which shall be in a single envelope duly addressed to the employer. The Technical envelope will be opened first. The Financial Proposal will be kept in safe custody of purchaser. Financial Proposal of only technically responsive bids will be opened at date and time to be notified later to the respective tenderer. The Financial Proposal of the technically non-responsive tenderer will be returned unopened to the respective tenderer.</p> <p>Documents to be submitted by the tenderer:</p> <ol style="list-style-type: none"> I. Technical Submission Letter (Form PG5A-1a) [Ref.- ITT cl no 24.2(a)] to be submitted with the technical proposal. II. The tenderer should quote price & discount (if any) in the Tender Submission Letter (Form PG5A-1b). As it is single stage two envelope system tender. [Ref.- ITT cl no 24.3(a)] This should be submitted within the Financial Proposal in separate envelope duly sealed and signed. III. Completed price schedule (Form PG5A-3) [Ref.- ITT clauses-24.3(b)] to be submitted with the price proposal. <p>The Tenderer shall submit with its Tender the following additional documents:</p> <ol style="list-style-type: none"> 1. Sealed & Signed original Tender Document (which was issued by BPDB) by a person duly authorized to sign on behalf of the tenderer. Copy of issued tender document will not be acceptable. 2. Registration/Certificate of Incorporation/Trade licence in its country of origin/ relevant documents as documentary evidence to satisfy experience criteria as stated in ITT 14.1(a). 3. End User certificate (s) as documentary evidence to satisfy experience criteria as stated in ITT 14.1(b). 4. Updated brochures of the supplier and/or manufacturer as documentary evidence to satisfy experience criteria 5. Audited Financial reports or bank statement or credit line(s) for 3 years substantiated by any schedule Bank as documentary evidence to satisfy financial 			

criteria as stated in ITT 15.1(a).

6. Letter of Commitment (Form PG5A-6a) for credit line(s) substantiated by any schedule Bank as documentary evidence to satisfy financial criteria as stated in ITT 15.1(b).
7. Compliance certificate confirming to the terms and condition of the tender document.
8. Name of the Manufacturer, Certificate of the country of Origin and port of shipment (where applicable) of the offered equipment / items.
9. Warranty Certificate (Form PG5A-12) from Tenderer as per GCC 42.
10. Manufacturer's Printed Catalogue describing specification and technical data of offered type equipment.
11. Outline and General Arrangement drawings of the offered type equipment.
12. Bill of Quantity (BOQ) as per Section 6. Employer's Requirements
13. Detail description of testing facilities at manufacturer's plant including calibration certificates of testing equipment.
14. Manufacturer's valid ISO 9001 Certificate.
15. Certification from the manufacturer confirming that his offered item is unused, new and in good condition and confirmed all features & accessories stated in Section 6: Employer's Requirements.
16. If Tenderer has any reservation, Tenderer has to mention it in Deviation list (Form PG5A-13).
17. Guaranteed Technical Particulars (GTP) in Section 6.1.33 shall be properly filled up in manufacturer's official pad with submission of related supporting documents & signed by the Manufacturer & Tenderer.
18. At least 02 (two) nos. of Manufacturer's Supply Experience of offered type Single Phase smart prepayment meter with BPLC/PLC communication module supported by Copy of NOA/Contract Agreement/Certificate from Purchaser within the last 05 (five) years i.e. years counting backward from the date of publication of IFT in the newspaper. Manufacturer's Supply Experience shall be furnished in the following supply record format. (The Supply Experience covering at least 25% of the tendered quantity in a single contract will be considered only):

Sl.	Name, Address, Phone & Fax No. of the Purchaser	Contract No. & Date/ NOA	Contract Value	Description of supplied Meter (mentioning type & model)	Quantity	Date of Completion of Supply

19. At least 02 (two) nos. Manufacturer's Satisfactory Performance Certificates (supported by the Supply Record) from Electricity Utility as End User for the offered type Single Phase smart prepayment meter with BPLC/PLC communication module has been supplied within last 05 (Five) years i.e. years counting backward from the date of publication of IFT in the newspaper and has been in satisfactorily service for at least 02(two) years.

From these two certificates, at least one should be from outside of the manufacturer

own country. The Satisfactory Performance Certificate (SPC) shall be in End User's official pad and shall contain end-user's full mailing address, domain e-mail address, website address and fax / telephone number for the convenience of authentication.

Note: Electricity Utility means an organization/company that engages in electricity transmission / distribution and sales of electricity in a regulated market.

20. The following Documents to be submitted with the tender otherwise bid will be rejected:

Complete Type Test report with ref. number as per relevant international standard in English along with test results of the offered pre-payment meter from anyone of the following Independent testing laboratory.

- i. KEMA, Holland.
- ii. UL International New Zealand/Parkside Laboratories, New Zealand.
- iii. South African Bureau of Standards (SABS).
- iv. MET Laboratories Inc., USA
- v. Office of the Gas and Electricity Market, UK /SGS, UK
- vi. European Measuring Instruments Directive (MID) recognized labs.
- vii. CESI, Italy.
- viii. Essef, France
- ix. CPRI, India

The Test Report includes the following tests with results (but not limited to):

- (a) Impulse voltage test
- (b) AC Voltage test
- (c) Accuracy test
 - i) Test of variation of current
 - ii) Test of meter constant
 - iii) Test of starting condition
 - iv) Test of no-load condition
 - v) Test of ambient temperature influence
 - vi) Test of influence quantities
- (d) Test of power consumption
- (e) Test of influence of supply voltage, short-time over currents, self-heating & heating.
 - i. Electromagnetic compatibility (EMC) test
 - ii. Dry heat test
 - iii. Cold test
 - iv. Damp heat accuracy, cyclic test
 - v. Vibration test
 - vi. Shock test
 - vii. Spring hammer test
 - viii. Test of protection against penetration of dust and water
 - ix. Test of resistance to heat and fire
- (f) The manufacturer shall submit the test report of the offered meter on pre-payment mode as per IEC 62055-31 or SANS 1524-1 from any accredited Independent Testing Laboratory that includes the following test with results (but not limited to):
 - Functionality Test
 - Load switching Test

	<p>(g) Manufacturer/Tenderer shall submit the Accelerated reliability/ Life Cycle/ Durability Test certificate of the offered meter.</p> <p>(h) Bought out items: A detailed list of bought out items which are used in the manufacturing of the meter, shall be furnished indicating the name of firm/company from whom these items are procured.</p> <p>(i) The Tenderers shall submit the DLMS/COSEM certificate of the offered meter.</p> <p>(j) The Technical specification of the offered Communication Module shall be submitted along with the offer.</p> <p>(k) The Tenderer must submit the IDIS certificate for manufacturer's Single Phase meter as an evidence of capacity for interoperability.</p> <p>21.a) The qualified tenderer have to demonstrate/present the sample meter submitted with the tender to confirm the tender requirements. The tenderer will be notified the date of demonstration at least 15 (fifteen) days ahead of the demonstration. Demonstration has to be completed on the assigned date.</p> <p>b)The tenderer who will fail to perform this presentation/ demonstration on the sample meter or whose presentation/ demonstration will be unsatisfactory as per technical specification and tender requirements, will be considered technically non-responsive and as such their tender will be rejected and shall not be considered for further evaluation.</p> <p>22. Tenderer shall have to submit the information of all completed similar contracts(if any)in govt. entities under power sector of Bangladesh within last 5 (five) years, i.e. years counting backward from the date of publication of IFT in the newspaper, with supporting document (end user's satisfactory performance certificate/ Acceptance Certificate) in the format attached as Annexure: 5-1.</p> <p>23. Tenderer shall have to submit the information of all ongoing similar contract(s) in govt. entities under power sector of Bangladesh in the format attached as Annexure: 5-2 with supporting document (Acceptance of NOA/Contact agreement) along with the up to date Acceptance certificate / R&I certificate from end user</p> <p>Others:</p> <p>24. i) The Tenderer needs to interfacing and interoperability of the offered type smart meter with all other manufacturer's DCU installed in BPDB system compliance to IDIS interoperability protocol.</p> <p>ii) 03(Three) years Operational support for meter including establishment of network between DCU and HES</p> <p>25. All Tender Forms as thereof.</p>
24.3(d)	<p>The Tenderer shall submit with its financial offer the following additional documents:</p> <p>Not Applicable</p>
ITT 25.1	<p>Alternatives <i>shall not be</i> permitted.</p>
ITT 26.1	<p>Tenderers shall quote for the entire Plant and Installation Services on a single responsibility basis</p>
26.5(a)	<p>Place of Destination: Central Store, BPDB. Tongi, Gazipur.</p>

26.5(d)	Local transportation to named place of final destination is:As per instruction of the Directorate of Pre-Paid Metering System, BPDB, Dhaka.
ITT 26.7	The contract price by the Tenderer shall be fixed for the duration of the Contract.
ITT 27.4	Name of the foreign currency: USD
ITT 28.1 (b)	Spare parts are: not required
ITT 28.1(b)	Manufacturer's authorization is: Required for meter, relay and battery. Authorization Letter from Manufacturer's Sales office (if located outside the manufacturing country) and Dealer/ Trading house will not be accepted if not supported by Manufacturer's letter. In this regard, Scanning Paper, E-mail copy, Faxed copy& Sealed signature will not be accepted. Manufacturer's signature in Authorization letter shall be hand written by Pen i.e. signature through stamping /seal is not accepted. The Authorization letter shall mention domain E-mail address, Telephone/Fax, designation with detail address of the manufacturer representative duly signed in the manufacturer official pad.
ITT 30.2	The Tender validity period shall be 150 days .
ITT 32.2	The amount of the Tender Security shall be as per tender notice in favour of Director, Directorate of Purchase, Bangladesh Power Development Board.
ITT 37.1	In addition to the original of the Tender, 3 (Three) copies shall be submitted within the date and time mentioned in the Tender Notice.
E. Submission of Tender	
ITT 38.2(e)	<p>The International Tender shall be single stage two envelopes. Technical as well as financial proposal shall be submitted in two separate envelopes duly sealed and signed, which shall be in a single envelope duly addressed to the employer. The Technical envelope will be opened first. The Financial Proposal will be kept in safe custody of purchaser. Financial Proposal of only technically responsive bids will be opened at date and time to be notified later to the respective tenderer. The Financial Proposal of the technically non-responsive tenderer will be returned unopened to the respective tenderer.</p> <p>The tenderer shall enclose the original Technical Proposal and Financial Proposal in different envelope. The envelopes will be marked as 'Technical Proposal Original' and 'Financial Proposal Original'. Similarly copies of technical and financial proposal will be enclosed in two different envelopes and the envelopes will be marked 'Copy Technical Proposal' and 'Copy Financial Proposal'. Then original Technical Proposal envelope and copy of the Technical Proposal will be put into another envelope, as the envelope will be marked as Technical Proposal. Similarly, original Financial Proposal envelope and copy of the Financial Proposal will be put into another envelope, as the envelope will be marked as Financial Proposal. These two envelopes of Technical Proposal and Financial Proposal shall then been closed one single outer envelope. All the envelopes should be duly sealed and signed by the tenderer.</p> <p>Both Technical and Financial Proposals shall be submitted with permanent binding (Stitched/Sewn Binding). Each page shall contain sequential page number. Any Technical offer associated with Financial offer in the same Envelope will be rejected. The inner and outer envelopes shall bear the following additional identification marks:</p> <p>1. Date of Submission</p>

	2. Seal & Signature of the Tenderer
ITT 38.4(e)	The inner and outer envelopes shall bear the following additional identification marks : 1. Date of Submission 2. Seal & Signature of the Tenderer
ITT 38.9 (New Clause)	<p>Submission of sample(s) and its Evaluation:</p> <p>(a)Submission of sample : Tenderer shall submit 02 (Two) nos. of Single Phase Smart Pre-payment Meter(as per tender requirement) with BPLC communication modules samples of offered type and model along with their bid at time of bid submission, which will be non-returnable. Late submission of sample is not acceptable. If the Tenderer fails to submit the samples during bid submission, the bid shall be rejected and will not be considered for further evaluation.</p> <p>(b) Demonstration of sample: The tenderer will demonstrate the sample meters functionality and other requirements of as per Technical Specification & GTP of the Tender document. The respective preliminary qualified tenderer will be notified the date of demonstration at least 15 (fifteen) days ahead of the demonstration. Demonstration has to be completed on the assigned date. For this demonstration BPDB will not bear any expenses. This presentation/demonstration will be a part of the technical evaluation. The Tenderers, who will fail to perform this demonstration on sample meters or whose demonstration will be unsatisfactory as per technical specification (Section-6) of tender requirements with the existing unified system of BPDB, will be considered technically Non-responsive and as such their tender will be rejected and shall not be considered for further evaluation. In the demonstration BPDB will break the sample for checking the component of the meter.</p> <p>During Technical Examinations, the submitted sample(s) of the Responsive Tenderer's should comply with the technical requirements of the tender document and will be tested at CERS, BPDB as per latest version of relevant IEC/ BS or equivalent international standards as mentioned in the tender. If the submitted any sample failed in that test to conform the technical specification, the tender of the Tenderer will be rejected.</p>
ITT 39.1	For <u>Tender submission purposes</u> ,the Purchaser's address is: Attention: Director Address: Directorate of Purchase, WAPDA Building (9 th Floor), 12, Motijheel C/A, Dhaka-1000Telephone: +8802223383081Fax: +880-2-7126151: e-mail address: dir.purchase@bpd.gov.bd
ITT 39.3	For <u>Tender submission purposes</u> only, the Procuring Entity's address is: Address (PRIMARY PLACE): Attention: Director Address: Directorate of Purchase, WAPDA Building (9 th Floor), 12, Motijheel C/A, Dhaka-1000Telephone: +8802223383081Fax: +880-2-7126151: e-mail address: dir.purchase@bpd.gov.bd The deadline for the submission of Tenders is: Time & Date:

	Address (SECONDARY PLACES): Not Applicable
ITT 39.4	The deadline for hand-delivering of the Tenders at the PRIMARY PLACE is: Time & Date:as specified in tender notice
F. Opening and Evaluation of Tenders	
ITT 45.1	a) The Tender opening shall take place at: The Office of the Director, Directorate of Purchase, BPDB, Address: WAPDA Building (9th floor), Motijheel C/A,Dhaka-1000 Time & Date: On Time & Date as specified in tender notice or amendment of opening time (if any) The Technical envelope will be opened first. The Financial Proposal will be kept in safe custody of purchaser. Financial Proposal of only technically responsive bids will be opened at date and time to be notified later to the respective tenderer. The Financial Proposal of the technically nonresponsive tenderer will be returned unopened to the respective tenderer.
ITT 57.5	The applicable economic factors, for the purposes of evaluation of Tenders shall be: (a) <u>Adjustment for Deviations in the Delivery and Completion Schedule: Not Applicable.</u> "The Plant and Service covered by this Tendering process are required to be delivered in accordance with, and completed within, the Delivery and Completion Schedule specified in Section 6, Employer's Requirements. No credit will be given for earlier completion. Tender offering delivery schedules beyond of the date specified in Section 6, Employer's Requirement, shall be rejected." (b) <u>Cost of major replacement components, mandatory spare parts, and service: Not Applicable.</u> (c) <u>Other factors affecting the true economic value:</u> Not Applicable.
ITT57.7 (New Clause)	a)If the lowest Evaluated Tender is significantly below the official estimated cost or unbalanced as a result of front loading in the opinion of the TEC, the TEC may require the Tenderer to produce detailed breakdown of unit price or rates for any or all items of the Price Schedule, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the breakdown of the unit price or rates, taking into consideration the schedule of estimated Contract payments, the Purchaser may require that the amount of the Performance Security set forth in ITT Sub Clause 65.2 be increased at the expenses of the Tenderer to a level as stated in TDS under ITT Sub Clause 65.4 sufficient to protect the Employer against financial loss in the event of default by such Tenderer during Contract implementation, if awarded the Contract.
G. Award of Contract	
ITT 65.2	The amount of Performance Security shall be 10% percent of the Contract Price.
ITT65.4 (New Clause)	The Employer may increase the amount of the Performance Security above the amounts as stated under ITT Sub Clause 65.2 but not exceeding twenty five (25) percent of the Contract price, if it is found that the Tender is significantly below the official estimated cost or unbalanced as a result of front loading as stated under ITT Sub Clause 57.7
ITT 72.5	The name and address of the office where complaints to the Purchaser are to be submitted is: Attention: Director. Address: Directorate of Purchase WAPDA Building (9th floor), Motijheel C/A Dhaka-1000 Tel No: +8802223383081 , Fax No:+880-2- 7126151 e-mail address: dir.purchase@bpdb.gov.bd

Section 3. General Conditions of Contract

A. General

1.1 In the Conditions of Contract, which include Particular Conditions and these General Conditions, the following words and expressions shall have the meaning hereby assigned to them. Boldface type is used to identify the defined terms:

- (a) **Approving Authority** means the authority which, in accordance with the Delegation of Financial powers, approves the award of Contract for the Procurement of Goods, Works and Services.
- (b) **Act means** The Public Procurement Act, 2006 (Act 24 of 2006).
- (c) **Commissioning** means operation of the Facilities or any part thereof by the Contractor following Completion, which operation is to be carried out by the Contractor for the purpose of carrying out Guarantee Test(s).
- (d) **Competent Authority** means the authority that gives decision on specific issues as per delegation of administrative and/or financial powers.
- (e) **Completion** means that the Facilities (or a specific part thereof where specific parts are specified in the Contract) have been completed operationally and structurally and put in a tight and clean condition, that all work in respect of Pre Commissioning of the Facilities or such specific part thereof has been completed, and that the Facilities or specific part thereof are ready for Commissioning.
- (f) **Completion Certificate** means the Certificate issued by the Project Manager as evidence that the Contractor has executed the services in all respects as per design, drawing, specifications and Conditions of Contract.
- (g) **Completion Date** is the actual date of completion of the plant and services certified by the Project Manager, in accordance with GCC Clause 24.
- (h) **Contract Agreement** means the Agreement entered into between the Procuring Entity and the Contractor, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein to supply and install Plant & Equipment
- (i) **Contract Documents** means the documents listed in GCC Clause 6, including any amendments thereto.
- (j) **Contractor/supplier** means the Person under contract with the Procuring Entity for the supply and installation of Plant & Equipment under the Rules and the Act as stated in the **PCC**.
- (k) **Contractor's Representative** means any person nominated by the Contractor and approved by the Employer to perform the duties delegated by the Contractor.
- (l) **Contract Price** means the price payable to the Contractor as specified in the Contract Agreement, subject to such

	<p>additions and adjustments thereto or deductions therefrom, for the supply and installation of plant & equipment in accordance with the provisions of the Contract, subject to such additions and adjustments thereto or deductions therefrom, as may be made pursuant to the Contract.</p> <p>(m) Cost means all expenditures reasonably incurred or to be incurred by the Contractor, whether on or off the Site, including overhead ,profit, taxes, duties, fees, and such other similar levies</p> <p>(n) Day means calendar day unless otherwise specified as working days.</p> <p>(o) Dayworks means work carried out following the instructions of the Procuring Entity or the authorised Project Manager and is paid for on the basis of time spent by the Contractor’s workers and equipment at the rates specified in the Schedules, in addition to payments for associated Materials and Plant.</p> <p>(p) Defect is any part of the Works not completed in accordance with the Contract.</p> <p>(q) Defect Liability Period means the period of validity of the warranties given by the Contractor commencing at Completion of the Facilities or a part thereof, during which the Contractor is responsible for defects with respect to the Facilities (or the relevant part thereof) as provided in contract document.</p> <p>(r) Defects Correction Certificate is the certificate issued by the Project Manager upon correction of defects by the Contractor.</p> <p>(s) Drawings include calculations and other information provided in Section 7 or as approved by the Project Manager for the execution and completion of the Contract.</p> <p>(t) Effective Date means the date of fulfillment of all conditions of the Contract Agreement, from which the Time for Completion shall be counted.</p> <p>(u) Equipment means all facilities, equipment, machinery, tools, apparatus, appliances or things of every kind required in or for installation, completion and maintenance of Facilities that are to be provided by the Contractor, but does not include Plant, or other things intended to form or forming part of the Facilities.</p> <p>(v) Facilities means the Plant to be supplied and installed, as well as all the Installation Services to be carried out by the Contractor under the Contract. It also includes any ancillary building or infra structure that needs to be constructed/built/erected to support the plant.</p> <p>(w) Force Majeure means an event or situation beyond the control of the Contractor that is not foreseeable, is unavoidable, and its origins not due to negligence or lack of care on the part of the Contractor; such events may include,</p>
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	<p>but not be limited to, acts of the Government in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes or more as included in GCC Clause 52.</p> <p>(x) Goods mean the Contractor's Plant, Equipment, Materials or any of them as appropriate.</p> <p>(y) GCC means the General Conditions of Contract.</p> <p>(z) Government means the Government of the People's Republic of Bangladesh.</p> <p>(aa) Guarantee Test(s) means the test(s) specified in the Employer's Requirements to be carried out to ascertain whether the Facilities or a specified part thereof is able to attain the Functional Guarantees specified in the Appendix to the Contract Agreement titled Functional Guarantees, in accordance with the provisions of GCC Sub-Clause 25.2 (Guarantee Test) hereof.</p> <p>(bb) Head of the Procuring Entity means the Secretary of a Ministry or a Division, the Head of a Government Department or Directorate; or the Chief Executive, by whatever designation called, of a local Government agency, an autonomous or semi-autonomous body or a corporation, or a corporate body established under the Companies Act;</p> <p>(cc) Installation Services means all those services ancillary to the supply of the Plant for the Facilities, to be provided by the Contractor under the Contract, such as transportation and provision of marine or other similar insurance, inspection, expediting, site preparation works (including the provision and use of Contractor's Equipment and the supply of all construction materials required), installation, testing, pre-commissioning, commissioning, operations, maintenance, the provision of operations and maintenance manuals, training, etc. as the case may require.</p> <p>(dd) Intended Completion Date is the date calculated from the Commencement Date as specified in the PCC, on which it is intended that the Contractor shall complete the Works and Physical services as specified in the Contract and may be revised only by the Project Manager by issuing an extension of time or an acceleration order.</p> <p>(ee) Materials means things of all kinds other than Plant intended to form or forming part of the Permanent Works, including the supply-only materials, if any, to be supplied by the Contractor under the Contract.</p> <p>(ff) Month means calendar month.</p> <p>(gg) Original Contract Price is the Contract Price stated in the Procuring Entity's Notification of Award (Form PG5A-7) and further clearly determined in the PCC.</p> <p>(hh) Operational Acceptance means the acceptance by the Employer of the Facilities (or any part of the Facilities where the Contract provides for acceptance of the Facilities in</p>
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	<p>parts), which certifies the Contractor's fulfillment of the Contract in respect of Functional Guarantees of the Facilities (or the relevant part thereof) in accordance with the provisions of contract</p> <p>(ii) PCC means the Particular Conditions of Contract.</p> <p>(jj) Plant means permanent plant, equipment, machinery, apparatus, materials, articles, ancillary buildings/structure and things of all kinds to be provided and incorporated in the Facilities by the Contractor under the Contract (including the spare parts to be supplied by the Contractor), but does not include Contractor's Equipment.</p> <p>(kk) Pre Commissioning means the testing, checking and other requirements specified in the Employer's Requirements that are to be carried out by the Contractor in preparation for Commissioning.</p> <p>(ll) Procuring Entity/Employer/Purchaser means, as the context so applies, an Entity having administrative and financial powers to undertake procurement of Plant and Physical services using public funds and is as named in the PCC who employs the Contractor to carry out the contractual obligations.</p> <p>(mm) Project Manager is the person named in the PCC or any other competent person appointed by the Procuring Entity and notified to the Contractor who is responsible for supervising the execution and completion of the plant and services and administering the Contract.</p> <p>(nn) Schedules means the document(s) entitled schedules, completed by the Contractor and submitted with the Tender Submission Letter, as included in the Contract. Such document may include the data, lists and schedules of rates and/or prices.</p> <p>(oo) Site means the land and other places upon which the Facilities are to be installed, and such other land or places as may be specified in the PCC as forming part of the Site</p> <p>(pp) Site Investigation Reports are those that were included in the Tender Document and are factual and interpretative reports about the surface and subsurface conditions at the Site.</p> <p>(qq) Specification means the Specification of the goods/works/related services included in the Contract and any modifications or additions to the specifications made or approved by the Project Manager in accordance with the Contract.</p> <p>(rr) Start Date is the date defined in the PCC and it is the last date when the Contractor shall commence execution of the goods/works/services under the Contract.</p> <p>(ss) Subcontractor means a person or corporate body, who has a contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.</p>
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	<p>(tt) Time for Completion means the time within which Completion of the Facilities as a whole (or of a part of the Facilities where a separate Time for Completion of such part has been prescribed) is to be attained, in accordance with the relevant provisions of the Contract.</p> <p>(uu) Variation means any change to the plant and services directly procured from the original Contractor to cover increases or decreases in quantities, including the introduction of new work items that are either due to change of plans, design or alignment to suit actual field conditions, within the general scope and physical boundaries of the contract.</p> <p>(vv) Works means all works associated with the construction, reconstruction, site preparation, demolition, repair, maintenance or renovation of railways, roads, highways, or a building, an infrastructure or structure or an installation or any construction work relating to excavation, installation of equipment and materials, decoration, as well as physical services ancillary to works as detailed in the PCC, if the value of those services does not exceed that of the Works themselves.</p> <p>(ww) Writing means communication written by hand or machine duly signed and includes properly authenticated messages by facsimile or electronic mail.</p>
<p>1. Definitions 2. Interpretation</p>	<p>2.1 In interpreting the GCC, singular also means plural, male also means female or neuter, and the other way around. Headings in the GCC shall not be deemed part thereof or be taken into consideration in the interpretation or construance of the Contract. Words have their normal meaning under the language of the Contract unless specifically defined.</p> <p>2.2 Entire Agreement. The Contract constitutes the entire agreement between the Employer and the Contractor and supersedes all communications, negotiations and agreements (whether written or verbal) of parties with respect thereto made prior to the date of Contract Agreement; except those stated under GCC Sub Clause 6.1(j).</p> <p>2.3 Non waiver.</p> <p>(a) Subject to GCC Sub Clause 2.3(b), no relaxation, forbearance, delay, or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect, or restrict the rights of that party under the Contract, neither shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.</p> <p>(b) Any waiver of a party's rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being</p>

	<p>waived.</p> <p>2.4. Severability If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.</p> <p>2.5. Sectional completion If sectional completion is specified in the PCC, references in the GCC to the Works, the Completion Date, and the Intended Completion Date apply to any section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).</p>
<p>3. Communications & Notices</p> <p>3. Communications & Notices</p>	<p>3.1 Communications between Parties such as notice, request or consent required or permitted to be given or made by one party to the other pursuant to the Contract shall be in writing to the addresses specified in the PCC.</p> <p>3.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.</p> <p>3.3 A Party may change its address for notice hereunder by giving the other Party notice of such change to the address.</p>
4. Governing Law	4.1 The Contract shall be governed by and interpreted in accordance with the laws of the People's Republic of Bangladesh.
<p>4. Governing Law</p> <p>5. Governing Language</p>	<p>5.1 The Contract shall be written in English. All correspondences and documents relating to the Contract may be written in English. Supporting documents and printed literature that are part of the Contract may be in another language, provided they are accompanied by an accurate translation of the relevant passages in English, in which case, for purposes of interpretation of the Contract, such translation shall govern.</p> <p>5.2 The Contractor shall bear all costs of translation to the governing language and all risks of the accuracy of such translation.</p>
6. Documents Forming the Contract and Priority of Documents	<p>6.1 The following documents forming the Contract shall be interpreted in the following order of priority:</p> <ul style="list-style-type: none"> (a) the signed Contract Agreement (Form PG5A-8); (b) the Notification of Award (PG5A-7); (c) the completed Tender and the Appendix to the Tender; (d) the Price Schedule for Plant and Services (PG5A-3); (e) the Particular Conditions of Contract; (f) the General Conditions of Contract; (g) the Technical Specifications; (h) Personnel Information;

	<ul style="list-style-type: none"> (i) Equipment Information; (j) the Drawings; and (k) Any other document listed in the PCC forming part of the Contract.
6. Documents Forming the Contract and Priority of Documents	7.1 The parties shall enter into a Contract Agreement within twenty eight (28) days from the date of issuance of the Notification of Award (NOA). The costs of stamp duties and similar charges, if any, designated by the applicable law in connection with entry into the Contract Agreement, shall be borne by the Employer.
7. Contract Agreement	8.1 Neither the Contractor nor the Employer shall assign, in whole or in part, its obligations under the Contract; except with the Employer's prior written approval.
8. Assignment 9. Eligibility	<p>9.1 The Contractor and its Subcontractor(s) shall have the nationality of a country other than that specified in the PCC.</p> <p>9.2 All materials, equipment, plant, and supplies used by the Contractor in both permanent and temporary works and services supplied under the Contract shall have their origin in the countries except any specified in the PCC.</p>
10. Gratuities / Agency fees	10.1 No fees, gratuities, rebates, gifts, commissions or other payments, other than those included in the Contract, shall be given or received in connection with the procurement process or in the Contract execution.
10. Gratuities / Agency fees 11. Confidential Details	<p>11.1 The Employer and the Contractor shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract. Notwithstanding the above, the Contractor may furnish to its Subcontractor such documents, data, and other information it receives from the Employer to the extent required for the Subcontractor to perform its work under the Contract, in which event the Contractor shall obtain from such Subcontractor an undertaking of confidentiality similar to that imposed on the Contractor under GCC Clause 11.</p> <p>11.2 The Employer shall not use such documents, data, and other information received from the Contractor for any purposes unrelated to the Contract. Similarly, the Contractor shall not use such documents, data, and other information received from the Employer for any purpose other than the design, construction, or other work and services required for the performance of the Contract.</p> <p>11.3 The obligations of a party under GCC Sub Clauses 11.1 and 11.2 above, however, shall not apply to information that: the Employer or Contractor needs to share with institutions participating in the</p>

	<p>financing of the Contract; now or hereafter enters the public domain through no fault of that party; can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party; or otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.</p>
	<p>11.4 The above provisions of GCC Clause 11 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Works or any part thereof.</p>
	<p>11.5 The provisions of GCC Clause 11 shall survive completion or termination, for whatever reason.</p>
<p>12. Joint Venture (JV)</p>	<p>12.1 If the Contractor is a Joint Venture, Consortium, or Association (JVCA),</p> <ul style="list-style-type: none"> (a) each partner of the JV shall be jointly and severally liable for all liabilities and ethical or legal obligations to the Employer for the performance of the Contract; (b) the JV partners shall nominate a representative who shall have the authority to conduct all business including the receipt of payments for and on behalf of all partners of the JV; (c) in the event of a dispute that results in legal action against all partners of the JV, if they are available and if only one partner is available, then that partner alone shall answer on behalf of all partners and, if the complaint lodged is proven, the penalty shall be applicable on that lone partner as whatever penalty all the partners would have received. (d) the JV shall notify the Employer of its composition and legal status which shall not be altered without the prior approval of the Employer. (e) alteration of partners shall only be allowed if any of the partners is found to be incompetent or has any serious difficulties which may impact the overall implementation of the goods/works/service, whereby the incoming partner shall require to possess qualifications equal to or higher than that of the outgoing partner. (f) if any of the partners of JV has been debarred from participating in any procurement activity due to corrupt, fraudulent, collusive or coercive practices, that JV partner shall be altered following provisions under GCC Sub Clause 12.1 (d) and (e), while in case the Leading Partner has been debarred due to the same reasons stated herein the Contract shall be terminated as stated under GCC Sub Clause 67.1(b).
<p>12. Joint Venture (JV)</p>	<p>13.1 The Employer shall give possession of the Site or part(s) of the Site, to the Contractor on the date(s) stated in the PCC. If possession of a part of the Site is not given by the date stated in the PCC, the Employer will be deemed to have delayed the start of the relevant activities, and this will be a Compensation Event.</p>
<p>13. Possession of</p>	<p>14.1 The Contractor shall allow the Engineer and any person authorised by the Engineer access to the Site and to any place where work in</p>

the Site	connection with the Contract is being carried out or is intended to be carried out.
14. Access to the Site	15.1 The Contractor shall throughout the execution and completion of the Works and the remedying of any defects therein:
15. Safety, Security and Protection of the Environment	<ul style="list-style-type: none"> (a) take all reasonable steps to safeguard the health and safety of all workers working on the Site and other persons entitled to be on it, and to keep the Site in an orderly state; (b) provide and maintain at the Contractor's own cost all lights, guards, fencing, warning signs and watching for the protection of the Works or for the safety on-site; and (c) take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of the Contractor's methods of operation.
16. Working Hours	16.1 The Contractor shall not perform any work on the Site on the weekly holidays, or during the night or outside the normal working hours, or on any religious or public holiday, without the prior written approval of the Project Manager.
16. Working Hours	17.1 The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's personnel relating to their employment, health, safety, welfare, immigration and shall allow them all their legal rights.
17. Welfare of Laborers	17.2 The Contractor, in particular, shall provide proper accommodation to his or her labourers and arrange proper water supply, conservancy and sanitation arrangements at the site for all necessary hygienic requirements and for the prevention of epidemics in accordance with relevant regulations, rules and orders of the government.
	17.3 The Contractor, further in particular, shall pay reasonable wages to his or her labourers, and pay them in time. In the event of delay in payment the Employer may effect payments to the labourers and recover the cost from the Contractor.
	17.4 The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take appropriate protective measures to prevent accidents that could result in injury. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.
18. Child Labor	18.1 The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development in compliance with the applicable laws and other relevant treaties ratified by the government.
18. Child Labor	19.1 All fossils, coins, articles of value or antiquity, and structures and

<p>19. Fossils & antiquities</p>	<p>other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.</p> <p>19.2 The Contractor shall, upon discovery of any such finding, promptly give notice to the Project Manager, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs cost from complying with the instructions, the Contractor shall give a further notice to the Project Manager and shall be entitled subject to Claims under GCC Clause 71</p>
<p>20. Corrupt, Fraudulent, Collusive or Coercive Practices</p> <p>20. Corrupt, Fraudulent, Collusive or Coercive Practices</p>	<p>20.1 The Government requires that Employer, as well as the Contractor shall observe the highest standard of ethics during the implementation of procurement proceedings and the execution of the Contract.</p> <p>20.2 The Government requires that Employer, as well as the Contractor shall, during the Procurement proceedings and the execution of the Contract under public funds, ensure-</p> <ul style="list-style-type: none"> (a) strict compliance with the provisions of Section 64 of the Public Procurement Act, 2006 (b) abiding by the code of ethics as mentioned in the Rule 127 of the Public Procurement Rules, 2008; (c) that neither it, nor any other member of its staff, or any other agents or intermediaries working on its behalf engages in any such practice as detailed in GCC Sub Clause 20.2. <p>20.3 For the purposes of GCC Sub Clause 20.2, the terms set forth below as follows</p> <ul style="list-style-type: none"> (a) “corrupt practice” means offering, giving or promising to give, receiving, or soliciting either directly or indirectly, to any officer or employee of a Employer or other public or private authority or individual, a gratuity in any form; employment or any other thing or service of value as an inducement with respect to an act or decision or method followed by a Employer in connection with a Procurement proceeding or Contract execution; (b) “fraudulent practice” means the misrepresentation or omission of facts in order to influence a decision to be taken in a Procurement proceeding or Contract execution; (c) collusive practice” means a scheme or arrangement between two (2) or more Persons, with or without the knowledge of the Employer, that is designed to arbitrarily reduce the number of Tenders submitted or fix Tender prices at artificial, non-competitive levels, thereby denying a Employer the benefits of competitive price arising from genuine and open competition; or (d) “Coercive practice” means harming or threatening to harm, directly or indirectly, Persons or their property to influence a decision to be taken in the Procurement proceeding or the execution of the Contract, and this will include creating

	<p>obstructions in the normal submission process used for Tenders.</p> <p>20.4 Should any corrupt, fraudulent, collusive or coercive practice of any kind come to the knowledge of the Employer, it will, in the first place, allow the Contractor to provide an explanation and shall, take actions only when a satisfactory explanation is not received. Such decision and the reasons thereof, shall be recorded in the record of the procurement proceedings and promptly communicated to the Contractor. Any communications between the Contractor and the Employer related to matters of alleged fraud or corruption shall be in writing.</p> <p>20.5 If corrupt, fraudulent, collusive or coercive practices of any kind determined by the Employer against the Contractor alleged to have carried out such practices, the Employer will :</p> <ul style="list-style-type: none"> (a) exclude the Contractor from further participation in the particular Procurement proceeding; or (b) declare, at its discretion, the Contractor to be ineligible to participate in further Procurement proceedings, either indefinitely or for a specific period of time. <p>20.6 20.6 The Contractor shall be aware of the provisions on corruption, fraudulence, collusion and coercion in Section 64 of the Public Procurement Act, 2006 and Rule 127 of the Public Procurement Rules, 2008.</p>
<p>21. License/ Use of Technical Information</p>	<p>21.1 For the operation and maintenance of the Plant, the Contractor hereby grants a non-exclusive and non-transferable license (without the right to sub-license) to the Employer under the patents, utility models or other industrial property rights owned by the Contractor or by a third Party from whom the Contractor has received the right to grant licenses thereunder, and shall also grant to the Employer a non-exclusive and non-transferable right (without the right to sub-license) to use the know-how and other technical information disclosed to the Employer under the Contract. Nothing contained herein shall be construed as transferring ownership of any patent, utility model, trademark, design, copyright, know-how or other intellectual property right from the Contractor or any third Party to the Employer.</p> <p>21.2 The copyright in all drawings, documents and other materials containing data and information furnished to the Employer by the Contractor herein shall remain vested in the Contractor or, if they are furnished to the Employer directly or through the Contractor by any third Party, including suppliers of materials, the copyright in such materials shall remain vested in such third Party.</p>
<p>21. License/ Use of Technical Information</p>	

<p>B. Subject Matter of Contract</p> <p>22. Scope of Facilities</p>	<p>22.1 Unless otherwise expressly limited in the Employer's Requirements, the Contractor's obligations cover the provision of all Plant and the performance of all Installation Services required for the design, and the manufacture (including procurement, quality assurance, construction, installation, associated civil works, Pre Commissioning and delivery) of the Plant, and the installation, completion and commissioning of the Facilities in accordance with the plans, procedures, specifications, drawings, codes and any other documents as specified in the Section, Employer's Requirements. Such specifications include, but are not limited to, the provision of supervision and engineering services; the supply of labor, materials, equipment, spare parts and accessories; Contractor's Equipment; construction utilities and supplies; temporary materials, structures and facilities; transportation (including, without limitation, unloading and hauling to, from and at the Site); and storage, except for those supplies, works and services that will be provided or performed by the Employer, as set forth in the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer.</p>
	<p>22.2 The Contractor shall, unless specifically excluded in the Contract, perform all such work and/or supply all such items and materials not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for attaining Completion of the Facilities as if such work and/or items and materials were expressly mentioned in the Contract.</p>
	<p>22.3 In addition to the supply of Mandatory Spare Parts included in the Contract, the Contractor agrees to supply spare parts required for the operation and maintenance of the Facilities for the period specified in the PCC and the provisions, if any, specified in the PCC. However, the identity, specifications and quantities of such spare parts and the terms and conditions relating to the supply thereof are to be agreed between the Employer and the Contractor, and the price of such spare parts shall be that given in Price Schedule No.1 &2 under form PG5A-3, which shall be added to the Contract Price. The price of such spare parts shall include the purchase price therefor and other costs and expenses (including the Contractor's fees) relating to the supply of spare parts.</p>
<p>23. Time for Commencement</p>	<p>23.1 The Contractor shall attain Completion of the Facilities or of a part where a separate time for Completion of such part is specified in the Contract, within the time stated in the PCC or within such extended time to which the Contractor shall be entitled under GCC Clause 65.1 hereof.</p>
<p>23. Time for Commencement</p>	<p>24.1 The Contractor shall attain Completion of the Facilities or of a part where a separate time for Completion of such part is specified in the Contract, within the time stated in the PCC or within such extended time to which the Contractor shall be entitled under GCC Clause 65.1 hereof.</p>
<p>24. Time for</p>	<p>25.1 All information and/or data to be supplied by the Employer as described in the Appendix to the Contract Agreement titled Scope</p>

<p>Completion</p>	<p>of Works and Supply by the Employer, shall be deemed to be accurate, except when the Employer expressly states otherwise</p> <p>25.2 The Employer shall be responsible for acquiring and providing legal and physical possession of the Site and access thereto, and for providing possession of and access to all other areas reasonably required for the proper execution of the Contract, including all requisite rights of way, as specified in the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer. The Employer shall give full possession of and accord all rights of access thereto on or before the date(s) specified in that Appendix.</p> <p>25.3 The Employer shall acquire and pay for all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the Site is located which (a) such authorities or undertakings require the Employer to obtain in the Employer's name, (b) are necessary for the execution of the Contract, including those required for the performance by both the Contractor and the Employer of their respective obligations under the Contract, and (c) are specified in the Appendix (Scope of Works and Supply by the Employer).</p> <p>25.4 If requested by the Contractor, the Employer shall use its best endeavors to assist the Contractor in obtaining in a timely and expeditious manner all permits, approvals and/or licenses necessary for the execution of the Contract from all local, state or national government authorities or public service undertakings that such authorities or undertakings require the Contractor or Subcontractors or the personnel of the Contractor or Subcontractors, as the case may be, to obtain</p> <p>25.5 Unless otherwise specified in the Contract or agreed upon by the Employer and the Contractor, the Employer shall provide sufficient, properly qualified operating and maintenance personnel; shall supply and make available all raw materials, utilities, lubricants, chemicals, catalysts, other materials and facilities; and shall perform all work and services of whatsoever nature, including those required by the Contractor to properly carry out Pre Commissioning, Commissioning and Guarantee Tests, all in accordance with the provisions of the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer, at or before the time specified in the program furnished by the Contractor under the provisions of contract specified or as otherwise agreed upon by the Employer and the Contractor.</p> <p>25.6 The Employer shall be responsible for the continued operation of the Facilities after Completion, in accordance with GCC Sub-Clause 39.8, and shall be responsible for facilitating the Guarantee Test(s) for the Facilities, in accordance with GCC Sub-Clause 40.2.</p> <p>25.7 All costs and expenses involved in the performance of the obligations under this GCC Clause 25 shall be the responsibility of the Employer, save those to be incurred by the Contractor with respect to the performance of Guarantee Tests, in accordance with GCC Sub-Clause 40.2.</p> <p>25.8 In the event that the Employer shall be in breach of any of his</p>
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	obligations under this Clause, the additional cost incurred by the Contractor in consequence thereof shall be determined by the Project Manager and added to the Contract Price
25. Employer's Responsibilities	26.1 The Contractor shall design, manufacture including associated purchases and/or subcontracting, install and complete the Facilities in accordance with the Contract. When completed, the Facilities should be fit for the purposes for which they are intended as defined in the Contract.
26. Contractor's Responsibilities	26.2 The Contractor confirms that it has entered into this Contract on the basis of a proper examination of the data relating to the Facilities including any data as to boring tests provided by the Employer, and on the basis of information that the Contractor could have obtained from a visual inspection of the Site if access thereto was available and of other data readily available to it relating to the Facilities as of the date twenty-eight (28) days prior to tender submission. The Contractor acknowledges that any failure to acquaint itself with all such data and information shall not relieve its responsibility for properly estimating the difficulty or cost of successfully performing the Facilities.
	26.3 The Contractor shall acquire and pay for all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the Site is located which such authorities or undertakings require the Contractor to obtain in its name and which are necessary for the performance of the Contract, including, without limitation, visas for the Contractor's and Subcontractor's personnel and entry permits for all imported Contractor's Equipment. The Contractor shall acquire all other permits, approvals and/or licenses that are not the responsibility of the Employer under GCC Sub-Clause 25.3 hereof and that are necessary for the performance of the Contract.
27. Employer's and Contractor's Risks	27.1 The Employer carries the risks that the Contract states are Employer's risks and the Contractor carries the risks that the Contract states are Contractor's risks.
27. Employer's and Contractor's Risks 28. Employer's Risks	28.1 From the Start Date until the Defects Correction Certificate has been issued, the following are Employer's risks: (a) the risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to i. use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works or ii. negligence, breach of statutory duty, or interference with any legal right by the Employer or by any person employed by or Contracted to him except the Contractor. iii. the risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Employer or in the Employer's design, or due to war or radioactive contamination directly affecting the country

	<p style="text-align: center;">where the Works are to be executed.</p> <p>28.2 From the Completion Date until the Defects Correction Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is Employer’s risk, except loss or damage due to:</p> <ul style="list-style-type: none"> (a) a Defect which existed on the Completion Date; (b) an event occurring before the Completion Date, which was not itself Employer’s risk; or (c) the activities of the Contractor on the Site after the Completion Date.
<p>29. Contractor’s Risks</p>	<p>29.1 From the Start Date until the Defects Correction Certificate has been issued the risks of personal injury, death, and loss of or damage to property including without limitation, the Works, Plant, Materials, and Equipment, which are not Employer’s risks are Contractor’s risks.</p>
<p>29. Contractor’s Risks</p>	
<p>C. Execution of the Facilities</p> <p>30. Representatives</p>	<p>31.1 <u>Project Manager</u> If the Project Manager is not named in the Contract, then within fourteen (14) days of the Effective Date, the Employer shall appoint and notify the Contractor in writing of the name of the Project Manager. The Employer may from time to time appoint some other person as the Project Manager in place of the person previously so appointed, and shall give a notice of the name of such other person to the Contractor without delay. No such appointment shall be made at such a time or in such a manner as to impede the progress of work on the Facilities. Such appointment shall only take effect upon receipt of such notice by the Contractor. The Project Manager shall represent and act for the Employer at all times during the performance of the Contract. All notices, instructions, orders, certificates, approvals and all other communications under the Contract shall be given by the Project Manager, except as herein otherwise provided.</p> <p>All notices, instructions, information and other communications given by the Contractor to the Employer under the Contract shall be given to the Project Manager, except as herein otherwise provided.</p> <p>30.2 <u>Contractor’s Representative & Construction Manager</u></p> <p>30.2.1 If the Contractor’s Representative is not named in the Contract, then within fourteen (14) days of the Effective Date, the Contractor shall appoint the Contractor’s Representative and shall request the Employer in writing to approve the person so appointed. If the Employer makes no objection to the appointment within fourteen (14) days, the Contractor’s Representative shall be deemed to have been approved. If the Employer objects to the appointment within fourteen (14) days giving the reason therefor, then the Contractor shall appoint a replacement within fourteen (14) days of such objection, and the foregoing provisions of this GCC Sub-Clause 30.2.1 shall apply thereto.</p> <p>30.2.2 The Contractor’s Representative shall represent and act for</p>

	<p>the Contractor at all times during the performance of the Contract and shall give to the Project Manager all the Contractor's notices, instructions, information and all other communications under the Contract.</p> <p>The Contractor shall not revoke the appointment of the Contractor's Representative without the Employer's prior written consent, which shall not be unreasonably withheld. If the Employer consents thereto, the Contractor shall appoint some other person as the Contractor's Representative, pursuant to the procedure set out in GCC Sub-Clause 30.2.1.</p>
	<p>30.2.3 . The Contractor's Representative may, subject to the approval of the Employer which shall not be unreasonably withheld, at any time delegate to any person any of the powers, functions and authorities vested in him or her. Any such delegation may be revoked at any time. Any such delegation or revocation shall be subject to a prior notice signed by the Contractor's Representative, and shall specify the powers, functions and authorities thereby delegated or revoked. No such delegation or revocation shall take effect unless and until a copy thereof has been delivered to the Employer and the Project Manager.</p> <p>Any act or exercise by any person of powers, functions and authorities so delegated to him or her in accordance with this GCC Sub-Clause 30.2.3 shall be deemed to be an act or exercise by the Contractor's Representative.</p>
	<p>30.2.4 From the commencement of installation of the Facilities at the Site until Completion, the Contractor's Representative shall appoint a suitable person as the Construction Manager. The Construction Manager shall supervise all work done at the Site by the Contractor and shall be present at the Site throughout normal working hours except when on leave, sick or absent for reasons connected with the proper performance of the Contract. Whenever the Construction Manager is absent from the Site, a suitable person shall be appointed to act as the Construction Manager's deputy.</p>
	<p>30.2.5 The Employer may by notice to the Contractor object to any representative or person employed by the Contractor in the execution of the Contract who, in the reasonable opinion of the Employer, may behave inappropriately, may be incompetent or negligent, or may commit a serious breach of the Site regulations provided under GCC Sub-Clause 37.4. The Employer shall provide evidence of the same, whereupon the Contractor shall remove such person from the Facilities.</p>
	<p>30.2.6 If any representative or person employed by the Contractor is removed in accordance with GCC Sub-Clause 30.2.5, the Contractor shall, where required, promptly appoint a replacement.</p>

<p>31. Work Program 31. Work Program</p>	<p>31.1 <u>Contractor's Organization</u> The Contractor shall supply to the Employer and the Project Manager a chart showing the proposed organization to be established by the Contractor for carrying out work on the Facilities within twenty-one (21) days of the Effective Date. The chart shall include the identities of the key personnel and the curricula vitae of such key personnel to be employed shall be supplied together with the chart. The Contractor shall promptly inform the Employer and the Project Manager in writing of any revision or alteration of such an organization chart.</p>
	<p>31.2 <u>Program of Performance</u> Within twenty-eight (28) days after the Effective Date, the Contractor shall submit to the Project Manager a detailed program of performance of the Contract, made in a form acceptable to the Project Manager and showing the sequence in which it proposes to design, manufacture, transport, assemble, install and Pre Commission the Facilities, as well as the date by which the Contractor reasonably requires that the Employer shall have fulfilled its obligations under the Contract so as to enable the Contractor to execute the Contract in accordance with the program and to achieve Completion, Commissioning and Acceptance of the Facilities in accordance with the Contract. The program so submitted by the Contractor shall accord with the Time Schedule included in the Appendix to the Contract Agreement titled Time Schedule, and any other dates and periods specified in the Contract. The Contractor shall update and revise the program as and when appropriate or when required by the Project Manager, but without modification in the Times for Completion specified in the PCC pursuant to Sub-Clause 24.1 and any extension granted in accordance with GCC Clause 65.1, and shall submit all such revisions to the Project Manager.</p>
	<p>31.3 <u>Progress Report</u> The Contractor shall monitor progress of all the activities specified in the program referred to in GCC Sub-Clause 31.2 above, and supply a progress report to the Project Manager every month. The progress report shall be in a form acceptable to the Project Manager and shall indicate: (a) percentage completion achieved compared with the planned percentage completion for each activity; and (b) where any activity is behind the program, giving comments and likely consequences and stating the corrective action being taken.</p>
	<p>31.4 <u>Progress of Performance</u> If at any time the Contractor's actual progress falls behind the program referred to in GCC Sub-Clause 31.2, or it becomes apparent that it will so fall behind, the Contractor shall, at the request of the Employer or the Project Manager, prepare and submit to the Project Manager a revised program, taking into account the prevailing circumstances, and shall notify the Project Manager of the steps being taken to expedite progress so as to attain Completion of the Facilities within the Time for Completion</p>

	<p>under GCC Sub-Clause 24.1, any extension thereof entitled under GCC Sub-Clause 65.1, or any extended period as may otherwise be agreed upon between the Employer and the Contractor.</p> <p>31.5 <u>Procedures</u> The Contract shall be executed in accordance with the Contract Documents including the procedures given in the Forms and Procedures of the Employer's Requirements. The Contractor may execute the Contract in accordance with its own standard project execution plans and procedures to the extent that they do not conflict with the provisions contained in the Contract.</p>
<p>32. Subcontractor 32. Subcontractor</p>	<p>32.1 Subcontracting the whole of the Plant and Service by the Contractor shall not be permissible. The Contractor shall be responsible for the acts or defaults of any Subcontractor, his or her agents or employees, as if they were the acts or defaults of the Contractor.</p>
	<p>32.2 The Contractor shall not be required to obtain consent from the Project Manager or his representative, for suppliers solely of Materials or to a subcontract for which the Specialist Subcontractor(s) is already named in the Contract.</p>
	<p>32.3 The prior consent, in writing, of the Engineer shall however be obtained for other proposed Subcontractor(s).</p>
<p>33. Nominated Subcontractor</p>	<p>33.1 Nominated Subcontractor named in the Contract shall be entitled to execute the specific components of the Works stated in the PCC.</p>
	<p>33.2 The Contractor shall not be under obligations to employ a Nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Engineer as soon as practicable, with supporting particulars while there are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength, or does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, or does not accept to enter into a subcontract which specifies that, for the subcontracted work including design, if any, the Nominated Subcontractor shall undertake to the Contractor such obligations and liabilities as will enable the contractor to discharge his or her liabilities under the Contract.</p>
<p>33. Nominated Subcontractor</p>	<p>34.1 The Contractor shall cooperate and share the Site with other Contractors, public authorities, utilities, the Engineer and the Employer between the dates given in the Schedule of other Contractors. The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of other Contractors, and shall notify the Contractor of any such modification.</p>

<p>34. Other Contractors 35. Design and Engineering</p>	<p>35.1 <u>Specifications and Drawings</u></p> <p>35.1.1 The Contractor shall execute the basic and detailed design and the engineering work in compliance with the provisions of the Contract, or where not so specified, in accordance with good engineering practice. The Contractor shall be responsible for any discrepancies, errors or omissions in the specifications, drawings and other technical documents that it has prepared, whether such specifications, drawings and other documents have been approved by the Project Manager or not, provided that such discrepancies, errors or omissions are not because of inaccurate information furnished in writing to the Contractor by or on behalf of the Employer.</p> <p>35.1.2 The Contractor shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designated by or on behalf of the Employer, by giving a notice of such disclaimer to the Project Manager.</p> <p>35.2 <u>Codes and Standards</u></p> <p>Wherever references are made in the Contract to codes and standards in accordance with which the Contract shall be executed, the edition or the revised version of such codes and standards current at the date twenty-eight (28) days prior to date of tender submission shall apply unless otherwise specified. During Contract execution, any changes in such codes and standards shall be applied subject to approval by the Employer and shall be treated in accordance with GCC Clause 64.</p> <p>35.3. <u>Approval/Review of Technical Documents by Project Manager</u></p>
	<p>35.3.1 The Contractor shall prepare or cause its Subcontractors to prepare, and furnish to the Project Manager the documents listed in the Appendix to the Contract Agreement titled List of Documents for Approval or Review, for its approval or review as specified and in accordance with the requirements of GCC Sub-Clause 31.2 (Program of Performance).</p> <p>Any part of the Facilities covered by or related to the documents to be approved by the Project Manager shall be executed only after the Project Manager's approval thereof.</p> <p>GCC Sub-Clauses 35.3.2 through 35.3.6 shall apply to those documents requiring the Project Manager's approval, but not to those furnished to the Project Manager for its review only</p>
	<p>35.3.2 Within fourteen (14) days after receipt by the Project Manager of any document requiring the Project Manager's approval in accordance with GCC Sub-Clause 35.3.1, the Project Manager shall either return one copy thereof to the Contractor with its approval endorsed thereon or shall notify the Contractor in writing of its disapproval thereof and the reasons therefor and the modifications that the Project Manager proposes. If the Project Manager fails to take such</p>

	<p>action within the said fourteen (14) days, then the said document shall be deemed to have been approved by the Project Manager.</p> <p>35.3.3. The Project Manager shall not disapprove any document, except on the grounds that the document does not comply with the Contract or that it is contrary to good engineering practice.</p> <p>35.3.4 If the Project Manager disapproves the document, the Contractor shall modify the document and resubmit it for the Project Manager's approval in accordance with GCC Sub-Clause 35.3.2. If the Project Manager approves the document subject to modification(s), the Contractor shall make the required modification(s), whereupon the document shall be deemed to have been approved.</p> <p>35.3.5 The Project Manager's approval, with or without modification of the document furnished by the Contractor, shall not relieve the Contractor of any responsibility or liability imposed upon it by any provisions of the Contract except to the extent that any subsequent failure results from modifications required by the Project Manager.</p> <p>35.3.6 The Contractor shall not depart from any approved document unless the Contractor has first submitted to the Project Manager an amended document and obtained the Project Manager's approval thereof, pursuant to the provisions of this GCC Sub-Clause 35.3. If the Project Manager requests any change in any already approved document and/or in any document based thereon, the provisions of GCC Clause 64 shall apply to such request.</p>
<p>36. Procurement 36. Procurement</p>	<p>36.1 <u>Plant</u></p> <p>Subject to GCC Sub-Clause 60.2, the Contractor shall procure and transport all Plant in an expeditious and orderly manner to the Site.</p> <p>36.2 <u>Employer-Supplied Plant</u></p> <p>If the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer, provides that the Employer shall furnish any specific items to the Contractor, the following provisions shall apply:</p> <p>36.2.1 The Employer shall, at its own risk and expense, transport each item to the place on or near the Site as agreed upon by the Parties and make such item available to the Contractor at the time specified in the program furnished by the Contractor, pursuant to GCC Sub-Clause 31.2, unless otherwise mutually agreed.</p> <p>36.2.2 Upon receipt of such item, the Contractor shall inspect the same visually and notify the Project Manager of any detected shortage, defect or default. The Employer shall immediately remedy any shortage, defect or default, or the Contractor shall, if practicable and possible, at the request of the Employer, remedy such shortage, defect or default at the Employer's cost and expense. After inspection, such item shall fall under the care,</p>

	<p>custody and control of the Contractor. The provision of this GCC Sub-Clause 36.2.2 shall apply to any item supplied to remedy any such shortage or default or to substitute for any defective item, or shall apply to defective items that have been repaired.</p> <p>36.2.3 The foregoing responsibilities of the Contractor and its obligations of care, custody and control shall not relieve the Employer of liability for any undetected shortage, defect or default, nor place the Contractor under any liability for any such shortage, defect or default whether under GCC Clause 42 or under any other provision of Contract.</p>
	<p>36.3 <u>Transportation</u></p> <p>36.3.1 The Contractor shall at its own risk and expense transport all the materials and the Contractor's Equipment to the Site by the mode of transport that the Contractor judges most suitable under all the circumstances.</p> <p>36.3.2 Unless otherwise provided in the Contract, the Contractor shall be entitled to select any safe mode of transport operated by any person to carry the materials and the Contractor's Equipment.</p> <p>36.3.3 Upon dispatch of each shipment of materials and the Contractor's Equipment, the Contractor shall notify the Employer by telex, cable, facsimile or electronic means, of the description of the materials and of the Contractor's Equipment, the point and means of dispatch, and the estimated time and point of arrival in the country where the Site is located, if applicable, and at the Site. The Contractor shall furnish the Employer with relevant shipping documents to be agreed upon between the Parties.</p> <p>36.3.4 The Contractor shall be responsible for obtaining, if necessary, approvals from the authorities for transportation of the materials and the Contractor's Equipment to the Site. The Employer shall use its best endeavors in a timely and expeditious manner to assist the Contractor in obtaining such approvals, if requested by the Contractor. The Contractor shall indemnify and hold harmless the Employer from and against any claim for damage to roads, bridges or any other traffic facilities that may be caused by the transport of the materials and the Contractor's Equipment to the Site.</p>
	<p>36.4 <u>Customs Clearance</u></p> <p>The Contractor shall, at its own expense, handle all imported materials and Contractor's Equipment at the point(s) of import and shall handle any formalities for customs clearance, subject to the Employer's obligations under GCC Sub-Clause 60.2, provided that if applicable laws or regulations require any application or act to be made by or in the name of the Employer, the Employer shall take all necessary steps to comply with such laws or regulations. In the event of delays in customs clearance that are not the fault of the Contractor, the Contractor shall be entitled to an extension in the Time for Completion, pursuant to GCC Clause 65.</p>
<p>37. Installation 37. Installation</p>	<p>37.1 <u>Setting Out/Supervision</u></p> <p>37.1.1 Bench Mark: The Contractor shall be responsible for the true and proper setting-out of the Facilities in relation to bench</p>

marks, reference marks and lines provided to it in writing by or on behalf of the Employer.

If, at any time during the progress of installation of the Facilities, any error shall appear in the position, level or alignment of the Facilities, the Contractor shall forthwith notify the Project Manager of such error and, at its own expense, immediately rectify such error to the reasonable satisfaction of the Project Manager. If such error is based on incorrect data provided in writing by or on behalf of the Employer, the expense of rectifying the same shall be borne by the Employer.

37.1.2 Contractor's Supervision: The Contractor shall give or provide all necessary superintendence during the installation of the Facilities, and the Construction Manager or its deputy shall be constantly on the Site to provide full-time superintendence of the installation. The Contractor shall provide and employ only technical personnel who are skilled and experienced in their respective callings and supervisory staff who are competent to adequately supervise the work at hand.

37.2 Labor:

37.2.1 Engagement of Staff and Labor

(a) Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labor, local or otherwise, and for their payment, housing, feeding and transport.

(b) The Contractor shall provide and employ on the Site in the installation of the Facilities such skilled, semi-skilled and unskilled labor as is necessary for the proper and timely execution of the Contract. The Contractor is encouraged to use local labor that has the necessary skills.

(c) The Contractor shall be responsible for obtaining all necessary permit(s) and/or visa(s) from the appropriate authorities for the entry of all labor and personnel to be employed on the Site into the country where the Site is located. The Employer will, if requested by the Contractor, use his best endeavors in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national or government permission required for bringing in the Contractor's personnel.

(d) The Contractor shall at its own expense provide the means of repatriation to all of its and its Subcontractor's personnel employed on the Contract at the Site to the place where they were recruited or to their domicile. It shall also provide suitable temporary maintenance of all such persons from the cessation of their employment on the Contract to the date programmed for their departure. In the event that the Contractor defaults in providing such means of transportation and temporary maintenance, the Employer may provide the same to such personnel and recover the cost of doing so

from the Contractor.

37.2.2 Persons in the Service of Employer

The Contractor shall not recruit, or attempt to recruit, staff and labor from amongst the Employer's Personnel.

37.2.3 Facilities for Staff and Labor

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Specification.

The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works

37.3 Contractor's Equipment

37.3.1 All Contractor's Equipment brought by the Contractor onto the Site shall be deemed to be intended to be used exclusively for the execution of the Contract. The Contractor shall not remove the same from the Site without the Project Manager's consent that such Contractor's Equipment is no longer required for the execution of the Contract.

37.3.2 Unless otherwise specified in the Contract, upon completion of the Facilities, the Contractor shall remove from the Site all Equipment brought by the Contractor onto the Site and any surplus materials remaining thereon.

37.3.3 The Employer will, if requested, use its best endeavors to assist the Contractor in obtaining any local, state or national government permission required by the Contractor for the export of the Contractor's Equipment imported by the Contractor for use in the execution of the Contract that is no longer required for the execution of the Contract.

37.4 Site Regulations and Safety

The Employer and the Contractor shall establish Site regulations setting out the rules to be observed in the execution of the Contract at the Site and shall comply therewith. The Contractor shall prepare and submit to the Employer, with a copy to the Project Manager, proposed Site regulations for the Employer's approval, which approval shall not be unreasonably withheld.

Such Site regulations shall include, but shall not be limited to, rules in respect of security, safety of the Facilities, gate control, sanitation, medical care, and fire prevention. reasonable costs incurred by the Employer in connection therewith shall be paid by the Contractor to the Employer. Otherwise, the cost of such remedial work shall be borne by the Employer.

37.5 Site Clearance

37.5.1 Site Clearance in Course of Performance: In the course of carrying out the Contract, the Contractor shall keep the Site reasonably free from all unnecessary obstruction, store or remove any surplus materials, clear away any wreckage, rubbish or temporary works from the Site, and remove any Contractor's Equipment no longer required for execution of the Contract

37.6 Opportunities for Other Contractors

37.6.1 The Contractor shall, upon written request from the Employer or the Project Manager, give all reasonable opportunities for carrying out the work to any other contractors employed by the Employer on or near the Site.

37.6.2 If the Contractor, upon written request from the Employer or the Project Manager, makes available to other contractors any roads or ways the maintenance for which the Contractor is responsible, permits the use by such other contractors of the Contractor's Equipment, or provides any other service of whatsoever nature for such other contractors, the Employer shall fully compensate the Contractor for any loss or damage caused or occasioned by such other contractors in respect of any such use or service, and shall pay to the Contractor reasonable remuneration for the use of such equipment or the provision of such services.

37.7 Emergency Work

37.7.1 If, by reason of an emergency arising in connection with and during the execution of the Contract, any protective or remedial work is necessary as a matter of urgency to prevent damage to the Facilities, the Contractor shall immediately carry out such work.

If the Contractor is unable or unwilling to do such work immediately, the Employer may do or cause such work to be done as the Employer may determine is necessary in order to prevent damage to the Facilities. In such event the Employer shall, as soon as practicable after the occurrence of any such emergency, notify the Contractor in writing of such emergency, the work done and the reasons therefor. If the work done or caused to be done by the Employer is work that the Contractor was liable to do at its own expense under the Contract.

37.7.2 Clearance of Site after Completion: After Completion of all parts of the Facilities, the Contractor shall clear away and remove all wreckage, rubbish and debris of any kind from the Site, and shall leave the Site and Facilities in a clean and safe condition.

37.8 Watching and Lighting

The Contractor shall provide and maintain at its own expense all lighting, fencing, and watching when and where necessary for the proper execution and the protection of the Facilities, or for the safety of the owners and occupiers of adjacent property and for the safety of the public.

38. Test & Inspection	38.1	The Contractor shall at its own expense carry out at the place of manufacture and/or on the Site all such tests and/or inspections of the Plant and any part of the Facilities as are specified in the Contract.
	38.2	The Employer and the Project Manager or their designated representatives shall be entitled to attend the aforesaid test and/or inspection, provided that the Employer shall bear all costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and board and lodging expenses.
	38.3	38.3 Whenever the Contractor is ready to carry out any such test and/or inspection, the Contractor shall give a reasonable advance notice of such test and/or inspection and of the place and time thereof to the Project Manager. The Contractor shall obtain from any relevant third Party or manufacturer any necessary permission or consent to enable the Employer and the Project Manager or their designated representatives to attend the test and/or inspection.
	38.4	The Contractor shall provide the Project Manager with a certified report of the results of any such test and/or inspection. If the Employer or Project Manager or their designated representatives fails to attend the test and/or inspection, or if it is agreed between the Parties that such persons shall not do so, then the Contractor may proceed with the test and/or inspection in the absence of such persons, and may provide the Project Manager with a certified report of the results thereof.
	38.5	38.5 The Project Manager may require the Contractor to carry out any test and/or inspection not required by the Contract, provided that the Contractor's reasonable costs and expenses incurred in the carrying out of such test and/or inspection shall be added to the Contract Price. Further, if such test and/or inspection impede the progress of work on the Facilities and/or the Contractor's performance of its other obligations under the Contract, due allowance will be made in respect of the Time for Completion and the other obligations so affected.
	38.6	If any Plant or any part of the Facilities fails to pass any test and/or inspection, the Contractor shall either rectify or replace such Plant or part of the Facilities and shall repeat the test and/or inspection upon giving a notice under GCC Sub-Clause 38.3.
	38.7	If any dispute or difference of opinion shall arise between the Parties in connection with or arising out of the test and/or inspection of the Plant or part of the Facilities that cannot be settled between the Parties within a reasonable period of time, it may be referred to an 72.2.

	<p>38.8 The Contractor shall afford the Employer and the Project Manager, at the Employer's expense, access at any reasonable time to any place where the Plant are being manufactured or the Facilities are being installed, in order to inspect the progress and the manner of manufacture or installation, provided that the Project Manager shall give the Contractor a reasonable prior notice.</p> <p>38.9 The Contractor agrees that neither the execution of a test and/or inspection of Plant or any part of the Facilities, nor the attendance by the Employer or the Project Manager, nor the issue of any test certificate pursuant to GCC Sub-Clause 38.4, shall release the Contractor from any other responsibilities under the Contract.</p> <p>38.10 39.10 No part of the Facilities or foundations shall be covered up on the Site without the Contractor carrying out any test and/or inspection required under the Contract. The Contractor shall give a reasonable notice to the Project Manager whenever any such parts of the Facilities or foundations are ready or about to be ready for test and/or inspection; such test and/or inspection and notice thereof shall be subject to the requirements of the Contract.</p> <p>38.11 The Contractor shall uncover any part of the Facilities or foundations, or shall make openings in or through the same as the Project Manager may from time to time require at the Site, and shall reinstate and make good such part or parts.</p> <p>38.12 If any parts of the Facilities or foundations have been covered up at the Site after compliance with the requirement of GCC Sub-Clause 38.10 and are found to be executed in accordance with the Contract, the expenses of uncovering, making openings in or through, reinstating, and making good the same shall be borne by the Employer, and the Time for Completion shall be reasonably adjusted to the extent that the Contractor has thereby been delayed or impeded in the performance of any of its obligations under the Contract.</p>
<p>39. Completion of the Facilities 39. Completion of the Facilities</p>	<p>39.1 As soon as the Facilities or any part thereof has, in the opinion of the Contractor, been completed operationally and structurally and put in a tight and clean condition as specified in the Employer's Requirements, excluding minor items not materially affecting the operation or safety of the Facilities, the Contractor shall so notify the Employer in writing.</p> <p>39.2 Within seven (7) days after receipt of the notice from the Contractor under GCC Sub-Clause 39.1, the Employer shall supply the operating and maintenance personnel specified in the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer for Pre Commissioning of the Facilities or any part thereof.</p> <p>Pursuant to the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer, the Employer shall also provide, within the said seven (7) day period, the raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters required for Pre Commissioning of the Facilities or any part thereof.</p>

	<p>39.3 As soon as reasonably practicable after the operating and maintenance personnel have been supplied by the Employer and the raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters have been provided by the Employer in accordance with GCC Sub-Clause 39.2, the Contractor shall commence Pre-commissioning of the Facilities or the relevant part thereof in preparation for Commissioning, subject to GCC Sub-Clause 40.5.</p> <p>39.4 As soon as all works in respect of Pre-commissioning are completed and, in the opinion of the Contractor, the Facilities or</p>
	<p>39.5 The Project Manager shall, within fourteen (14) days after receipt of the Contractor's notice under GCC Sub-Clause 39.4, either issue a Completion Certificate in the form specified in the Employer's Requirements (Forms and Procedures), stating that the Facilities or that part thereof have reached Completion as of the date of the Contractor's notice under GCC Sub-Clause 39.4, or notify the Contractor in writing of any defects and/or deficiencies.</p> <p>If the Project Manager notifies the Contractor of any defects and/or deficiencies, the Contractor shall then correct such defects and/or deficiencies, and shall repeat the procedure described in GCC Sub-Clause 39.4.</p>
	<p>39.6 If the Project Manager is satisfied that the Facilities or that part thereof have reached Completion, the Project Manager shall, within seven (7) days after receipt of the Contractor's repeated notice, issue a Completion Certificate stating that the Facilities or that part thereof have reached Completion as of the date of the Contractor's repeated notice.</p> <p>39.7 If the Project Manager is not so satisfied, then it shall notify the Contractor in writing of any defects and/or deficiencies within seven (7) days after receipt of the Contractor's repeated notice, and the above procedure shall be repeated.</p>
	<p>39.8 If the Project Manager fails to issue the Completion Certificate and fails to inform the Contractor of any defects and/or deficiencies within fourteen (14) days after receipt of the Contractor's notice under GCC Sub-Clause 39.4 or within seven (7) days after receipt of the Contractor's repeated notice under GCC Sub-Clause 39.5, or if the Employer makes use of the Facilities or part thereof, then the Facilities or that part thereof shall be deemed to have reached Completion as of the date of the Contractor's notice or repeated notice, or as of the Employer's use of the Facilities, as the case may be.</p> <p>39.9 As soon as possible after Completion, the Contractor shall complete all outstanding minor items so that the Facilities are fully in accordance with the requirements of the Contract, failing which the Employer will undertake such completion and deduct the costs thereof from any monies owing to the Contractor.</p> <p>39.10 Upon Completion, the Employer shall be responsible for the care and custody of the Facilities or the relevant part thereof, together with the risk of loss or damage thereto, and shall thereafter take over the Facilities or the relevant part thereof.</p>

<p>40. Commissioning and Operational Acceptance</p>	<p>40.1 Commissioning</p> <p>40.1.1 Commissioning of the Facilities or any part thereof shall be commenced by the Contractor immediately after issue of the Completion Certificate by the Project Manager, pursuant to GCC Sub-Clause 39.5, or immediately after the date of the deemed Completion, under GCC Sub-Clause 39.6.</p> <p>40.1.2 The Employer shall supply the operating and maintenance personnel and all raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters required for Commissioning.</p> <p>40.1.3 In accordance with the requirements of the Contract, the Contractor's and Project Manager's advisory personnel shall attend the Commissioning, including the Guarantee Test, and shall advise and assist the Employer.</p>
	<p>40.2 Guarantee Test</p> <p>40.2.1 Subject to GCC Sub-Clause 40.5, the Guarantee Test and repeats thereof shall be conducted by the Contractor during Commissioning of the Facilities or the relevant part thereof to ascertain whether the Facilities or the relevant part can attain the Functional Guarantees specified in the Appendix to the Contract Agreement titled Functional Guarantees. The Employer shall promptly provide the Contractor with such information as the Contractor may reasonably require in relation to the conduct and results of the Guarantee Test and any repeats thereof.</p> <p>40.2.2 If for reasons not attributable to the Contractor, the Guarantee Test of the Facilities or the relevant part thereof cannot be successfully completed within the period from the date of Completion specified in the PCC or any other period agreed upon by the Employer and the Contractor, the Contractor shall be deemed to have fulfilled its obligations with respect to the Functional Guarantees, and GCC Sub-Clauses 43.2 and 43.3 shall not apply.</p> <p>40.3 Operational Acceptance</p> <p>40.3.2 At any time after any of the events set out in GCC Sub-Clause 40.3.1 have occurred, the Contractor may give a notice to the Project Manager requesting the issue of an Operational Acceptance Certificate in the form provided in the Employer's Requirements (Forms and Procedures) in respect of the Facilities or the part thereof specified in such notice as of the date of such notice.</p> <p>40.3.3 The Project Manager shall, after consultation with the Employer, and within seven (7) days after receipt of the Contractor's notice, issue an Operational Acceptance Certificate.</p>

	<p>40.3.4 If within seven (7) days after receipt of the Contractor's notice, the Project Manager fails to issue the Operational Acceptance Certificate or fails to inform the Contractor in writing of the justifiable reasons why the Project Manager has not issued the Operational Acceptance Certificate, the Facilities or the relevant part thereof shall be deemed to have been accepted as of the date of the Contractor's said notice.</p>
	<p>40.4 <u>Partial Acceptance</u></p> <p>40.4.1 If the Contract specifies that Completion and Commissioning shall be carried out in respect of parts of the Facilities, the provisions relating to Completion and Commissioning including the Guarantee Test shall apply to each such part of the Facilities individually, and the Operational Acceptance Certificate shall be issued accordingly for each such part of the Facilities.</p> <p>40.4.2 If a part of the Facilities comprises facilities such as buildings, for which no Commissioning or Guarantee Test is required, then the Project Manager shall issue the Operational Acceptance Certificate for such facility when it attains Completion, provided that the Contractor shall thereafter complete any outstanding minor items that are listed in the Operational Acceptance Certificate</p> <p>40.5 <u>Delayed Pre-commissioning and/or Guarantee Test</u></p> <p>40.5.1 In the event that the Contractor is unable to proceed with the Pre-commissioning of the Facilities pursuant to Sub-Clause 39.3, or with the Guarantee Test pursuant to Sub-Clause 40.2, for reasons attributable to the Employer either on account of non-availability of other facilities under the responsibilities of other contractor(s), or for reasons beyond the Contractor's control, the provisions leading to "deemed" completion of activities such as Completion, pursuant to GCC Sub-Clause 39.6, and Operational Acceptance, pursuant to GCC Sub-Clause 40.3.4, and Contractor's obligations regarding Defect Liability Period, pursuant to GCC Sub-Clause 42.2, Functional Guarantee, pursuant to GCC Clause 43, and Care of Facilities, pursuant to GCC Clause 48, and GCC Clause 66.1, Suspension, shall not apply. In this case, the following provisions shall apply.</p> <p>40.5.2 When the Contractor is notified by the Project Manager that he will be unable to proceed with the activities and obligations pursuant to clauses 58 & 59, the Contractor shall be entitled to the following:</p>

	<p>(a) the Time of Completion shall be extended for the period of suspension without imposition of liquidated damages pursuant to GCC Sub-Clause 41.2;</p> <p>(b) payments due to the Contractor in accordance with the provision specified in the Appendix to the Contract Agreement titled Terms and Procedures of Payment, which would not have been payable in normal circumstances due to non-completion of the subject activities, shall be released to the Contractor against submission of a security in the form of a bank guarantee of equivalent amount acceptable to the Employer, and which shall become null and void when the Contractor will have complied with its obligations regarding those payments, subject to the provision of Sub-Clause 40.5.3 below;</p> <p>(c) the expenses towards the above security and extension of other securities under the contract, of which validity needs to be extended, shall be reimbursed to the Contractor by the Employer;</p> <p>(d) the additional charges towards the care of the Facilities pursuant to GCC Sub-Clause 48.1 shall be reimbursed to the Contractor by the Employer for the period between the notification mentioned above and the notification mentioned in Sub-Clause 40.5.4 below. The provision of GCC Sub-Clause 49.2 shall apply to the Facilities during the same period.</p> <p>40.5.3 In the event that the period of suspension under above Sub-Clause 40.5.1 actually exceeds one hundred eighty (180) days, the Employer and Contractor shall mutually agree to any additional compensation payable to the Contractor.</p> <p>40.5.4 When the Contractor is notified by the Project Manager that the plant is ready for Pre-commissioning, the Contractor shall proceed without delay in performing Pre-commissioning, in accordance with Clause 39.</p>
D. Guarantees and Liabilities	
<p>D. Guarantees and Liabilities</p> <p>41. Completion Time Guarantee</p>	<p>41.1 The Contractor guarantees that it shall attain Completion of the Facilities (or a part for which a separate time for completion is specified) within the Time for Completion specified in the PCC pursuant to GCC Sub-Clause 24.1, or within such extended time to which the Contractor shall be entitled under GCC Clause 65 hereof</p> <p>41.2 If the Contractor fails to attain Completion of the Facilities or any part thereof within the Time for Completion or any extension thereof under GCC Clause 65, the Contractor shall pay to the Employer liquidated damages in the amount specified in the PCC as a percentage rate of the Contract Price or the relevant part thereof. The aggregate amount of such liquidated damages shall in no event exceed the amount specified as "Maximum" in the PCC as a percentage rate of the Contract Price. Once the "Maximum" is reached, the Employer may consider termination of the Contract,</p>

	<p>pursuant to GCC Sub-Clause 67.2.2.</p> <p>Such payment shall completely satisfy the Contractor’s obligation to attain Completion of the Facilities or the relevant part thereof within the Time for Completion or any extension thereof under GCC Clause 65. The Contractor shall have no further liability whatsoever to the Employer in respect thereof.</p> <p>However, the payment of liquidated damages shall not in any way relieve the Contractor from any of its obligations to complete the Facilities or from any other obligations and liabilities of the Contractor under the Contract.</p> <p>Save for liquidated damages payable under this GCC Sub-Clause 41.2, the failure by the Contractor to attain any milestone or other act, matter or thing by any date specified in the Appendix to the Contract Agreement titled Time Schedule, and/or other program of work prepared pursuant to GCC Sub-Clause 31.2 shall not render the Contractor liable for any loss or damage thereby suffered by the Employer..</p> <p>41.3 If the Contractor attains Completion of the Facilities or any part thereof before the Time for Completion or any extension thereof under GCC Clause 65, the Employer shall pay to the Contractor a bonus in the amount specified in the PCC. The aggregate amount of such bonus shall in no event exceed the amount specified as “Maximum” in the PCC.</p>
<p>42. Defect Liability 42. Defect Liability</p>	<p>42.1 The Contractor warrants that the Facilities or any part thereof shall be free from defects in the design, engineering, materials and workmanship of the Plant supplied and of the work executed.</p> <p>42.2 The Defect Liability Period shall be five hundred and forty (540) days from the date of Completion of the Facilities (or any part thereof) or one year from the date of Operational Acceptance of the Facilities (or any part thereof), whichever first occurs, unless specified otherwise in the PCC pursuant to GCC Sub-Clause 42.10.</p> <p>If during the Defect Liability Period any defect should be found in the design, engineering, materials and workmanship of the Plant supplied or of the work executed by the Contractor, the Contractor shall promptly, in consultation and agreement with the Employer regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good as the Contractor shall determine at its discretion, such defect as well as any damage to the Facilities caused by such defect. The Contractor shall not be responsible for the repair, replacement or making good of any defect or of any damage to the Facilities arising out of or resulting from any of the following causes:</p> <ul style="list-style-type: none"> (a) improper operation or maintenance of the Facilities by the Employer; (b) operation of the Facilities outside specifications provided in the Contract; or (c) Normal wear and tear. <p>42.3 The Contractor’s obligations under this GCC Clause 42 shall not</p>

	<p>apply to:</p> <ul style="list-style-type: none"> (a) any materials that are supplied by the Employer under GCC Sub-Clause 36.2, are normally consumed in operation, or have a normal life shorter than the Defect Liability Period stated herein; (b) any designs, specifications or other data designed, supplied or specified by or on behalf of the Employer or any matters for which the Contractor has disclaimed responsibility herein; or (c) Any other materials supplied or any other work executed by or on behalf of the Employer, except for the work executed by the Employer under GCC Sub-Clause 42.7.
	<p>42.4 The Employer shall give the Contractor a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The Employer shall afford all reasonable opportunity for the Contractor to inspect any such defect.</p>
	<p>42.5 The Employer shall afford the Contractor all necessary access to the Facilities and the Site to enable the Contractor to perform its obligations under this GCC Clause 42.</p> <p>The Contractor may, with the consent of the Employer, remove from the Site any Plant or any part of the Facilities that are defective if the nature of the defect, and/or any damage to the Facilities caused by the defect, is such that repairs cannot be expeditiously carried out at the Site.</p>
	<p>42.6 If the repair, replacement or making good is of such a character that it may affect the efficiency of the Facilities or any part thereof, the Employer may give to the Contractor a notice requiring that tests of the defective part of the Facilities shall be made by the Contractor immediately upon completion of such remedial work, whereupon the Contractor shall carry out such tests.</p> <p>If such part fails the tests, the Contractor shall carry out further repair, replacement or making good, as the case may be, until that part of the Facilities passes such tests. The tests shall be agreed upon by the Employer and the Contractor.</p>
	<p>42.7 If the Contractor fails to commence the work necessary to remedy such defect or any damage to the Facilities caused by such defect within a reasonable time (which shall in no event be considered to be less than fifteen (15) days), the Employer may, following notice to the Contractor, proceed to do such work, and the reasonable costs incurred by the Employer in connection therewith shall be paid to the Employer by the Contractor or may be deducted by the Employer from any monies due the Contractor or claimed under the Performance Security.</p>
	<p>42.8 If the Facilities or any part thereof cannot be used by reason of such defect and/or making good of such defect, the Defect Liability Period of the Facilities or such part, as the case may be, shall be extended by a period equal to the period during which the Facilities or such part cannot be used by the Employer because of any of the aforesaid reasons.</p>

	<p>42.9 Except as provided in GCC Clauses 42 and 49, the Contractor shall be under no liability whatsoever and howsoever arising, and whether under the Contract or at law, in respect of defects in the Facilities or any part thereof, the Plant, design or engineering or work executed that appear after Completion of the Facilities or any part thereof, except where such defects are the result of the gross negligence, fraud, or criminal or willful action of the Contractor.</p>
	<p>42.10 In addition, any such component of the Facilities, and during the period of time as may be specified in the PCC, shall be subject to an extended defect liability period. Such obligation of the Contractor shall be in addition to the defect liability period specified under GCC Sub-Clause 42.2.</p>
<p>43. Functional Guarantees 43. Functional Guarantees</p>	<p>43.1 The Contractor guarantees that during the Guarantee Test, the Facilities and all parts thereof shall attain the Functional Guarantees specified in the Appendix to the Contract Agreement titled Functional Guarantees, subject to and upon the conditions therein specified.</p> <p>43.2 If, for reasons attributable to the Contractor, the minimum level of the Functional Guarantees specified in the Appendix to the Contract Agreement titled Functional Guarantees, are not met either in whole or in part, the Contractor shall at its cost and expense make such changes, modifications and/or additions to the Plant or any part thereof as may be necessary to meet at least the minimum level of such Guarantees. The Contractor shall notify the Employer upon completion of the necessary changes, modifications and/or additions, and shall request the Employer to repeat the Guarantee Test until the minimum level of the Guarantees has been met. If the Contractor eventually fails to meet the minimum level of Functional Guarantees, the Employer may consider termination of the Contract, pursuant to GCC Sub-Clause 64.2.2.</p> <p>43.3 If, for reasons attributable to the Contractor, the Functional Guarantees specified in the Appendix to the Contract Agreement titled Functional Guarantees, are not attained either in whole or in part, but the minimum level of the Functional Guarantees specified in the said Appendix to the Contract Agreement is met, the Contractor shall, at the Contractor's option, either</p> <ul style="list-style-type: none"> (a) make such changes, modifications and/or additions to the Facilities or any part thereof that are necessary to attain the Functional Guarantees at its cost and expense, and shall request the Employer to repeat the Guarantee Test or (b) pay liquidated damages to the Employer in respect of the failure to meet the Functional Guarantees in accordance with the provisions in the Appendix to the Contract Agreement titled Functional Guarantees. <p>43.4 The payment of liquidated damages under GCC Sub-Clause 43.3, up to the limitation of liability specified in the Appendix to the Contract Agreement titled Functional Guarantees, shall completely satisfy the Contractor's guarantees under GCC Sub-Clause 43.3, and the Contractor shall have no further liability whatsoever to the Employer in respect thereof. Upon the payment of such liquidated</p>

	<p>damages by the Contractor, the Project Manager shall issue the Operational Acceptance Certificate for the Facilities or any part thereof in respect of which the liquidated damages have been so paid.</p>
<p>44. Patent Indemnity</p>	<p>44.1 The Contractor shall, subject to the Employer's compliance with GCC Sub-Clause 44.2, indemnify and hold harmless the Employer and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Employer may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Contract by reason of: (a) the installation of the Facilities by the Contractor or the use of the Facilities in the country where the Site is located; and (b) the sale of the products produced by the Facilities in any country.</p> <p>Such indemnity shall not cover any use of the Facilities or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, any infringement resulting from the use of the Facilities or any part thereof, or any products produced thereby in association or combination with any other equipment, plant or materials not supplied by the Contractor, pursuant to the Contract Agreement.</p> <p>44.2 If any proceedings are brought or any claim is made against the Employer arising out of the matters referred to in GCC Sub-Clause 29.1, the Employer shall promptly give the Contractor a notice thereof, and the Contractor may at its own expense and in the Employer's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.</p> <p>If the Contractor fails to notify the Employer within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Employer shall be free to conduct the same on its own behalf. Unless the Contractor has so failed to notify the Employer within the twenty-eight (28) day period, the Employer shall make no admission that may be prejudicial to the defense of any such proceedings or claim.</p> <p>The Employer shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.</p> <p>44.3 The Employer shall indemnify and hold harmless the Contractor and its employees, officers and Subcontractors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Contractor may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials</p>

	provided or designed by or on behalf of the Employer.
44. Patent Indemnity	<p>45.1 Except in cases of criminal negligence or willful misconduct,</p> <p>(a) neither Party shall be liable to the other Party, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, which may be suffered by the other Party in connection with the Contract, other than specifically provided as any obligation of the Party in the Contract, and</p> <p>(b) the aggregate liability of the Contractor to the Employer, whether under the Contract, in tort or otherwise, shall not exceed the amount resulting from the application of the multiplier specified in the PCC, to the Contract Price or, if a multiplier is not so specified, the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the Contractor to indemnify the Employer with respect to patent infringement..</p>
45. Limitation of Liability	
E. Risk Distribution 46. Transfer of Ownership	<p>46.1 Ownership of the Plant (including spare parts) to be imported into the country where the Site is located shall be transferred to the Employer upon loading on to the mode of transport to be used to convey the Plant from the country of origin to that country.</p> <p>46.2 Ownership of the Plant (including spare parts) procured in the country where the Site is located shall be transferred to the Employer when the Plant are brought on to the Site.</p> <p>46.3 Ownership of the Contractor's Equipment used by the Contractor and its Subcontractors in connection with the Contract shall remain with the Contractor or its Subcontractors.</p> <p>46.4 Ownership of any Plant in excess of the requirements for the Facilities shall revert to the Contractor upon Completion of the Facilities or at such earlier time when the Employer and the Contractor agree that the Plant in question are no longer required for the Facilities.</p> <p>46.5 Notwithstanding the transfer of ownership of the Plant, the responsibility for care and custody thereof together with the risk of loss or damage thereto shall remain with the Contractor pursuant to GCC Clause 32 (Care of Facilities) hereof until Completion of the Facilities or the part thereof in which such Plant are incorporated.</p>
47. Care of Facilities 47. Care of Facilities	<p>47.1 The Contractor shall be responsible for the care and custody of the Facilities or any part thereof until the date of Completion of the Facilities pursuant to GCC Clause 39 or, where the Contract provides for Completion of the Facilities in parts, until the date of Completion of the relevant part, and shall make good at its own cost any loss or damage that may occur to the Facilities or the relevant part thereof from any cause whatsoever during such period. The Contractor shall also be responsible for any loss or damage to the Facilities caused by the Contractor or its Subcontractors in the course of any work carried out, pursuant to GCC Clause 42. Notwithstanding the foregoing, the Contractor shall not be liable for any loss or damage to the Facilities or that part thereof caused by reason of any of the matters specified or</p>

	referred to in paragraphs (a), (b) and (c) of GCC Sub-Clauses 48.2.
	<p>47.2 If any loss or damage occurs to the Facilities or any part thereof or to the Contractor's temporary facilities by reason of</p> <p>(a) insofar as they relate to the country where the Site is located, nuclear reaction, nuclear radiation, radioactive contamination, pressure wave caused by aircraft or other aerial objects, or any other occurrences that an experienced contractor could not reasonably foresee, or if reasonably foreseeable could not reasonably make provision for or insure against, insofar as such risks are not normally insurable on the insurance market and are mentioned in the general exclusions of the policy of insurance, including War Risks and Political Risks, taken out under GCC Clause 34 hereof; or</p> <p>(b) any use or occupation by the Employer or any third Party other than a Subcontractor, authorized by the Employer of any part of the Facilities; or</p> <p>(c) any use of or reliance upon any design, data or specification provided or designated by or on behalf of the Employer, or any such matter for which the Contractor has disclaimed responsibility herein,</p>
	<p>47.3 the Employer shall pay to the Contractor all sums payable in respect of the Facilities executed, notwithstanding that the same be lost, destroyed or damaged, and will pay to the Contractor the replacement value of all temporary facilities and all parts thereof lost, destroyed or damaged. If the Employer requests the Contractor in writing to make good any loss or damage to the Facilities thereby occasioned, the Contractor shall make good the same at the cost of the Employer in accordance with GCC Clause 64. If the Employer does not request the Contractor in writing to make good any loss or damage to the Facilities thereby occasioned, the Employer shall either request a change in accordance with GCC Clause 64, excluding the performance of that part of the Facilities thereby lost, destroyed or damaged, or, where the loss or damage affects a substantial part of the Facilities, the Employer shall terminate the Contract pursuant to GCC Sub-Clause 66.1 hereof.</p> <p>47.4 The Contractor shall be liable for any loss of or damage to any Contractor's Equipment, or any other property of the Contractor used or intended to be used for purposes of the Facilities, except (i) as mentioned in GCC Sub-Clause 42.2 with respect to the Contractor's temporary facilities, and (ii) where such loss or damage arises by reason of any of the matters specified in GCC Sub-Clauses 47.2 (b) and (c).</p>
<p>48. Loss of or Damage to Property; Accident or Injury to Workers;</p>	<p>48.1 Subject to GCC Sub-Clause 48.3, the Contractor shall indemnify and hold harmless the Employer and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, in respect of the death or injury of any person or loss of or damage to any property other than the Facilities whether accepted or not, arising in connection with the supply and</p>

<p>Indemnification</p> <p>48. Loss of or Damage to Property; Accident or Injury to Workers; Indemnification</p>	<p>installation of the Facilities and by reason of the negligence of the Contractor or its Subcontractors, or their employees, officers or agents, except any injury, death or property damage caused by the negligence of the Employer, its contractors, employees, officers or agents.</p> <p>48.2 If any proceedings are brought or any claim is made against the Employer that might subject the Contractor to liability under GCC Sub-Clause 48.1, the Employer shall promptly give the Contractor a notice thereof and the Contractor may at its own expense and in the Employer's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.</p> <p>48.3 If the Contractor fails to notify the Employer within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Employer shall be free to conduct the same on its own behalf. Unless the Contractor has so failed to notify the Employer within the twenty-eight (28) day period, the Employer shall make no admission that may be prejudicial to the defense of any such proceedings or claim.</p> <p>The Employer shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.</p> <p>48.4 The Employer shall indemnify and hold harmless the Contractor and its employees, officers and Subcontractors from any liability for loss of or damage to property of the Employer, other than the Facilities not yet taken over, that is caused by fire, explosion or any other perils, in excess of the amount recoverable from insurances procured under GCC Clause 49, provided that such fire, explosion or other perils were not caused by any act or failure of the Contractor.</p> <p>48.5 The Party entitled to the benefit of an indemnity under this GCC Clause 48 shall take all reasonable measures to mitigate any loss or damage which has occurred. If the Party fails to take such measures, the other Party's liabilities shall be correspondingly reduced.</p>
<p>49. Insurance</p>	<p>49.1 To the extent specified in the Appendix to the Contract Agreement titled Insurance Requirements, the Contractor shall at its expense take out and maintain in effect, or cause to be taken out and maintained in effect, during the performance of the Contract, the insurances set forth below in the sums and with the deductibles and other conditions specified in the said Appendix. The identity of the insurers and the form of the policies shall be subject to the approval of the Employer, who should not unreasonably withhold such approval.</p> <p>(a) Cargo Insurance During Transport</p> <p>Covering loss or damage occurring while in transit from the Contractor's or Subcontractor's works or stores until arrival at the Site, to the Plant (including spare parts therefor) and to the Contractor's Equipment.</p>

	<p>(b) <u>Installation All Risks Insurance</u> Covering physical loss or damage to the Facilities at the Site, occurring prior to Completion of the Facilities, with extended maintenance coverage for the Contractor's liability in respect of any loss or damage occurring during the Defect Liability Period while the Contractor is on the Site for the purpose of performing its obligations during the Defect Liability Period.</p> <p>(c) <u>Third Party Liability Insurance</u> Covering bodily injury or death suffered by third Parties including the Employer's personnel, and loss of or damage to property occurring in connection with the supply and installation of the Facilities.</p> <p>(d) <u>Automobile Liability Insurance</u> Covering use of all vehicles used by the Contractor or its Subcontractors, whether or not owned by them, in connection with the execution of the Contract.</p> <p>(e) <u>Workers' Compensation</u> In accordance with the statutory requirements applicable in any country where the Contract or any part thereof is executed.</p> <p>(f) <u>Employer's Liability</u> In accordance with the statutory requirements applicable in any country where the Contract or any part thereof is executed.</p> <p>(g) <u>Other Insurances</u> Such other insurances as may be specifically agreed upon by the Parties hereto as listed in the Appendix to the Contract Agreement titled Insurance Requirements.</p> <p>49.2 The Employer shall be named as co-insured under all insurance policies taken out by the Contractor pursuant to GCC Sub-Clause 49.1, except for the Third Party Liability, Workers' Compensation and Employer's Liability Insurances, and the Contractor's Subcontractors shall be named as co-insureds under all insurance policies taken out by the Contractor pursuant to GCC Sub-Clause 49.1 except for the Cargo Insurance during Transportation, Workers' Compensation and Employer's Liability Insurances. All insurer's rights of subrogation against such co-insureds for losses or claims arising out of the performance of the Contract shall be waived under such policies.</p> <p>49.3 The Contractor shall, in accordance with the provisions of the Appendix to the Contract Agreement titled Insurance Requirements, deliver to the Employer certificates of insurance or copies of the insurance policies as evidence that the required policies are in full force and effect. The certificates shall provide that no less than twenty-one (21) days' notice shall be given to the Employer by insurers prior to cancellation or material modification of a policy.</p> <p>49.4 The Contractor shall ensure that, where applicable, its Subcontractor(s) shall take out and maintain in effect adequate insurance policies for their personnel and vehicles and for work executed by them under the Contract, unless such Subcontractors are covered by the policies taken out by the Contractor.</p>
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	<p>49.5 The Employer shall at its expense take out and maintain in effect during the performance of the Contract those insurances specified in the Appendix to the Contract Agreement titled Insurance Requirements, in the sums and with the deductibles and other conditions specified in the said Appendix. The Contractor and the Contractor's Subcontractors shall be named as co-insured under all such policies. All insurers' rights of subrogation against such co-insured for losses or claims arising out of the performance of the Contract shall be waived under such policies. The Employer shall deliver to the Contractor satisfactory evidence that the required insurances are in full force and effect. The policies shall provide that not less than twenty-one (21) days' notice shall be given to the Contractor by all insurers prior to any cancellation or material modification of the policies. If so requested by the Contractor, the Employer shall provide copies of the policies taken out by the Employer under this GCC Sub-Clause 49.5.</p> <p>49.6 If the Contractor fails to take out and/or maintain in effect the insurances referred to in GCC Sub-Clause 49.1, the Employer may take out and maintain in effect any such insurances and may from time to time deduct from any amount due to the Contractor under the Contract any premium that the Employer shall have paid to the insurer, or may otherwise recover such amount as a debt due from the Contractor. If the Employer fails to take out and/or maintain in effect the insurances referred to in GCC 49.5, the Contractor may take out and maintain in effect any such insurances and may from time to time deduct from any amount due the Employer under the Contract any premium that the Contractor shall have paid to the insurer, or may otherwise recover such amount as a debt due from the Employer. If the Contractor fails to or is unable to take out and maintain in effect any such insurances, the Contractor shall nevertheless have no liability or responsibility towards the Employer, and the Contractor shall have full recourse against the Employer for any and all liabilities of the Employer herein.</p> <p>49.7 Unless otherwise provided in the Contract, the Contractor shall prepare and conduct all and any claims made under the policies affected by it pursuant to this GCC Clause 49, and all monies payable by any insurers shall be paid to the Contractor. The Employer shall give to the Contractor all such reasonable assistance as may be required by the Contractor. With respect to insurance claims in which the Employer's interest is involved, the Contractor shall not give any release or make any compromise with the insurer without the prior written consent of the Employer. With respect to insurance claims in which the Contractor's interest is involved, the Employer shall not give any release or make any compromise with the insurer without the prior written consent of the Contractor.</p>
<p>49. Insurance</p>	<p>50.1 If, during the execution of the Contract, the Contractor shall encounter on the Site any physical conditions other than climatic conditions, or artificial obstructions that could not have been reasonably foreseen prior to the date of the Contract Agreement by an experienced contractor on the basis of reasonable</p>

	<p>examination of the data relating to the Facilities including any data as to boring tests, provided by the Employer, and on the basis of information that it could have obtained from a visual inspection of the Site if access thereto was available, or other data readily available to it relating to the Facilities, and if the Contractor determines that it will in consequence of such conditions or obstructions incur additional cost and expense or require additional time to perform its obligations under the Contract that would not have been required if such physical conditions or artificial obstructions had not been encountered, the Contractor shall promptly, and before performing additional work or using additional Plant or Contractor's Equipment, notify the Project Manager in writing beforehand:</p> <p>(a) the physical conditions or artificial obstructions on the Site that could not have been reasonably foreseen;</p> <p>(b) the additional work and/or Plant and/or Contractor's Equipment required, including the steps which the Contractor will or proposes to take to overcome such conditions or obstructions;</p> <p>(c) the extent of the anticipated delay; and</p> <p>(d) the additional cost and expense that the Contractor is likely to incur.)</p> <p>On receiving any notice from the Contractor under this GCC Sub-Clause 50.1, the Project Manager shall promptly consult with the Employer and Contractor and decide upon the actions to be taken to overcome the physical conditions or artificial obstructions encountered. Following such consultations, the Project Manager shall instruct the Contractor, with a copy to the Employer, of the actions to be taken.</p> <p>50.2 Any reasonable additional cost and expense incurred by the Contractor in following the instructions from the Project Manager to overcome such physical conditions or artificial obstructions referred to in GCC Sub-Clause 50.1 shall be paid by the Employer to the Contractor as an addition to the Contract Price.</p> <p>50.3 If the Contractor is delayed or impeded in the performance of the Contract because of any such physical conditions or artificial obstructions referred to in GCC Sub-Clause 50.1, the Time for Completion shall be extended in accordance with GCC Clause 60.</p>
<p>50. Unforeseen Conditions</p>	<p>51.1 Unless otherwise specified in the Contract, if after the Contract, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in Bangladesh (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date and/or the Contract Price, then such Delivery Date and/or Contract Price shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract.</p>

<p>51. Change in Laws and Regulation 52. Force Majeure</p>	<p>52.1 In this Clause, “Force Majeure” means an exceptional event or circumstance:</p> <ul style="list-style-type: none"> (a) which is beyond a Party’s control; (b) which such Party could not reasonably have provided against before entering into the Contract; (c) which, having arisen, such Party could not reasonably have avoided or overcome; and (d) which is not substantially attributable to the other Party.
	<p>52.2 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:</p> <ul style="list-style-type: none"> (i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies; (ii) rebellion, terrorism, sabotage by persons other than the Contractor’s Personnel, revolution, insurrection, military or usurped power, or civil war; (iii) riot, commotion, disorder, strike or lockout by persons other than the Contractor’s Personnel; (iv) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor’s use of such munitions, explosives, radiation or radio-activity, and (v) natural catastrophes such as cyclone, hurricane, typhoon, tsunami, storm surge, floods, earthquake, landslides, fires, epidemics, quarantine restrictions, or volcanic activity; (vi) freight embargoes; (vii) acts of the Government in its sovereign capacity.
<p>53. Notice of Force Majeure 53. Notice of Force Majeure</p>	<p>53.1 If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure</p> <p>53.2 The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.</p> <p>53.3 Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.</p>
<p>54. Duty to Minimize Delay 54. Duty to Minimize Delay</p>	<p>54.1 Each Party shall at all times use all reasonable endeavors to minimize any delay in the performance of the Contract as a result of Force Majeure.</p> <p>54.2 A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.</p>

<p>55. Consequences of Force Majeure</p>	<p>55.1 The Contractor 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:</p> <p>55.2 The Employer may suspend the delivery or contract implementation, wholly or partly, by written order for a certain period of time, as it deems necessary due to force majeure as defined in the contract.</p> <p>55.3 Delivery made either upon the lifting or the expiration of the suspension order. However, if the Employer terminates the contract as stated under GCC clause 66, resumption of delivery cannot be done.</p> <p>55.4 The Employer determines the existence of a force majeure that will be the basis of the issuance of suspension of order.</p>
<p align="center">55. Consequences of Force Majeure</p>	
<p>F. Payment</p>	<p>56.1 The Contract Price shall be paid as specified in the Contract Agreement Form PG5A- 8.</p> <p>56.2 Unless an adjustment clause is provided for in the PCC, the Contract Price shall be a firm lump sum not subject to any alteration, except in the event of a Change in the Facilities or as otherwise provided in the Contract.</p> <p>56.3 Subject to GCC Sub-Clauses 25.2, 26.1 and 50 hereof, the Contractor shall be deemed to have satisfied itself as to the correctness and sufficiency of the Contract Price, which shall, except as otherwise provided for in the Contract, cover all its obligations under the Contract.</p> <p>56.4 Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the PCC. If so provided, the amounts as certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amount. The generic formula indicated below in the form as specified in the PCC applies:</p> <p>P= A + B (Im/lo)</p> <p>where:</p> <p>P is the adjustment factor</p> <p>A and B are Coefficients specified in the PCC, representing the nonadjustable and adjustable portions, respectively, of the Contract; and</p> <p>Im is the Index during the month the work has been executed and lo is the Index prevailing twenty eight (28) days prior to the deadline for submission of Tender.</p> <p>The Indexes to be used is as published by the Bangladesh Bureau of Statistics (BBS) on a monthly basis. In case not available, then other countries or authorities of the sources mentioned in Appendix to the Tender may be used.</p> <p>56.5 If the value of the Index is changed after it has been used in a calculation, the calculation shall be corrected and an adjustment</p>

	made in the next or in the final payment certificate. The Index value shall be deemed to take account of all changes in price due to fluctuations.
56. Contract Price	<p>57.1 The Contract Price shall be paid as specified in the Contract Agreement and in the Appendix to the Contract Agreement titled Terms and Procedures of Payment, which also outlines the procedures to be followed in making application for and processing payments.</p> <p>57.2 No payment made by the Employer herein shall be deemed to constitute acceptance by the Employer of the Facilities or any part(s) thereof.</p> <p>57.3 In the event that the Employer fails to make any payment by its respective due date or within the period set forth in the Contract, the Employer shall pay to the Contractor interest on the amount of such delayed payment at the rate(s) shown in the Appendices to the Contract Agreement titled Terms and Procedures of Payment, for the period of delay until payment has been made in full, whether before or after judgment or arbitration award.</p> <p>57.4 The currency or currencies in which payments are made to the Contractor under this Contract shall be specified in the Appendices to the Contract Agreement titled Terms and Procedures of Payment, subject to the general principle that payments will be made in the currency or currencies in which the Contract Price has been stated in the Contractor's tender.</p>
57. Terms of Payment 58. Advance Payment Security	<p>58.1 The Contractor shall, within twenty-eight (28) days of the notification of contract award, provide a security in an amount equal to the advance payment calculated in accordance with the Appendix to the Contract Agreement titled Terms and Procedures of Payment, and in the same currency or currencies.</p> <p>58.2 The security shall be in the form provided in the tender documents or in another form acceptable to the Employer. The amount of the security shall be reduced in proportion to the value of the Facilities executed by and paid to the Contractor from time to time, and shall automatically become null and void when the full amount of the advance payment has been recovered by the Employer. The security shall be returned to the Contractor immediately after its expiration.</p>
59. Performance Security 59. Performance Security	<p>59.1 The Contractor shall, within twenty-eight (28) days of the notification of contract award, provide a security for the due performance of the Contract in the amount specified in the PCC.</p> <p>59.2 The performance security shall be denominated in the currency or currencies of the Contract, or in a freely convertible currency acceptable to the Employer, and shall be in the form provided in Section 5, Tender and Contract Forms, corresponding to the type of bank guarantee stipulated by the Employer in the PCC, or in another form acceptable to the Employer.</p> <p>59.3 Unless otherwise specified in the PCC, the security shall be reduced by half on the date of the Operational Acceptance. The Security shall become null and void, or shall be reduced pro rata to the Contract Price of a part of the Facilities for which a separate</p>

	<p>Time for Completion is provided, five hundred and forty (540) days after Completion of the Facilities or three hundred and sixty five (365) days after Operational Acceptance of the Facilities, whichever occurs first; provided, however, that if the Defects Liability Period has been extended on any part of the Facilities pursuant to GCC Sub-Clause 42.8 hereof, the Contractor shall issue an additional security in an amount proportionate to the Contract Price of that part. The security shall be returned to the Contractor immediately after its expiration, provided, however, that if the Contractor, pursuant to GCC Sub-Clause 42.10, is liable for an extended defect liability obligation, the performance security shall be extended for the period specified in the PCC pursuant to GCC Sub-Clause 42.10 and up to the amount specified in the PCC.</p>
	<p>59.4 The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract. The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.</p>
<p>60. Taxes and Duties 60. Taxes and Duties</p>	<p>60.1 The Contractor shall be entirely responsible for all kinds of taxes, duties, fees, levies, and such other charges assessed on the Contractor, its Subcontractors or their employees by all municipal, state or national government authorities in connection with the Facilities in and outside of the country where the Site is located.</p>
	<p>60.2 Notwithstanding GCC Sub-Clause 60.1 above, the Employer shall bear and promptly pay</p> <ul style="list-style-type: none"> (a) all customs and import duties for the Plant specified in Price Schedule No. 1; and (b) other domestic taxes such as, sales tax and value added tax (VAT) on the Plant specified in Price Schedules No. 1 and No. 2 and that is to be incorporated into the Facilities, and on the finished goods, imposed by the law of the country where the Site is located.
	<p>60.3 If any tax exemptions, reductions, allowances or privileges may be available to the Contractor in the country where the Site is located, the Employer shall use its best endeavors to enable the Contractor to benefit from any such tax savings to the maximum allowable extent.</p>
<p>61. Payments to Nominated Subcontractor(s)</p>	<p>61.1 The Contractor shall pay to the Nominated Subcontractor(s) the amounts shown on the Nominated Subcontractor's invoices approved by the Contractor in accordance with the subcontract included under the Contract.</p>
<p>61. Payments to Nominated Subcontractor(s)</p>	<p>62.1 Where the Contract Period (excluding the Defects Liability Period) exceeds eighteen (18) months, it is normal procedure that prices payable to the Contractor shall be subject to adjustment during the performance of the Contract to reflect changes occurring in the cost of labour and material components. In such cases the tender</p>

	<p>documents shall include in the Appendix 2, a formula of such price adjustment.</p> <p>62.2 Where Contracts are of a shorter duration than eighteen (18) months or in cases where there is to be no Price Adjustment, the following provision shall not be included. Instead, it shall be indicated under this Appendix 2 that the prices are to remain firm and fixed for the duration of the Contract.</p> <p>62.3 If the value of the Index is changed after it has been used in a calculation, the calculation shall be corrected and an adjustment made in the next or in the final payment certificate. The Index value shall be deemed to take account of all changes in price due to fluctuations.</p>
<p>62. Price Adjustment</p>	<p>63.1 The Contractor shall be liable to pay Liquidated Damages or in other words the Delay Damages to the Employer at the rate per day as specified in the PCC for each day of delay from the Intended Completion Date, for the uncompleted delivery of goods/works/services or for any part thereof.</p> <p>63.2 The total amount of Liquidated Damages shall not exceed the amount defined in the PCC.</p> <p>63.3 Once the cumulative amount of Liquidated Damages reaches ten (10) percent of the Contract price, the Employer may rescind the Contract, without prejudice to other courses of action and remedies open to it.</p> <p>63.4 The amount of Liquidated Damages may be deducted from any money due or which may become due to the Contractor under the Contract and/or collect such amount of Liquidated Damages from the Retention Money (if any) or other securities posted by the Contractor whichever is convenient to the Employer. In an extreme situation that no such foregoing recourse is available, the contractor be asked to make good the damages from his own finances in writing failing which necessary action as per the provisions of this GCC or PCC be taken.</p> <p>63.5 Payment of Liquidated Damages by the Contractor shall not relieve the Contractor from its obligations.</p> <p>63.6 If the Intended Completion Date is extended after Liquidated Damages have been paid, the Engineer shall correct any overpayment of Liquidated Damages by the Contractor by adjusting the next payment certificate.</p>
<p>63. Liquidated Damages</p>	
<p>G. Change in Contract Elements 64. Change in the Facilities</p>	<p>64.1 <u>Introducing a Change</u></p> <p>64.1.1 Subject to GCC Sub-Clauses 64.2.5 and 64.2.7, the Employer shall have the right to propose, and subsequently require, that the Project Manager order the Contractor from time to time during the performance of the Contract to make any change, modification, addition or deletion to, in or from the Facilities hereinafter called "Change", provided that such Change falls within the general scope of the Facilities and does not constitute unrelated work and that it is technically practicable, taking into account both the state of advancement of the Facilities and the technical compatibility of the Change envisaged with the nature of</p>

	<p>the Facilities as specified in the Contract</p> <p>64.1.2 The Contractor may from time to time during its performance of the Contract propose to the Employer with a copy to the Project Manager, any Change that the Contractor considers necessary or desirable to improve the quality, efficiency or safety of the Facilities. The Employer may at its discretion approve or reject any Change proposed by the Contractor, provided that the Employer shall approve any Change proposed by the Contractor to ensure the safety of the Facilities.</p>
	<p>64.1.3 Notwithstanding GCC Sub-Clauses 64.1.1 and 64.1.2, no change made necessary because of any default of the Contractor in the performance of its obligations under the Contract shall be deemed to be a Change, and such change shall not result in any adjustment of the Contract Price or the Time for Completion.</p> <p>64.1.4 The procedure on how to proceed with and execute Changes is specified in GCC Sub-Clauses 64.2 and 64.3, and further details and forms are provided in the Employer's Requirements (Forms and Procedures).</p> <p>64.2 <u>Changes Originating from Employer</u></p> <p>64.2.1 If the Employer proposes a Change pursuant to GCC Sub-Clause 64.1.1, it shall send to the Contractor a "Request for Change Proposal," requiring the Contractor to prepare and furnish to the Project Manager as soon as reasonably practicable a "Change Proposal," which shall include the following:</p> <ul style="list-style-type: none"> (a) brief description of the Change (b) effect on the Time for Completion (c) estimated cost of the Change (d) effect on Functional Guarantees (if any) (e) effect on the Facilities (f) effect on any other provisions of the Contract. <p>64.2.2 Prior to preparing and submitting the "Change Proposal," the Contractor shall submit to the Project Manager an "Estimate for Change Proposal," which shall be an estimate of the cost of preparing and submitting the Change Proposal.</p> <p>Upon receipt of the Contractor's Estimate for Change Proposal, the Employer shall do one of the following:</p> <ul style="list-style-type: none"> (a) accept the Contractor's estimate with instructions to the Contractor to proceed with the preparation of the Change Proposal (b) advise the Contractor of any part of its Estimate for Change Proposal that is unacceptable and request the Contractor to review its estimate (c) advise the Contractor that the Employer does not intend to proceed with the Change. <p>64.2.3 Upon receipt of the Employer's instruction to proceed under</p>

	<p>GCC Sub-Clause 64.2.2 (a), the Contractor shall, with proper expedition, proceed with the preparation of the Change Proposal, in accordance with GCC Sub-Clause 64.2.1.</p>
	<p>64.2.4 The pricing of any Change shall, as far as practicable, be calculated in accordance with the rates and prices included in the Contract. If such rates and prices are inequitable, the Parties thereto shall agree on specific rates for the valuation of the Change</p>
	<p>.64.2.5 If before or during the preparation of the Change Proposal it becomes apparent that the aggregate effect of compliance therewith and with all other Change Orders that have already become binding upon the Contractor under this GCC Clause 64 would be to increase or decrease the Contract Price as originally set forth in Article 2 (Contract Price) of the Contract Agreement by more than fifteen percent (15%), the Contractor may give a written notice of objection thereto prior to furnishing the Change Proposal as aforesaid. If the Employer accepts the Contractor's objection, the Employer shall withdraw the proposed Change and shall notify the Contractor in writing thereof.</p> <p>The Contractor's failure to so object shall neither affect its right to object to any subsequent requested Changes or Change Orders herein, nor affect its right to take into account, when making such subsequent objection, the percentage increase or decrease in the Contract Price that any Change not objected to by the Contractor represents.</p>
	<p>64.2.6 Upon receipt of the Change Proposal, the Employer and the Contractor shall mutually agree upon all matters therein contained. Within fourteen (14) days after such agreement, the Employer shall, if it intends to proceed with the Change, issue the Contractor with a Change Order.</p> <p>If the Employer is unable to reach a decision within fourteen (14) days, it shall notify the Contractor with details of when the Contractor can expect a decision.</p> <p>If the Employer decides not to proceed with the Change for whatever reason, it shall, within the said period of fourteen (14) days, notify the Contractor accordingly. Under such circumstances, the Contractor shall be entitled to reimbursement of all costs reasonably incurred by it in the preparation of the Change Proposal, provided that these do not exceed the amount given by the Contractor in its Estimate for Change Proposal submitted in accordance with GCC Sub-Clause 64.2.2.</p> <p>64.2.7 If the Employer and the Contractor cannot reach agreement on the price for the Change, an equitable adjustment to the Time for Completion, or any other matters identified in the Change Proposal, the Employer may nevertheless instruct the Contractor to proceed with the Change by issue of a "Pending Agreement Change Order."</p>

	<p>Upon receipt of a Pending Agreement Change Order, the Contractor shall immediately proceed with effecting the Changes covered by such Order. The Parties shall thereafter attempt to reach agreement on the outstanding issues under the Change Proposal.</p> <p>64.3 Changes Originating from Contractor</p> <p>64.3.1 If the Contractor proposes a Change pursuant to GCC Sub-Clause 64.1.2, the Contractor shall submit to the Project Manager a written "Application for Change Proposal," giving reasons for the proposed Change and including the information specified in GCC Sub-Clause 64.2.1. Upon receipt of the Application for Change Proposal, the Parties shall follow the procedures outlined in GCC Sub-Clauses 64.2.6 and</p> <p>64.3.2. However, should the Employer choose not to proceed, the Contractor shall not be entitled to recover the costs of preparing the Application for Change Proposal.</p>
<p>65. Extension of Time for Completion</p> <p>65. Extension of Time for Completion</p>	<p>65.1 The Time(s) for Completion specified in the PCC pursuant to GCC Sub-Clause 8.2 shall be extended if the Contractor is delayed or impeded in the performance of any of its obligations under the Contract by reason of any of the following:</p> <ul style="list-style-type: none"> (a) any Change in the Facilities as provided in GCC Clause 64 (b) any occurrence of Force Majeure as provided in GCC Clause 52, unforeseen conditions as provided in GCC Clause 50, or other occurrence of any of the matters specified or referred to in paragraphs (a), (b) and (c) of GCC Sub-Clause 47.2 (c) any suspension order given by the Employer under GCC Clause 41 hereof or reduction in the rate of progress pursuant to GCC Sub-Clause 66.2 or (d) any changes in laws and regulations as provided in GCC Clause 51 or (e) any default or breach of the Contract by the Employer, Appendix to the Contract Agreement titled ,or any activity, act or omission of the Employer, or the Project Manager, or any other contractors employed by the Employer, or (f) any delay on the part of a sub-contractor, provided such delay is due to a cause for which the Contractor himself would have been entitled to an extension of time under this sub-clause, or (g) delays attributable to the Employer or caused by customs, or (h) any other matter specifically mentioned in the Contract <p>by such period as shall be fair and reasonable in all the circumstances and as shall fairly reflect the delay or impediment sustained by the Contractor.</p>

	<p>65.2 Except where otherwise specifically provided in the Contract, the Contractor shall submit to the Project Manager a notice of a claim for an extension of the Time for Completion, together with particulars of the event or circumstance justifying such extension as soon as reasonably practicable after the commencement of such event or circumstance. As soon as reasonably practicable after receipt of such notice and supporting particulars of the claim, the Employer and the Contractor shall agree upon the period of such extension. The Contractor shall at all times use its reasonable efforts to minimize any delay in the performance of its obligations under the Contract.</p> <p>In all cases where the Contractor has given a notice of a claim for an extension of time under GCC 65.2, the Contractor shall consult with the Project Manager in order to determine the steps (if any) which can be taken to overcome or minimize the actual or anticipated delay. The Contractor shall there after comply with all reasonable instructions which the Project Manager shall give in order to minimize such delay. If compliance with such instructions shall cause the Contractor to incur extra costs and the Contractor is entitled to an extension of time under GCC 65.1, the amount of such extra costs shall be added to the Contract Price.</p>
<p>66. Suspension 66. Suspension</p>	<p>66.1 The Employer may request the Project Manager, by notice to the Contractor, to order the Contractor to suspend performance of any or all of its obligations under the Contract. Such notice shall specify the obligation of which performance is to be suspended, the effective date of the suspension and the reasons thereof. The Contractor shall thereupon suspend performance of such obligation, except those obligations necessary for the care or preservation of the Facilities, until ordered in writing to resume such performance by the Project Manager..</p> <p>If, by virtue of a suspension order given by the Project Manager, other than by reason of the Contractor's default or breach of the Contract, the Contractor's performance of any of its obligations is suspended for an aggregate period of more than ninety (90) days, then at any time thereafter and provided that at that time such performance is still suspended, the Contractor may give a notice to the Project Manager requiring that the Employer shall, within twenty-eight (28) days of receipt of the notice, order the resumption of such performance or request and subsequently order a change in accordance with GCC Clause 64, excluding the performance of the suspended obligations from the Contract.</p> <p>If the Employer fails to do so within such period, the Contractor may, by a further notice to the Project Manager, elect to treat the suspension, where it affects a part only of the Facilities, as a deletion of such part in accordance with GCC Clause 64 or, where it affects the whole of the Facilities, as termination of the Contract under GCC Sub-Clause 66.1.</p>

	<p>66.2 if</p> <p>(a) the Employer has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to the Appendix to the Contract Agreement titled Terms and Procedures of Payment, or commits a substantial breach of the Contract, the Contractor may give a notice to the Employer that requires payment of such sum, with interest thereon as stipulated in GCC Sub-Clause 57.3, requires approval of such invoice or supporting documents, or specifies the breach and requires the Employer to remedy the same, as the case may be. If the Employer fails to pay such sum together with such interest, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, or fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Contractor's notice or</p> <p>(b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Employer, including but not limited to the Employer's failure to provide possession of or access to the Site or other areas in accordance with GCC Sub-Clause 25.2, or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities,</p> <p>then the Contractor may by fourteen (14) days' notice to the Employer suspend performance of all or any of its obligations under the Contract, or reduce the rate of progress.</p> <p>66.3 If the Contractor's performance of its obligations is suspended or the rate of progress is reduced pursuant to this GCC Clause 66, then the Time for Completion shall be extended in accordance with GCC Sub-Clause 40.1, and any and all additional costs or expenses incurred by the Contractor as a result of such suspension or reduction shall be paid by the Employer to the Contractor in addition to the Contract Price, except in the case of suspension order or reduction in the rate of progress by reason of the Contractor's default or breach of the Contract.</p> <p>66.4 During the period of suspension, the Contractor shall not remove from the Site any Plant, any part of the Facilities or any Contractor's Equipment, without the prior written consent of the Employer.</p>
<p>H. Termination and Settlement of Disputes</p>	
<p>H. Termination and Settlement of Disputes 67. Termination</p>	<p>67.1 <u>Termination for Default</u></p> <p>(a) The Employer or the Contractor, without prejudice to any other remedy for breach of Contract, by giving twenty eight (28) days written notice of default to the other party, may terminate the Contract in whole or in part if the other party causes a fundamental breach of Contract.</p> <p>(b) Fundamental breaches of the Contract shall include, but shall</p>

	<p>not be limited to, the following:</p> <ul style="list-style-type: none"> (i) the Contractor stops work for twenty-eight (28) days when no stoppage of work is shown on the current Programme and the stoppage has not been authorized by the Engineer; (ii) the Engineer instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within twenty-eight (28) days; (iii) the Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer; (iv) the Engineer gives Notice that the failure to achieve the progress in accordance with the updated Programme of Works by the Contractor is a non-fulfilment of contractual obligations and the Contractor fails to restore it within a reasonable period of time instructed by the Engineer; (v) the Contractor does not maintain a Security, which is required; (vi) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of Liquidated Damages can be paid, as specified in GCC Sub Clause 41.2; (vii) the Contractor has subcontracted the whole of the Works or has assigned the Contract without the required agreement and without the approval of the Engineer; (viii) the Contractor, in the judgment of the Employer has engaged in practices, as defined in GCC Sub Clause 39, in competing for or in executing the Contract. <p>(c) A payment certified by the Engineer is not paid by the Employer to the Contractor within twenty eight (28) days of the date of the Engineer's certificate.</p>
	<p>67.2 <u>Termination for Insolvency</u></p> <p>The Employer and the Contractor may at any time terminate the Contract by giving twenty eight (28) days written notice to the other party if either of the party becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to any party, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the other party.</p> <p>67.3 <u>Termination for Convenience</u></p> <p>(a) The Employer, by giving twenty eight (28) days written notice sent to the Contractor, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Employer's convenience, the extent to which performance of the Contractor under the Contract is terminated, and the date upon which such termination becomes effective. The termination shall take effect twenty eight (28) days after the later dates on which the Contractor receives</p>

	<p>this notice or the Employer returns the Performance Security.</p> <p>(b) The Employer shall not terminate the contract under GCC Sub Clause 67.1 (a) in order to execute the contract itself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor as stated under GCC Sub Clause 67.1(a).</p> <p>67.4 In the event the Employer terminates the Contract in whole or in part, the Employer shall accept the portion of the Works that are complete and ready for handing over after the Contractor's receipt of notice of termination of the Contract. For the remaining portion of the Works, the Employer may elect:</p> <p>(a) to have any portion completed by the Contractor at the Contract terms and prices; and /or</p> <p>(b) to cancel the remainder and pay to the Contractor an agreed amount for partially completed Works and for materials and parts previously procured by the Contractor, or</p> <p>(c) except in the case of termination for convenience as stated under GCC Sub Clause 67, engage another Contractor to complete the Works, and in that case the Contractor shall be liable to the Employer for any cost that may be incurred in excess of the sum that would have been paid to the Contractor, if the work would have been executed and completed by him or her.</p> <p>67.5 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as is reasonably possible</p>
<p>68. Payment upon Termination</p>	<p>68.1 If the Contract is terminated because of a fundamental breach of Contract under GCC Sub Clause 67.1 by the Contractor, the Project Manager shall issue a certificate for the value of the Works done and Plant and Materials ordered less advance payments received up to the date of the issue of the certificate and less the amount from percentage to apply to the contract value of the works not completed, as indicated in the PCC. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.</p> <p>68.2 If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a payment certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's foreign personnel employed solely on the Works and recruited specifically for the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.</p> <p>68.3 If the Contract is terminated for reasons of Force Majeure, the The Project Manager shall determine the value of the work done and issue a Payment Certificate which shall include.</p> <p>(a) the amounts payable for any work carried out for which unit rates or prices are stated in the Contract;</p>

	<ul style="list-style-type: none"> (b) the cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal; (c) other costs or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works; (d) the cost of removal of Temporary Works and Contractor's Equipment from the Site; and (e) the cost of repatriation of the Contractor's staff and labor employed wholly in connection with the Works at the date of termination.
68. Payment upon Termination	69.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer if the Contract is terminated because of the Contractor's default stated under GCC Sub Clause 67.1.
69. Property	70.1 If the Contract is frustrated by the occurrence of a situation of Force Majeure as defined in GCC Sub Clause 52, the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all works carried out before receiving it and for any work carried out afterwards to which a commitment was made.
70. Frustration	
I. Claims, Disputes and Arbitration	<p>71.1 If the Contractor considers himself to be entitled to any extension of the Completion Time and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Employer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than twenty eight (28) days after the Contractor became aware, or should have become aware, of the event or circumstance.</p> <p>71.2 If the Contractor fails to give notice of a claim within such period of twenty eight (28) days, the Intended Completion Date shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim.</p> <p>71.3 Within forty two (42) days after the Contractor became aware or should have become aware of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed, for settlement.</p>

<p>71. Contractor's Claims</p>	<p><u>Amicable settlement</u></p> <p>72.1 The Employer and the Contractor shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.</p> <p><u>Arbitration</u></p> <p>72.2 If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation as stated under GCC Clause 72.1, then either the Employer or the Contractor may give notice to the other party of its intention to commence arbitration in accordance with GCC Sub Clause 72.3, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration.</p> <p>72.3 Arbitration shall be commenced prior to or after execution of the Works under the Contract. Arbitration proceedings shall be conducted in accordance with the rules of procedure specified in the PCC.</p> <p>72.4 Notwithstanding any reference to arbitration hereinabove the parties shall continue to perform their respective responsibilities under the Contract unless agreed otherwise and, the Employer shall pay any monies due to the Contractor.</p>
<p>72. Settlement of Disputes</p>	<p><u>Amicable settlement</u></p> <p>72.1 The Employer and the Contractor shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.</p> <p><u>Arbitration</u></p> <p>72.2 If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation as stated under GCC Clause 72.1, then either the Employer or the Contractor may give notice to the other party of its intention to commence arbitration in accordance with GCC Sub Clause 72.3, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration.</p> <p>72.3 Arbitration shall be commenced prior to or after execution of the Works under the Contract. Arbitration proceedings shall be conducted in accordance with the rules of procedure specified in the PCC.</p> <p>72.4 Notwithstanding any reference to arbitration hereinabove the parties shall continue to perform their respective responsibilities under the Contract unless agreed otherwise and, the Employer shall pay any monies due to the Contractor.</p>

Section 4. Particular Conditions of Contract

<p><i>Instructions for completing the Particular Conditions of Contract are provided in italics in parenthesis for the relevant GCC Clauses.</i></p>	
GCC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
GCC 1.1	<p>The Purchaser/The Employer is: BANGLADESH POWER DEVELOPMENT BOARD (BPDB)</p> <p>Representative Director, Directorate of Purchase, WAPDA Building (9th Floor), 12, Motijheel C/A, Dhaka-1000, Phone: +880-2223383081, Fax: +880-2-7126151</p> <p>Consignee Director, Directorate of Pre-Paid Metering System, Biddyt Bhaban (13th Floor), 1 No. Abdul Gani Road, Dhaka-1000, Phone: +880-222228759</p> <p>Engineer Director, Directorate of Design and Inspection –II, 9/B, Motijheel C/A, Dhaka-1000 Phone: +880-2223383613</p>
GCC 1.1(t)	“Contract Effective Date” shall mean the date of opening of letter of credit (L/C).
GCC 1.1 (gg)	The Original Contract price is [insert the amount in the NOA]
GCC 1.1(j)	The Contractor is <i>[Name, address, and name of authorized representative]</i>
GCC 1.1(II)	The Employer is Bangladesh Power Development Board (BPDB)
GCC 3.1	<p>The Procuring Entity’s address for the purpose of communications under this contract is :</p> <p>Attention: Director. Address: Directorate of Purchase WAPDA Building (9th floor), 12 Motijheel C/A Dhaka-1000 Tel No: +880-2223383081, Fax No: +880-2- 7126151 e-mail address: dir.purchase@bpdb.gov.bd</p> <p>The Contractor’s address for the purpose of communications under this contract is :</p> <p>Contact person: Address: Tel: Fax: e-mail address:</p>
GCC 4	<p>Governing Law</p> <p>This Contract shall be governed by and construed in accordance with the laws of the People’s Republic of Bangladesh.</p>

GCC 6.1 (k)	<p>Other documents forming part of the Contract are</p> <p>Acceptance of NOA, Performance Security, Tender/Proposal (Offer) of the Contractor and All Correspondences between purchaser and the Bidder (Contractor) prior to signing of the contract.</p>
GCC 9.2	<p>Materials, Equipment Plants and supplies shall not have their origin in the following countries:</p> <p>Israel and countries having no diplomatic relation with the Government of Bangladesh.</p>
GCC 13.1	<p>Possession of the Site or part(s) of the Site, to the Contractor shall be given on the following date(s);</p> <p>Not Applicable</p>
GCC 24.1	<p>The time for completion of the whole of the facilities shall be: 360 (Three Sixty) days from the date of opening of letter of credit (L/C).</p>
GCC 32.1	<p>A Subcontractor that is a national of, or registered in, the following countries are not eligible:</p> <p>Not Applicable</p>
GCC 33.1	<p>Nominated Subcontractor(s) named below;</p> <p>None</p>
GCC 35.3.2	<p>Design and Engineering:</p> <p>Design, Drawing, Specification & GTP/ Engineering Data etc., shall be submitted to the Engineer, Director, Design & Inspection–II, BPDB by the Contractor for approval, prior to the starting of works and manufacturing of the goods. The Supplier/Contractor shall have to submit 3 (three) sets of the same for approval within 15 (fifteen) days from the date of signing Contract. Only Original copy shall be submitted (photocopy / scanned copy will not be allowed).</p> <p>One copy of Design, Drawing, Specification & GTP/ Engineering Data shall be returned to the Contractor/Supplier marked “APPROVED” or “APPROVED AS NOTED” or “RETURNED FOR CORRECTION” within 14 (Fourteen) working days after receipt from the Supplier and if not returned within 14 (Fourteen) working days after receipt by the Engineer, the Suppliers shall notify Engineer of such fact, and if the Design, Drawing, Specification & GTP/ Engineering Data still have been not returned within 10 (ten) working days after notice, the Supplier may proceed as if Design, Drawing, Specification & GTP/ Engineering Data have been returned approved. When the Design, Drawing, Specification & GTP/ Engineering Data are returned marked “APPROVED AS NOTED” or “RETURNED FOR CORRECTION” the corrections or changes shall be made and 3 (three) revised copies shall be submitted to the Engineer. One copy of the revised Design, Drawing, Specification & GTP/ Engineering Data will be returned to the Supplier by 7(Seven) working days from the receipt of the same with due approval, if re-submitted Design, Drawing, Specification & GTP/ Engineering Data are in line with the earlier comments of the Engineer and satisfy contract specification.</p> <p>Approval of data and drawings shall in no way relieve the Contractor of any of his duties or responsibilities for engineering, design, workmanship, materials and all other liabilities under the Contract.</p>

The contractor shall, within the time specified in the Specifications, provide drawings showing the manner in which the equipment and materials is to be affixed together with all information relating, unless otherwise agreed, only to the Works, required for preparing suitable foundations, for providing suitable access for equipment and materials and any necessary equipment which are to be erected and for making all necessary connections to the equipment and materials (whether such connections are to be made by the Contractor under the Contract or not).

Any expenses resulting from an error or omission in or from delay in delivery of the drawings and information mentioned in this Clause shall be borne by the Contractor.

The Contractor shall be responsible for any discrepancies, errors, or omissions in the drawings and other particulars supplied by him. Whenever the work is carried out on the basis of such discrepancies, errors, or omissions, any revision of the work shall be made at the expense of the Contractor.

At least one copy of the final approved data and drawings shall be kept by the Contractor at the Site and the same shall at all reasonable times be available for inspection and use by the Employer /Engineer and by any other person authorized by the Employer /Engineer.

AUTHORITY OF THE ENGINEER

To prevent delays and disputes, and to discourage litigation, it is agreed by the parties to this Contract that the Engineer shall resolve, by written opinion, all questions in relation to the Work performed under this Contract.

In case of any decision or instruction involving financial implications, the Engineer shall obtain written confirmation from the Employer and advise the Contractor accordingly. The Engineer shall issue instructions in consultation with the Consignee.

If, in the opinion of the Contractor or the Employer ,a written decision made by the Engineer is not in accordance with the meaning and intent of the Contract, either party may file with the engineer and the other party to the Contract, within thirty (30) days after receipt written decision, a written objection to the decision. Failure to file an objection within the allotted time will be considered as acceptance of the Engineer's decision and the decision shall become final and conclusive. If such written objection is timely filed, the objecting party may at any time thereafter and prior to final payment under the Contract, request that the matter be referred to arbitration pursuant to the provisions hereinafter set forth in Clause "Arbitration".

The Engineer's decision and the filing of the written objection thereto shall be Conditions precedent to the right to request arbitration or to start action in court.

It is the intent of this agreement that there shall be no delay in the execution of the Work, and the decision of the Engineer as rendered shall be promptly observed. The Contractor shall proceed with the Work in accordance with the Engineer's written decision, provided, however, that the Contractor shall not be requested to recognize or accept any change order or decision requiring extra or additional Work, unless the amount of additional compensation therefore is agreed upon by the Employer in accordance with the provisions of Clause 35.0& 64.0, "Modifications. If in any case, the Contractor is required to proceed over his objection, the Contractor shall be authorized, in an appropriate case, to notify the Employer.

WORK TO THE SATISFACTION OF THE EMPLOYER/ ENGINEER

The Contractor shall execute and complete the Work in strict accordance with the

Contract to the satisfaction of the Employer /the Engineer and shall comply with and adhere strictly to the Engineer's instructions and directions on any matter, whether mentioned in the Contract or not, concerning the Work. The Contractor shall take instructions and directions only from the Engineer. Such instruction by the Engineer shall always be in writing and approved by the Employer.

ENGINEERING AND TECHNOLOGY TRANSFER ON UPDATED TECHNOLOGY OF EQUIPMENT/ SOFTWARE, OPERATION AND MAINTENANCE OFFERED FOR THE PROJECT.

It is agreed by the Contractor that the Employer shall be and is hereby authorised to appoint or employ (either directly or through the Engineer) such inspectors as the Employer may deem proper to inspect the materials furnished under the Work performed under this Contract, for compliance with the Contract Documents. The Contractor shall furnish all reasonable aid and assistance required by the Engineer, or inspectors, for the proper pre-delivery tests, inspection and examination of the Work and all parts thereof.

The Contractor shall obey the directions of the Engineer or inspector when they are consistent with the obligations of this Contract. Should the Contractor object to any order given by any inspector, the Contractor may make written appeal to the Engineer for his decision.

Engineers and other properly authorized representatives of the Employer or the Engineer shall be free at all times to perform their duties, and any intimidation or attempted intimidation of any one of them by the Contractor or by any of his employees shall have sufficient reason, if the Employer so decides, to terminate the Contract.

Such pre-delivery inspection shall not relieve the Contractor from any obligation to perform the Work in accordance with the Contract Documents. Work not so constructed shall be removed and made good by the Contractor at his own expense.

The Engineer and the Employer's authorized representative shall have the right to inspect and/or to test the Goods at Site and at manufacturing company's premises in the country to confirm their conformity to the Contract. The cost of performing any tests shall be borne by the Contractor.

GCC38.2

THE INSPECTIONS AND TESTS SHALL BE:

A. Pre-delivery inspection and/or Witnessing of the manufacturing process and tests of the equipment at manufacturer's works including transfer of technical know-how.

Within **14 days** after signing of Contract, the Contractor/Supplier shall inform BPDB the details of Pre-Shipment Inspection/Factory Acceptance Test such as Name of equipment/ machine/ materials/ goods/ parts/ spares to be tested/inspected, Name of tests/Inspection, time schedule, Period of Technical Orientation and Quality Test Witness, location/place of inspection, duration of inspection/test etc. Type tests, routine tests, sample tests and other tests as agreed upon shall be performed as per procurement contract of BPDB and relevant international standard. Witnessing of manufacturing process/ tests shall encompass Transfer of Technology, Technical know-how regarding spares, parameters and testing procedure including familiarization of test equipment to BPDB's representative(s).

The Contractor/Supplier shall bear the round air tickets, hotel accommodations, per diem allowances, internal transportations and out of pocket expenses @ US\$ 100.00 per person per day for 7 (Seven) days (excluding travel time) if manufacturing outside the Employer's Country for the witnessing of manufacturing process and tests of concerned equipment at manufacturer's works. The number of BPDB engineers will be **03 nos.** Such witness/inspection shall not relieve the supplier from any obligation to supply the goods in accordance with contract document. For foreign manufacturer, Invitation letter from the manufacturer should be submitted to the purchaser at least 02(two) months prior to the schedule date of the witness and tests. For any reason, if BPDB's representative(s) cannot attend the "Pre-delivery inspection and/or Witnessing of the manufacturing process and tests of the equipment at manufacturer's works including transfer of technical know-how" Program, BPDB shall engage a Third Party Inspection Company/Agency to conduct the Pre-shipment Inspections and/or witness Factory Acceptance Tests as per Contract and relevant international standard at the manufacture's Premises. The Inspection Company/Agency shall be entitled to attend the test and/or inspection as stated in this Contract, provided that the Contractor/ Manufacturer/ Supplier shall obtain any necessary permission or consent to enable the Inspection Company/Agency to attend the tests and/or inspection. The Inspection Company/Agency may be accompanied by BPDB's personnel during inspections/ tests.

BPDB will select any of the following companies/agencies as Third Party Inspector:

- BUREAU VERITAS
- SGS
- Black and Veatch
- TUV SUD
- Lloyd Inspection Agency
- Mott MacDonald
- Intertek Group

The Third-Party Inspector shall submit a comprehensive report to Purchaser with recommendation accompanied with picture, video clips (with date and time stamp) with Inspector(s) and Manufacturer's representatives(s) at the test/inspection venue of the Equipment/ Materials/ Goods inspected within 7 days after completion of respective inspection/Test. After approval of Third-Party Inspection report by BPDB, shipping advice shall be issued to Supplier/ Contractor.

The Contractor/ Supplier shall bear cost pertaining to third party inspection team/BPDB's representative(s). Manufacturer/ Supplier/ Contractor shall facilitate and provide full support for the Pre-Shipment Inspection/Witnessing of Factory Acceptance Test and transfer of technical know-how to BPDB representative(s).

The third-party inspection company/agency must not be involved in design, procurement, fabrication, construction and installation under this Contract. Third party inspection is applicable for Equipment/ Materials/ Goods manufactured outside in Bangladesh.

	<p>As and when the purchaser is satisfied that any Equipment/ Materials/ Goods shall have passed the tests/inspection referred to in this clause, purchaser shall notify the contractor in writing to that effect.</p> <p>Should any inspected/tested goods fail to conform to the specification, the Purchaser shall have the right to reject any of the items or complete batch if necessary. In that case Contractor/ Supplier has to replace the Equipment/ Materials/ Goods and to make good of them without any financial involvement to the Purchaser.</p> <p>In case any of the Equipment found not conforming with the specification at the time of post landing Inspection, the Contractor/ supplier will in no way be relieved from the responsibility of replacing them or making them good at their own cost, despite the Equipment were found good at the time of Factory Acceptance Test/ Pre-delivery Inspection. Such witness/inspection shall not relieve in any way the Contractor/ supplier from any warranty or other obligations under the contract.</p> <p>No goods/equipment/material shall be packed, prepared for shipment / delivery unless it has been approved including Test reports and written instruction has been issued by the Purchaser.</p> <p>B. RANDOM SAMPLE TEST DURING FACTORY INSPECTION AND WITNESS will be held (where required) will be held and detail description is provided in Section 6.1.36:Technical Orientation and Quality Test Witness before Delivery</p> <p>C. ACCEPTANCE REPORT OF GOODS FOR DELIVERY as per Section 6.</p> <p>D. POST-DELIVERY INSPECTION & TESTING will be held in the following manner:</p> <p>a) Post Landing Inspection shall be done after arrival of the goods at Final destination. The post landing inspection shall be intimated to the representative of Supplier. The program of such inspection shall be intimated to the representative of contractor/supplier by BPDB upon arrival of the goods at Final destination store of BPDB. R&I report will be issued after POST-DELIVERY INSPECTION.</p> <p>b) The purchaser has right to inspect, test and where necessary, reject the Goods arrival in purchaser's store shall in no way be limited or waived by reason of the goods having previously been tested and passed by the manufacturer/ supplier.</p> <p>c) Nothing in this clause shall in any way release the Supplier from any warranty or other obligation under provisions of the contract.</p> <p>d) Detail description is provided in Section 6.1.31 (D):Post Landing/Delivery Inspection</p>
GCC 36	<p>Maintenance During 3 Years Operational Support ServicePeriod:</p> <p>The Contractor has to provide all the services are needed for maintenance requirement during the 3 years of Operational Support Service Period and will engage required manpower as stated in TDS & in Section -6. 3 years will be counted from the issuance of Provisional Acceptance Certificate (PAC)</p>

GCC 40

Commissioning and Operational Acceptance: **Acceptance certificate will be issue after completed the supply, installation, testing, commissioning of Pre-Paid Metering System.**

The followings are to be added with GCC 40

a) PROVISIONAL ACCEPTANCE CERTIFICATE (PAC)

The work shall not be considered as complete until a PAC has been issued for the work signed by the consignee, Engineer and the employer. PAC will be issued only after a final inspection and performance test of the unit has been carried out by the acceptance committee of the Employer, and the work has been judged complete and in compliance with the Contract Documents. Acceptance Committee i.e PAC committee shall be formed by the competent authority of BPDB. The test shall be performed as specified in the applicable Technical Requirements. Necessary testing equipment will be supplied by the Contractor. The final inspection and the performance test of the unit and the subsequent issuance of the PAC shall not be construed as a release to the Contractor from any contractual liability or responsibility, such release being subject only to the provisions of the release of liability clause under GCC. The Employer may take over completed portions of the work, prior to completion of the Contract, by written notice to the Contractor.

The Provisional Acceptance Certificate shall not be unreasonably withheld nor shall the Employer delay the issuing of the PAC on account of minor omissions or defects, which do not affect the commercial operation without any serious risk to the Facility, provided always that the Contractor undertakes to make good such omission and defects within a reasonable time. From the date of final inspection and test of completed works, at least 3 (three) weeks should be taken for observation to the outcome of the work, after which Provisional Acceptance Certificate should be issued for the work, signed and dated by the consignee and the Employer and delivered to the Contractor, provided that no omissions or defects are found which may affect the commercial operation.

b) SUCCESSFUL PERFORMANCE

This Contract shall be deemed successfully performed, that is completely performed, at the expiration of the specified warranty period, notwithstanding the provision whereby the Employer may extend the warranty period, at its option, for consideration to be paid to the Contractor as determined by negotiation.

c) MODIFICATIONS

The contractor shall not alter any of the Work, except as directed in writing by the Employer through the Engineer, but the Engineer will assist the Employer subject to the provisions hereinafter contained from time to time during the execution of the Contract by notice in writing to direct the Contractor to alter, amends, omit, add to, or otherwise vary any of the works, and the Contractor shall carryout such variation, and be bound by the same conditions, so far as applicable, as though the said variations were stated in the Specifications. In any case in which the Contractor has received any such direction from the Employer through the Engineer which either then or later will, in the opinion of the Contractor, involve an increase or decrease in the Contract Price, the Contractor shall as soon as reasonably possible, advise the Engineer in writing to that effect.

The difference in cost to the Employer, 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 shall be ascertained and determined in accordance with the rates specified in Schedule of Prices, so far as the same may be applicable, and where are not contained in the said Schedule or are not applicable, such amount shall be agreed between the Employer and the Contractor.

Should the Employer /Engineer make any such variations in any part of the Work such reasonable notice in writing will be given to the Contractor as we will enable him to make his arrangements accordingly, and in case where the Metering Facility is already manufactured or in course of manufacture, or any matter done or drawings or patterns made that require to be altered, a reasonable sum in respect thereof will be allowed by the Employer. If in the opinion of the Contractor any such variation is likely to prevent or prejudice the Contractor from or in fulfilling any of his obligations under the Contract, he shall notify the Employer through the Engineer thereof in writing, and the Engineer will decide forthwith in accordance with the Employer's instruction whether or not the same shall carried out. If the Employer confirms his instructions in writing, the said obligations shall be modified to such an extent as may be justified. Until the Employer so confirms their instructions these shall be deemed not to have been given.

d) FINAL ACCEPTANCE CERTIFICATE (FAC)

The work shall not be considered as completed until a Final Acceptance Certificate (FAC) shall have been issued for the work signed by the consignee, Engineer and the Employer and delivered to the Contractor stating that all work has been finally completed to their satisfaction. A FAC committee shall be formed by the competent authority of BPDB. The Final Acceptance Certificate (FAC) will be given latest twenty eight (28) days after the expiration of the 3 years Operational Support period or if different defect liability periods shall become applicable to different parts of the work, after the expiration of the latest of such periods and as soon as any and all work to be made good is completed to the satisfaction of the Engineer and the Consignee.

GCC 40.2.2	The Guarantee Test of the Facilities shall be successfully completed within 2 weeks from the date of Completion. (Not Applicable)
GCC 41.2	The Amount of Liquidated Damages for Delay or Delay Damages or Delay to Completion Date of the uncompleted delivery of goods/works/services or for any part thereof is: At the rate of zero point one percent (0.1%) of the Contract Price of relevant part per day. All Goods, whole works and related services shall be considered as uncompleted until the effective date of Operational Acceptance Certificate (OAC)/ Provisional Acceptance Certificate (PAC). Hence Liquidated Damages for delay or Delay Damages until effective date of OAC/PAC shall be applicable on the final Contract Price of the whole of the Goods, Works and related services.
GCC 41.3	Applicable (<i>amount or rate</i>) for the bonus for early Completion: Not Applicable
GCC 42.2	The period of validity of the Warranty shall be 36(thirty-Six) months from the date of acceptance of Goods and related works & service. During the warranty period, if any equipment/material is damaged and replaced by the Supplier, fresh warranty period for 36(thirty-Six) months shall be counted for the replaced equipment/material. Total warranty period shall not increase more than 72(seventy-two) months in any case. For the purpose of warranty, the place of final destination shall be: Central Store, BPDB, Tongi, Gazipur.
GCC 42.10	The critical components covered under the extended defect liability are 3 years for Smart Pre-Payment Meters, after issuance of Provisional Acceptance Certificate of goods and related service.
GCC 42.11 (New Clause)	<u>Final Acceptance Certificate (FAC):</u> The “Final Acceptance Certificate (FAC)” shall mean the official notification by Employer to the Contractor, issued at the end of all the Defect Liability Period (if different guarantee periods to different parts of the work, after the expiration of the latest of such periods) which indicates that the Contractor has completed his obligation under the Contract.
GCC 45.1 (b)	The multiplier of the Contract Price is: Not Applicable.
GCC 49	a) The Goods supplied under this Contract shall be fully insured by the Supplier in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery. The Goods remain at the risk and title of the Supplier until their final acceptance by the Purchaser. b) If not in accordance (a), the insurance coverage shall be as specified in the INCOTERM indicated in the Price Schedule or any other insurance provisions as specified in PCC.
GCC 56.2	The Contract Price shall be adjusted in accordance with the provisions of the Appendix to the Contract Agreement titled Adjustment Clause. Not Applicable
GCC57.1	As per Appendix-1. Terms and procedures of Payment.
GCC 57.5 (New Clause)	Payments due to the Contractor in each certificate shall be made into the following Bank Account nominated by the Contractor and in the currency as specified in the Payment Schedule: The particulars of the Bank Account nominated are as follows :

	<p>Title of the Account: [insert title to whom the Contract awarded]</p> <p>Name of the Bank : [insert name with code, if any]</p> <p>Name of the Branch : [insert branch name with code ,if any]</p> <p>Account Number : [insert number]</p> <p>Address : [insert location with district]</p> <p>Tel:</p> <p>Fax:</p> <p>e-mail address:</p>
GCC 59.1	<p>The amount of Performance Security shall be 10% (ten) percent of the Contract Price.</p>
GCC 60.4 (New Clause)	<p>1. For Contractor's equipment materials & Service:-</p> <p>a) Bangladesh Income Tax and VAT for Income Earned in Bangladesh:</p> <p>i) The Contractor shall be entirely liable to pay Income Tax for payment of Foreign & Local Currency under the contract amount (including CIF or CIP) according to income tax ordinance 1984. Income tax shall be deducted at source during payment of bills/Invoice at the prevailing rate (at the tender submission date) and onward deposition into Govt. treasury. If any changes the Tax rate on the payment date that will be on account of Employer.</p> <p>ii) The Contractor shall not be responsible for payment of applicable VAT on the Import materials and equipment on import price. The employer will pay the VAT on Import stage. If any difference of import price and contract price that shall be accumulated or settled according to VAT Act 2012. The contractor shall be liable to pay VAT on local and foreign portion on service, Civil and commissioning works on payment stage at the prevailing rate (at the Tender submission date) of Govt. according to VAT Act.2012. If any changes the VAT rate on the payment date that will be on account of Employer.</p> <p>b) Foreign country Taxes and Permits:</p> <p>The Contractor shall pay all sales, income and other taxes and duties, tariffs and imports that can be lawfully assessed against the contractor by the Government or any lawful authority of any country other than the people's Republic of Bangladesh which has jurisdiction over the contractor in connection with this contract and shall pay for all licenses permits and inspection required for the work including the cost or securing all export licenses and permits for materials, equipment, supplies and personnel exported from that country to Bangladesh.</p> <p>c) For Contractor's equipment, materials imported on re-exportable basis:</p> <p>The Contractor shall be entirely responsible for all Bangladesh Custom and Import duties, VAT, taxes and all other levies imposed under applicable law of Bangladesh for Importation of Contractor's Construction equipment, tools and materials required for implementation of the contract in Bangladesh which shall be imported on the condition to be exported after completion of the work, if the same are not exempted from such taxes, VAT & levies. The Board shall assist to the contractor to obtain exemption from NBR [National Board of Revenue] for import of the contractor's</p>

	<p>equipment and materials on the basis of re-export.</p> <p>2. Import Duty, VAT, Taxes, Levies and other Taxes for Permanent Materials of the project:</p> <p>The Board shall pay all Bangladesh Customs and Import duties, VAT, Taxes and all other liabilities arising from the Importation of all permanent Materials and equipment under the contract.</p> <p>The Contractor shall obtain all import permits or licenses required for any part of the work within the terms stated in the program or if not so stated, in reasonable time having regard to the time for delivery of the work and the time for completion. The Board shall pay all Bangladesh customs and import duties, VAT, taxes and all other levies arising from the importation of all permanent materials and equipment (on CIP Value) under the contract, The Board shall provide its extreme effort to pay such taxes in a timely manner to avoid any extra cost thereon. The contractor shall submit to the owner 5 (five) copies of non-negotiable shipping document ahead of shipment for arranging payment of such taxes and clearing the materials in time. The Board shall not bear any expenditure on account of import of cement, if any, by the Contractor. Normally, equipment and materials that will be incorporated in the permanent works shall be transported by vessel. If the Contractor decides to air freight any items, the excess freight beyond freight of vessel or excess inland transportation or any other additional cost on account of air freight shall be borne by the Contractor</p> <p>C&F:</p> <p>Manufacturer/supplier/ contractor shall be entirely responsible for clearing the material//equipment through their appointed clearing agent (including necessary payment to them), submission of tax assessment report from custom authority to Deputy Director clearance & Movement, BPDB, Rangpur/Dhaka/Khulna/Chattogram ahead of time period to avoid any sorts of demurrage. On presentation of assessment report from custom authority, concerned Deputy Director Clearance & Movement, BPDB will make arrangement for payment to custom authority. All charges related to tax assessment & Clearing shall be borne by the contractor if necessary.</p>
GCC 63.1	<p>The Amount of Liquidated Damages for Delay or Delay Damages or Delay to Completion Date of the uncompleted delivery of goods/works/services or for any part thereof is: At the rate of zero point one percent (0.1%) of the Contract Price of relevant part per day.</p> <p>All Goods, whole works and related services shall be considered as uncomplete until the effective date of Operational Acceptance Certificate (OAC)/ Provisional Acceptance Certificate (PAC). Hence Liquidated Damages for delay or Delay Damages until effective date of OAC/PAC shall be applicable on the final Contract Price of the whole of the Goods, Works and related services.</p>
GCC63.2	<p>The maximum amount of liquidated damages shall be Ten (10%) percent of the final Contract Price of the whole of the Goods, Works and related services.</p>

GCC 72.3 As per Bangladesh Arbitration Act. Place: Dhaka, Bangladesh

GCC 73.1 List Delivery Document (New Clause)

Subject to GCC Clause 64, the Delivery of the Plants and Services shall be in accordance with the Delivery and Completion Schedule specified in the Section 6: Schedule of Requirements.

Details of shipping and documents to be furnished by the Contractor/Supplier shall be:

“For Schedule No. 1 - Plant and Equipment Supplied from Abroad / Goods supplied from abroad as per INCOTERM CIP:

Upon shipment, the Contractor/Supplier shall notify the Purchaser by telex or fax the full details of the shipment, including Contract number, description of Goods, quantity, the vessel, the bill of lading number and date, port of loading, date of shipment, port of discharge, etc. The Contractor/Supplier shall send the following documents to the Purchaser, with a copy to the Insurance Company:

- (a) 7 copies of the Supplier’s invoice showing the description of the Goods, quantity, unit price, and total amount;
- (b) original and 8 copies of the negotiable, clean, on-board bill of lading marked “freight prepaid” and 8 copies of non-negotiable bill of lading where applicable;
- (c) 8 copies of the packing list identifying contents of each package;
- (d) insurance certificate;
- (e) Manufacturer’s or Supplier’s warranty certificate;
- (f) inspection certificate, issued by the nominated inspection agency or purchaser inspection team, and the Supplier’s factory inspection report; and
- (g) Certificate of origin.
- (h) Shipping advice issued by the Consignee

Truck Challan (where applicable)

The Employer/Consignee shall receive the above documents at least one week before arrival of Goods at the port and, if not received, the Supplier will be responsible for any consequent expenses.

The negotiable sets of documents shall be originals signed by the Supplier. The commercial Invoice is to show material value plus freight as applicable.

The Employer/Consignee shall receive the shipping documents at the latest one-week before arrival of cargoes at the airport of Dhaka or any sea/land port of entry in Bangladesh.

The shipping documents shall be supplied to as follows:

1	Project Manager/Consignee Director, Directorate of Pre-Paid Metering System, Biddut Bhaban (13th Floor), 1 No. Abdul Gani Road, Dhaka-1000	2 (Two) sets
2	Director, Finance, Biddut Bhaban (7 th Floor)1, Abdul Gani Road, Dhaka-1000	2 (Two) sets
3	Director, Clearance & Movement, BPDB, Chittagong/Dhaka	2 (Two) sets

	4	Deputy Director, Clearance & Movement BPDB, Chittagong/Dhaka /Khulna	1 (one) set
	5	Dy. Director, Insurance, BPDB, Dhaka	1 (one) set

	<p>No goods should be shipped or delivered without prior instruction (shipping advice) from the Employer/Consignee.</p>
	<p>vFor Goods from within the Purchaser's country as per INCOTERM EXW:</p> <p>Upon delivery of the Goods to the transporter, the Supplier shall notify the Employer/Consignee and send the following documents to the Employer/Consignee:</p> <ul style="list-style-type: none"> (a) 7 copies of the Supplier's invoice showing the description of the Goods, quantity, unit price, and total amount; (b) 7 copies delivery note, railway receipt, or truck receipt; (c) 3 copies Manufacturer's or Supplier's warranty certificate; (d) 7 copies inspection certificate issued by the nominated inspection agency, and the Supplier's factory inspection report; and (e) 7 copies certificate of origin. <p>The Employer/Consignee shall receive the above documents before the arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses.</p>
<p>GCC77.1 (New Clause)</p>	<p>Release of Liability:</p> <p>The acceptance by the Contractor of the last payment shall operate as, and shall be, a release to the BOARD and every officer, agent and employee thereof, from all claims and liability hereunder for anything done or furnished for or relating to the work, or for any act or neglect of the BOARD or of any person relating to or the affecting the work.</p> <p>The last payment by the BOARD to the Contractor shall constitute final acceptance of all work performed under this Contract and shall release the Contractor and his surety, from all Contractual liabilities and responsibilities to the BOARD except these liabilities assumed under the Defect Liability period/Warranty period/Functional Guarantees clause PCC [GCC 42] of these Special Conditions or arising out of hidden defects.</p> <p>In the event a suit were to be instituted in Bangladesh against the BOARD and the Contractor as defendants neither shall be released from his respective liabilities under this Contract.</p>

Appendix to the Tender

[In Tables below, the Procuring Entity shall indicate the source and base values with dates of Indexes, unless otherwise instructed to be quoted by the Tenderer, for the different Cost Components and mention its Weightings or Coefficients]

Table 1.1: Price Adjustment Data

[ITT Sub Clause 26.9: To be provided by the Procuring Entity]

Index Descriptions	Base Value	Sources of Index

Note:

1. The sources of Indexes and its values with dates shall be Bangladesh Bureau of Statistics (BBS) unless otherwise mentioned by the Procuring Entity or instructed to be quoted by the Tenderer.
2. The Procuring Entity may require the Tenderer to justify its proposed Indexes, if quoted by the Tenderer.
3. The Base Value of the Indexes shall be those prevailing twenty eight (28) days prior to the deadline for submission of the Tenders.

APPENDICES [This appendixes shall be the part of the contract]

- Appendix 1 - Terms and Procedures of Payment
- Appendix 2 - Price Adjustment
- Appendix 3 - Insurance Requirements
- Appendix 4 - Time Schedule
- Appendix 5 - List of Major Items of Plant and services and List of Approved Subcontractors
- Appendix 6 - Scope of Works and Supply by the Employer
- Appendix 7 - List of Documents for Approval or Review
- Appendix 8 - Functional Guarantees

Appendix 1. Terms and Procedures of Payment

In accordance with the provisions of GCC Clause 57 (Terms of Payment), the Employer shall pay the Contractor in the following manner and at the following times, on the basis of the Price Breakdown given in the section on Price Schedules. Payments will be made in the currencies quoted by the Tenderer unless otherwise agreed between the parties. Applications for payment in respect of part deliveries may be made by the Contractor as work proceeds in a manner described as below .

(A) Terms of Payment:

Schedule No. 1 - Plant and Equipment Supplied from Abroad

In respect of plant and equipment supplied from abroad, the following payments shall be made:

- i) **Advance Payment:** Not Applicable
- ii) **On Shipment:** Fifty percent (50%) of the total or pro rata CIP amount upon Incoterm "CIP," upon delivery to carrier shall be paid through letter of credit opened in favour of the contractor/supplier in a bank in its country upon submission of documents specified in **PCC clause 73.1** with invoices duly verified by Consignee, certified by the Engineer and approved by the Director, Directorate of Purchase.
- iii) **On Acceptance of PLI Report:** Thirty percent (20%) of the total or pro rata CIP amount upon approval of the Post Landing Inspection report as specified in PCC 38.2 for each consignment delivered at site and a claim bill duly verified by Consignee, certified by the Engineer and approved by the Director, Directorate of Purchase.
- iv) **On Operational Acceptance Certificate /PAC:** Ten percent (20%) of the total or pro rata CIP amount upon issue of the Operational Acceptance Certificate/PAC as specified in GCC 40.3 and a claim bill duly verified by Consignee, certified by the Engineer and approved by the Director, Directorate of Purchase.
- v) **On Final Acceptance Certificate (FAC) :** Ten percent (10%) of the total or pro rata CIP amount upon issue of the Final Acceptance Certificate (FAC) as specified in PCC Sub-clause GCC42.11 and a claim bill duly verified by Consignee, certified by the Engineer and approved by the Director, Directorate of Purchase.

Schedule No. 2 - Plant and Equipment Supplied from within the Employer's Country (Not Applicable)

In respect of plant and equipment supplied from within the Employer's country, the following payments shall be made:

- i. **Advance Payment:** Ten percent (10%) of the total EXW amount as an advance payment against receipt of invoice, and an irrevocable unconditional advance payment security for the equivalent amount made out in favor of the Employer. The advance payment security shall remain valid until issuance of Operational Acceptance Certificate (OAC). The advance payment security may be reduced in proportion to the value of the plant and equipment delivered to the site, as evidenced by delivery documents.
- ii. **On Delivery and PLI Report:** Hundred percent (100%) of the total or pro rata EXW amount upon Incoterm "Ex-Works," upon delivery to the designated site and upon approval of the Post Landing Inspection report as specified in PCC 38.2 for each consignment delivered at site and submission of documents specified in **PCC clause 73.1** with a claim bill duly verified by Consignee, certified by the Engineer and approved by the Director, Directorate of Purchase.

- iii. **On Operational Acceptance Certificate /PAC:** Ten percent (10%) of the total or pro rata EXW amount upon issue of the Operational Acceptance Certificate (OAC) as specified in GCC 40.3 and a claim bill duly verified by Consignee, certified by the Engineer and approved by the Director, Directorate of Purchase.
- iv. **On Final Acceptance Certificate (FAC):** Ten percent (10%) of the total or pro rata EXW amount upon issue of the Final Acceptance Certificate (FAC) as specified in PCC Sub-clause GCC42.11 and a claim bill duly verified by Consignee, certified by the Engineer and approved by the Director, Directorate of Purchase.

Schedule No. 3 - Design Services (Not Applicable)

In respect of design services for both the foreign currency and the local currency portions, the following payments shall be made:

- i. **Advance Payment:** Ten percent (10%) of the total design services amount as an advance payment against receipt of invoice, and an irrevocable unconditional advance payment security for the equivalent amount made out in favor of the Employer. The advance payment security shall remain valid until issuance of Operational Acceptance Certificate (OAC).
- ii. **On Acceptance of Design:** Seventy percent (70%) of the total or pro rata design services amount upon acceptance of design in accordance with GCC Clause 35 by the Engineer and upon issuance of Approval Certificate/Letter from Engineer and a claim bill duly verified by Project office, certified by the Engineer and approved by the Director, Directorate of Purchase.
- iii. **On Operational Acceptance Certificate /PAC:** Ten percent (10%) of the total amount for individual sub-station's design services upon acceptance of design in accordance with GCC Clause 35 and upon issue of the Operational Acceptance Certificate (OAC) as specified in GCC40.3 and a claim bill duly verified by Project office, certified by the Engineer and approved by the Director, Directorate of Purchase.
- iv. **On Final Acceptance Certificate (FAC) :** Ten percent (10%) of the total or pro rata design services amount upon issue of the Final Acceptance Certificate (FAC) as specified in PCC Sub-clause GCC42.11 and a claim bill duly verified by Project office, certified by the Engineer and approved by the Director, Directorate of Purchase.

Schedule No. 4 - Civil Works (Not Applicable)

In respect of installation services for both the foreign and local currency portions, the following payments shall be made:

- i. **Advance Payment:** Ten percent (10%) of the total civil works amount as an advance payment against receipt of invoice, and an irrevocable unconditional advance payment security for the equivalent amount made out in favor of the Employer. The advance payment security shall remain valid until issuance of Operational Acceptance Certificate (OAC). The advance payment security may be reduced in proportion to the value of civil works performed at site, as evidenced by progress report.
- ii. **On monthly Progress Report:** Seventy percent (70%) of the measured value of work performed satisfactorily by the Contractor, as identified in the said Program

of Performance or in Contractors' breakdown estimate, during the preceding month, will be made monthly after receipt of invoice/claim bill duly verified by Project office, certified by the Engineer and approved by the Director, Directorate of Purchase.

- iii. **On Operational Acceptance Certificate /PAC:** Ten percent (10%) of the total or pro rata value of work for individual sub-station's performed satisfactorily by the Contractor as identified in the said Program of Performance or in Contractors' breakdown estimate, upon issuance of the Operational Acceptance Certificate (OAC) as specified in GCC40.3, will be made after receipt of invoice/claim bill duly verified by Project office, certified by the Engineer and approved by the Director, Directorate of Purchase.
- iv. **On Final Acceptance Certificate (FAC):** Ten percent (10%) of the total or pro rata value of work for individual sub-station's performed satisfactorily by the Contractor as identified in the said Program of Performance or in Contractors' breakdown estimate, upon issue of the Final Acceptance Certificate (FAC) as specified in PCC Sub-clause GCC42.11, will be made after receipt of invoice/claim bill duly verified by Project office, certified by the Engineer and approved by the Director, Directorate of Purchase.

Schedule No. 5 - Installation and other Services

In respect of installation services for both the foreign and local currency portions, the following payments shall be made:

- i. **Advance Payment:** Not Applicable
- ii. **On monthly Progress Report:** Seventy percent (70%) of the measured value of Installation and Services work performed satisfactorily by the Contractor, as identified in the said Program of Performance or in Contractors' breakdown estimate, during the preceding month, will be made monthly after receipt of invoice/claim bills in triplicate duly verified by Consignee, certified by the Engineer and approved by the Director, Directorate of Purchase, BPDB.
- iii. **On Operational Acceptance Certificate /PAC:** Twenty percent (20%) of the total or pro rata value of installation services for sub-station performed by the Contractor as identified in the said Program of Performance or in Contractors' breakdown estimate, during the preceding month, upon issue of the Operational Acceptance Certificate/PAC, will be made after receipt of invoice/claim bills in triplicate duly verified by Consignee, certified by the Engineer and approved by the Director, Directorate of Purchase, BPDB.
- iv. **On Final Acceptance Certificate (FAC):** Ten percent (10%) of the total or pro rata value of installation services for sub-station performed by the Contractor as identified in the said Program of Performance or in Contractors' breakdown estimate, during the preceding month, upon issue of the Final Acceptance Certificate (FAC) as specified in PCC Sub-clause GCC42.11, will be made after receipt of invoice/claim bills in triplicate duly verified by Consignee, certified by the Engineer and approved by the Director, Directorate of Purchase, BPDB.

Note: The Payment-delay period after which the Purchaser shall pay interest to the Contractor/Supplier shall not allowed.No interest will be applicable for delayed payment.

(B) Payment Procedures

The procedures to be followed in applying for certification and making payments shall be as follows:

Payments under this Contract shall be effected in the currency of the Tender for Foreign Currency and in Taka for local currency.

1 Local Currency [BDT]

Payment of Local currency portion (where applicable) shall be made direct through CP & AA Cell, BPDB, Dhaka.

2 Foreign Currency

Payment of foreign currency portion shall be made through Letter of Credit (L/C) opened in favour of the contractor/supplier in a schedule Bank of Bangladesh.

BANKING CHARGES:

- Letter of Credit opening and other charges including amendment charges within Bangladesh shall be borne by BPDB and those outside Bangladesh shall be borne by the contractor/supplier.
- The supplier shall have to bear all such charges both inside and outside Bangladesh in case of extension of L/C if done at the request of the contractor/ supplier.

3 Invoices

The Contractor shall submit invoices (original) in triplicate to the Consignee whenever an invoice is required to be submitted as per provision of this Contract. Invoices should be duly certified by Engineer.

4 Documentation Required for Payment

Submission of delivery documents as stated under Clause GCC 73.1

(C) Payment Procedure for monthly Progress Report against Civil, Installation & Services work: Not Applicable

On or about the first day of each month the Contractor will prepare a bill in prescribed form of the value (As per Breakdown estimate submitted by Contractor) for the Civil/Installation & Services work done up-to such date. The estimated cost of Civil/Installation & Services work which, do not conform to the specifications will be deducted from the billed amount. Payment will be made to the Contractor as stipulated above. Such intermediate payment shall be regarded as payment by way of advance against the final payment for work actually done and shall not preclude the requiring of bad, unsound and imperfect work to be removed and reconstructed. Such payments shall not be considered as admission that the Contract performance has been completed nor shall it indicate the accruing or any claim, or shall it conclude, determine or affect in any way the powers of BPDB under this Contract to final settlement and adjustment of the account or in any other way vary or affect the Contract.

Contractor's Breakdown Estimate

The Contractor shall prepare and submit to the Consignee for approval a

breakdown estimate for and covering each lump-sum price stated in the Contract. The breakdown estimate, showing the value of each kind of service shall be certified by Consignee and approved by the Engineer before any partial payment estimate is prepared. Such items as bond premium, temporary facilities and plant may be listed separately in the breakdown estimate, provided that their cost can be substantiated.

The sum of the items listed in any breakdown estimate shall equal the Contract lump-sum price or prices, overhead and profit shall not be listed as separate items.

Documentation for progress payments shall be supported by the following documents: (Not Applicable)

- (a) One counterpart of a Work Progress Certificate signed by the Contractor and jointly countersigned by the Owner's Engineer and the Project Manager.
- (b) The Contractor shall submit all Work Progress Certificates to both the Owner's Engineer and the Project Manager simultaneously by registered air mail. The Owner's Engineer and the Project Manager will either countersign or reject a Work Progress Certificate within a maximum period of thirty (30) days from the date of receipt of such Certificate by him. If the Owner's Engineer and the Project Manager or either shall fail either to countersign or to reject a Work progress Certificate within the said thirty (30) days period, the Contractor shall notify the Project Manager by cable of the delay in the approval from the Site; and the Project Manager will either countersign the Work Progress Certificate in question or assign his reasons for not doing so within a maximum period of sixty (60) days from the date of receipt of the Contractor's said cable notice to him.
- (c) The Contractor shall furnish to the Project Manager and the Owner's Engineer or either whenever called upon to do so any additional information or documents that may be required in connection with verification of progress claims and or any other payments made.

Appendix 2. Price Adjustment

Prices payable to the Contractor, in accordance with the Contract, shall be subject to adjustment during performance of the Contract to reflect changes in the cost of labor and material components, in accordance with the following formula:

The Contract is subject to price adjustment applying the following formulae and the weightings or coefficients :

[Price Adjustment Formulae to be applicable if stated under ITT Sub Clause 26.9 shall be specified here]

Example:

$$P = A + a (Lm/Lo) + b (Blm/BlO) + c (CEm/CEo) + d (RSm/RSo) + e (STm/STo) + f (BRm/BRo) + g (Mlm/Mlo) + h (FUm/FUo) + \text{etc}$$

where;

L= Labor, Bl=Bitumen, CE=Cement, RS=Reinforcing Steel, ST=Stone, BR=Bricks, MI=Miscellaneous, FU= Fuel]

Weighting or Coefficient A equals between 0.10 and 0.15 and, B (a+b+c+d+e+f+g+h+etc) equals between 0.90 and 0.85.

[insert figure] non-adjustable component (**coefficient A**)

[insert figure] adjustable component (**coefficient B**)

*[The sum of **A+B** shall equal **ONE (1)**. It is usual to have value of **A** between 0.10 and 0.15 and that of **B** between 0.90 and 0.85. Breakdown of **B** shall be provided in **Appendix to the Tender.**]*

[delete as appropriate]

The date of adjustment shall be the mid-point of the period of manufacture or installation of component or Plant.

The following conditions shall apply:

- (a) No price increase will be allowed beyond the original delivery date unless covered by an extension of time awarded by the Employer under the terms of the Contract. No price increase will be allowed for periods of delay for which the Contractor is responsible. The Employer will, however, be entitled to any price decrease occurring during such periods of delay.
- (c) No price adjustment shall be payable on the portion of the Contract price paid to the Contractor as an advance payment.

For complex plant supply and installation involving several sources of supply and/or a substantial amount of installation works, a family of formulas may be necessary, with provision for the usage of Contractor's equipment in the works formula.

Appendix 3. Insurance Requirements

Insurances is to be taken out by the Contractor

In accordance with the provisions of GCC Clause 49, the Contractor shall at its expense take out and maintain in effect, or cause to be taken out and maintained in effect, during the performance of the Contract, the insurances set forth below in the sums and with the deductibles and other conditions specified. The identity of the insurers and the form of the policies shall be subject to the approval of the Employer, such approval not to be unreasonably withheld.

The Contractor shall arrange the following insurance except "Workmen's compensation Insurance for the Contractor's expatriate personnel" from **M/S Bangladesh SadharanBima Corporation** in the joint name of the Employer and Contractor and Policies to be taken in foreign currency and local currency wherever necessary and the payment of premium shall be made by the Contractor.

(a) Cargo Insurance

Covering loss or damage occurring, while in transit from the supplier's or manufacturer's works or stores until arrival at the Site, to the Facilities (including spare parts therefore) and to the construction equipment to be provided by the Contractor or its Subcontractors.

Amount [in currency(ies)]	Deductible limits [in currency(ies)]	Parties insured [names]	From [place]	To [place]

(b) Installation All Risks Insurance

Covering physical loss or damage to the Facilities at the Site, occurring prior to completion of the Facilities, with an extended maintenance coverage for the Contractor's liability in respect of any loss or damage occurring during the defect liability period while the Contractor is on the Site for the purpose of performing its obligations during the defect liability period.

Amount [in currency(ies)]	Deductible limits [in currency(ies)]	Parties insured [names]	From [place]	To [place]

(c) Third Party Liability Insurance

Covering bodily injury or death suffered by third parties (including the Employer's personnel) and loss of or damage to property (including the Employer's property and any parts of the Facilities that have been accepted by the Employer) occurring in connection with the supply and installation of the Facilities.

Amount [in currency(ies)]	Deductible limits [in currency(ies)]	Parties insured [names]	From [place]	To [place]

(d) Automobile Liability Insurance

Covering use of all vehicles used by the Contractor or its Subcontractors (whether or not owned by them) in connection with the supply and installation of the Facilities. Comprehensive insurance in accordance with statutory requirements.

(e) Workers' Compensation

In accordance with the statutory requirements applicable in any country where the Facilities or any part thereof is executed.

(f) Employer's Liability

In accordance with the statutory requirements applicable in any country where the Facilities or any part thereof is executed.

(g) Other Insurances

The Contractor is also required to take out and maintain at its own cost the following insurances:

Details:

Amount [in currency(ies)]	Deductible limits [in currency(ies)]	Parties insured [names]	From [place]	To [place]

The Employer shall be named as co-insured under all insurance policies taken out by the Contractor pursuant to GCC Sub-Clause 49.1, except for the Third Party Liability, Workers' Compensation and Employer's Liability Insurances, and the Contractor's Subcontractors shall be named as co-insured under all insurance policies taken out by the Contractor pursuant to GCC Sub-Clause 49.1, except for the Cargo, Workers' Compensation and Employer's Liability Insurances. All insurer's rights of subrogation against such co-insured for losses or claims arising out of the performance of the Contract shall be waived under such policies.

The Contractor shall promptly furnish one set of shipping documents, a copy of Bill of lading, invoice, packing list etc., of each consignment direct to the Deputy Director, Insurance Finance Directorate, BPDB, Dhaka well in time of the shipment of goods indicating the contract number and name of the insurer. If they fail to comply with this instruction they will be held responsible to compensate the losses if any arising out of the non-compliance of this conditions.

REPLACEMENT AND REPAIR UNDER INSURANCE

The Contractor shall follow customary insurance claim procedures in seeking to effect recovery under the applicable insurance coverage, of the costs of repair or replacement of any materials lost or damaged in shipment or handling, replacement shipments for materials being replaced or materials that has been returned to the country of origin for repair shall be shipped at no charge to the Employer. However, any costs for custom duties, taxes, import licenses under an insurances claim will be borne by the Contractor. The contractor shall in no way withhold the project works/ supplies / services for finalization of the insurance claimed, if any.

Insurances to be Taken Out By The Employer(Not Applicable)

If the Employer is proposing to take out any or all of the above insurances itself, or any other insurances in respect of the Facilities, either in its own name or in the joint names of itself and the Contractor, it shall give details below prior to issuing the tender documents. Under the terms of the Contract, the Contractor and the Contractor's Subcontractors shall be named as co-insured under all such policies.

The Employer shall at its expense take out and maintain in effect during the performance of the Contract the following insurances.

Details:

Amount [in currency(ies)]	Deductible limits [in currency(ies)]	Parties insured [names]	From [place]	To [place]

Appendix 4. Time Schedule

The Employer should normally provide a Time Schedule to be followed by the Contractor during the performance of the Contract. This schedule should be provided with the tender documents under this Appendix. All completion times indicated must be in accordance with the information regarding Time(s) for Completion given in the Tender Data Sheet.

Except under exceptional circumstances, the Time Schedule should indicate periods of time (e.g., weeks or months) and not specify calendar dates. All periods should be shown from the Effective Date of the Contract.

Should it become necessary to amend the Time Schedule to reflect any agreements made with the selected Tenderer prior to award of Contract, the amended Time Schedule shall replace the original Time Schedule prior to signature of the Contract Agreement.

If the tender documents contain no Time Schedule, the Tenderer shall be required to submit with its tender a detailed program, normally in the form of a bar chart, showing how and the order in which it intends to perform the Contract and showing the key events requiring action or decision by the Employer. In preparing this Program, the Tenderer shall adhere to the Time(s) for Completion given in the Tender Data Sheet or give its reasons for not adhering thereto. The Time Schedule submitted by the selected Tenderer and amended as necessary prior to award of Contract shall be included as Appendix to the Contract Agreement before the Contract is signed

Appendix 5. List of Major Items of Plant and Services and List of Approved Subcontractors

Prior to issuing the Tender Document, the Employer has established a list of major item of plant and services for which approval of the Employer is required. Prior to award of Contract, the details of approved subcontractor, including manufacturers shall be completed, indicating those subcontractors proposed by the Tenderer in the corresponding Attachment to its tender that are approved by the Employer for engagement by the Contractor during the performance of the Contract.

A list of major items of plant and services is provided below.

The following Subcontractors and/or manufacturers are approved for carrying out the item of the facilities indicated. Where more than one Subcontractor is listed, the Contractor is free to choose between them, but it must notify the Employer of its choice in good time prior to appointing any selected Subcontractor. In accordance with GCC Sub-Clause 32.1, the Contractor is free to submit proposals for Subcontractors for additional items from time to time. No Subcontracts shall be placed with any such Subcontractors for additional items until the Subcontractors have been approved in writing by the Employer and their names have been added to this list of Approved Subcontractors.

Major Items of Plant and Services	Approved Subcontractors/Manufacturers	Nationality

Appendix 6. Scope of Works and Supply by the Employer

Prior to issuing the tender documents, the Employer shall indicate in this Appendix details of all personnel and Facilities it will provide for use by the Contractor and indicate, where applicable, the charges that it will make in respect of their use.

The Employer shall also identify any part(s) of the facilities it intends to carry out itself (or by other contractors), and any plant, equipment, or materials that it proposes to purchase itself and supply to the Contractor for incorporation in the facilities, indicating, where applicable, the charges that it will make in respect thereof.

The following personnel, facilities, works and supplies shall apply as appropriate.

All personnel, facilities, works and supplies will be provided by the Employer in good time so as not to delay the performance of the Contractor, in accordance with the approved Time Schedule and Program of Performance pursuant to GCC Sub-Clause 31.2.

Unless otherwise indicated, all personnel, facilities, works and supplies will be provided free of charge to the Contractor.

Personnel	Charge to Contractor (if any)

Facilities	Charge to Contractor (if any)

Works	Charge to Contractor (if any)

Supplies	Charge to Contractor (if any)

Appendix 7. List of Documents for Approval or Review

Pursuant to GCC Sub-Clause 35.3.1, the Contractor shall prepare, or cause its Subcontractor to prepare, and present to the Project Manager in accordance with the requirements of GCC Sub-Clause 31.2 (Program of Performance), the following documents for

(A) Approval

- 1.
- 2.
- 3.

(B) Review

- 1.
- 2.
- 3.

Appendix 8. Functional Guarantees

1. General

This Appendix sets out

- (a) the functional guarantees referred to in GCC Clause 43 (Functional Guarantees)
- (b) the preconditions to the validity of the functional guarantees, either in production and/or consumption, set forth below
- (c) the minimum level of the functional guarantees
- (d) the formula for calculation of liquidated damages for failure to attain the functional guarantees.

2. Preconditions

The Contractor gives the functional guarantees (specified herein) for the facilities, subject to the following preconditions being fully satisfied: *[List any conditions for the carrying out of the Guarantee Test referred to in GCC Sub-Clause 40.2.]*

3. Functional Guarantees

Subject to compliance with the foregoing preconditions, the Contractor guarantees as follows:

- 3.1 Production Capacity** *[List here the production capacity that the Contractor is to guarantee, making sure to use, as functional guarantees, the figures offered by the Contractor in its tender]*
- 3.2 Raw Materials and Utilities Consumption** *[List here the guaranteed items of consumption per unit of production (e.g., kg, tons, kcal, kWh, etc.) that the Contractor is to guarantee, making sure to use, as functional guarantees, the figures offered by the Contractor in its tender]*

4. Failure in Guarantees and Liquidated Damages

4.1 Failure to Attain Guaranteed Production Capacity

If the production capacity of the facilities attained in the guarantee test, pursuant to GCC Sub-Clause 40.2, is less than the guaranteed figure specified in para. 3.1 above, but the actual production capacity attained in the guarantee test is not less than the minimum level specified in para. 4.3 below, and the Contractor elects to pay liquidated damages to the Employer in lieu of making changes, modifications and/or additions to the Facilities, pursuant to GCC Sub-Clause 43.3, then the Contractor shall pay liquidated damages at the rate of *[amount in the contract currency]* for every complete one percent (1%) of the deficiency in the production capacity of the Facilities, or at a proportionately reduced rate for any deficiency, or part thereof, of less than a complete one percent (1%).

4.2 Raw Materials and Utilities Consumption in Excess of Guaranteed Level

[To be specified in the appropriate wording for the type of facilities if there are consumption guarantee]

If the actual measured figure of specified raw materials and utilities consumed per unit (or their average total cost of consumption) exceeds the guaranteed figure specified in para. 3.2 above (or their specified average total cost of consumption), but the actual consumption attained in the guarantee test, pursuant to GCC Sub-Clause 25.2, is not more than the maximum level specified in para. 4.3 below, and the Contractor elects to pay liquidated damages to the Employer in lieu of making changes, modifications and/or additions to the Facilities pursuant to GCC Sub-Clause 43.3, then the Contractor shall pay liquidated damages at the rate of *[amount in the contract currency]* for every complete one percent (1%) of the excess consumption of the Facilities, or part thereof, of less than a complete one percent (1%).

[The rate of liquidated damages specified in paras. 4.1 and 4.2 above shall be at least equivalent to the rate specified in Section 3 (General Conditions of Contract) for the comparison of functional guarantees provided by the Tenderers]

4.3 Minimum Levels

Notwithstanding the provisions of this paragraph, if as a result of the guarantee test(s), the following minimum levels of performance guarantees (and consumption guarantees) are not attained by the Contractor, the Contractor shall at its own cost make good any deficiencies until the Facilities reach any of such minimum performance levels, pursuant to GCC Sub-Clause 43.2:

- (a) production capacity of the Facilities attained in the guarantee test: ninety-five percent (95%) of the guaranteed production capacity

and/or

- (b) average total cost of consumption of all the raw materials and utilities of the Facilities: one hundred and five percent (105%) of the guaranteed figures.

4.4 Limitation of Liability

Subject to para. 4.3 above, the Contractor's aggregate liability to pay liquidated damages for failure to attain the functional guarantees shall not exceed *[the percentage specified shall not exceed ten percent (10%)]*. percent (. . . %) of the Contract price

Section 5. Tender and Contract Forms

Form	Title
Tender Forms	
PG5A – 1a	Tender Submission Letterfor Technical Proposal
PG5A – 1b	Tender Submission Letter for Financial (Price) Proposal
PG5A – 2a	Tenderer Information Sheet
PG5A – 2b	JVCA Partner Information
PG5A – 2c	Subcontractor Information
PG5A – 3	Price Schedule for Plant and Services
PG5A – 4	Technical Proposal
PG5A – 4a	Specification submission & compliance sheet.
PG5A– 5	Manufacturer’s Authorisation Letter
PG5A – 6	Bank Guarantee for Tender Security
PG5A – 6a	Letter of Commitment for Bank’s undertaking for Line of Credit (Form PG5A-6a)
PG5A – 13	Deviation List
Contract Forms	
PG5A – 7	Notification of Award
PG5A – 8	Contract Agreement
PG5A – 9	Bank Guarantee for Performance Security
PG5A– 10	Bank Guarantee for Advance Payment
PG5A– 11	Bank Guarantee for Retention Money Security (Form PG5A-11)
PG5A- 12	Warranty Certificate

Forms PG5A-1a,PG5A-1b to PG5A-6, PG5A-6a and PG5A-13 comprises part of the Tender and should be completed as stated in ITT Clause 24.

Forms PG5A-7 to PG5A-12 and the appendices of the tender comprises part of the Contract as stated in GCC Clause 6.

Tender Submission Letter for Technical offer (Form PG5A-1a)

[This letter should be completed and signed by the Authorised Signatory preferably on the Letter-Head Pad of the Tenderer and be appended in the technical proposal envelope]

To:

[Contact Person]

[Name of Procuring Entity]

[Address of Procuring Entity]

Date:

Invitation for Tender No:

[indicate IFT No]

Tender Package No:

[indicate Package No]

This Package is divided into the following Number of Lots

[indicate number of Lot(s)]

We, the undersigned, offer to design, manufacture, test, deliver, install, pre-commission and commission in conformity with the Tender Document, the following Plant and Services, viz:

In signing this letter, and in submitting our Tender, we also confirm that:

- (a) our Tender shall be valid for the period stated in the Tender Data Sheet (ITT Sub Clause 30.1) and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (b) a Tender Security is attached in the form of a *[state pay order, bank draft, bank guarantee]* in the amount stated in the Tender Data Sheet (ITT Sub Clause 32) and valid for a period of twenty eight (28) days beyond the Tender validity date;
- (c) we have examined and have no reservations to the Tender Document, issued by you on *[insert date]*; including Addendum to Tender Document No(s) *[state numbers]* , issued in accordance with the Instructions to Tenderers (ITT Clause 11). *[insert the number and issuing date of each addendum; or delete this sentence if no Addendum has been issued]*;
- (d) we, including as applicable, any JVCA partner or Subcontractor for any part of the contract resulting from this Tender process, have nationalities from eligible countries, in accordance with ITT Sub Clause 5.1;
- (e) we are submitting this Tender as a sole Tenderer in accordance with ITT Sub Clause 38.3

or

we are submitting this Tender as the partners of a JVCA, comprising the following other partners in accordance with ITT Sub Clause 18.1;

	Name of Partner	Address of Partner
1		
2		
3		
4		

- (f) *we are not a Government owned entity as defined in ITT Sub Clause 5.3 or we are a Government owned entity, and we meet the requirements of ITT Sub Clause 5.3;*
(delete one of the above as appropriate)
- (g) we, including as applicable any JVCA partner, declare that we are not associated, nor have been associated in the past, directly or indirectly, with a consultant or any other entity that has prepared the design, specifications and other documents in accordance with ITT Sub Clause 5.5;
- (h) we, including as applicable any JVCA partner or Subcontractor for any part of the contract resulting from this Tender process, have not been declared ineligible by the Government of Bangladesh on charges of engaging in corrupt, fraudulent, collusive or coercive practices in accordance with ITT Sub Clause 5.6;
- (i) furthermore, we are aware of ITT Clause 4 concerning such practices and pledge not to indulge in such practices in competing for or in executing the Contract;
- (j) we intend to subcontract an activity or part of the Works, in accordance with ITT Sub Clause 19.1, to the following Subcontractor(s);

Activity or part of the Plant and Services	Name of Subcontractor with Address

- (k) we, including as applicable any JVCA partner, confirm that we do not have a record of poor performance, such as abandoning the works, not properly completing contracts, inordinate delays, or financial failure as stated in ITT Clause 5.7, and that we do not have, or have had, any litigation against us, other than that stated in the Tenderer Information (**Form PG5A-2b**);
- (l) we are not participating as Tenderers in more than one Tender in this Tendering process. We understand that your written Notification of Award shall constitute the acceptance of our Tender and shall become a binding Contract between us, until a formal Contract is prepared and executed;
- (m) we, including as applicable any JVCA partner, confirm that we do not have a record of insolvency, receivership, bankrupt or being wound up, our business activities were not been suspended, and it was not been the subject of legal proceedings in accordance with ITT Sub Clause 5.8;
- (n) we, including as applicable any JVCA partner, confirm that we have fulfilled our obligations to pay taxes and social security contributions applicable under the relevant national laws and regulations of Bangladesh in accordance with ITT Sub Clause 5.9;
- (o) we understand that you reserve the right to reject all the Tenders or annul the Tender proceedings, without incurring any liability to Tenderers, in accordance with ITT Clause 59.

Signature:	<i>[insert signature of authorised representative of the Tenderer]</i>
Name:	<i>[insert full name of signatory with National ID Number, if applicable]</i>
In the capacity of:	<i>[insert capacity of signatory]</i>
Duly authorised to sign the Tender for and on behalf of the Tenderer	

*[If there is more than one (1) signatory, or in the case of a JVCA, add other boxes and sign accordingly].***Attachment 1:**

[ITT Sub Clause 38.3]

Written confirmation authorising the above signatory(ies) to commit the Tenderer

[and, if applicable]

Attachment 2:

[ITT Sub Clause 29.2(b)]

Copy of the JVCA Agreement / Letter of Intent to form JVCA with draft proposed Agreement

Tender Submission Letter for Financial offer (Form PG5A-1b)

[This letter should be completed and signed by the Authorised Signatory preferably on the Letter-Head Pad of the Tenderer and be appended in the financial proposal envelope]

To:

[Contact Person]

[Name of Procuring Entity]

[Address of Procuring Entity]

Date:

Invitation for Tender No:

[indicate IFT No]

Tender Package No:

[indicate Package No]

This Package is divided into the following Number of Lots

[indicate number of Lot(s)]

We, the undersigned, offer to design, manufacture, test, deliver, install, precommission and commission in conformity with the Tender Document, the following Plant and Services, viz:

In accordance with ITT Clauses 26 and 27, the following prices and discounts apply to our Tender:

The Tender Price is: (ITT Sub-Clause 26.1)	<i>[state amount in figures] and [state amount in words]</i>
Plant (including Mandatory Spare Parts) Supplied from abroad	<i>[state amount in figures] and [state amount in words]</i>
Plant (including Mandatory Spare Parts) supplied from within the Employer's Country	<i>Taka [state amount in figures] And Taka [state amount in words]</i>
Design Services	<i>[state amount in figures] and [state amount in words]</i>
Installation and Other Services	<i>[state amount in figures] and [state amount in words]</i>
Recommended Spare parts Price (If economic Factor is applicable)	<i>[state amount in figures] and [state amount in words]</i>
The Unconditional discount is (ITT Sub-Clause 23.11)	<i>[state amount in figures] and [state amount in words]</i>
The methodology for Application of the discount is:	<i>[state the methodology]</i>

and we shall accordingly submit an Advance Payment Guarantee in the format shown in Form PG5A- 10.

In signing this letter, and in submitting our Tender, we also confirm that:

- a) our Tender shall be valid for the period stated in the Tender Data Sheet (ITT Sub Clause 30.1) and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- b) a Tender Security is attached in the form of a [state pay order, bank draft, bank guarantee] in the amount stated in the Tender Data Sheet (ITT Sub Clause 32) and valid for a period of twenty eight (28) days beyond the Tender validity date;
- c) if our Tender is accepted, we commit to furnishing a Performance Security within the time stated under ITT Sub Clause 65.1) and in the form specified in the Tender Data Sheet (ITT Sub Clause 66.1) valid for a period of twenty eight (28) days beyond the date of issue of the Completion Certificate of the Plants and Services;
- d) we have examined and have no reservations to the Tender Document, issued by you on [insert date]; including Addendum to Tender Document No(s) [state numbers] , issued in accordance with the Instructions to Tenderers (ITT Clause 11). [insert the number and issuing date of each addendum; or delete this sentence if no Addendum has been issued];
- e) we, including as applicable, any JVCA partner or Subcontractor for any part of the contract resulting from this Tender process, have nationalities from eligible countries, in accordance with ITT Sub Clause 5.1;
- f) we are submitting this Tender as a sole Tenderer in accordance with ITT Sub Clause 38.3 or
we are submitting this Tender as the partners of a JVCA, comprising the following other partners in accordance with ITT Sub Clause 18.1;

	Name of Partner	Address of Partner
1		
2		
3		
4		

- g) we are not a Government owned entity as defined in ITT Sub Clause 5.3 or
we are a Government owned entity, and we meet the requirements of ITT Sub Clause 5.3;
(delete one of the above as appropriate)
- h) we, including as applicable any JVCA partner, declare that we are not associated, nor have been associated in the past, directly or indirectly, with a consultant or any other entity that has prepared the design, specifications and other documents in accordance with ITT Sub Clause 5.5;
- i) we, including as applicable any JVCA partner or Subcontractor for any part of the contract resulting from this Tender process, have not been declared ineligible by the Government of Bangladesh on charges of engaging in corrupt, fraudulent, collusive or coercive practices in accordance with ITT Sub Clause 5.6;
- j) furthermore, we are aware of ITT Clause 4 concerning such practices and pledge not to indulge in such practices in competing for or in executing the Contract;
- k) we intend to subcontract an activity or part of the Works, in accordance with ITT Sub Clause 19.1, to the following Subcontractor(s);

Activity or part of the Plant and Services	Name of Subcontractor with Address

- l) we, including as applicable any JVCA partner, confirm that we do not have a record of poor performance, such as abandoning the works, not properly completing contracts, inordinate delays, or financial failure as stated in ITT Clause 5.7, and that we do not have, or have had, any litigation against us, other than that stated in the Tenderer Information (**Form PG5A-2b**);
- m) we are not participating as Tenderers in more than one Tender in this Tendering process. We understand that your written Notification of Award shall constitute the acceptance of our Tender and shall become a binding Contract between us, until a formal Contract is prepared and executed;
- n) we, including as applicable any JVCA partner, confirm that we do not have a record of insolvency, receivership, bankrupt or being wound up, our business activities were not been suspended, and it was not been the subject of legal proceedings in accordance with ITT Sub Clause 5.8;
- o) we, including as applicable any JVCA partner, confirm that we have fulfilled our obligations to pay taxes and social security contributions applicable under the relevant national laws and regulations of Bangladesh in accordance with ITT Sub Clause 5.9;
- p) we understand that you reserve the right to reject all the Tenders or annul the Tender proceedings, without incurring any liability to Tenderers, in accordance with ITT Clause 61

Signature:	<i>[insert signature of authorised representative of the Tenderer]</i>
Name:	<i>[insert full name of signatory with National ID Number]</i>
In the capacity of:	<i>[insert capacity of signatory]</i>
Duly authorised to sign the Tender for and on behalf of the Tenderer	

[If there is more than one (1) signatory, or in the case of a JVCA, add other boxes and sign accordingly]. **Attachment 1:**

[ITT Sub Clause 38.3]

Written confirmation authorising the above signatory(ies) to commit the Tenderer

[and, if applicable]

Attachment 2:

[ITT Sub Clause 29.2(b)]

Copy of the JVCA Agreement / Letter of Intent to form JVCA with draft proposed Agreement

Tenderer Information (Form PG5A-2a)

[This Form should be completed only by the Tenderer, preferably on its Letter-Head Pad]

Invitation for Tender No: *[indicate IFT No]*
 Tender Package No: *[indicate Package No]*
 This Package is divided into the following Number of Lots: *[indicate number of Lot(s)]*

1. Eligibility Information of the Tenderer [ITT –Clauses 5 & 29]			
1.1	Nationality of individual or country of registration		
1.2	Tenderer's legal title		
1.3	Tenderer's registered address		
1.4	Tenderer's legal status <i>[complete the relevant box]</i>		
	Proprietorship		
	Partnership		
	Limited Liability Concern		
	Government-owned Enterprise		
	Others <i>[please describe, if applicable]</i>		
1.5	Tenderer's year of registration		
1.6	Tenderer's authorised representative details		
	Name		
	National ID number		
	Address		
	Telephone / Fax numbers		
	e-mail address		
1.7	Litigation [ITT Cause 13]		
	If there is no history of litigation or no pending litigation then state opposite "None". If there is a history of litigation, or a number of awards, against the Tenderer provide details below		
	<u>A. Arbitration Awards made against</u>		
	ar	Matter in dispute	Value of Award
			Value of Claim

B. Arbitration Awards pending					
	Year	Matter in dispute			Value of Claim
1.8	Tenderer to attach photocopies of the original documents mentioned aside			[All documents required under ITT Clauses 5 and 29]	
The following two information are applicable for National Tenderers					
1.9	Tenderer's Value Added Tax Registration (VAT) Number				
1.10	Tenderer's Tax Identification Number(TIN)				
[The foreign Tenderers, in accordance with ITT Sub Clause 5.1, shall provide evidence by a written declaration to that effect to demonstrate that it meets the criterion]					
2. Qualification Information of the Tenderer [ITT Clause 29]					
2.1 General Experience in Plant and Services of Tenderer					
	Start Month Year	End Month Year	Years	Contract No and Name of Contract Name and Address of Procuring Entity Brief description of Plant and Services	Role of Tenderer [Contractor/Subcontractor /Management Contractor]
2.2 Specific Experience in Key Activities					
	Contract No Name of Contract		[insert reference no] of [insert year] [insert name]		
	Role in Contract <i>[tick relevant box].</i>		Contractor	Subcontractor	Management Contractor
	Award date		[insert date]		
	Completion date		[insert date]		
	Total Contract Value		[insert amount]		
	Procuring Entity's Name Address Tel / Fax <u>e-mail</u> Brief description with justifications of the similarity compared to the Procuring Entity's		[state justification in support of its similarity compared to the proposed works]		

	requirements	
2.3	Average annual turnover [ITT Sub Clause 15.1(a)] <i>[amount invoiced to Procuring Entity(s) for each year of works in progress or completed, using rate of exchange at the end of the period reported]</i>	
	Year	Amount & Currency
		<i>amount in figures</i>
2.4	Financial Resources available to meet the cash flow [ITT Sub Clause 15.1(b)]	
	No	Source of Financing
		Amount Available
In order to confirm the above statements the Tenderer shall submit , as applicable, the documents mentioned in ITT Sub Clause 14.1(a), (b) and 15.1 (a), (b) & (c)		
2.5	Contact Details	
	Name, address, and other contact details of Tenderer Bankers and other Procuring Entity(s) that may provide references, if contacted by this Procuring Entity	
2.6	Qualifications and experience of key technical and administrative personnel proposed for Contract administration and management [ITT Sub Clause 16.1]	
	Position Name Years of General Experience	Years of Specific Experience
<i>[Tenderer to complete details of as many personnel as are applicable. Each personnel listed above should complete the Personnel Information (Form PG5A-5)]</i>		
2.7	Major Equipment proposed to carry out the Contract [ITT Sub Clause 17.1]	
	Item of Equipment	Condition (new, good, average, poor)
		Owned, leased or to be purchased (state owner, lessor seller)

<i>[Tenderer to list details of each item of major equipment, as applicable]</i>			

Name:	<i>[insert full name of signatory]</i>	<i>Signature with Date and Seal</i>
In the capacity of:	<i>[insert designation of signatory]</i>	<i>[Sign]</i>
Duly authorised to sign the Tender for and on behalf of the Tenderer		

JVCA Partner Information (Form PG5A-2b)

[This Form should be completed by each JVCA partner].

Invitation for Tender No:	<i>[indicate IFT No]</i>
Tender Package No	<i>[indicate Package No]</i>
This Package is divided into the following Number of Lots	<i>[indicate number of Lot(s)]</i>

1. Eligibility Information of the JVCA Partner [ITT –Clauses 5 & 29]			
1.1	Nationality of Individual or country of Registration		
1.2	JVCA Partner's legal title		
1.3	JVCA Partner's registered address		
1.4	JVCA Partner's legal status <i>[complete the relevant box]</i>		
	Proprietorship		
	Partnership		
	Limited Liability Concern		
	Government-owned Enterprise		
	Other (please describe, if applicable)		
1.5	JVCA Partner's year of registration		
1.6	JVCA Partner's authorised representative details		
	Name		
	National ID number		
	Address		
	Telephone / Fax numbers		
	e-mail address		
1.7	Litigation [ITT Sub Cause 13]		
	If there is no history of litigation or no pending litigation then state "None". If there is a history of litigation, or a number of awards, against the JVCA Partner provide details below:		
	<u>A. Arbitration Awards made against</u>		
	Year	Matter in dispute	Value of Award of Claim
	<u>B. Arbitration Awards pending</u>		
	Year	Matter in dispute	Value of Claim

1.8	JVCA Partner to attach copies of the original documents mentioned aside		[All documents required under ITT Clauses 5 and 29]		
The following two information are applicable for national JVCA Partners only					
1.9	JVCA Partner's Value Added Tax Registration (VAT) Number				
1.10	JVCA Partner's Tax Identification Number (TIN)				
[The foreign JVCA Partners, in accordance with ITT Sub Clause 5.1, shall provide evidence by a written declaration to that effect to demonstrate that it meets the criterion]					
2. Key Activity(ies) for which it is intended to be joint ventured [ITT Sub Clause 18.2 & 18.3]					
	Elements of Activity		Brief description of Activity		
3. Qualification Information of the JVCA Partner [ITT Clause 18]					
3.1	General Experience in Plant and Services of JVCA Partner				
	Start Month Year	End Month Year	Years	Contract No and & Name of Contract Name and Address of Procuring Entity Brief description of Works	Role of JVCA Partner [Contractor/Subcontractor/Management Contractor]
3.2	Specific Experience in Key Activities				
	Contract No Name of Contract		[insert reference no] of [insert year] [insert name]		
	Role in Contract [tick relevant box]		Contractor	Sub contractor	Management Contractor
	Award date Completion date Total Contract Amount		[insert date] [insert date] [insert amount]		
	Procuring Entity's Name Address Tel / Fax		[state justification in support of its similarity compared to the proposed plants and service]		

	<u>e-mail</u>	Brief description with justifications of the similarity compared to the Procuring Entity's requirements	
3.3	Average annual construction turnover [ITT Sub Clause 15.1 (a)] <i>[amount invoiced to Procuring Entity(s) for each year of work in progress or completed, using rate of exchange at the end of the period reported]</i>		
	Year	Amount & Currency	Amount in Figures
3.4	Financial Resources available to meet the cash flow [ITT Sub-Clause 15.1(b)]		
		Source of financing	Amount available
	In order to confirm the above statements the JVCA Partner shall submit , as applicable, the documents mentioned in ITT Sub Clause 14.1 (a) & (b)15.1 (a), (b), (c) & (d)		
3.5	Contact Details		
	Name, address, and contact details of Tenderer's Bankers and other Procuring Entity(s) that may provide references if contacted by this Procuring Entity		
3.6	Qualifications and experience of key technical and administrative personnel proposed for Contract administration and management [ITT Sub Clause 16.1]		
	Position Name Years of General Experience	Years of Specific Experience	
	<i>[Tenderer to complete details of as many personnel as are applicable. Each personnel listed above should complete the Personnel Information (Form PG5A-5)]</i>		
3.7	Major items of Construction Equipment proposed for carrying out the works [ITT Sub-Clause 17.1]		
	Item of Equipment	Condition (new, good, average, poor)	Owned, leased or to be purchased (state owner, leaser or seller)
	<i>[Tenderer to list details of each item of Major equipment, as applicable]</i>		

Name:	<i>[insert full name of signatory]</i>	<i>Signature with Date and Seal</i>
In the capacity of:	<i>[insert designation of signatory]</i>	<i>[Sign]</i>
Duly authorised to sign the Tender for and on behalf of the Tenderer		

Annexure: 5-1 Tenderer's Completed Turnkey Contracts

Annexure: 5-2 Tenderer's Ongoing Turnkey Contract(s)

Annexure: 5-3 Financial Requirements for Ongoing Turnkey Contract(s) Commitments

Annexure: 5-4 Assessment of Financial Resources Availability

Annexure: 5-1

Tenderer's Completed Turnkey Contracts (within last ten years):

Sl. No.	Name, Address, Phone No., Fax No. & domain E-mail of the Employer	Contract No. & Date	Description of Work	Contract Value	Date of completion
1.					
2.					
3.					
4.					

I/We hereby declare that, above mentioned information* is correct and there are no more completed turnkey contracts in Government entities under power sector of Bangladesh other than those mentioned in the above table.

Signatory Name:
Designation:

Seal & Signature
of the Tenderer

****Note:*** This information shall have to be mentioned in the Letterhead pad of the Tenderer (in case of JVCA, Lead partner) duly seal & signed along with supporting document. **Failure to submit or misrepresentation of the detail information for any completed turnkey contract, Tender shall be rejected without further evaluation.**

Annexure: 5-2

Tenderer's Ongoing Turnkey Contract(s):

Sl. No.	Name, Address, Phone No., Fax No. & domain E-mail of the Employer	Contract /NOA No. & Date	Description of Work	Contract Value V_o	Completion of work in Percentage	Value of Completed Work V_c	Outstanding Contract Value ¹ $V = (V_o - V_c) * X\%$	Date of completion	
								As per Contract	Target
1.									
2.									
3.									
4.									

I/We hereby declare that, above mentioned information² is correct and there are no more ongoing turnkey contracts in Government entities under power sector of Bangladesh other than those mentioned in the above table.

Signatory Name:
Designation:

Seal & Signature
of the Tenderer

Note:

- 1. If Ongoing Contract(s) are being implementing by Single entity, then "X" will be 100%. On the other hand If Ongoing Contract(s) are being implementing by JVCA, then the Outstanding Contract Value shall be in accordance with the share in percentage (%) of the Ongoing JVCA Contract(s), in that case "X" will be the percentage of share. [JVCA agreement for the Ongoing Contract(s) shall have to be submitted].*
- 2. This information shall have to be mentioned in the Letterhead pad of the Tenderer (in case of JVCA, each partner shall have to submit above information separately) duly seal & signed along with supporting document.*
- 3. Failure to submit or misrepresentation of the detail information for any ongoing turnkey contract, Tender shall be rejected without further evaluation.*

Annexure: 5-3

Financial Requirements for Ongoing Turnkey Contract(s) Commitments:

Sl. No.	Name, Address, Phone No., Fax No. & domain E-mail of the Employer	Contract /NOA No. & Date	Description of Work	Contract Value	Outstanding Contract Value (V) ^a	Remaining Contract Period in months (Y) ^b	Monthly Financial Resources Requirement (V / Y)
1.							
2.							
3.							
4.							
Total Monthly Financial Requirement for Ongoing Turnkey Contract(s) Commitments							

^a Remaining outstanding contract values to be forwarded from Annexure 5-2 and calculated from 28 days prior to the Tender submission deadline of this Tender.

^b Remaining contract period to be calculated from 28 days prior to the Tender submission deadline of this Tender.

I/We hereby declare that, above mentioned information² is correct and there are no more ongoing turnkey contracts in Government entities under power sector of Bangladesh other than those mentioned in the above table.

Signatory Name:
Designation:

Seal & Signature
of the Tenderer

Note: This information shall have to be mentioned in the Letterhead pad of the Tenderer (in case of JVCA, each partner shall have to submit above information separately) duly seal & signed. ***Failure to submit or misrepresentation of this information for any ongoing turnkey contract, Tender shall be rejected without further evaluation.***

Annexure: 5-4

Assessment of Financial Resources Availability (The minimum amount of liquid assets or working capital or credit facilities of the Tenderer):

Table- 4A: For Single Entities					
Total Available Financial Resources from Tenderer Information (Form PG5A-2a) Sl. No. 2.4 (A)	Total Monthly Financial Requirement for Ongoing Turnkey Contracts Commitments from Annexure: 5-3 (B)	Financial Requirement of Ongoing Turnkey Contracts Commitments for 2(two) months C= (2*B)	Net amount Available Financial Resources D= (A-C)	Financial Requirement for this Tender (E)	Results: [D must be greater than or equal to E] (F*)
				[Tk. 3.4 (Three point Four) crore]	

Note: * "F" Must be satisfied to qualify the Tenderer for this Tender.

Table- 4B: For Joint Venture, Consortium or Association (JVCA)						
JVCA Partners	Total Available Financial Resources from JVCA Partner Information (Form PG5A-2b) Sl. No. 3.4 (A)	Total Monthly Financial Requirement for Ongoing Turnkey Contracts Commitments from Annexure: 5-3 (B)	Financial Requirement of Ongoing Turnkey Contracts Commitment s for 2(two) months C= (2*B)	Net amount Available Financial Resources D= (A-C)	Financial Requirement for this Tender (E)	Results: [ΣD must be greater than or equal to E] (F*)
Partner-1 (Lead)					[Tk. 3.4 (Three point Four) crore]	
Partner-2 (Others)						
Partner-3 (Others)						
.....						
Partner-n (Others)						
All Partners Combined						

Note: * "F" Must be satisfied to qualify the Tenderer for this Tender.

Subcontractor Information (Form PG5A-2c)

[Not Applicable]

[This Form should be completed by each Subcontractor, preferably on its Letter-Head Pad]

Invitation for Tender No: *[indicate IFT No]*
 Tender Package No *[indicate Package No]*
 This Package is divided into the following Number of Lots *[indicate number of Lot(s)]*

1. Eligibility Information of the Subcontractor <i>[ITT –Clauses 5 & 29]</i>		
1.1	Nationality of Individual or country of Registration	
1.2	Subcontractor's legal title	
1.3	Subcontractor's registered address	
1.4	Subcontractor's legal status <i>[complete the relevant box]</i>	
	Proprietorship	
	Partnership	
	Limited Liability Concern	
	Government-owned Enterprise	
	Other(please describe)	
1.5	Subcontractor's year of registration	
1.6	Subcontractor's authorised representative details	
	Name	
	Address	
	Telephone / Fax numbers	
	e-mail address	
1.7	Subcontractor to attach copies of the following original documents	All documents to the extent relevant to ITT Clause 5 and 29 in support of its qualifications
The following two information are applicable for national Subcontractors		
1.8	Subcontractor's Value Added Tax Registration (VAT) Number	
1.9	Subcontractor's Tax Identification Number(TIN)	

[The foreign Subcontractors , in accordance with ITT sub Clause 5.1, shall provide evidence by a written declaration to that effect to demonstrate that it meets the criterion]		
2. Key Activity(ies) for which it is intended to be Subcontracted [ITT Sub Clause 19.1]		
2.1	Elements of Activity	Brief description of Activity
2.2	List of Similar Contracts in which the proposed Subcontractor had been engaged	
	Name of Contract and Year of Execution	
	Value of Contract	
	Name of Procuring Entity	
	Contact Person and contact details	
	Type of Assignment performed	
Name:	<i>[insert full name of signatory]</i>	<i>Signature with Date and Seal</i>
In the capacity of:	<i>[insert designation of signatory]</i>	<i>[Sign]</i>
Duly authorised to sign the Tender for and on behalf of the Tenderer		

Price Schedule for Plant and Service (Form PG5A-3)

(This form should be completed and submitted by the tenderer and appended in the financial proposal envelope)

Invitation for Tender No:	<i>[indicate IFT No]</i>
Tender Package No	<i>[indicate Package No]</i>
This Package is divided into the following Number of Lots	<i>[indicate number of Lot(s)]</i>

General

1. The Price Schedules are divided into separate Schedules as follows:
 - Schedule No. 1: Plant (including Mandatory Spare Parts) Supplied from Abroad
 - Schedule No. 2: Plant (including Mandatory Spare Parts) Supplied from within the Employer's Country
 - Schedule No. 3: Design Services
 - Schedule No. 4: Installation and Other Services
 - Schedule No. 5: Grand Summary
 - Schedule No. 6: Recommended Spare Parts
2. The Schedules do not generally give a full description of the plant to be supplied and the services to be performed under each item. Tenderers shall be deemed to have read the Employer's Requirements and other sections of the Tender Document and reviewed the Drawings to ascertain the full scope of the requirements included in each item prior to filling in the rates and prices. The entered rates and prices shall be deemed to cover the full scope as aforesaid, including overheads and profit.
3. If tenderers are unclear or uncertain as to the scope of any item, they shall seek clarification in accordance with ITT 9.1 prior to submitting their tender.

Pricing

4. Prices shall be filled in indelible ink, and any alterations necessary due to errors, etc., shall be initialed by the Tenderer.
As specified in the Tender Data Sheet and Special Conditions of Contract, prices shall be fixed and firm for the duration of the Contract, or prices shall be subject to adjustment in accordance with the corresponding Appendix (Price Adjustment) to the Contract Agreement.
5. Tender prices shall be quoted in the manner indicated and in the currencies specified in the Instructions to Tenderers in the Tender Document.
For each item, tenderers shall complete each appropriate column in the respective Schedules, giving the price breakdown as indicated in the Schedules.
Prices given in the Schedules against each item shall be for the scope covered by that item as detailed in Section 6 (Employer's Requirements) or elsewhere in the Tender Document.
6. Payments will be made to the Contractor in the currency or currencies indicated under each respective item.
7. When requested by the Employer for the purposes of making payments or partial payments, valuing variations or evaluating claims, or for such other purposes as the Employer may reasonably require, the Contractor shall provide the Employer with a breakdown of any composite or lump sum items included in the Schedules.

Schedules of Rates and Prices

Schedule No. 1 - Plant and Mandatory Spare Parts Supplied from Abroad

Line Item No	Description of Item	Country of Origin	Quantity (Nos.)	Unit Price CIP [USD]	CIP price per Line Item [USD]	Taxes and Duties In Local Currency (BDT)s
1	2	3	4	5	6 = 4 x 5	7
1.	Supply of Single Phase Solid State Smart Prepayment Meter with BPLC Module. (As per Technical Specifications & GTP-Section:6)		50,000			
Column 6 to be carried forward to Schedule No. 6. Grand Summary						

Note: 1. The Employer may also use other INCOTERMs, if deemed necessary, In such case Form PG5A-6, will require to be customized by the Employer

2. Specify currencies in accordance with ITT 27. Create and use as many columns for Unit Price and Total Price as there are currencies.

Country of Origin Declaration Form

Item	Description	Country
Name:	[insert full name of signatory]	Signature with Date and Seal
In the capacity of:	[insert designation of signatory]	[Sign]
Duly authorized to sign the Tender for and on behalf of the Tenderer		

Schedule No. 2 - Plant and Mandatory Spare Parts Supplied from within the Employer's Country(Not Applicable)

Line Item No.	Description of Item	Unit	Quantity	Unit Price up to point of delivery (Note 2) (BDT)	Total Price (BDT)	Sales TAX (BDT)	Total Price (BDT)
1	2	3	4	5	6 = 4x 5	7	8=6+7
1							
TOTAL Column 8 to be carried forward to Schedule No. 6. Grand Summary							

a

Note: 1. **Specify currencies in accordance with ITT 27. Create and use as many columns for Unit Price and Total Price as there are currencies**

2. **Point of Delivery: Central Store, Tongi, Gazipur.**

3. All unit rates and prices quoted by the Tenderers against each basic item or activity shall include the Tenderer's profit, overheads, VAT and all other charges including corresponding incidental service charges and premiums for banking and insurances, as applicable, and shall be the delivered price in final destination or at point of delivery and, thus forth the total Tender Price quoted by the Tenderers

Name:	<i>[insert full name of signatory]</i>	<i>Signature with Date and Seal</i>
In the capacity of:	<i>[insert designation of signatory]</i>	<i>[Sign]</i>
Duly authorized to sign the Tender for and on behalf of the Tenderer		

Schedule No. 4 –Civil works part (Not Applicable)

Item	Description of items	Unit	Quantity	Rate	Amount
1	2	3	4	5	6 = 4*5

Note: 1. Specify currencies in accordance with ITT 27. Create and use as many columns for Unit Price and Total Price as there are currencies

Name:	<i>[insert full name of signatory]</i>	<i>Signature with Date and Seal</i>
In the capacity of:	<i>[insert designation of signatory]</i>	<i>[Sign]</i>
Duly authorized to sign the Tender for and on behalf of the Tenderer		

Schedule No. 5- Installation and Other Services

Item	Description	Unit	Quantity	Unit Price		Total Price	
				Local Currency Portion (BDT)	Foreign Currency Portion (USD)	Local Currency Portion (BDT)	Foreign Currency Portion (USD)
1	2	3	4	5	6	7 = 4 x 5	8 = 4 x 6
1	Dismantling cost of existing postpaid meter and Installation, testing & commissioning cost of keypad base single phase smart prepaid meters (As per Technical Specifications & GTP-Section:6)	Nos.	50,000				
2	Inland transportation, port handling charge and other local costs.	LS	1				
3	Pre-Delivery Inspection And/or Witness Factory Acceptance Test (FAT)	LS	1				
4	03(Three) years Operational support for meter including establishment of network between DCU and HES (As per Technical Specifications -Section:6)	Year	3				
TOTAL Columns 7 and 8 to be carried forward to Schedule No. 6. Grand Summary							

Note: 1. Specify currencies in accordance with ITT 27. Create and use as many columns for Unit Price and Total Price as there are currencies

2. All unit rates and prices quoted by the Tenderers against each basic item or activity shall include the Tenderer's profit, overheads, VAT and all other charges including corresponding incidental service charges and premiums for banking and insurances, as applicable, and shall be the delivered price in final destination or at point of delivery and, thus forth the total Tender Price quoted by the Tenderers
3. Dismantled meters shall be returned to the stores of concern S&D/ESU.

Name:	<i>[insert full name of signatory]</i>	<i>Signature with Date and Seal</i>
In the capacity of:	<i>[insert designation of signatory]</i>	<i>[Sign]</i>
Duly authorized to sign the Tender for and on behalf of the Tenderer		

Schedule No. 6 - Grand Summary

Schedule No.	Title	Total Price	
		ForeignCurrency	LocalCurrency (BDT)
1	Plant and Mandatory Spare Parts Supplied from Abroad		N/A
2	Plant and Mandatory Spare Parts Supplied from Within the Employer's Country	N/A	
3	Design Services	N/A	N/A
4	Civil works part	N/A	N/A
5	Installation and Other Services		
GRAND TOTAL to be carried forward to Form PG5A-1b			

Note: 1. Specify currencies in accordance with ITT 27. Create and use as many columns for Unit Price and Total Price as there are currencies
 2. Create additional columns for up to a maximum of 3 Foreign Currencies if so required

Name:	<i>[insert full name of signatory]</i>	<i>Signature with Date and Seal</i>
In the capacity of:	<i>[insert designation of signatory]</i>	<i>[Sign]</i>
Duly authorized to sign the Tender for and on behalf of the Tenderer		

Schedule No. 7 - Recommended Spare Parts (Not Applicable)

Item	Description	Qty	Unit Price		Total Price	
			EXW Local Parts Local Currency	CIP Imported Parts Foreign Currency	Local Currency Portion	Foreign Currency Portion
1	2	3	4	5	6 = 3 x 4	7 = 3 x 5
TOTAL						

Note: 1. Specify currencies in accordance with ITT 27. Create and use as many columns for Unit Price and Total Price as there are currencies

Name:	<i>[insert full name of signatory]</i>	<i>Signature with Date and Seal</i>
In the capacity of:	<i>[insert designation of signatory]</i>	<i>[Sign]</i>
Duly authorized to sign the Tender for and on behalf of the Tenderer		

Technical Proposal (Form PG5A-4)

[The Revised Technical Proposal, if any, shall follow the same format and structure]

Site Organization

Method Statement

Mobilization Structure

Construction Structure

Plant

Safety Plan

Personnel

Equipment

Proposed subcontractors for Major Items of Plant and Services

Time Schedule

Site Organization

[insert technical proposal for site organization]

[The Tenderer shall include in the tender an appropriate organization chart. This shall include head office as well as site components and clearly demonstrate that the Tenderer possesses the staff and organizational resources to complete the Supply and Installation of Plant & Equipment.]

Method Statement

[insert technical proposal for Method Statement]

[The Tenderer shall furnish an overall description covering all activities and processes from inception to site works and commissioning.

In particular methods of minimizing the impact on the environment in accordance with the relevant laws and regulations during the construction phase shall be described.]

Mobilization Schedule

[insert technical proposal for Mobilization Schedule]

[This shall be included in the overall time schedule to be provided by the Tenderer as per "Time Schedule" in Section 5. Tendering Forms]

Construction Schedule

[insert technical proposal for Construction Schedule]

[This shall be included in the overall time schedule to be provided by the Tenderer as per “Time Schedule” in Section 5. Tendering Forms]

Plant

*[insert technical proposal for **Plant**]*

[The Tenderer shall provide the plant and equipment it intends to use in the construction process to demonstrate that it has the capability to complete the Supply and Installation of Plant & Equipment.]

Safety Plan

*[insert technical proposal for **Safety Plan**]*

[The Tenderer shall demonstrate that it has a comprehensive safety system that will be used during the construction and installation phase. This system shall meet all safety requirements in accordance with all relevant laws, rules and regulations.]

Personnel Information

[This Form should be completed for each person proposed by the Tenderer on Form PG5A-2a& PG5A-2b, where applicable]

Invitation for Tender No:	<i>[indicate IFT No]</i>
Tender Package No	<i>[indicate Package No]</i>
This Package is divided into the following Number of Lots	<i>[indicate number of Lot(s)]</i>

A. Proposed Position (tick the relevant box)			
B. Personal Data			
Name			
Date of Birth			
Years overall experience			
Years of specific experience			
National ID Number			
Years of employment with the Tenderer			
B. Professional Qualifications:			
1.			
2.			
C. Present Employment <i>[to be completed only if not employed by the Tenderer]</i>			
Name of Procuring Entity:			
Address of Procuring Entity:			
Present Job Title:			
Years with present Procuring Entity:			
Tel No:	Fax No:	e-mail address:	
Contact <i>[manager/personnel officer]</i> :			
D. Professional Experience			
Summarise professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.			
	From	To	Company / Project / Position / Relevant technical and management experience.
1			
2			
3			

Name:	<i>[insert full name of signatory]</i>	<i>Signature with Date and Seal</i>
In the capacity of:	<i>[insert designation of signatory]</i>	<i>[Sign]</i>
Duly authorised to sign the Tender for and on behalf of the Tenderer		

Equipment Information

[The Tenderer shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in TDS . A Separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Tenderer]

Invitation for Tender No:	<i>[indicate IFT No]</i>
Tender Package No	<i>[indicate Package No]</i>
This Package is divided into the following Number of Lots	<i>[indicate number of Lot(s)]</i>

Item of equipment		
Equipment information	Name of manufacturer	Model and power rating
	Capacity	Year of manufacture
Current status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

Omit the following information for equipment owned by the Tenderer.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	Telex
Agreements	Details of rental / lease / manufacture agreements specific to the project	

Name:	<i>[insert full name of signatory]</i>	<i>Signature with Date and Seal</i>
In the capacity of:	<i>[insert designation of signatory]</i>	<i>[Sign]</i>
Duly authorized to sign the Tender for and on behalf of the Tenderer		

Proposed Subcontractors for Major Items of Plant and Installation Services [Not Applicable]

A list of major items of Plant and Installation Services is provided below.

The following Subcontractors and/or manufacturers are proposed for carrying out the item of the facilities indicated. Tenderers are free to propose more than one for each item

Major Items of Plant and Installation Services	Proposed Subcontractors/Manufacturers	Nationality

Form Functional Guarantee

The Tenderer shall copy in the left column of the table below, the identification of each functional guarantee required in the Specification and stated by the Employer in ITT 24(n) and in the right column, provide the corresponding value for each functional guarantee of the proposed plant and equipment.

Invitation for Tender No:	<i>[indicate IFT No]</i>
Tender Package No	<i>[indicate Package No]</i>
This Package is divided into the following Number of Lots	<i>[indicate number of lot(s)]</i>

Required Functional Guarantee	Value of Functional Guarantee of the Proposed Plant and Equipment
1.	
2.	
3.	
4.	
5.	
6.	

Specifications Submission and Compliance Sheet (Form PG5A-4a)

Invitation for Tender No:

Date:

Tender Package No:

Package Description: *[enter description as specified in Section 6]*

Tender Lot No:

Lot Description: *[enter description as specified in Section 6]*

Item No.	Name of Goods or Related Service	Country of Origin	Make and Model (<i>when applicable</i>)	Full Technical Specifications and Standards
1	2	3	4	5
	FOR GOODS			Note 1
	FOR RELATED SERVICES			

[The Tenderer should complete all the columns as required]

Signature:	<i>[insert signature of authorised representative of the Tenderer]</i>
Name:	<i>[insert full name of signatory with National ID]</i>
In the capacity of:	<i>[insert designation of signatory]</i>
Duly authorised to sign the Tender for and on behalf of the Tenderer	

Manufacturer's Authorisation Letter (Form PG5A - 5)

[The Tenderer shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. The Tenderer shall include it in its tender, if so indicated in the TDS as stated under ITT Sub-Clause 29.1(b)]

Invitation for Tender No:	Date:
Tender Package No:	
Tender Lot No:	
To: Name and address of Employer]	

WHEREAS

We *[insert complete name of Manufacturer]*,

who are official manufacturers of *[insert type of goods manufactured]*, having factories at *[insert full address of Manufacturer's factories]*, do hereby

authorize *[insert complete name of Tenderer]* to supply the following Plant and Equipment, manufactured by us *[insert name and or brief description of the Goods]*.

We hereby extend our full guarantee and warranty as stated under GCC Clause 42 of the General Conditions of Contract, with respect to the Goods offered by the above Tenderer.

Signed: *[insert signature(s) of authorized representative(s) of the Manufacturer]*

Name: *[insert complete name(s) of authorized representative(s) of the Manufacturer]*

Address: *[insert full address including Fax and e-mail]*

Title: *[insert title]*

Date: *[insert date of signing]*

Bank Guarantee for Tender Security (Form PG5A– 6)

[this is the format for the Tender Security to be issued by a scheduled bank of Bangladesh as stated under ITT Clauses 32 and 33]

Invitation for Tender No:

Date:

Tender Package No:

Tender Lot No:

To:

[Name and address of Employer]

TENDER GUARANTEE No:

We have been informed that *[insert name of Tenderer]* (hereinafter called “the Tenderer”) intends to submit to you its Tender dated *[insert date of Tender]* (hereinafter called “the Tender”) for the supply and installation of *[description of plant and services]* under the above Invitation for Tenders (hereinafter called “the IFT”).

Furthermore, we understand that, according to your conditions, Tenders must be supported by a Bank Guarantee for Tender Security .

At the request of the Tenderer, we *[insert name of bank]* hereby irrevocably and unconditionally undertake to pay you, without cavil or argument, any sum or sums not exceeding in total an amount of Tk.*[insert amount in figures and in words]* upon receipt by us of your first written demand accompanied by a written statement that the Tenderer is in breach of its obligation(s) under the Tender conditions, because the Tenderer:

- a. has withdrawn its Tender after opening of Tenders but within the validity of the Tender Security ; or
- b. refused to accept the Notification of Award (NOA) within the period as stated under Instructions to Tenderers (ITT) ; or
- c. failed to furnish Performance Security within the period as stipulated in the NOA; or
- d. refused to sign the Contract Agreement by the time specified in the NOA; or
- e. did not accept the correction of the Tender price following the correction of the arithmetic errors in accordance with the ITT; or

This guarantee will expire:

- (a) if the Tenderer is the successful Tenderer, upon our receipt of a copies of the contract signed by the Tenderer and the Performance Security issued to you in accordance with the ITT; or
- (b) if the Tenderer is not the successful Tenderer, twenty eight (28) days after the expiration of the Tenderer’s Tender validity period, being *[date of expiration of the Tender validity plus twenty eight(28) days]*

Consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Letter of Commitment for Bank's undertaking for Line of Credit (Form PG5A-6a)

[This is the format for the Credit Line to be issued by any scheduled Bank of Bangladesh in accordance with ITT Clause 15.1(b)]

Invitation for Tender No:

Date:

Tender Package No:

Lot No (*when applicable*)

To:

[Name and address of the Procuring Entity]

CREDIT COMMITMENT No: [insert number]

We have been informed that *[name of Tenderer]* (hereinafter called "the Tenderer") intends to submit to you its Tender (hereinafter called "the Tender") for the execution of the Supply and Installation of Plant & Equipment of *[description of works]* under the above Invitation for Tenders (hereinafter called "the IFT").

Furthermore, we understand that, according to your conditions, the Tenderer's Financial Capacity i.e. Liquid Asset must be substantiated by a Letter of Commitment of Bank's Undertaking for Line of Credit.

At the request of, and arrangement with, the Tenderer, we *[name and address of the Bank]* do hereby agree and undertake that *[name and address of the Tenderer]* will be provided by us with a revolving line of credit, in case awarded the Contract, for execution of the Works viz. *[insert name of works]*, for an amount not less than BDT *[in figure]* (*in words*) for the sole purpose of the execution of the above Contract. This Revolving Line of Credit will be maintained by us until issuance of "**Taking-Over Certificate**" by the Procuring Entity.

In witness whereof, authorised representative of the Bank has hereunto signed and sealed this Letter of Commitment.

Signature

Signature

Deviation List (Form PG5A – 13)

[If Tenderer has any reservation on terms and conditions, Tenderer has to mention his reservations in Deviation list]

Sl. No.	Reference No./ Clause No.	Proposed Deviation	Remarks

[Add rows if necessary]

Signature: *[insert signature of authorised representative of the Tenderer]*

Name: *[insert full name of signatory]*

In the capacity of: *[insert designation of signatory]*

Duly authorised to sign the Tender for and on behalf of the Tenderer

Notification of Award (Form PG5A - 7)

Contract No:
To:

Date:

[Name of Contractor]

This is to notify you that your Tender dated *[insert date]* for the supply and installation of plant and Services for *[name of contract]* for the Contract Price of *[state amount in figures and in words]* as corrected and modified in accordance with the Instructions to Tenderers, has been approved by *[name of Employer]*.

You are thus requested to take following actions:

- i. accept in writing the Notification of Award within seven (7) working days of its issuance pursuant to ITT Sub-Clause 64.1
- ii. furnish a Performance Security in the specified format and in the amount of Tk.*[state amount in figures and words]* ,within Twenty-eight (28) days from issue of this Notification of Award but not later than *(specify date)*, in accordance with ITT Clause 64.3
- iii. sign the Contract within twenty eight (28) days of issuance of this Notification of Award but not later than *(specify date)*, in accordance with ITT Clause 69.2

You may proceed with the execution of the supply of Plant and Services only upon completion of the above tasks. You may also please note that this Notification of Award shall constitute the formation of this Contract, which shall become binding upon you.

We attach the draft Contract and all other documents for your perusal and signature.

Signed

Duly authorised to sign for and on behalf of *[name of Employer]*

Date:

Contract Agreement (Form PG5A - 8)

THIS AGREEMENT made the [day] day of [month][year] between [name and address of Employer] (hereinafter called "the Employer") of the one part and [name and address of Contractor] (hereinafter called "the Contractor") of the other part:

WHEREAS the Employer invited Tenders for certain plant and services, viz, [brief description of plant and services] and has accepted a Tender by the Contractor for the supply of those plant and services in the sum of Taka [Contract Price in figures and in words] (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract hereafter referred to.
2. The following documents forming the Contract shall be in the following order of precedence, namely :
 - (a) the signed Form of Contract Agreement;
 - (b) the Notification of Award
 - (c) The Tender and the appendices to the Tender
 - (d) Particular Conditions of Contract;
 - (e) General Conditions of Contract;
 - (f) Technical Specifications;
 - (g) Drawings;
 - (h) Price Schedules of Plant and Equipment and;
 - (i) other document including correspondences listed in the PCC forming part of the Contract
3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to provide the plants and related services and to remedy any defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the provision of the plant and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
5. The Appendices listed in the attached List of Appendices shall be deemed to form an integral part of this Contract Agreement. Reference in the Contract to any Appendix shall mean the Appendices attached hereto, and the Contract shall be read and construed accordingly.

IN WITNESS whereof the Employer and the Contractor have caused this Agreement to be duly executed by their duly authorized representatives in accordance with the laws of Bangladesh on the day, month and year first written above.

Signed by, for and on behalf of the Employer

For the Employer:

For the Contractor:

Signature

Print Name

Title

In the presence
of Name
Address

Bank Guarantee for Performance Security (Form PG5A – 9)

[This is the format for the Performance Security to be issued by an internationally reputable bank and it shall have correspondent bank located in Bangladesh, to make it enforceable in accordance with ITT Sub-Clause 67.1 pursuant to Rule 27(4) of the Public Procurement Rules, 2008.]

Contract No:

Date:

To:

[Name and address of Employer]

PERFORMANCE GUARANTEE No: *[insert Performance Guarantee number]*

We have been informed that *[name of Contractor]* (hereinafter called “the Contractor”) has undertaken, pursuant to Contract No *[reference number of Contract]* dated *[date of Contract]* (hereinafter called “the Contract”) for the supply and installation of *[description of plant and services]* under the Contract.

Furthermore, we understand that, according to your conditions, Contracts must be supported by a performance guarantee.

At the request of the Contractor, we *[name of bank]* hereby irrevocably and unconditionally undertake to pay you, without cavil or argument, any sum or sums not exceeding in total an amount of Tk. *[insert amount in figures and in words]* upon receipt by us of your first written demand accompanied by a written statement that the Supplier is in breach of its obligation(s) under the Contract conditions, without you needing to prove or show grounds or reasons for your demand of the sum specified therein.

This guarantee is valid until *[date of validity of guarantee]*, consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

[Signatures of authorized representatives of the bank]

Signature

Seal

Bank Guarantee for Advance Payment (Form PG5A – 10)

Not Applicable

[this is the format for the Advance Payment Security to be issued by an internationally reputable bank and it shall have correspondent bank located in Bangladesh, to make it enforceable in accordance with GCC Clause 57.1]

Contract No:

Date:

To:

[Name and address of Employer]

ADVANCE PAYMENT GUARANTEE No.:

We have been informed that *[name of Contractor]* (hereinafter called “the Contractor”) has undertaken, pursuant to Contract No *[reference number of Contract]* dated *[date of Contract]* (hereinafter called “the Contract”) for the supply and installation of *[description of plant and services]* under the Contract.

Furthermore, we understand that, according to your Particular Conditions of Contract Clause 26.1, Advance Payment(s) on Contracts must be supported by a bank guarantee.

At the request of the Contractor, we *[name of bank]* hereby irrevocably unconditionally undertake to pay you, without cavil or argument, any sum or sums not exceeding in total an amount of Tk.*[insert amount in figures and in words]* upon receipt by us of your first written demand accompanied by a written statement that the Contractor is in breach of its obligation(s) under the Contract conditions, without you needing to prove or show grounds or reasons for your demand of the sum specified therein.

We further agree that no change, addition or other modification of the terms of the Contract to be performed, or of any of the Contract documents which may be made between the Employer and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee is valid until *[date of validity of guarantee]*, consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

[Signatures of authorized representatives of the bank]

Signature

Seal

Bank Guarantee for Retention Money Security(Form PG5A-11)

[This is the format for the Retention Money Guarantee to be issued by any scheduled Bank of Bangladesh in accordance with GCC Clause 57]

Demand Guarantee

[Bank's Name, and Address of Issuing Branch or Office]

Beneficiary: [insert Name and Address of the Procuring Entity]

Date: [insert date]

RETENTION MONEY GUARANTEE No.: [insert number]

We have been informed that [insert name of Contractor] (hereinafter called "the Contractor") has entered into Contract Number [insert reference number of the Contract] dated [insert date] with you, for the execution of [insert name of Contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment, payment of Tk. [insert the amount of the second half of the Retention Money] which becomes due after the Defects Liability Period has passed and certified in the form of Defects Correction Certificate, is to be made against a Retention Money Guarantee.

At the request of the Contractor, we [insert name of Bank] hereby irrevocably unconditionally undertake to pay you any sum or sums not exceeding in total an amount of Tk. [insert amount in figures] (Taka [insert amount in words]) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor failed to properly correct the defects duly notified in respect of the Supply and Installation of Plant & Equipment.

It is a condition for any claim and payment under this guarantee to be made that the payment of the second half of the Retention Money referred to above must have been received by the Contractor on its account number [insert A/C no] at [name and address of Bank].

This guarantee is valid until [insert the date of validity of Guarantee that being twenty-eight (28) days beyond the Defects Liability Period]. Consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Warranty Certificate (Form PG5A - 12)

[The Tenderer shall require to fill in this Form in accordance with the instructions indicated. This Certificate should be on the official pad of the Tenderer and should be signed by a person with the proper authority to sign documents.]

[The Tenderer shall include it in its Tender, if so indicated in the TDS as stated under ITT Sub Clause 24.2 (r)]

Invitation for Tender No:	Date:
Tender Package No:	
Tender Lot No. (when applicable):	
To: [Name and address of Procuring Entity]	

WHEREAS

We *[insert complete name of Tenderer]*,

who are authorized Supplier of *[insert type of goods to be Supplied]*, having registered office at *[insert full address of Tenderer's registered office]* do hereby warrants that all the Goods *[insert name and brief description of the Goods]* will be supplied by us and extend our full guarantee and warranty as stated under GCC Clause 42.2 of the General Conditions of Contract with respect to the Goods offered by us under this contract.

Signed: *[insert signature(s) of authorized representative(s) of the Tenderer]*

Name: *[insert complete name(s) of authorized representative(s) of the Tenderer]*

Address: *[insert full address including Fax and e-mail]*

Title: *[insert title]*

Date: *[insert date of signing]*

Section 6. Employer's Requirements

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6.1 Scope of Supply of Plant and Installation Services by the Contractor

6.1.1 Scope

The scope of this document is to define the Employer's Requirements for Design, Manufacture, Supply, Installation, Testing & Commissioning of Single Phase Solid State Smart Pre-payment meter with 3 years related support services on turnkey basis for Chattogram Zone.

The installations design, manufacture, supply and service will include the following main elements, subsystems, and installations:

- Site visit and Assessment of Sites and Sites characteristics including Existing Distribution Network and metering system and type definition
- The development, detailed design, engineering (including equipment specifications), permitting, procurement, manufacturing, factory testing, transport to sites, erection, installation, commissioning and performance testing of the Smart Pre-Payment Metering System of Single Phase Solid State Smart Pre-payment meter with broadband PLC.
- Site instrumentation, data acquisition, control and supervision including data HES & DCU communication with meters
- 3 (Three) Years Operational Support Service (during defect liability/warranty period) of the Smart Pre-Payment systems for a period commencing upon the issuance of the Operational Acceptance Certificate/PAC and up to the lapse of three (3) years. During the period of 3 years, the Contractor shall supply all necessary equipment/spares, materials, at its own cost.
- The Tenderer shall mention maximum days required to complete the supply of keypad base single phase smart prepaid meter and maximum days required for dismantling existing postpaid meter and installation, testing & commissioning of keypad base new single phase smart prepaid meter.
- The Tenderer shall deposit dismantled existing postpaid meter to concern S & D offices.
- Additional works (if any).
- Reporting.

Handover of Project Site

The contractor will supply, install, test and commission the prepayment meters. They will train utility's personnel on installation, testing, commissioning, operating, troubleshooting, maintain, manage the prepayment meter and handover the site to respective S&D office as per the instructions of the Consignee office.

RESPNSIBILITY UNDER OPERATIONAL SUPPORT SERVICE

In addition to the requirements of the technical specifications, the bidder shall be responsible for the Operational Support for the duration of the 3 (three) years.

BOQ for Design, Supply, Installation, Testing & Commissioning of 50,000 Nos. of Single Phase Smart Prepayment Meters with BPLC Module for the replacement of existing postpaid meters under Distribution Zone Sylhet with 3 years operational support service

Item No.	Name of Goods or Related Services	Unit of Measurement	Quantity
1	Single Phase Solid State Smart Pre-payment meter with BPLC Communication Module.	Nos.	50,000
2	Dismantling cost of existing postpaid meter and Installation, testing & commissioning cost of keypad base single phase smart prepaid meters (As per Technical Specifications & GTP-Section:6)	Nos.	50,000
3	Inland transportation, port handling charge and other local costs.	LS	1
4	Pre-Delivery Inspection And/or Witness Factory Acceptance Test (FAT)	LS	1
5	03(Three) years Operational support for meter including establishment of network between DCU and HES (As per Technical Specifications -Section:6)	Year	3

6.2 Specification

The Equipment shall comply with following Technical Specifications:

Item No	Name of Item or Related Service	Technical Specification and Standards
1	2	3
	<i>Equipment</i>	Bidder shall comply the Technical Specifications as per Section 7 & Guaranteed Technical Particular (GTP) as per Section-8 , otherwise bid will be rejected.
	<i>Inspection and Tests</i>	<i>As per Section 7 and Section 8</i>

SECTION:7
TECHNICAL SPECIFICATION for
Single Phase Smart Pre-Payment Energy Meter with
Communication Module

7.1 Scope

Single Phase: This Technical Specification covers the Design, Manufacture, Testing and supply of Single phase whole current AC 5(60) Amps Smart Pre-payment Energy Meter of Accuracy Class 1.0.

The smart Pre-payment Meter should have **plug & play type BPLC communication module (Meter able to support 4G GPRS)**. The meter communication module should restart itself at a programmable timestamp without power interruption. The meter should be able to connect point to point communication with head end system (HES).

The Smart Pre-payment features like SMS/Apps recharge, tariff and charge configuration, emergency credit/ friendly hour configuration, daily and monthly billing data collection, on demand read etc to be implemented through HES.

The meter must be able to detect and record power off & power on, tamper, load control, configuration, tariff setting, firmware update and payment related event with date and time stamp. Meter can push the related event to HES when the event occur, such low credit alarm, no credit disconnect, emergency in use or friendly in use, tamper. Utility and customer can received the related SMS notification as per the configuration.

7.2 Scope of Supply

The tenderer shall be responsible for supply of Energy Meter with related services packing, loading, shipment, custom clearance if necessary, and transportation, insurance and unloading at site. The supplied meters will be operated by existing purchasers' software (API attached in part-2 of this TD). Interfacing of the offered meter is the responsibility of the tenderer.

Meter will be run as Conventional Pre-payment mode with BPDB unified system.

7.3 Service conditions:

The meters to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions. Meters should be capable of maintaining required accuracy under hot, tropical and dusty climatic conditions.

Sl.No.	Condition	Specification
1	Maximum ambient temperature (°C)	50
2	Minimum ambient temperature (°C)	5
3	Maximum daily average temperature (°C)	35
4	Maximum annual average temperature (°C)	30
5	Mean annual rainfall (mm)	2500
6	Minimum annual rainfall (mm)	1461
7	Maximum annual rainfall (mm)	4127
8	Maximum relative humidity (%)	100
9	Average relative humidity (%)	80
10	Maximum wind velocity (km/h)	180
11	Maximum altitude above mean sea level (meters)	200

7.4 Standards and codes of practice

All material and equipment supplied and all works carried out shall comply in every respect with the technical codes of the International Organization for Standardization (ISO) and with the recommendations of the International Electro technical Commission (IEC), which apply to the electrical equipment.

Goods and special guarantees beyond the scope of ISO and IEC shall conform at least to one of the following standards and codes.

IEC 62052-11	Electricity metering equipment (AC)- General requirements, tests and test Conditions- Part 11: Metering equipment
IEC 62055	Part 21: Framework for standardization Part 31: Particular requirements-Static payment meters for active energy (classes 1)
IEC 62053-21, IEC 62053-23	Alternating current static watt-hour meters (classes 1)
IEC62052-21, IEC 62054-21	Time switches for tariff and load control
IEC 62056-21	Data exchange for meter reading, tariff and load control and direct local data exchange
IEC 1038	The switches for tariff and load control
IEC 1107	Data exchange for meter reading, tariff and load control and direct local data exchange
IEC 58	Shock and vibration, humidity, solar radiation and salt mist etc.
ISO 9001	Code of practice for quality systems part 1: Model for quality assurance in design/development, production, installation and servicing.
IEC 62054	Real Time Clock (RTC)
Others	All other relevant IEC specifications for metering equipment.

7.5 Supply System

Description	Single Phase
Rated voltage (Vref.)	230 V - Phase to Neutral
Rated Current	Basic Current 5 Amps (I _b), Maximum Current 60 Amps (I _{max})
Rated Frequency	50 Hz

7.6 Specific Technical Requirements

The meters to be supplied against this specification shall meet the requirements specified in this clause.

7.6.1 Electrical requirements

Meter supplied shall meet the following electrical requirements.

Sl.No	Description	Specification
A	Phase	Single Phase
1	Connection	1-Phase, 2-Wire, direct connected (unidirectional)
2	Number of element	02 (two)
3	Rated voltage	230 V phase to neutral.
4	Rated Current : a) Base current, I _b b) Maximum continuous current, I _{max}	≤ 5 A ≥ 60 A; Moreover the 5-60 Amps meter shall work accurately up to 120 % of I _{max} i.e.; 72 Amps.
5	Starting current	20 mA (0.4% I _b)
6	Power consumption in the	≤ 2 Watts and 5 VA

Sl.No	Description	Specification
	voltage circuit	
7	Limit of Current	Shall be Programmable within the range of 0.02A to 60 A
8	Continuous over voltage	Should withstand 400 volts for 48 hours without causing any damage or degrading of its operating life, or causing changes of more than 0.01 kWh in its credit registers (excluding the possible decrement of credit due to power being consumed).
9	Variation in voltage	+30% to -30%; The meter shall be suitable for working satisfactorily within the specified range.
10	Rated frequency	50 Hz
11	Variation in frequency	± 2%
12	Power factor	The Meter shall be suitable for working satisfactorily from 0.5 lag – unity – 0.8 lead
13	Class index	1.0; The accuracy shall not drift with time.
14	Keypad	12-key, International Standard layout including “information” and “backspace” keys
15	Clock	Built-in real time clock with 10 years battery backup. Without support of external battery and AC power, meter should operate at least 01 (one) hour with the support of built-in super-capacitor.
16	a) Display	LCD; Visibility should be sufficient to read the meter mounted at height of 0.5 to 2.0 m. Pin type; trans-reflective HTN or STN type industrial grade; temperature range -20°C to +70°C
	b) Period of display	Continuous
	c) Digits	WxH: 6 mm x 10 mm (minimum)
	d) Maximum viewing angle	160 degrees
	e) Number of display digits	5+1
17	Harmonic energy	Meter shall record total energy including harmonic energy
18	Memory	Non-volatile memory that retain information up to 10 years in the absence of power. Described in section 7.7 & 7.16.7.3. The data stored in memory chip can be read by a tool when the meter is broken after demonstration.
19	Power limiting	Meter shall disconnect the load when a pre-programmed threshold power is reached. The threshold shall be programmable in steps of 500W or less.
20	Tamper detection	Sensor to detect any kind of tamper
21	Load disconnection	Latching relay
22	Audible alarm	Buzzer
23	Lightning Protection	In accordance to IEC 62053-21 or latest version of IEC
24	Communication	Plug & Play BROADBAND PLC (Meter able to support 4G GPRS).
25	Application Protocol	DLMS/COSEM and IDIS
26	Installation of Communication Module	Adding or exchanging the communication module should be done without turning off the meter. Meter must be compatible with multi communication module support, BPDB can replace BPLC module with RF or GPRS module in the same meter if required.
27	Maximum pulse frequency	Shall not exceed 2.5 kHz

Sl.No	Description	Specification
28	Sealing Condition	Hermetically Sealed/ Fully Ultrasonic Welded with Mechanical Interlocking to avoid unauthorized opening of meter cover without breaking and damaging.

7.6.2 Mechanical requirements:

The enclosure shall be tamper resistant and shall be suitable for indoor mounting. The meter shall be such that the internal components in the active part of the meter shall be protected against unintentional damage or tamper during handling and installation.

Furthermore, Meter supplied shall meet the following mechanical requirements.

Sl. No.	Description	Specification
1	Meter Case	<p>The meter shall be constructed by employing flame retardant and high impact strength material. The base, body and frame including terminal block shall be of heat resistive; shock proof and rust proof good quality hard material e.g. unbreakable engineering or stamped metal or molded phenol resin which shall be capable of withstanding of 145° C. The base will be provided with 3 (three) screw mounting holes, 1 (one) slotted meter support bracket at the top and 1 (one) round hole on each side in the bottom half of the base for securely mounting the meter to the meter board.</p> <p>The meter cover shall be of molded transparent Poly-Carbonate. The meter cover shall be provided with a window of transparent Poly-Carbonate or toughened glass. For display of LCD display. The base cover should be transparent.</p> <p>The meter shall be effectively sealed to prevent entrance of moisture, rain and dust into its internal parts.</p>
2	Terminal	<p>a) Terminal block shall be polycarbonate grade 500R or equivalent bakelite; brass or copper current terminals; two flat-head brass screws at each terminal;</p> <p>b) Terminal cover should have provision for sealing.</p> <p>c) Terminal cover should have provision for Side entry connection.</p> <p>d) Minimum free space between bottom of terminal and terminal cover are 60 mm</p> <p>e) For Single Phase: Minimum 4 terminals to accommodate 10 mm² duplex; terminal cover shall be extended type; terminal bore diameter 6 mm;</p>
3	Connections diagrams and terminal marking	<p>Every meter shall be indelibly marked with a diagram of connection. Meter terminals shall be marked, this marking shall appear on the diagram Stickers of any kind shall not be accepted.</p>
4	Insulation level	Shall withstand a power frequency test of 4kV and impulse withstand test of 6 kV.
5	Protection against penetration of dust and water	Conform to the degree of protection of IP54 or better
6	Top cover sealing	Hermetically Sealed/ Fully Ultrasonic Welded with Mechanical Interlocking to avoid unauthorized opening of meter cover without breaking and damaging.
7	Pulse output	The meter shall be provided with flashing red LED to represent the pulse output for testing the meter by suitable testing equipment. The operation indicator must be visible from the front.
8	Protection against magnetic field	The Meter Accuracy shall not be affected by AC/DC magnetic field from all sides of the meter i.e.; front, sides, top and bottom of the meter. Meter shall not be affected by permanent magnet of 0.5 mT.

Sl. No.	Description	Specification
9	Temperature range	Limit range of operation: -25°C to 55°C Limit range of storage and transport: -25°C to 70°C
10	Name plate	Every meter shall have clearly visible, effectively secured against removal and indelibly and distinctly marked. The following information's marked on name plate : i) Manufacturer's name and year of manufacture, ii) Meter type iii) Number of phases and number of wire iv) Meter serial number v) Rated voltage vi) Basic current and maximum current vii) Reference frequency in hertz viii) Meter constant in imp/kWh& imp/kVarh ix) Class index of the meter x) Over-current breaking capacity (in kA) xi) UTILITY logo (when supply) xii) Contract No. (When supply) xiii) Reference Standard
11	Optical Port & RS485 port	Meter should have standard optical port for local read and configuration. Meter should have active RS485 port for remote communication.

7.6.3 Latching relay specifications

The latching relay shall be from Gruner, Germany/Jonson Electric, Germany/KG USA compatible with the offered meter. Technical specification of the relay shall be engraved or marked on the body of the relay.

The specification for the latching relay is as follows:

Sl. No	Description	Requirements
		Single Phase
1	Manufacturers Name &Country of origin	To be mentioned
2	Country of Manufacturing	To be mentioned
3	No. of Latching relay	02 (Two) in phase &Neutral or Integrated both phase & neutral
4	No. of coils	2 (two)
5	Rated coil voltage	12 VDC
6	Rated coil power	6 W
7	Pulse to set	30 ms
8	Contact Material	Silver alloy
9	Maximum Switching Power	15000 VA
10	Maximum Switching Voltage	250 V AC
11	Maximum Switching Current (rms)	80A
12	Contact resistance	≤ 2 mΩ
13	Electrical Cycle	1x10 ⁴
14	Mechanical Cycle	1x10 ⁵
15	Insulation resistance	≥ 1000 MΩ

Sl. No	Description	Requirements
		Single Phase
16	Dielectric Strength between contacts	≥ 2000 VAC
17	Dielectric Strength between contact and coil (50 Hz)	≥ 3000 VAC
18	Dielectric Strength between contacts assembly	≥ 4000 VAC
19	Ambient temperature	-40 °C ~ +55°C
20	Operating humidity	40 to 90%
21	Temperature rise at rated current (assuming 30°C room temp.)	60°C

7.7 MEASURED & STORED PARAMETERS:

i) Parameters to be Measured

Sl. No	Description	Requirements
		Single Phase
1	Instantaneous:	Voltage (V); Current (I); Cumulative-Active Energy Kwh ; Current Demand(kW); Power factor.
2	Billing parameters The billing parameters shall be retained in the meter for at least 12(Twelve) months. :	Previous month's MD in kW and Cumulative-Active Energy Kwh; Consumption Active Energy (Kwh) in current month; Remaining balance; Money recharge and used in current month;
3	Time of Use	-

ii) Power Quality information

Logging of quality of supply events like power on/off, over/under voltage, over current (minimum 100 events). Setting of Under/Over Voltage and over current shall be configurable.

iii) Maximum Demand

Should have Maximum Demand registers kW with integration period of 30 minutes. Resets should be auto monthly or through communication command from HES / HHU.

iv) Load Survey Storage

Meter shall record load survey of minimum 365 days for average voltage, average current, average PF, for all phases, kWh reading and kvarh reading, kVAh reading, average demand in kW with integration period of 30 minutes. It shall be possible to select either demand or energy view at the system end.

v) Tamper/Event recording

A total of last 100 events considering all tampers defined must be detected and logged as tamper events on first in first out basis along with date & time. Meter shall log following Tampers/Events – Over voltage, Low voltage, Over current, Magnet tamper, Neutral missing, Top cover open, Terminal cover open etc.

7.8 Data display facility (manual/auto):

All the above parameters shall be displayed for minimum 5 seconds (configurable) including LCD check & all parameters are configurable. Data Display shall have following modes

a) Auto Scroll: All the following parameters shall be available in auto scrolling mode with OBIS Code.

- Date (DD:MM:YY) & Time (HH:MM:SS)
- Meter Serial Number
- Balance Amount (Tk.)
- Cumulative Forwarded Active Energy (Kwh)
- Current month Active MD
- Instantaneous voltage (V)
- Instantaneous phase current (A)
- Instantaneous Neutral current (A)
- Instantaneous Active power(KW)
- Last Recharge Date & Time
- The current Tariff rate

b) Scroll with Push-button: It shall be possible to display the following parameters in sequence through push-button provided on the meter with OBIS Code:

- LCD All Segment Display
- Date (DD:MM:YY) & Time (HH:MM:SS)
- Meter Serial Number
- Balance Amount (Tk.)
- Cumulative Forwarded Active Energy (Kwh)
- Instantaneous voltage (V)
- Instantaneous phase current (A)
- Instantaneous Neutral current(A)
- Instantaneous Active power (KW)
- Current Month Forwarded Active MD
- Cumulative Forwarded Active Energy of Last Bill
- Forwarded Active MD of Last Month
- Date & Time of Last Month MD
- Last recharge amount (Tk)
- Last Recharge Date & Time
- Error Code for communication problem diagnosis
- Latest Sequence number of token.

7.9 Tamper detection

a) A tamper sensor shall be provided to detect that terminal cover has been opened both in power supply and without power supply.

b) Tamper shall be detected with and without power supply. When the meter detects a tamper condition, it should enter a shutdown state, with an appropriate message. The customer should be disconnected immediately.

c) Meter should not power up /work in missing neutral connection (relay should open).

d) Removal of battery shall be considered as a temper.

e) Meter should run in normal operation in case of communication module fault.

In case of Magnetic effect, Neutral disturbance, Terminal cover open and any other tamper detection, relays should get disconnected immediately which can be reconnected through HES or through token. Meter must be capable of detecting multiple tamper.

The tamper status shall be reset by using a uniquely coded tamper reset token that may only be used once.

The meter should be able to count energy in any type of connection as long as the credit remains. Whenever the credit is zero, the relay should trip except for emergency or friendly hour. Otherwise, the tender will be rejected.

7.10 Indication on display:

- a) Status of Relay-indication of status of relay i.e. Connected/Disconnected should be available on display.
- b) Power Supply Status: visible indication of the status of the incoming supply i.e. Power supply On/Off.
- c) **Low Credit indication.**
- d) Credit Status.
- e) Voltage indication.
- f) Tamper Indication
- g) Network Status

7.11 Display Unit/LCD:

- a) The measured value(s), status, alarm, event information etc. Should be displayed on a Liquid Crystal display (LCD) register.
- b) The display should have backlit capability for easy reading.
- c) An illuminated display with a minimum lifetime of ten years is required.
- d) The size (number of rows and characters per row) should be appropriate for the display and interpretation of the messages and meter information, and should be legible from a distance of at least 500 cm with a viewing angle no less than 30°.

7.12 Memory/Data Retention:

The data should be stored in non-volatile memory (NVM). The non-volatile memory should retain data for a period of not less than 10 years under un-powered condition. **The memory should record billing history and load profile data for last one year.**

7.18

Optical Interface

The meter shall have an IEC 62056-21 compliant optical communication port. This should allow the utility to access via front for variety of customer information stored inside the meter and to upload it into a hand held unit (HHU).

7.14 Electromagnetic compatibility

(a) Immunity to electromagnetic disturbance

The meter shall be designed in such a way that conducted or radiated electromagnetic disturbances as well as electrostatic discharge do not damage or substantially influence the meter. The disturbances to be considered are:

- i. Electrostatic discharges
- ii. Electromagnetic HF field
- iii. Fast transient burst

(b) Radio interference suppression

The meters shall not generate conducted or radiated noise which could interfere with other equipment.

7.15 Accuracy requirements

(a) Limits of error due to variation of the current

The percentage errors shall not exceed the limits for the relevant accuracy class stipulated in IEC standard.

(b) Limits of error due to other influence quantities

The additional percentage error due to the change of influence quantities shall not exceed the limit for the reference accuracy class stipulated in IEC standard.

(c) Limits of error due to ambient temperature variation

The limits of error shall not exceed the limits stipulated in IEC standard.

(d) Starting and running with no-load

Initial start-up of the meter: The meter shall be fully functional within 5 seconds after the voltage is applied to the meter terminals.

Running with no load: When the voltage is applied with no current flowing in the current circuit the test output of the meter shall not produce more than one pulse.

Starting: The meter shall start and continue to register at a) single phase: 0.4I_b% at power factor of 1.

(e) Meter constant

The relation between the test output and the indication in the display shall comply with the marking on the name-plate.

7.16 Functional Requirement

7.16.1 Security

All credit and meter management tokens shall be meter specifically encrypted to guarantee security of the system. Encrypted tokens shall not be reusable. Tokens to display status and test the meter may be un-encrypted and reusable.

7.16.2 Token validation

If a token not meant for the meter is applied, the meter should display a message to that effect. Similarly, if a valid token is re-entered into the meter then the meter must display an appropriate message.

7.16.3 Meter personalization

In addition to factory personalization and personalization via encrypted tokens, it shall be possible to personalize the meter from a hand held unit (HHU) provided the HHU is authorized/ programmed to communicate with the meter.

7.16.4 Meter modes

The meter shall be required to support at least three modes of operation, namely the Pre-payment mode, post-payment mode and the meter test mode.

7.16.5 Pre-payment mode

The basis of this mode is that credit is transferred to the meter, and provided the meter remains in credit, the meter provides supply. The credit register is decremented against current consumption with the countdown total being displayed on the meter display.

7.16.6 Meter test mode

The meter should support a test mode that is activated either from a dedicated test token, or using the HHU. This test should be automated in the meter and should include a full diagnostic test, testing of the all the active and inactive functionality, metering accuracy test (1 minute load test), and connection validation tests. Meter test mode shall also display following information:

- i) Meters software version
- ii) Current limit
- iii) Switch open and close count
- iv) Token acceptance & rejection count

7.16.7 Energy accounting

7.16.7.1 Credit register

The credit register is the “operating account” of the meter being decremented by the metering process. The specific requirements of this register are:

- a) This register must be decremented for the equivalent of every credit unit consumed.
- b) When the available credit has been consumed, the meter must open the contactor and isolate supply from the customer (unless the Friendly hours or Emergency Credit option is invoked).
- c) This register can become negative only from use of emergency credit/friendly hour.

7.16.7.2 Consumption during current billing period

- a) This register records the cumulative energy consumption for the current billing period.
- b) The registers shall be updated at least every 10 Wh.

7.16.7.3 Historic consumption

For this option there are six energy registers that store the total energy consumed for the previous six months.

- a) These registers are cycled at during the month-end process, with the oldest data being deleted.

7.16.7.4 Cumulative energy consumption

- a) This register records the cumulative consumption since the meter was commissioned.
- b) The units of storage are kWh, rounded to two decimal points (10 Wh).

7.16.7.5 Billing

Billing operates on a monthly basis. Energy consumption charge is deducted within the meter for at least every 10 Wh. All other charges including demand charge, meter rent, vat etc are deducted as per prevailing rules of Bangladesh Energy Regulatory Commission (BERC) at the POS.

7.16.7.6 Month-end calculation

At the end of each month, the meter should perform a month-end calculation that consists of the following minimum steps:

- a) The cumulative monthly energy registers must be reset, and the historic registers must be updated.
- b) The meter must determine whether a new tariff will become active, and if so, must delete the old tariff.

7.16.7.7 Date and time management

- a) The meter shall be equipped with a real time clock supporting the date and time as per IEC standard. Pseudo-clock using mains crossing detection is not acceptable. The maximum drift of the clock shall be less than 30 seconds per month. The battery and/or auxiliary power source shall operate maintenance free for a period of at least 10 years.
- b) The meter must be equipped with a battery monitoring system that monitors the battery's condition and initiates a "Change Battery Alarm" to the point of sale when the battery approaches the end of its operating life. If the battery is not replaced, the failure of the battery is deemed to constitute a meter failure, and the meter should be shut down.

7.16.8 Tariff Management

7.16.8.1 Tariff

All tariff calculation must be done within the meter.

The meter is required to support stepped tariffs structures as well as time-of-use and maximum demand.

The tariff structure consists of the following records:

- i) Each tariff must be uniquely identified using the tariff code
- ii) Each tariff shall have an activation date, being the date on which the tariff becomes effective.
- iii) Each tariff has up to seven steps (in kWh) for different levels of energy pricing.
- iv) The rate describes the cost per kWh for energy consumption in that step.

7.16.8.2 Tariff management in the meter

- a) Tariffs shall be entered into the meter via the two-way token or HHU. The meter should not allow tariffs to be manually entered using the push buttons.
 - When the meter is active, the current cannot be overwritten.
 - The meter must time and date stamp when the tariff is loaded into meter.
- b) In general, when a tariff has expired in the meter, the tariff is automatically deleted by the meter.

7.16.8.3 Tariff security and verification

The meter shall write the active tariff code to the token on each insertion.

7.16.8.4 Tariff switchover

When the meter detects that a new tariff is applicable (using the tariff activation date), the meter should execute the following steps:

- i) The meter shall begin the billing against the new tariff.
- ii) The current tariff code shall be updated to reflect the new tariff code.
- iii) The old (expired) tariff should be deleted.
- iv) New tariffs will only be activated at 00:00 Hr on the assigned day of a month.
- v) New tariff activation will not reset current tariff step.

7.17 Status/Event displays

In addition to the displays required above the meter must display the following minimum information in an intuitive way such that an inexperienced user can understand and interpret the information intelligibly. Laminated instruction cards are to be provided for each unit.

- i) Meter ID.

- ii) Out of Credit message
- iii) Invalid token entered
- iv) Duplicate token entered
- v) Meter tamper state
- vi) Meter failure and/or fault code

7.18 Friendly:

The meter shall accommodate the “Friendly hours” features. These are time periods during which the meter shall not cut-off power to consumer if the credit becomes negative. Details of the features are described in the following table. All options should be allowed for one time in each vending.

Sl. No.	Requirement	Description
1	Friendly hours	There shall be provision to define ‘Friendly hours’ in the meter. The utility shall be able to define the ‘Friendly hours’ and shall be communicated to the meter through token.
2	Special facility	After finishing the weekend at 00:00 hour, meter can avail “Special” facility till 10:00am.

7.19 Emergency credit:

Provision shall be made in the meter for an Emergency Credit facility that allows the customer to draw on an emergency credit should the credit in the register be consumed.

The specific requirements of this facility are:

- a) When the credit register value reaches a programmable Emergency Credit Threshold the meter should sound an audible alarm, and prompt the user to accept the use of the Emergency Credit facility (card insertion or button depression). The meter should not supply energy against emergency credit unless acknowledged by the customer.
- b) If all the available credit in the credit register is expired and power disconnected, the facility to activate the Emergency Credit should remain an option to the user.
- c) The meter should remain in service until the Emergency Credit Limit has been reached, after which the supply should be disconnected.
- d) If the Emergency credit limit is set to zero, the Emergency Credit Threshold shall function as a low credit warning and provide the user with a visual and audible alarm that credit is low. The user shall have the option to silence the alarm by inserting a card or pressing a button to accept the alarm.
- e) If emergency credit has been previously consumed, then the value of emergency credit used shall be deducted from the next recharge token inserted into the meter. Meter should not be ON until full loan amount is paid back and balance becomes positive.
- f) Once emergency credit has been fully exhausted, no further credit facilities shall be available until the full emergency credit allocation has been paid for and credit balance becomes positive.
- g) In case of negative credit status, meter should not accept balance clear token.

7.20 Load Control

Meters shall have the options to control loads with the following features:

- a) There shall be provision in the meter to define the allowable loads for given time periods within a day.

- b) There shall be provision in the meter to accommodate the date of activation of the defined load allocation,
- c) Load limit shall be defined in step of 500 W.
- d) Single phase Smart meter shall be equipped with integrated/ separate load control switches (latching relay) at both phase and neutral to control flow of electricity to the load at the instance of connect/ disconnect commands as per functional need of the system. Both Load switches (latching relay) shall operate simultaneously for connect/ disconnect purpose and shall be mounted inside the meter with suitable arrangement.
- e) **The meter should be able to count energy in any type of connection as long as the credit remains. Whenever the credit is zero, the relay should trip except for emergency or friendly hour. Otherwise, the tender will be rejected.**
- f) The rating of switches used shall be as per IEC.
- g) The three-phase meter should not trip irrespective of unbalanced power in different phases.

7.21 Load Disconnection/Reconnection:

- a) The load shall be disconnected by a latching relay under the following conditions:
 - i) The credit in the meter has expired and grace facilities also expired.
 - ii) The load power threshold has been exceeded.
 - iii) The meter is in a tampered state.
 - iv) Neutral missing at source side.
- b) The meter shall indicate whether the load is connected or not and shall display the reason for disconnection.
- c) The customer shall not have the option to switch the contactor manually. Under over – current conditions the mechanism to automatically reconnect the load must ensure that the number of switching cycles is limited. The meter shall attempt to reconnect the load up to 5 times at 30-second intervals. If the over-current condition still exists the meter shall wait a period of 30 minutes before attempting to reconnect the load.
- d) **After the load is disconnected by a latching relay, all the circuits should remain disconnected even if the phase and neutral connections are shifted to each other**
- e) **After load is disconnected by a latching relay, all circuits should remain disconnected and there will be no possibility of being circuited through a local earth either in phase or in neutral terminal as partially or fully.**

7.22 Smart Pre-Payment Features

7.22.1 Balance calculation:

Balance calculation will be implemented at pre-payment meter as per energy consumption. HES will collect the billing data on the midnight of every day.

7.22.2 Friendly Hours:

Friendly Hours list shall be configurable on HES & during this period no disconnection shall be done from HES side.

The utility shall be able to define the **Friendly Hours** and shall be communicated to the meter through HES. The meter shall accommodate the “**Friendly Hours**” features. These are time periods during which the meter shall not cut-off power to consumer if the credit becomes negative.

7.22.3 Emergency credit :

Provision shall be made in the meter for an Emergency Credit facility that allows the customer to draw on an emergency credit should the credit in the register be consumed. Emergency Credit facility shall be configurable on HES & during this period no disconnection shall be done from HES side.

7.22.4 Load Control

Meter shall support relay connection/disconnection in following conditions:

- Over Current
- Load control limit (Load Control limits shall be remotely programmable).
- Disconnect signal from Utility Control Centre

7.22.5 Load Disconnection/Reconnection:

i) Load disconnection –

- a) If meter credit is exhausted, then meter should disconnect immediately. At any reason if authority wants to disconnect the load of the meter, Disconnection shall be done from HES.
- b) On defined tamper/event condition meter will disconnect the load.

ii) Load Reconnection-

- a) Reconnection mechanism under disconnection from utility control center: Reconnection shall normally be done from HES.

7.22.6 Low Credit indication & alarm:

When balance is less than defined value in meter, the meter could trigger one alarm and push to HES .

7.22.7 E- Recharge /Vending -

a) The Vending system shall be “Web & Mobile Apps based System” for online recharge. After online recharge, meter should get credited immediately and automatically and customer should receive recharge successful SMS for notification. If meter doesn’t get credit over, Vending system should send SMS to inform customer visit the nearest vending station to ask process.

b) Customer should receive SMS notification like low credit, zero balance, negative balance, recharge successful, recharge failed, Emergency in use, friendly in use, load disconnect.

7.22.8 Account Log-off

a) The meter should have a provision for account log-off.

b) To log-off the meter, it should accept one termination code generated by the system.

c) The meter shall generate a return code with remaining credit.

d) The return code should be read by pressing one short code and also through online.

e) After accepting the termination code, meter shall be decommissioned. Once decommissioned, the meter should not run on previous setting.

7.23 Meter identification cards

- a) In case of keypad meters, for each meter shall be supplied with a meter identification card, which complies with NRS 009-4: 1995.
- b) The printed details and graphic design of the cards shall be submitted prior to producing the cards.

7.24 Testing and approval

- a) It will be the responsibility of the tenderer to submit to the Employers representative for approval a complete Acceptance Test Procedure (ATP) for system verification.
- b) Once the Employer's representatives approve the ATP, the testing and performance validation tests on 2% (random samples) of the supplied meters will commence. The Employer's representative at the utility's premises will witness these tests.

7.25 Quality assurance

Tenderers shall comply with and be certified to the following ISO levels:

ISO 9001 Quality systems

Model for quality assurance in design development production installation and servicing

Model for quality assurance in final inspection and test

Tenderers shall submit copies of certification with their proposal to this effect.

7.26. Keypad Numbering Scheme

The meter number scheme will be the unique and be followed by a convention of all the utilities. The number scheme will not be the scheme described but the description will be the basic of the convention of the meter number scheme which will be supplied after sinning of the contract

While the manufacturer is free to use any number scheme they see fit, the number scheme must be secure and use minimum number of digits and must always contain the following fields in encrypted form:

Meter ID

Recharged amount

Sanctioned Load

Sequence Number

The meter must check the validity of these fields before recharging the credit. The sequence number is an auto generated number starting from 1 for each recharge or keypad numbers. A keypad number will only be accepted if the previous number has been keyed in. For example if a consumer goes to POS to recharge 300Tk and gets keycodexxyyyzzz (which contains sequence number n). The next month he goes again to recharge 250Tk and gets keycodeppppqqrrr (which contains sequence number n+1). Keycode pppqqrrr will only be accepted if xxyyyzzz has been keyed in previously i.e. meter will only accept a keycode containing sequence number 'n' if at some point keycode containing sequence number 'n-1' has been keyed in. This is to ensure that keycodes are not discarded by a consumer intentionally.

Periodically it may be necessary to generate a keycode that contains more data. The keycode scheme must be able to accommodate the following data if and when required:

Meter ID

Recharged amount

Sanctioned Load

Sequence Number

Load Change

- Sanctioned Load
- Start Time

Rate

- Start Unit
- Peak Rate
- Off peak Rate
- Activation Date

It is assumed that the keypad number with only the meter id, amount, load and sequence number will be a lot shorter than the keycode containing all the rate information.

7.27 Meter Connection Procedure

After meter install in the field, it is mandatory to register meter in the vending system. The register operation will make system communicate with meter and confirm the communication ability.

7.28 Meter Numbering

It must be possible to program the meter with 12 digit meter number.

7.29 Tariff Management

7.29.1 Tariff Definition

The System Manager shall be able to define tariff objects. Each tariff has a unique tariff ID associated with it. The following information is required to define a tariff.

Tariff ID	A unique tariff identifier
Effective Date	The date on which the tariff will be effective.

Tariff and all charges will be effective as per direction of Bangladesh Energy Regulatory Commission (BERC).

Present Tariff Structure and other charges

LT (Low Tension) : i) Single Phase : 230 Volt, 0-7.5 KW & ii) Three Phase : 400 Volt, 0-50 KW

1. LT-A : Residential		
Step Structure	Step	Energy Rate/Charge (Tk./Kwh)
Life line	0-50 kWh	R ₀ = 4.63
1st Step	0-75 kWh	R ₁ = 5.26
2nd Step	76-200 kWh	R ₂ = 7.20
3rd Step	201-300 kWh	R ₃ = 7.59
4th Step	301-400 kWh	R ₄ = 8.02
5th Step	401-600 kWh	R ₅ = 12.67
6th Step	600+ kWh	R ₆ = 14.61

Consumer Class		ToU	Energy Rate/Charge (Tk./Kwh)
2	LT-B: Agriculture Pump		$R_0 = 5.25$
3	LT-C1: Small Industries	Flat Off-peak Peak	$R_0 = 10.76$ $R_1 = 9.68$ $R_2 = 12.95$
4	LT-C2: Construction		$R_0 = 15.15$
5	LT-D1: Education, Religious & Charitable and Hospital		$R_0 = 7.55$
6	LT-D2: Street Light, Water Pump		$R_0 = 9.71$
7	LT-D3: Battery Charging Station	Flat Off-peak Supper Off-peak Peak	$R_0 = 9.62$ $R_1 = 8.66$ $R_2 = 7.68$ $R_3 = 12.14$
8	LT-E: Commercial & Office	Flat Off-peak Peak	$R_0 = 13.01$ $R_1 = 11.71$ $R_2 = 15.62$
9	LT-T: Temporary		$R_0 = 20.17$

Subject	Tariff Category	PFC Calculation
Power Factor Correction (PFC) Charges	LT-A,B, C1, D1& E' Category, 3-Phase, 400V, 20KW & above	* PF Maintain in 0.95 to 1.00. * Power Factor (PF) obtained from meter.
	LT- C2 & D2 (Only Pump)' Category, 3-Phase, 400V	* Monthly average PF less than 0.95 then- From 0.95 to 0.75 for every 0.01 step less surcharge will impose 0.75% of energy bill.

Subject	Tariff Category	Time
Time of Use	LT-C1& E Category	Peak – 17:00 to 23:00 Off Peak-23:00 to 17:00 Flat-24 hours
	LT-D3 Category	Peak – 17:00 to 23:00 Off Peak-23:00 to 05:00 and 09:00 to 17:00 Supper Off Peak-05:00 to 09:00 Flat-24 hours

Meter Rent	A fixed charge is levied per month.
Sanctioned Demand Charges (Fixed Charge)	A fixed charge per kW of the sanctioned demand is levied per month.
Maximum Demand Charges	Integrated over ½ hourly periods Maximum Demand in KW.
VAT	Value added tax is levied on electricity charges and must be catered for in the system.

- a) The tariff code, effective date, kWh_x (in units of kWh), R_x together with a fixed monthly service charge Service Charges and a fixed monthly sanctioned demand shall be used to define all Pre-payment tariffs used in the system.
- b) The MIC shall make provision for up to 500 tariff definitions.

- c) The MIC must verify the tariff data entered and shall not allow discontinuities in the energy levels or negative rates for energy and fixed charges.
- d) There shall be a facility to copy tariffs to new tariff codes for editing purposes. The edit facility shall include a mechanism to increase the values of any of the variables R_x, SC and DC by a fixed percentage.
- e) Tables of Supply Group Codes and tariffs shall be securely stored at the MIC.
- f) No penalty Charges for Power Factor above 0.95 to 1.0. Power Factor Correction Charge is computed as above and average power factor is measured by meter based on only reactive energy. The monthly average power factor from meter is used for the factor and applied on the monthly consumption.

7.29.2 Tariff Algorithm

The Pre-payment system could be implemented stepped tariffs. The tariffs will be implemented at the vending equipment/meter. The algorithm must ensure that:

- a) The Stepped tariffs are implemented in meter as accurately as is the case for conventionally bitted customers.
- b) Customers are not restricted to the amount and frequency of electricity token purchases.
- c) The updated tariff with effective date will be sent using special numbers for keypad meters. After utility decides the tariff update, all purchase of credit (with keypad number) will carry tariff change flag.
- d) Customers will purchase only following credit transfer principles.
- e) For consecutive purchase in the same month, credit values without any fixed charge will be sent to the meter.
- f) Slab reset service charges, power factor penalty (PFC) should be monthly basis.
- g) The tender shall provide a detailed description of the algorithm including:
 1. All assumptions made.
 2. An explanation of how the averaging algorithm operates.
 3. Examples of how the algorithm works.
 4. Examples of how to explain the algorithm to customers.
 5. Examples of how to deal with customers queries.
 6. Description of how the algorithm manages tariff rate and tariff structure change.
 7. Description to apply corrections
 8. Description to mechanisms to how to deal with the situation where a customer buys at two different locations between data transfers.
 9. Online data transfer is required so that customers can by token from any vending system and different locations.

6.30 Data Format Individual Meter Status

Column	Data Name	Data Type	Description
1	Meter No	String(12)	014012345678
2	Status	String(1)	0: offline 1:online
3	Reading Time	String(19)	YYYY-MM-DD_HH:mm:ss

7.31 Packing:

Meters must be export packed and properly protected for shipment, rough transportation and storage. Specific care shall be taken for protection in store and reference is made to the climatic condition prevailing in Bangladesh.

Each unit shall be sealed in waterproof polyethylene bag having a silica gel packet placed inside the unit and then packed in polystyrene foam gasket closed by self adhesive tape rating of the meter shall be marked by marker pen or label on the form for easy identification.

Maximum 10 (ten) nos. of complete metering units are allowed to pack into a wooden packaging box lined with heavy gauge polyethylene. Between metering units a suitable packing material for protection and preventing their movement should be used. Silica gel should be provided inside each polyethylene wrapper. The packing case should be able to withstand accidental direct exposure to weather for reasonable period.

The supplier shall be responsible for damages due to inadequate packing. A packing list showing the contents of each packing shall be enclosed in a waterproof envelope secured outside of the packing case. A copy of the packing list shall also be enclosed inside the package.

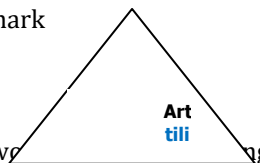
All packages imported are liable to be opened for customs examination at the port of landing and packing shall therefore be designed to facilitate opening and repackaging thereafter.

A red band (20 cm wide) shall be painted all around each package. Each package shall have the following information printed on it bold letters.

- Name of supplier.
- Port of loading.
- Port of destination.
- Name of consignee.
- Contract number.
- Brief description of stores.
- Number of packages. (total quantity)
- Gross and net weight.
- Dimension.

In addition each package shall be clearly marked or stenciled in red on two sides, the shipping mark Utility Name, BANGLADESH inscribed within a triangle marked shown below:

The shipping mark



On the other two sides of the package with words " THISSIDE UP" and "FRAGILE" shall be clearly marked or stenciled to indicate the face of the package to keep upward.

THIS SIDE UP



7.33 TECHNICAL ORIENTATION AND QUALITY TEST WITNESS:

A. FACRORY INSPECTION AND TEST WITNESS:

Witnessing of the manufacturing process and tests of the equipment at manufacturer's premises including transfer of technical know-how shall be required/held as detailed elsewhere in Particular Conditions of Contract (GCC 32.1) of tender document and other than this the following will be as follows:

The BPDB's inspection team proposed by the purchaser or consignee (if consignee is Project Director) and approved by the competent authority shall have the right to inspect, examine and test the workmanship and performance of the goods/materials to confirm the conformity to the specification at all reasonable time before and during manufacture at the manufacturer's premises.

The manufacturer will allow inspection team to inspect the manufacturing process and quality control and progress of the work at any time need by BPDB's inspection team. This team will witness the **Factory/Technical orientation & Quality** test at the manufacturer's plant. The Manufacturer shall have facilities to carry out all tests at its premises and shall provide free of charge such assistance, labor, materials, electricity, fuel, stores, apparatus and instruments as may be requisite and as may be reasonably demanded to carry out such test efficiently.

The **inspection team** maximum 2 (two) times may inspect (if required) the goods during the manufacturing process or after manufacture of Goods as required and shall also request **to supplier** for the purchase/ import/ shipping documents of major/key materials **of Goods** and shall check in accordance with Guaranteed Technical Particulars (GTP) **and guarantees of the contract. All expenses for such tests shall be borne by the supplier.**

BPDB's Inspection Team will witness the routine test at the manufacturer's premises. Tests shall be performed in accordance with the relevant IEC/BS/ANSI/ASTM/BDS standards or any other standard mentioned in the contract document which shall be complied with the Guaranteed Technical Particulars (GTP) of the Contract. All expenses for such tests shall be borne by the Contractor.

At the time of Factory Test witness BPDB's Inspection Team will check the calibration seal/certificate of the testing/measuring equipment, meters etc. issued by the competent authority. The contractor shall ensure that the Manufacturer shall complete the calibration of the testing/ measuring equipment, meters etc. before the inspection of BPDB's team.

The Supplier shall, after consulting the consignee, give notice to the consignee in writing of the date and the place where the material or equipment will be ready for testing at least 15 days before schedule of inspection. The consignee shall give the supplier timely notice in writing of his intention to attend the test. As and when the consignee is satisfied that any materials/equipment shall have passed the tests referred to in this clause, consignee shall notify the contractor in writing to that effect.

Should any inspected/ tested goods fail to conform to the specification, the consignee shall have the right to reject any of the items or complete batch if necessary. In that case Supplier has to replace the equipment and to make good of them and the supplier shall conduct similar pre-delivery Inspection and factory tests without any financial involvement to the consignee. In case any of the Equipment/goods found not conforming to the specification at the time of post landing Inspection, the supplier will in no way be relieved from the responsibility of replacing them on making them good at their own cost, despite the Equipment were found good at the time of Factory Acceptance Test in respect of quality and quantity. Nothing in this clause shall in any way release the supplier from any warranty or other obligations under the contract.

If the offered goods are manufactured within the purchaser's country then the manufacturer/supplier shall have the testing facilities at manufacturer's/supplier's premises in accordance with the relevant IEC/BS/ANSI/ASTM/BDS Standards. The inspector(s) shall sent the sample material (selected by the BPDB's Inspection Team consisting of at least three engineers in each consignment) to CERS, BPDB/BUET/CUET/KUET/RUET/DUET to carry out any test(s) pending due to lack of testing facilities or any reason at the manufacturer's/supplier's premises. All cost of testing including carrying, loading, un-loading etc. will be borne by the supplier and shall be deemed to be included in the offered price. If the sample(s) fails to confirm the specification, the full consignment will be rejected.

No goods shall be packed, prepared for shipment/delivery unless it has been approved and written instructions have been received from the consignee.

On successful completion of Pre-shipment inspection/quality test witness, delivery of goods will be made to the designated stores under contractor's/supplier's responsibility until Post-Landing Inspection is successfully completed without any obligation on part of BPDB. Quality and quantity of the delivered goods will be determined at the time of post-landing inspection at the designated stores in presence of the authorized representative of the contractor/supplier. After approval of the satisfactory Post-Landing Inspection, R&I Report will be issued following the contractual obligations.

B.RANDOM SAMPLE TEST DURING FACTORY INSPECTION AND WITNESS: Required

During Pre-delivery Inspection & Factory Test Witnessing of the goods to be supplied under the Contract, the Inspection Team will witness the routine tests at the manufacturer's premises. The Inspection Team will select goods on random sampling basis. The Tests shall be performed in accordance with the relevant IEC/BS/ANSI/ASTM/BDS standards or any other standard mentioned in the contract document which shall be complied with the Guaranteed Technical Particulars (GTP) of the Contract. All expenses for such tests shall be borne by the Contractor.

C. ACCEPTANCE REPORT OF GOODS FOR DELIVERY:

If the test results of the tested sample(s) during factory test witness by the BPDB's inspection team fail to confirm the specification and the Guaranteed Technical Particulars (GTP), the full consignment will be rejected. A formal delivery order will be issued after satisfactory pre-delivery inspection & test report by BPDB's inspection team.

D. POST-DELIVERY INSPECTION & TESTING:

Post Landing Inspection shall be done after arrival of the goods at **Final destination** as detailed elsewhere in Particular Conditions of Contract (GCC 32.1) of Tender Document and other than this the following will be as follows:

The Supplier shall inform (within 5 (five) working days) the purchaser or consignee (if consignee is Project Director) immediately after arrival of the goods at the designated store of BPDB (as per delivery schedule). An Inspection team of BPDB (may be the previously or newly formed team) shall start to perform the post-landing inspection not beyond 10 (ten) working days in presence of supplier's representative after getting information from supplier about the delivery of goods at designated store. The Supplier shall arrange post-landing inspection as per program in consultation with the consignee. If any defect or damage has been found at post-landing inspection, the defective or damaged materials/goods shall be replaced by the supplier at his own cost within the stipulated time.

The purchaser's or consignee's (if consignee is Project Director) right to inspect, test (where necessary) and reject the goods after delivery at the designated stores of BPDB shall in no way be limited or waived by reason of the goods having previously been inspected, tested and passed by the purchaser prior to the goods' delivery.

The Inspection team will check the physical conditions and quantity of the goods delivered. The inspection team will select the sample of good(s) on random sampling basis and sent the selected sample goods to CERS, BPDB or BUET/ CUET/ KUET /RUET (as selected by the inspection team) to carry-out the test(s) as per contract to confirm the conformity to the approved Technical Specifications, Guaranteed Technical Particulars (GTP), drawings and relevant standards. If the tested sample(s) fail to confirm the specifications in tests, the full consignment will be rejected. All cost of testing of Materials/ Goods including carrying, loading, un-loading etc. will be borne by the supplier.

SECTION:8

Guaranteed Technical Particulars (GTP)

GTP of 230 Volt, 5(60) A Single-Phase Smart Pre-Payment Energy Meter.

Sl. No.	Name of Item	Unit	Required Specifications	Full Technical Specification & Standard (to be mentioned)
1	Reference Standard	-	IEC	

Sl. No.	Name of Item	Unit	Required Specifications	Full Technical Specification & Standard (to be mentioned)
2	Manufacturer's Name & Address	-	To be mentioned	
3	Year of manufacturer	-	To be mentioned	
4	Country of Origin	-	To be mentioned	
5	Firmware Version for meter	-	To be mentioned	
6	Firmware Version for communications	-	To be mentioned	
7	Web Based Pre-payment software version	-	To be mentioned	
8	Model of Meter	-	To be mentioned	
9	Type of Meter	-	Indoor/Outdoor	
10	Connection	-	1- phase, 2-wire (unidirectional)	
11	Rated voltage	Volt	230	
12	Maximum voltage	Volt	280	
13	Basic Current (I _b)	Amp	<=5	
14	Maximum Current (I _{max})	Amp	>=60	
15	Frequency	Hz	50	
16	Number of Terminal	No.	4	
17	Diameter of Terminal; Bore	mm	6mm to accommodate 10 mm ² cable	
18	No. of Element (minimum)	No.	2 (One in Phase & other in Neutral)	
19	Voltage circuit loss at rated voltage	VA & W	5VA, 2 Watt	
20	Current circuit loss at rated current	VA	2.5	
21	Variation of Power factor		0.5 lag to 0.8 lead	
22	Variation of voltage		-30% to +30%	
23	Impulse withstand voltage	KV	6	
24	Starting current	mA	≤0.4% of basic current	
25	KWh register type	-	LCD Display	
26	Meter constant	Impulse/kWhr	To be mentioned	
27	Accuracy class	Class	1.0	
28	Performance Curve	-	To be submitted	
29	Type of Battery		Lithium-ion Battery (Re-chargeable/ Non-Rechargeable) Brand: Renata/ Panasonic/ Varta/ Tedrium/ Sanyo/ National/ Tadiran/ Duracell/ Tekcell/ Saft (Supported by Manufacturer's Authorization Letter)	

Sl. No.	Name of Item	Unit	Required Specifications	Full Technical Specification & Standard (to be mentioned)
30	Built in clock		Real Time Clock (RTC) as per IEC 62054-21 or updated version with 10 years battery backup. Without support of external battery and AC power, meter should operate at least 01 (one) hour with the support of built-in super-capacitor (Sample meter time and date shall be same as real time of Bangladesh.)	
31	Battery Reserve & Life		10(Ten) Years	
32	No. of Digits for Credit Storage		5+1	
33	Credit Transfer System		CTS	
34	Tariff Structure		Utility's tariff structure	
35	KW/hr dispensing register		Solid state LCD Display	
36	Front Page Indications		- Credit Status, - Accept/Reject - Low credit warning - Consumption Rate - Tamper Indication	
37	Disconnection Facility		- On credit expiry, - Decommissioning state - Exceeded Power threshold - When tampered	
38	Provision for emergency Friendly Credit		Yes (Configurable)	
39	Time interval of re-calibration (minimum)	Year	10	
40	Service life (minimum)	Year	10	
41	Weight of meter	Kg	To be mentioned	
42	Overall dimensions (height, width, depth)	mm	To be mentioned	
43	Load Control		To be mentioned	
44	Warranty	Years	3 Years	
45	List of Recommended Spares		To be mentioned	
46	Any other facility if any		To be mentioned	
47	Meter body sealing condition		Hermetically Sealed/ Fully Ultrasonic Welded with Mechanical Interlocking to avoid unauthorized opening of meter cover without breaking and damaging.	
48	Latching relay		As per specification mentioned in Section-7.6.3 (Supported by Manufacturer's Authorization	

Sl. No.	Name of Item	Unit	Required Specifications	Full Technical Specification & Standard (to be mentioned)
			Letter)	
49	Communication		Plug & Play BROADBAND PLC (Meter able to support 4G GPRS).	
50	Application Protocol		DLMS/COSEM and IDIS	

Demonstration of the Prepayment Meter and DCU

1. The Employer shall invite Tenderer to demonstrate smart prepayment meters as part of the technical evaluation. The demonstration of the offered smart meters shall be mandatory to accept the Bids for detailed technical evaluation.

2. The demonstration shall be held in Dhaka and the Employer shall provide a venue with projector.

3. The Tenderer shall arrange all equipment, software and logistics, included but not limited to, computers, printers and network equipment, communication links, smart prepayment meter prototypes, power supplies, test loads for the meters, all cables/wiring and consumables, transport including human resources required for the demonstration.

The contractor shall explain how the demonstration set-up differs from the production set-up required for this Bid and explains the data architecture of the system prior to the demonstration.

The key requirements for the demonstration shall be:

- a) A fully functional smart prepayment system with two single phase prepayment meters with BPLC communication modules shall be demonstrated. Demonstration has to be completed on the assigned date. During demonstration, sample meter firmware upgradation/change shall not be allowed.

For demonstration purpose, the Tenderer has to submit fully functional offered type Two Single Phase Smart Pre-payment meters as Sample Meter(s) along with their bid. The tenderer needs not to submit multiple manufacturer's meters during bid submission. During demonstration, the tender shall have to bring their DCU with all other manufacturer's DCU installed in BPDB system and have to interface offered meter with HES for interoperability test in the said demonstration program. During demonstration the tenderer shall be demonstrated using offered type meters with emphasis on demonstrating key functionality. It is to be noted here that without support of external battery and AC power, meter should operate at least one hour with the support of inbuilt super-capacitor.

The Tenderer shall have to present and demonstrate successfully the functionality of the offered type sample meters with HES as per Technical Specification of tender requirements. The Tenderer needs to demonstrate interfacing and interoperability of the offered type smart meter with all other manufacturer's DCU installed in BPDB system compliance to IDIS interoperability protocol. The interoperability shall be performed in both ways and vice-versa for the Smart Meters and DCUs. For each single device, proof of conformity for the chosen application standards (e.g., DLMS/COSEM) as well as communication standards (e.g., BPLC, etc.) is required.

- b) Checklist

Demonstration should be conducted as per attached checklist

Checklist for Sample Meter Demonstration (Single Phase Smart Pre-payment Meter)

Tender Name :
Tender Ref. No. :
Bidder Name :

Date :
Submitted Sample Meter Serial :
No

(a) Physical and Accuracy Test

S/N	Item description	Unit	Required specifications	Available Particulars
1	Reference Standard	-	IEC	
2	Country of origin	-	To be mentioned	
3	Manufacturer's Name & address	-	To be mentioned	
4	Year of Manufacture	-	To be mentioned	
5	Model of Meter	-	To be mentioned	
6	Type of Metering	-	Indoor/Outdoor	
7	Connection	-	1-P, 2-wire (unidirectional)	
8	Overall dimensions	mm	To be mentioned	
9	Rated Voltage	Volt	230	
10	Maximum Voltage	Volt	280	
11	Basic Current (I_b)	Amp	≤ 5	
12	Maximum Current (I_{max})	Amp	≥ 60	
13	Frequency	Hz	50	
14	Number of Terminal	No.	4	
15	Meter constant	Imp/kWh	To be mentioned	
16	Diameter of Terminal bore	mm	6 mm to accommodate 10 mm ² cable	
17	No. of Element	No.	2	
18	Starting current (minimum)	mA	$\leq 0.4\%$ of basic current	
19	KWh register type	-	LCD Display	
20	Built in clock		* Real Time Clock (RTC) as per IEC 62054-21 or updated version with 10 years battery backup. Without support of external battery and AC power, meter should operate at least 01 (one) hour with the support of built-in super-capacitor * Sample meter time and date shall be same as real time of Bangladesh.	
21	No. of digits	-	5+1	

S/N	Item description	Unit	Required specifications	Available Particulars
22	Front Page Indications	-	Credit Status, Accept/Reject, Low Credit warning, Consumption Rate, Tamper Indication, Relay status, Communication status	
23	Meter Base Cover (Section 7.6.2/1)	-	Meter Base cover should be transparent	
24	Connection diagram and Terminal marking	-	Every Meter Shall be indelibly marked with connection diagram and Terminal shall be marked.	
25	Meter body sealing condition	-	Hermetically Sealed/ Fully Ultrasonic Welded with Mechanical Interlocking to avoid unauthorized opening of meter cover without breaking and damaging.	
26	Type of Battery (Supported by Manufacturer's Authorization Letter)	-	<ul style="list-style-type: none"> * Sample Battery Brand and Model. * Battery Vendor list: Renata/Panasonic/Varta/Tedrium/Sanyo/National/Tadiran/Duracell/Tekcell/Saft. * Without support of external battery and AC power, meter should operate at least 01 (one) hour with the support of built-in super-capacitor * Meter battery should have 2.54mm Pin Header Connector for 2 pin interface (applicable for Pin Connector design). 	
27	Latching relay	-	Manufacturer Name, Model, Specification should be engraved or marked on the relay body.	
28	Accuracy class	Class	1.0	
29	Measured Accuracy, Section 7.15	% Error	<ul style="list-style-type: none"> * Min^m Bias Voltage (P-N) * The Meter shall be fully functional within 5 seconds after the voltage is applied to the terminal * %Error due to variation of current shall not exceed the limit stipulated in relevant IEC standard * %Error due to variation of voltage ($\pm 30\%$) shall not exceed the limit stipulated in relevant IEC standard * %Error due to variation of Power Factor from 0.5 lag to 0.8 lead shall not 	

S/N	Item description	Unit	Required specifications	Available Particulars
			<p>exceed the limit stipulated in relevant IEC standard</p> <p>* Meter accuracy shall not be affected by AC/DC magnetic field from all side of the Meter. Meter shall not be affected by permanent magnet of 0.5T</p>	

(b) Functionality Test

S/N	Item description	Required specifications	Available Particulars
1	Data Display facility (Manual/Auto), Section 7.8	<p>Auto Scroll Date & Time, Meter Serial No, Balance Amount (Tk), Cum kWh, Current Month MD, Inst. Voltage, Inst. Phase Current, Inst. Neutral Current, Inst. kW, Last Recharge Date & Time, Current Tariff Rate</p> <p>Scroll with Push Button Date & Time, Meter Serial No, Balance(Tk), Cum kWh, Inst. Voltage, Inst. Phase current, Inst. Neutral Current, Inst. kW, Current Month MD, Cum kWh of last bill, MD of Last month, Date & Time of last MD, Last recharge (Tk), Last Recharge Date & Time, Error code, Latest sequence number of token</p> <p>Auto and Manual display item must be configurable.</p>	
2	Credit Transfer System	CTS	
3	Tariff Structure	Utility's tariff structure	
4	Tariff Management	<p>Meter shall support</p> <ul style="list-style-type: none"> * Stepped Tariffs structure * Time of use * Tariff activation date * Tariff switch-over events * Peak, Off-Peak and Supper Off-peak facility * Future tariff activation facility <p>New tariff activation will not reset current tariff step</p>	
5	Parameters to be measured and stored (Section 7.7)	<ul style="list-style-type: none"> * Instantaneous Values for Voltage, Current, Cumulative Active Energy (Total, Peak, Off-Peak), Cumulative Reactive Energy (Total, Peak, Off-Peak) * Billing Parameters At least 12 months billing data shall be stored in the Meter for Cumulative kWh (Total, Peak, Off-Peak), kVarh (Total, Peak, Off-Peak), MD, PF, Remaining Balance, Money Recharge, etc. <p>Load survey storage</p> <ul style="list-style-type: none"> * Load survey for min 365 days * Load survey for V, I, PF, kWh, kVarh, demand in kW with integration period of 30 Minutes, Load profile. <p>Tamper & Event recording</p> <ul style="list-style-type: none"> * Total of last 100 events with date and time 	

S/N	Item description	Required specifications	Available Particulars
		detection and logged facility * Over Voltage event * Low Voltage event * Over Current event * Magnet Tamper event * Neutral Missing * Top cover open * Terminal Cover open * Bypassing the connection Meter should run in normal operation in case of communication module fault.	
6	Disconnection Facility	* On credit expiry * Exceeded Power threshold * When tampered * Neutral missing at source side * Over load signaling and attempt to reconnect 5 times at 30s interval. * Partial credit recharge in case of negative credit status. * Insertion of "Balance Clear Token" in case of negative credit status.	
7	Friendly Hours (Section 7.18)	* In the Meter there shall be provision to define "Friendly Hours" and "Weekend" as per utility requirement * Meter can avail "Friendly Hours" and "Weekend" after running out credit balance * After finishing the "Weekend" at 00:00 hour meter can avail "Special" facility till 10:00 am.	
8	Emergency Credit Facility (Section 7.19)	* Availability of audible alarm sound in case of emergency Credit threshold * Way to silence audible alarm * The meter should not supply energy against emergency credit unless acknowledged by the customer * Meter can avail "Emergency credit facility" after running out credit balance * Way to activate emergency credit facility. * The meter should remain in service until the emergency credit limit has been reached.	
9	Negative balance	* Meter can avail all credit facility for running out of credit balance. * If any credit facility has been previously consumed fully or partially, then the value of negative balance shall be deducted from the next credit token inserted into the meter. * Meter should not be run with any credit facility mode until full loan (negative balance) amount is paid back. * Meter should not clear the negative balance by clear balance token	
10	Account logoff	* The meter should have a provision for account logoff * To logoff the meter, it should accept one termination code generated by the system * The meter shall generate a return code with remaining credit	

S/N	Item description	Required specifications	Available Particulars
		<ul style="list-style-type: none"> * The return code should be read by pressing one short code and also through online * After accepting the termination code meter shall be decommissioned; once the meter is decommissioned the meter should not run on previous settings 	
11	Tamper Detection, Section 7.9	<ul style="list-style-type: none"> * Tamper shall be detected in the event of Terminal Cover open with and without Power Supply * Meter should not Power up / work in neutral missing condition * Removal of Battery shall be considered as a tamper * Tamper shall be detected in the event of magnetic influence with power supply of meter * Meter shall operate normally in case of Phase sequence reversal * Relay shall be disconnected in any tamper event * Without tamper token, meter tamper couldn't be reset * In any connection Meter should be able to count Energy as long as the credit remain * Meter should not be affected for the fault in communication module 	
12	Token Validation (Section 7.16.2)	<ul style="list-style-type: none"> * In case of invalid token insertion Meter will show relevant message. * If a valid token re-entered in to the Meter, then the Meter will display appropriate message * Without customization token Meter should not be ready to use by any activation code 	
13	Meter Mode of operation (Section 7.16.4)	<ul style="list-style-type: none"> * Meter shall be supported at least three modes of operation i.e., Pre-payment mode, Post payment mode and Test mode * In Post-payment mode Meter should detect tamper as per SI no. 11. 	
14	Optical Port & RS485	<ul style="list-style-type: none"> * Meter should have standard optical port for local read and configuration * Meter should have active RS485 port for communication 	
15	Application Protocol	<ul style="list-style-type: none"> * DLMS/COSEM & IDIS 	
16	Communication	<ul style="list-style-type: none"> * Plug and Play BPLC module (Meter shall be able to support 4G GPRS module) * Adding or exchanging the communication Module should be done without turning off the Meter * Communication test for sample meter must be done with own DCU. 	
17	Interoperability Test	<ul style="list-style-type: none"> * Meter shall be capable to communicate with all existing DCU brand installed in BPDB 	

Remarks

For Bidder with Name & Designation

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For Tender Evaluation/Inspection Committee

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SECTION: 9 DRAWINGS (To be submitted)

Justified Short Code

There are short code table, through this short code, user can get the information of meter.

Short code	Data meaning	Short code	Data meaning
Any code	Cancel audible alarm	00	Active emergency overdraft
800	Total positive active energy	801	Meter remaining balance
802	Current date	803	Current time
804	Meter serial No.	805	SGC No.
806	Reason of relay operation	807	Meter status words
808	Total instantaneous power	809	Tariff index number
810	Emergency Overdraft limit	811	Active emergency overdraft
813	Total forward active energy for yesterday	814	Total forward active energy for current month
815	Recharge date for last time	816	Recharge time for last time
817	Recharge amount for last time	818	Log out return code
819	Power outage No	820	Total forward active energy for last month

821	Total forward active energy for last 2 nd month	822	Total forward active energy for last 3 rd month
823	Total forward active energy for last 4 th month	824	Total forward active energy for last 5 th month
825	Total forward active energy for last 6 th month	830	TOKEN code for last time recharging
831	TOKEN codes for last 2 nd time recharging	832	TOKEN codes for last 3 rd time recharging
833	TOKEN codes for last 4 th time recharging	834	TOKEN codes for last 5 th time recharging
835	TOKEN codes for last 6 th time recharging	836	TOKEN codes for last 7 th time recharging
837	TOKEN codes for last 8 th time recharging	838	TOKEN codes for last 9 th time recharging
839	TOKEN codes for last 10 th time recharging	865	Meter entering normal working mode
866	Measuring accuracy displays 3 decimals, automatically exit after 1 minute	868	Relay testing
869	Maximum power (Load Limit)	870	A phase voltage
871	B phase voltage (not support in single phase meter)	872	C phase voltage (not support in single phase meter)
873	Key version No.	874	A phase current
875	B phase current	876	C phase current (not support in single phase meter)
877	A phase power	878	B phase power
879	C phase power (not support in single phase meter)	880	Average value for daily power consumption
881	Average value for monthly power consumption	886	The price of current Tariff
887	Current step tariff	888	Recharging return code
889	Current TOKEN sequence No.	890	TOKEN rejected times
891	TOKEN accepted times	892	Relay connection times
893	Relay disconnection times	894	Max. overdraft amount under friendly mode
895	Allowed using days under friendly mode	896	Already used days under friendly mode
897	Start time of friendly hour	898	End time of friendly hour
899	Weekend	900	The status of friendly mode 1: uuworkday: No-friendly mode or friendly times is run out 2: F-Hour: Friendly hour 3: uweekend : weekend 4: holiday: holiday 5: EnnErg: emergency mode 6: SpEciAL: weekend or friendly day is finished but does not arrival next day 10 o' clock
901	kWh of Step 1/ kWh of Tariff 1	902	kWh of Step 2/ kWh of Tariff 2
903	kWh of Step 3/ kWh of Tariff 3	904	kWh of Step 4/ kWh of Tariff 4
905	kWh of Step 5/ kWh of Tariff 5	906	kWh of Step 6/ kWh of Tariff 6
907	kWh of Step 7/ kWh of Tariff 7	908	rate of Step 1/ price of Tariff 1
909	rate of Step 2/ price of Tariff 2	910	rate of Step 3/ price of Tariff 3
911	rate of Step 4/ price of Tariff 4	912	rate of Step 5/ price of Tariff 5
913	rate of Step 6/ price of Tariff 6	914	rate of Step 7/ price of Tariff 7
915	rate of Step 8/ price of Tariff 8	916	The average PF of last month
917	Level 1 alarm of balance low	918	Level 2 alarm of balance low
919	Level 3 alarm of balance low	920	Special step status word
921	Already used times of weekend	922	Consumption amount of current month
923	Consumption amount of last month	924	Consumption amount of last 2 nd month
925	Consumption amount of last 3 rd month	926	Consumption amount of last 4 th month
927	Consumption amount of last 5 th month	928	Consumption amount of last 6 th month
930 *	PFC of last month (not support in single phase meter)	931	PFC of last 2 nd month (not support in single phase meter)

932	PFC of last 3 rd month (not support in single phase meter)	933	PFC of last 4 th month (not support in single phase meter)
934	PFC of last 5 th month (not support in single phase meter)	935	PFC of last 6 th month (not support in single phase meter)
940	Reactive energy of last month	941	Reactive energy of last 2 nd month
942	Reactive energy of last 3 rd month	943	Reactive energy of last 4 th month
944	Reactive energy of last 5 th month	945	Reactive energy of last 6 th month
952	Prepay Mode or Post-pay mode indication	953	Neutral Current
954	Total tariff 1 active energy (KWh)	955	Total tariff 2 active energy(KWh)
956	Total tariff 3 active energy(KWh)	957	Total tariff 4 active energy(KWh)
958	Total tariff 5 active energy(KWh)	959	Total tariff 6 active energy(KWh)
960	Total tariff 7 active energy(KWh)	961	Total tariff 8 active energy(KWh)
962	Positive tariff 1 reactive energy	963	Positive tariff 1 reactive energy
964	Positive tariff 3 reactive energy	965	Positive tariff 3 reactive energy
966	Total positive reactive energy	970	Negative tariff 1 reactive energy
971	Negative tariff 2 reactive energy	972	Negative tariff 3 reactive energy
973	Negative tariff 4 reactive energy	974	Total negative reactive energy
981	Emergency overdraft balance	985	Total consumption credit
986	Remaining energy (estimated value)	998	Average power factor of current month
420	The opening terminal cover time for last time	421	The opening terminal cover date for last time

Standard OBIS Information

NO.	Data Name	Standard OBIS	Standard CIM
1	A phase Current	3#1.0.31.7.0.255#2	0.0.0.12.0.1.4.0.0.0.0.0.0.128.0.5.0
2	A phase Power Factor	3#1.0.33.7.0.255#2	0.0.0.12.19.1.37.0.0.0.0.0.0.0.224.3.38.0
3	A phase Voltage	3#1.0.32.7.0.255#2	0.0.0.12.0.1.54.0.0.0.0.0.0.0.128.0.29.0
4	Active energy (+A - -A) Net tariff1	3#1.0.16.8.1.255#2	0.26.0.1.4.1.12.0.0.0.0.1.0.0.224.3.72.0
5	Active energy (+A - -A) Net tariff2	3#1.0.16.8.2.255#2	0.26.0.1.4.1.12.0.0.0.0.2.0.0.224.3.72.0
6	Active energy (+A - -A) Net tariff3	3#1.0.16.8.3.255#2	0.26.0.1.4.1.12.0.0.0.0.3.0.0.224.3.72.0
7	Active energy (+A - -A) Net tariff4	3#1.0.16.8.4.255#2	0.26.0.1.4.1.12.0.0.0.0.4.0.0.224.3.72.0
8	Active energy (+A - -A) Net total	3#1.0.16.8.0.255#2	0.26.0.1.4.1.12.0.0.0.0.0.0.0.224.3.72.0
9	Active energy (+A + -A) Combined tariff1	3#1.0.15.8.1.255#2	0.26.0.1.20.1.12.0.0.0.0.1.0.0.224.3.72.0
10	Active energy (+A + -A) Combined tariff2	3#1.0.15.8.2.255#2	0.26.0.1.20.1.12.0.0.0.0.2.0.0.224.3.72.0
11	Active energy (+A + -A) Combined tariff3	3#1.0.15.8.3.255#2	0.26.0.1.20.1.12.0.0.0.0.3.0.0.224.3.72.0
12	Active energy (+A + -A) Combined tariff4	3#1.0.15.8.4.255#2	0.26.0.1.20.1.12.0.0.0.0.4.0.0.224.3.72.0
13	Active energy (+A + -A) Combined total	3#1.0.15.8.0.255#2	0.26.0.1.20.1.12.0.0.0.0.0.0.0.224.3.72.0

14	Active energy export (-A)	3#1.0.2.8.0.255#2	0.26.0.1.19.1.12.0.0.0.0.0.0.0.224.3.72.0
15	Active energy export (-A) rate1	3#1.0.2.8.1.255#2	0.26.0.1.19.1.12.0.0.0.0.1.0.0.224.3.72.0
16	Active energy export (-A) rate2	3#1.0.2.8.2.255#2	0.26.0.1.19.1.12.0.0.0.0.2.0.0.224.3.72.0
17	Active energy export (-A) rate3	3#1.0.2.8.3.255#2	0.26.0.1.19.1.12.0.0.0.0.3.0.0.224.3.72.0
18	Active energy export (-A) rate4	3#1.0.2.8.4.255#2	0.26.0.1.19.1.12.0.0.0.0.4.0.0.224.3.72.0
19	Active energy export (-A) rate5	3#1.0.2.8.5.255#2	0.26.0.1.19.1.12.0.0.0.0.5.0.0.224.3.72.0
20	Active energy export (-A) rate6	3#1.0.2.8.6.255#2	0.26.0.1.19.1.12.0.0.0.0.6.0.0.224.3.72.0
21	Active energy export (-A) rate7	3#1.0.2.8.7.255#2	0.26.0.1.19.1.12.0.0.0.0.7.0.0.224.3.72.0
22	Active energy export (-A) rate8	3#1.0.2.8.8.255#2	0.26.0.1.19.1.12.0.0.0.0.8.0.0.224.3.72.0
23	Active energy import (+A)	3#1.0.1.8.0.255#2	0.26.0.1.1.1.12.0.0.0.0.0.0.0.224.3.72.0
24	Active energy import (+A) rate1	3#1.0.1.8.1.255#2	0.26.0.1.1.1.12.0.0.0.0.1.0.0.224.3.72.0
25	Active energy import (+A) rate2	3#1.0.1.8.2.255#2	0.26.0.1.1.1.12.0.0.0.0.2.0.0.224.3.72.0
26	Active energy import (+A) rate3	3#1.0.1.8.3.255#2	0.26.0.1.1.1.12.0.0.0.0.3.0.0.224.3.72.0
27	Active energy import (+A) rate4	3#1.0.1.8.4.255#2	0.26.0.1.1.1.12.0.0.0.0.4.0.0.224.3.72.0
28	Active energy import (+A) rate5	3#1.0.1.8.5.255#2	0.26.0.1.1.1.12.0.0.0.0.5.0.0.224.3.72.0
29	Active energy import (+A) rate6	3#1.0.1.8.6.255#2	0.26.0.1.1.1.12.0.0.0.0.6.0.0.224.3.72.0
30	Active energy import (+A) rate7	3#1.0.1.8.7.255#2	0.26.0.1.1.1.12.0.0.0.0.7.0.0.224.3.72.0
31	Active energy import (+A) rate8	3#1.0.1.8.8.255#2	0.26.0.1.1.1.12.0.0.0.0.8.0.0.224.3.72.0
32	Active MD (-)	4#1.0.2.6.0.255#2	0.8.2.6.19.1.8.0.0.0.0.0.0.0.224.3.38.0
33	Active MD (-) tariff1	4#1.0.2.6.1.255#2	0.8.2.6.19.1.8.0.0.0.0.1.0.0.224.3.38.0
34	Active MD (-) tariff2	4#1.0.2.6.2.255#2	0.8.2.6.19.1.8.0.0.0.0.2.0.0.224.3.38.0
35	Active MD (-) tariff3	4#1.0.2.6.3.255#2	0.8.2.6.19.1.8.0.0.0.0.3.0.0.224.3.38.0
36	Active MD (-) tariff4	4#1.0.2.6.4.255#2	0.8.2.6.19.1.8.0.0.0.0.4.0.0.224.3.38.0
37	Active MD (QI+QIV + QII+QIII)	4#1.0.15.6.0.255#2	0.8.0.6.20.1.8.0.0.0.0.0.0.0.224.3.38.0
38	Active MD (QI+QIV + QII+QIII) tariff1	4#1.0.15.6.1.255#2	0.8.0.6.20.1.8.0.0.0.0.1.0.0.224.3.38.0
39	Active MD (QI+QIV + QII+QIII) tariff2	4#1.0.15.6.2.255#2	0.8.0.6.20.1.8.0.0.0.0.2.0.0.224.3.38.0
40	Active MD (QI+QIV + QII+QIII) tariff3	4#1.0.15.6.3.255#2	0.8.0.6.20.1.8.0.0.0.0.3.0.0.224.3.38.0
41	Active MD (QI+QIV + QII+QIII) tariff4	4#1.0.15.6.4.255#2	0.8.0.6.20.1.8.0.0.0.0.4.0.0.224.3.38.0
42	Active MD (+)	4#1.0.1.6.0.255#2	0.8.0.6.1.1.8.0.0.0.0.0.0.0.224.3.38.0
43	Active MD (+) tariff1	4#1.0.1.6.1.255#2	0.8.0.6.1.1.8.0.0.0.0.1.0.0.224.3.38.0
44	Active MD (+) tariff2	4#1.0.1.6.2.255#2	0.8.0.6.1.1.8.0.0.0.0.2.0.0.224.3.38.0
45	Active MD (+) tariff3	4#1.0.1.6.3.255#2	0.8.0.6.1.1.8.0.0.0.0.3.0.0.224.3.38.0
46	Active MD (+) tariff4	4#1.0.1.6.4.255#2	0.8.0.6.1.1.8.0.0.0.0.4.0.0.224.3.38.0
47	Tariff 5 Active MD(+)	4#1.0.1.6.5.255#2	0.8.0.6.1.1.8.0.0.0.0.5.0.0.224.3.38.0
48	Tariff 6 Active MD(+)	4#1.0.1.6.6.255#2	0.8.0.6.1.1.8.0.0.0.0.6.0.0.224.3.38.0
49	Tariff 7 Active MD(+)	4#1.0.1.6.7.255#2	0.8.0.6.1.1.8.0.0.0.0.7.0.0.224.0.1.0
50	Tariff 8 Active MD(+)	4#1.0.1.6.8.255#2	0.8.0.6.1.1.8.0.0.0.0.8.0.0.224.3.38.0
51	Angle of U(L1) - U(L2)	3#1.0.81.7.10.255#2	0.0.0.1.0.1.55.0.0.0.0.0.0.0.224.0.1.0
52	Angle of U(L1) - U(L3)	3#1.0.81.7.20.255#2	0.0.0.1.0.1.55.0.0.0.0.1.0.0.224.0.1.0
53	Apparent power+ (QI+QIV) , Phase A	3#1.0.29.7.0.255#2	0.0.0.12.1.1.37.0.0.0.0.0.0.0.128.3.61.0
54	Apparent power+ (QI+QIV) , Phase B	3#1.0.49.7.0.255#2	0.0.0.12.1.1.37.0.0.0.0.0.0.0.64.3.61.0

55	Apparent power+ (QI+QIV) , Phase C	3#1.0.69.7.0.255#2	0.0.0.12.1.1.37.0.0.0.0.0.0.0.32.3.61.0
56	B phase Current	3#1.0.51.7.0.255#2	0.0.0.12.0.1.4.0.0.0.0.0.0.0.64.0.5.0
57	B phase Power Factor	3#1.0.53.7.0.255#2	0.0.0.12.19.1.37.0.0.0.0.0.0.0.224.3.63.0
58	B phase Voltage	3#1.0.52.7.0.255#2	0.0.0.12.0.1.54.0.0.0.0.0.0.0.64.0.29.0
59	C phase Current	3#1.0.71.7.0.255#2	0.0.0.12.0.1.4.0.0.0.0.0.0.0.32.0.5.0
60	C phase Power Factor	3#1.0.73.7.0.255#2	0.0.0.12.0.1.38.0.0.0.0.0.0.0.32.0.65.0
61	C phase Voltage	3#1.0.72.7.0.255#2	0.0.0.12.0.1.54.0.0.0.0.0.0.0.32.0.29.0
62	Current , neutral	3#1.0.91.7.0.255#2	0.0.0.1.0.1.4.0.0.0.0.0.0.0.224.0.5.0
63	Daily Freezing For Energy	7#0.0.98.2.0.255#2	11.26.0.1.0.1.12.0.0.0.0.0.0.0.224.3.72.0
64	Daily Freezing For Total Energy	7#0.0.98.5.128.255#2	11.0.0.1.0.1.12.0.0.0.0.0.0.0.224.3.72.0
65	Daily Freezing Prepaid Information	7#0.0.99.2.0.255#2	11.26.0.1.0.1.12.0.0.0.0.1.0.0.224.3.72.0
66	Daily Frozen Forward Active Energy Block	7#0.0.98.1.128.255#2	11.26.0.1.0.1.12.0.0.0.0.2.0.0.224.3.72.0
67	Instantaneous active export power (-A)	3#1.0.2.7.0.255#2	0.0.0.12.19.1.37.0.0.0.0.0.0.0.224.3.38.0
68	Instantaneous active import power (+A)	3#1.0.1.7.0.255#2	0.0.0.12.1.1.37.0.0.0.0.0.0.0.224.3.38.0
69	Instantaneous active import power (+A) L1	3#1.0.21.7.0.255#2	0.0.0.12.1.1.37.0.0.0.0.0.0.0.128.3.38.0
70	Instantaneous active import power (+A) L2	3#1.0.41.7.0.255#2	0.0.0.12.1.1.37.0.0.0.0.0.0.0.64.3.38.0
71	Instantaneous active import power (+A) L3	3#1.0.61.7.0.255#2	0.0.0.12.1.1.37.0.0.0.0.0.0.0.32.3.38.0
72	Instantaneous net frequency	3#1.0.14.7.0.255#2	0.0.0.12.0.1.15.0.0.0.0.0.0.0.224.0.33.0
73	Instantaneous Power factor (+A/+VA)	3#1.0.13.7.0.255#2	0.0.0.12.0.1.38.0.0.0.0.0.0.0.0.65.0
74	Instantaneous reactive export power (-R)	3#1.0.4.7.0.255#2	0.0.0.12.19.1.37.0.0.0.0.0.0.0.224.3.63.0
75	Instantaneous reactive import power (+R)	3#1.0.3.7.0.255#2	0.0.0.12.1.1.37.0.0.0.0.0.0.0.224.3.63.0
76	Meter Log Off Return Token	1.0.129.129.11.255	0.0.0.12.0.0.0.0.0.0.0.0.128.0.211.0
77	Monthly Freezing For Active MD Import Register Package	7#0.0.98.7.128.255#2	13.0.0.1.0.1.8.0.0.0.0.0.0.0.224.3.72.0
78	Monthly Freezing For Energy	7#0.0.98.1.0.255#2	13.0.0.1.0.1.12.0.0.0.0.1.0.0.224.3.72.0
79	Monthly Freezing For Total Energy	7#0.0.98.6.128.255#2	13.0.0.1.0.1.12.0.0.0.0.5.0.0.224.3.72.0
80	Monthly Freezing Prepaid Information	7#0.0.99.1.0.255#2	13.0.0.1.0.1.12.0.0.0.0.2.0.0.224.3.72.0
81	Monthly Frozen Forward Active Energy Block	7#0.0.98.3.128.255#2	13.0.0.1.0.1.12.0.0.0.0.3.0.0.224.3.72.0
82	Monthly Frozen Special Block	7#0.0.98.9.0.255#2	13.0.0.1.0.1.12.0.0.0.0.4.0.0.224.0.72.0
83	Reactive energy export (-R)	3#1.0.4.8.0.255#2	0.26.0.1.13.1.12.0.0.0.0.0.0.0.224.3.73.0
84	Reactive energy export (-R) rate1	3#1.0.4.8.1.255#2	0.26.0.1.13.1.12.0.0.0.0.1.0.0.224.3.73.0
85	Reactive energy export (-R) rate2	3#1.0.4.8.2.255#2	0.26.0.1.13.1.12.0.0.0.0.2.0.0.224.3.73.0

86	Reactive energy export (-R) rate3	3#1.0.4.8.3.255#2	0.26.0.1.13.1.12.0.0.0.0.3.0.0.224.3.73.0
87	Reactive energy export (-R) rate4	3#1.0.4.8.4.255#2	0.26.0.1.13.1.12.0.0.0.0.4.0.0.224.3.73.0
88	Reactive energy export (-R) rate5	3#1.0.4.8.5.255#2	0.26.0.1.13.1.12.0.0.0.0.5.0.0.224.3.73.0
89	Reactive energy export (-R) rate6	3#1.0.4.8.6.255#2	0.26.0.1.13.1.12.0.0.0.0.6.0.0.224.3.73.0
90	Reactive energy export (-R) rate7	3#1.0.4.8.7.255#2	0.26.0.1.13.1.12.0.0.0.0.7.0.0.224.3.73.0
91	Reactive energy export (-R) rate8	3#1.0.4.8.8.255#2	0.26.0.1.13.1.12.0.0.0.0.8.0.0.224.3.73.0
92	Reactive energy import (+R)	3#1.0.3.8.0.255#2	0.26.0.1.5.1.12.0.0.0.0.0.0.0.224.3.73.0
93	Reactive energy import (+R) rate1	3#1.0.3.8.1.255#2	0.26.0.1.1.1.12.0.0.0.0.1.0.0.224.3.73.0
94	Reactive energy import (+R) rate2	3#1.0.3.8.2.255#2	0.26.0.1.1.1.12.0.0.0.0.2.0.0.224.3.73.0
95	Reactive energy import (+R) rate3	3#1.0.3.8.3.255#2	0.26.0.1.1.1.12.0.0.0.0.3.0.0.224.3.73.0
96	Reactive energy import (+R) rate4	3#1.0.3.8.4.255#2	0.26.0.1.1.1.12.0.0.0.0.4.0.0.224.3.73.0
97	Reactive energy import (+R) rate5	3#1.0.3.8.5.255#2	0.26.0.1.1.1.12.0.0.0.0.5.0.0.224.3.73.0
98	Reactive energy import (+R) rate6	3#1.0.3.8.6.255#2	0.26.0.1.1.1.12.0.0.0.0.6.0.0.224.3.73.0
99	Reactive energy import (+R) rate7	3#1.0.3.8.7.255#2	0.26.0.1.1.1.12.0.0.0.0.7.0.0.224.3.73.0
100	Reactive energy import (+R) rate8	3#1.0.3.8.8.255#2	0.26.0.1.1.1.12.0.0.0.0.8.0.0.224.3.73.0
101	Reactive MD (-)	4#1.0.4.6.0.255#2	0.8.0.6.19.1.8.0.0.0.0.0.0.0.224.3.63.0
102	Reactive MD (-)tariff1	4#1.0.4.6.1.255#2	0.8.0.6.19.1.8.0.0.0.0.1.0.0.224.3.63.0
103	Reactive MD (-)tariff2	4#1.0.4.6.2.255#2	0.8.0.6.19.1.8.0.0.0.0.2.0.0.224.3.63.0
104	Reactive MD (-)tariff3	4#1.0.4.6.3.255#2	0.8.0.6.19.1.8.0.0.0.0.3.0.0.224.3.63.0
105	Reactive MD (-)tariff4	4#1.0.4.6.4.255#2	0.8.0.6.19.1.8.0.0.0.0.4.0.0.224.3.63.0
106	Reactive MD (+)	4#1.0.3.6.0.255#2	0.8.0.6.1.1.8.0.0.0.0.0.0.0.224.3.63.0
107	Reactive MD (+) tariff1	4#1.0.3.6.1.255#2	0.8.0.6.1.1.8.0.0.0.0.1.0.0.224.3.63.0
108	Reactive MD (+) tariff2	4#1.0.3.6.2.255#2	0.8.0.6.1.1.8.0.0.0.0.2.0.0.224.3.63.0
109	Reactive MD (+) tariff3	4#1.0.3.6.3.255#2	0.8.0.6.1.1.8.0.0.0.0.3.0.0.224.3.63.0
110	Reactive MD (+) tariff4	4#1.0.3.6.4.255#2	0.8.0.6.1.1.8.0.0.0.0.4.0.0.224.3.63.0
111	Reactive power(+), Phase A	3#1.0.23.7.0.255#2	0.0.0.12.1.1.37.0.0.0.0.0.0.0.128.3.63.0
112	Reactive power(+), Phase B	3#1.0.43.7.0.255#2	0.0.0.12.1.1.37.0.0.0.0.0.0.0.64.3.63.0
113	Reactive power(+), Phase C	3#1.0.63.7.0.255#2	0.0.0.12.1.1.37.0.0.0.0.0.0.0.32.3.63.0
114	Relay Control Mode	70#0.0.96.3.10.255#4	0.0.0.12.0.0.0.0.0.0.0.5.0.211.0
115	Relay Control Status	70#0.0.96.3.10.255#3	0.0.0.12.0.0.0.0.0.0.0.4.0.211.0
116	Relay Output Status	70#0.0.96.3.10.255#2	0.0.0.12.0.0.0.0.0.0.0.3.0.211.0
117	Remaining balance	3#1.0.140.129.0.255#2	0.0.0.12.0.0.0.0.1.0.0.0.0.0
118	Tariff 1 Active billing energy+	3#1.0.1.9.1.255#2	13.0.0.1.1.1.12.0.0.0.0.1.0.0.224.3.72.0
119	Tariff 1 Active MD(-) occurring time	4#1.0.2.6.1.255#5	0.8.0.6.19.1.7.0.0.0.0.1.0.0.224.0.1.0
120	Tariff 1 Active MD(+) occurring time	4#1.0.1.6.1.255#5	0.8.0.6.1.1.7.0.0.0.0.1.0.0.224.0.1.0
121	Tariff 1 apparent energy-	3#1.0.10.8.1.255#2	0.0.0.1.19.1.12.0.0.0.0.1.0.0.224.3.71.0
122	Tariff 1 apparent energy+	3#1.0.9.8.1.255#2	0.0.0.1.1.1.12.0.0.0.0.1.0.0.224.3.71.0
123	Tariff 1 apparent MD(-)	4#1.0.10.6.1.255#2	0.8.0.6.19.1.8.0.0.0.0.1.0.0.224.0.61.0
124	Tariff 1 apparent MD(-) occurring time	4#1.0.10.6.1.255#5	0.8.0.6.19.1.7.0.0.0.0.1.0.0.224.0.1.0
125	Tariff 1 apparent MD(+)	4#1.0.9.6.1.255#2	0.8.0.6.1.1.8.0.0.0.0.1.0.0.224.0.61.0
126	Tariff 1 apparent MD(+) occurring time	4#1.0.9.6.1.255#5	0.8.0.6.1.1.7.0.0.0.0.1.0.0.224.0.1.0
127	Tariff 1 reactive billing energy+	3#1.0.3.9.1.255#2	13.0.0.1.1.1.12.0.0.0.0.1.0.0.224.3.73.0

128	Tariff 1 reactive MD(-) occurring time	4#1.0.4.6.1.255#5	0.8.0.6.19.1.7.0.0.0.0.1.0.0.224.0.1.0
129	Tariff 1 reactive MD(+) occurring time	4#1.0.3.6.1.255#5	0.8.0.6.1.1.7.0.0.0.0.1.0.0.224.0.61.0
130	Tariff 2 Active billing energy+	3#1.0.1.9.2.255#2	13.0.0.1.1.1.12.0.0.0.0.2.0.0.224.3.72.0
131	Tariff 2 Active MD(-) occurring time	4#1.0.2.6.2.255#5	0.8.0.6.19.1.7.0.0.0.0.2.0.0.224.0.1.0
132	Tariff 2 Active MD(+) occurring time	4#1.0.1.6.2.255#5	0.8.0.6.1.1.7.0.0.0.0.2.0.0.224.0.1.0
133	Tariff 2 apparent energy-	3#1.0.10.8.2.255#2	0.0.0.1.19.1.12.0.0.0.0.2.0.0.224.3.71.0
134	Tariff 2 apparent energy+	3#1.0.9.8.2.255#2	0.0.0.1.1.1.12.0.0.0.0.2.0.0.224.3.71.0
135	Tariff 2 apparent MD(-)	4#1.0.10.6.2.255#2	0.8.0.6.19.1.8.0.0.0.0.2.0.0.224.0.61.0
136	Tariff 2 apparent MD(-) occurring time	4#1.0.10.6.2.255#5	0.8.0.6.19.1.7.0.0.0.0.2.0.0.224.0.1.0
137	Tariff 2 apparent MD(+)	4#1.0.9.6.2.255#2	0.8.0.6.1.1.8.0.0.0.0.2.0.0.224.0.61.0
138	Tariff 2 apparent MD(+) occurring time	4#1.0.9.6.2.255#5	0.8.0.6.1.1.7.0.0.0.0.2.0.0.224.0.1.0
139	Tariff 2 reactive billing energy+	3#1.0.3.9.2.255#2	13.0.0.1.1.1.12.0.0.0.0.2.0.0.224.3.73.0
140	Tariff 2 reactive MD(-) occurring time	4#1.0.4.6.2.255#5	0.8.0.6.19.1.7.0.0.0.0.2.0.0.224.0.1.0
141	Tariff 2 reactive MD(+) occurring time	4#1.0.3.6.2.255#5	0.8.0.6.1.1.7.0.0.0.0.2.0.0.224.0.61.0
142	Tariff 3 Active billing energy+	3#1.0.1.9.3.255#2	13.0.0.1.1.1.12.0.0.0.0.3.0.0.224.3.72.0
143	Tariff 3 Active MD(-) occurring time	4#1.0.2.6.3.255#5	0.8.0.6.19.1.7.0.0.0.0.3.0.0.224.0.1.0
144	Tariff 3 Active MD(+) occurring time	4#1.0.1.6.3.255#5	0.8.0.6.1.1.7.0.0.0.0.3.0.0.224.0.1.0
145	Tariff 3 apparent energy-	3#1.0.10.8.3.255#2	0.0.0.1.19.1.12.0.0.0.0.3.0.0.224.3.71.0
146	Tariff 3 apparent energy+	3#1.0.9.8.3.255#2	0.0.0.1.1.1.12.0.0.0.0.3.0.0.224.3.71.0
147	Tariff 3 apparent MD(-)	4#1.0.10.6.3.255#2	0.8.0.6.19.1.8.0.0.0.0.3.0.0.224.0.61.0
148	Tariff 3 apparent MD(-) occurring time	4#1.0.10.6.3.255#5	0.8.0.6.19.1.7.0.0.0.0.3.0.0.224.0.1.0
149	Tariff 3 apparent MD(+)	4#1.0.9.6.3.255#2	0.8.0.6.1.1.8.0.0.0.0.3.0.0.224.0.61.0
150	Tariff 3 apparent MD(+) occurring time	4#1.0.9.6.3.255#5	0.8.0.6.1.1.7.0.0.0.0.3.0.0.224.0.1.0
151	Tariff 3 reactive billing energy+	3#1.0.3.9.3.255#2	13.0.0.1.1.1.12.0.0.0.0.3.0.0.224.3.73.0
152	Tariff 3 reactive MD(-) occurring time	4#1.0.4.6.3.255#5	0.8.0.6.19.1.7.0.0.0.0.3.0.0.224.0.1.0
153	Tariff 3 reactive MD(+) occurring time	4#1.0.3.6.3.255#5	0.8.0.6.1.1.7.0.0.0.0.3.0.0.224.0.61.0
154	Tariff 4 Active billing energy+	3#1.0.1.9.4.255#2	13.0.0.1.1.1.12.0.0.0.0.4.0.0.224.3.72.0
155	Tariff 4 Active MD(-) occurring time	4#1.0.2.6.4.255#5	0.8.0.6.19.1.7.0.0.0.0.4.0.0.224.0.1.0
156	Tariff 4 Active MD(+) occurring time	4#1.0.1.6.4.255#5	0.8.0.6.1.1.7.0.0.0.0.4.0.0.224.0.1.0
157	Tariff 4 apparent energy-	3#1.0.10.8.4.255#2	0.0.0.1.19.1.12.0.0.0.0.4.0.0.224.3.71.0
158	Tariff 4 apparent energy+	3#1.0.9.8.4.255#2	0.0.0.1.1.1.12.0.0.0.0.4.0.0.224.3.71.0
159	Tariff 4 apparent MD(-)	4#1.0.10.6.4.255#2	0.8.0.6.19.1.8.0.0.0.0.4.0.0.224.0.61.0
160	Tariff 4 apparent MD(-) occurring time	4#1.0.10.6.4.255#5	0.8.0.6.19.1.7.0.0.0.0.4.0.0.224.0.1.0
161	Tariff 4 apparent MD(+)	4#1.0.9.6.4.255#2	0.8.0.6.1.1.8.0.0.0.0.4.0.0.224.0.61.0
162	Tariff 4 apparent MD(+) occurring time	4#1.0.9.6.4.255#5	0.8.0.6.1.1.7.0.0.0.0.4.0.0.224.0.1.0
163	Tariff 4 reactive billing energy+	3#1.0.3.9.4.255#2	13.0.0.1.1.1.12.0.0.0.0.4.0.0.224.3.73.0
164	Tariff 4 reactive MD(-) occurring time	4#1.0.4.6.4.255#5	0.8.0.6.19.1.7.0.0.0.0.4.0.0.224.0.1.0
165	Tariff 4 reactive MD(+) occurring time	4#1.0.3.6.4.255#5	0.8.0.6.1.1.7.0.0.0.0.4.0.0.224.0.61.0
166	Tariff 5 Active MD(+) occurring time	4#1.0.1.6.5.255#5	0.8.0.6.1.1.7.0.0.0.0.5.0.0.224.0.1.0
167	Tariff 6 Active MD(+) occurring time	4#1.0.1.6.6.255#5	0.8.0.6.1.1.7.0.0.0.0.6.0.0.224.0.1.0
168	Tariff 7 Active MD(+) occurring time	4#1.0.1.6.7.255#5	0.8.0.6.1.1.7.0.0.0.0.7.0.0.224.0.1.0
169	Tariff 8 Active MD(+) occurring time	4#1.0.1.6.8.255#5	0.8.0.6.1.1.7.0.0.0.0.8.0.0.224.0.1.0
170	Total Active billing energy+	3#1.0.1.9.0.255#2	0.26.0.1.0.1.12.0.0.0.0.0.0.0.224.3.72.0

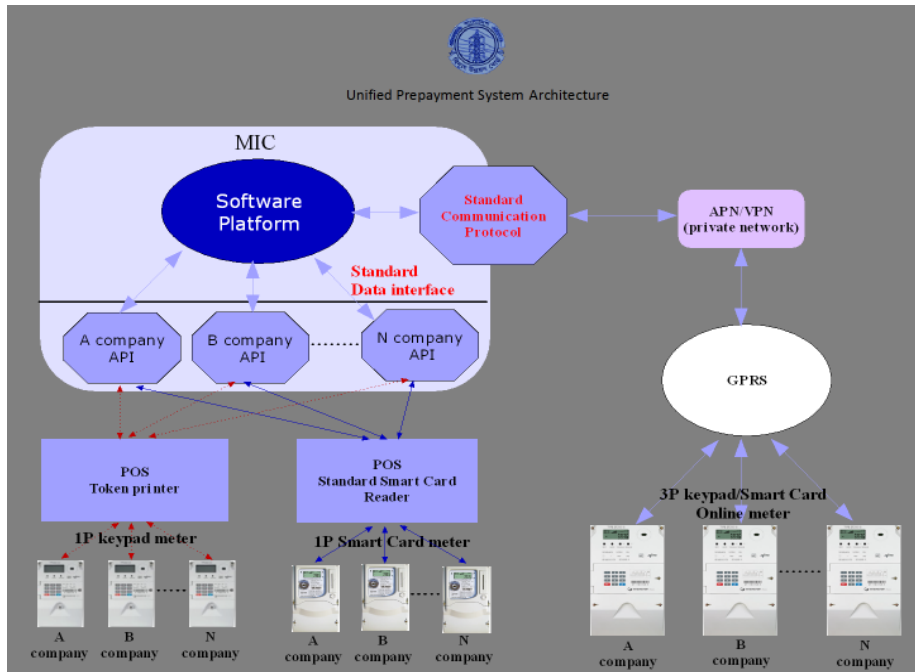
171	Total Active MD(-) occurring time	4#1.0.2.6.0.255#5	0.8.0.6.19.1.7.0.0.0.0.0.0.0.224.0.1.0
172	Total Active MD(+) occurring time	4#1.0.1.6.0.255#5	0.8.0.6.1.1.7.0.0.0.0.0.0.0.224.0.1.0
173	Total apparent energy-	3#1.0.10.8.0.255#2	0.0.0.1.19.1.12.0.0.0.0.0.0.0.224.3.71.0
174	Total apparent energy+	3#1.0.9.8.0.255#2	0.0.0.1.1.1.12.0.0.0.0.0.0.0.224.3.71.0
175	Total apparent MD(-)	4#1.0.10.6.0.255#2	0.8.0.6.19.1.8.0.0.0.0.0.0.0.224.0.61.0
176	Total apparent MD(-) occurring time	4#1.0.10.6.0.255#5	0.8.0.6.19.1.7.0.0.0.0.0.0.0.224.0.1.0
177	Total apparent MD(+)	4#1.0.9.6.0.255#2	0.8.0.6.1.1.8.0.0.0.0.0.0.0.224.0.61.0
178	Total apparent MD(+) occurring time	4#1.0.9.6.0.255#5	0.8.0.6.1.1.7.0.0.0.0.0.0.0.224.0.1.0
179	Total average power factor	3#1.0.13.15.0.255#2	0.2.0.1.0.1.38.0.0.0.0.0.0.0.224.0.65.0
180	Total average power factor, tariff 1	3#1.0.13.15.1.255#2	0.2.0.1.0.1.38.0.0.0.0.1.0.0.224.0.65.0
181	Total average power factor, tariff 2	3#1.0.13.15.2.255#2	0.2.0.1.0.1.38.0.0.0.0.2.0.0.224.0.65.0
182	Total average power factor, tariff 3	3#1.0.13.15.3.255#2	0.2.0.1.0.1.38.0.0.0.0.3.0.0.224.0.65.0
183	Total average power factor, tariff 4	3#1.0.13.15.4.255#2	0.2.0.1.0.1.38.0.0.0.0.4.0.0.224.0.65.0
184	Total reactive billing energy+	3#1.0.3.9.0.255#2	13.0.0.1.1.1.12.0.0.0.0.0.0.0.224.3.73.0
185	Total reactive MD(-) occurring time	4#1.0.4.6.0.255#5	0.8.0.6.19.1.7.0.0.0.0.0.0.0.224.0.1.0
186	Total reactive MD(+) occurring time	4#1.0.3.6.0.255#5	0.8.0.6.1.1.7.0.0.0.0.0.0.0.224.0.61.0
187	Vector sum of current in all Phases	3#1.0.128.7.0.255#2	0.0.0.1.0.1.4.0.0.0.0.0.0.0.224.0.5.0



(Unified Pre-payment System API)

1 Multi-factories Access Platform

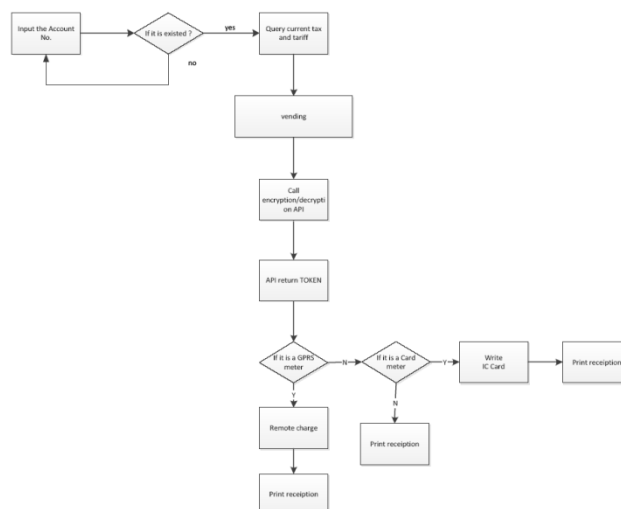
1.1 Access Platform Architecture Design



Each manufacturer provides its own encryption / decryption API, integrated into the system software. When dealing with business based on different meters from each manufacturer, the system automatically calls the corresponding manufacturers' encryption/ decryption API. The system defines uniformly data exchange interface corresponding to different business, such as input and output parameters. When dealing with a business for the keypad meter, the system will call the encryption/ decryption API, generates the corresponding Token, and print; MIC communicates with GPRS meters of other factories according to standard data exchange mechanism. Note: Token in this document means encrypted data.

2. Business Process

2.1 Vending as example:



3. Keypad Meter Access design

3.1 Error Code definition:

- i. 0 or empty: success**
- ii. 1: sequence number is not excepted**
- iii. 2: tariff Index argument error, not in scope**
- iv. 3: keyVersion argument not in scope**
- v. 4: keyExpiredTime not in scope(0-255)**
- vi. 5: keyNo exceed 65535 or < 0**
- vii. 6: meterNo is not excepted**
- viii. 7: credit amount <= 0**
- ix. 8: unknown reason**

3.2 Standard Interface for Generating A Variety of Token

3.2.1 Token Standard Interface Define

Programming language	JAVA
Functionality	Token standard interface class
Package	com.hx.ami.spi
Interface	Token
Class definition	<pre> public interface Token { Generatecredit Token public String getCreditToken(String meterNo, String sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo, double amount); Generate key change Token public String getKeyChangeToken (String meterNo, String sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, String nSgc, int nTariffIndex, int nKeyVersion,int nKeyExpiredTime, long nKeyNo); Generate Management Token Generate clear balance Token public String getClearBalanceToken (String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo); Generate clear event Token public String getClearEventToken (String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo); Generate max Power Limit Mode Token public String getMaxPowerLimitToken(String meterNo,String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo, int activationModel, String date,int[] maxPowerLimits, int[] hours); Generate single Tariff Token public String getSingleTariffToken(String meterNo, String Sgc, int tarrifIndex,int keyVersion, int keyExpiredTime, long keyNo, int seqNo,String activatingDate, int activatingModel, int validDate, int rate); Generate step Tariff Token public String getStepTariffToken(String meterNo, String Sgc, int tarrifIndex,int keyVersion, int keyExpiredTime, long keyNo, int seqNo,String activatingDate, String validDate, int[] rates, int[] steps); Generate Tou Tariff Token public String getTOUtariffToken(String meterNo, String Sgc, int tarrifIndex,int keyVersion, int keyExpiredTime, long keyNo, int seqNo,String activatingDate, int activatingModel, int validDate, int[] rates, int[] times); Generate Friend Mode Token public String getFriendModeToken(String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo, int friendMode, int[] times, int[] days); Generate Public Holiday Token generateHolidayModeToken(String meterNo,String sgclD, int ti, int kv, int ke, int seq, int keyNo,int holidayMode, String[] days); Generate Change Meter Mode Token public String getChangeMeterModeToken(String meterNo, String Sgc, </pre>

	<pre> int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo,int mode); Generate Set Credit Amount Limit And Overdraw Amount Limit Token public String getSetCreditAmountLimitOrOverdrawAmountLimitToken(String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo, int amountType, int amountLimit); Generate Set Low Credit Warning Limit Token public String SetLowCreditWarningLimitToken(String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo, int amountType, int amountLimit); Generate LogoffReturn Token public String generateLogoffReturnToken (String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, int keyNo, int seqNo); Resolve the Return Token public String resolveReturnToke(String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, String Token); 4) Generate Test Token public String getTestToken (int manufacturingID, int control); } </pre>

3.2.2 Charge Interface Definition

Functionality	To get credit Token			
Application	<p>To call the function and generate credit token when vending.</p> <p>seqNo : Each token has sequence number except change-key-token. seqNo will increase 1 for each token generated and change to 1 when above 200;</p> <p>keyNo: when seqNo change from 200 to 1,keyNo add 1.</p> <p>keyExpiredTime: Global system parameter used as cipher fact. System can change it. Nothing to do with key expiration. Just a encryption fact.</p> <p>Key version: Global encryption fact, it will be changed in case all meter need to change keys.</p>			
Function name	getCreditToken			
Parameter list	Parameter name	Type	Scope or length	Description
	meterNo	String	String of 12 numbers	Meter number
	Sgc	String	String of 6 numbers	Supply group code System parameter.
	tarrifIndex	Int	1-99	Tariff index When custom change tariff, this value may change to any of 1-99
	keyVersion	Int	1-9	Key version Global encryption fact, it will be changed in case all meter need to change keys.
	keyExpiredTime	Int	0-255	Global system parameter used as cipher fact. System can change it. Nothing to do with key expiration. Just a encryption fact
	keyNo	Long	0-65535	Key Sequence, similar to key changed times, see above method descpt.
	seqNo	Int	1-200	Token Sequence
	amount	Int	0-99999999(scale&unit 0.01TK)	Credit amount
Return value	<p>Return XML String</p> <p>Xml format:</p> <pre><?xml version="1.0" encoding="UTF-8"?> <result> <errorCode></errorCode> <tokens> <token></token> ... <tokens> </result></pre> <p>Note :</p> <p>errorCode see 3. Chart definition.</p> <p>If succeeded, need return an array of <tokens>elements.</p>			
Function definition	public String getCreditToken(String meterNo, String sgc, int tarrifIndex,			

	<pre>int keyVersion, int keyExpiredTime, long keyNo, int seqNo, int amount) { ... }</pre>
--	---

3.2.3 Key Change Interface Definition

Functionality	To get key change Token			
Application	<p>As soon as user wants to charge money , to generate the manage token and test token ,and judge if the encryption factor has been changed, if changed , to call function and generate change token.</p> <p>This function is called at four case:</p> <p>Meter installed and custom purchase energy at first time</p> <p>Called if tariff changed</p> <p>SeqNo change from 200 to 1.</p> <p>Called when operator press menu to change key.</p> <p>For the first time registration, parameter defines as below: tariffIndex=0; keyVersion=0; keyExpiredTime=0; keyNo=0;</p>			
Function name	getKeyChangeToken			
Parameter list	Parameter name	Type	Scope or length	Description
	meterNo	String	String of 12 numbers	MeterNo.
	Sgc	String	String of 6 numbers	Old Supply group code
	tariffIndex	Int	1-99	Old Tariff index
	keyVersion	Int	1-9	Old Key version
	keyExpiredTime	Int	0-255	Old Key expire time
	keyNo	Long	0-65535	Old Key Sequence
	nSgc	Int	String of 6 numbers	Current supply grop code
	nTariffIndex	Int	1-99	Current Tariff index
	nKeyVersion	Int	1-9	Current Key version
	nKeyExpiredTime	Int	0-255	Current Key expire time
	nKeyNo	Int	0-65535	Current Key Sequence
Return value	<p>Return XML String</p> <p>Xml format:</p> <pre><?xml version="1.0" encoding="UTF-8"?> <result> <errorCode></errorCode> <tokens> <token></token> ... <token></token> <tokens> </result></pre> <p>Note :</p> <p>errorCode definition refer to chart 3.</p> <p>If succeeded, need return an array of <tokens>elements</p>			
Function definition	<pre>public String getKeyChangeToken (String meterNo, String sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, String nSgc, int nTariffIndex, int nKeyVersion,int nKeyExpiredTime, int nKeyNo) { ... }</pre>			

3.2.4 Management Token

3.2.4.1 Generate Clear Meter Balance Token

Functionality	To get clear balance Token			
Application	To clear balance			
Function name	getClearBalanceToken			
Parameter list	Parameter name	Type	Scope or length	Description
	meterNo	String	String of 12 numbers	Meterno.
	sgc	String	String of 6 numbers	Supply group code
	tariffIndex	Int	1-99	Tariff index
	keyVersion	int	1-9	Key version
	keyExpiredTime	int	0-255	Key expire time
	keyNo	long	0-65535	Key Sequence
	seqNo	int	1-255	Token Sequence
Return value	<p>Return XML String Xml format: <?xml version="1.0" encoding="UTF-8"?> <result> <errorCode></errorCode> <tokens> <token></token> ... <token></token> <tokens> </result> Note : errorCode definition refer to chart 3. If succeeded, need return an array of <tokens>elements</p>			
Function definition	<pre>public String getClearBalanceToken (String meterNo, String Sgc, int tarriffIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo) { ... }</pre>			

3.2.4.2 Generate Clear Event Token

Functionality	To get clear event Token			
Application	To clear event			
Function name	getClearEventToken			
Parameter list	Parameter name	Type	Scope or length	Description
	meterNo	String	String of 12 numbers	Meterno.
	sgc	String	String of 6 numbers	Supply group code
	tariffIndex	int	1-99	Tariff index
	keyVersion	int	1-9	Key version
	keyExpiredTime	int	0-255	Key expire time
	keyNo	long	0-65535	Key Sequence
	seqNo	int	1-255	Token Sequence
Return value	Return XML String			

	<p>Xml format:</p> <pre><?xml version="1.0" encoding="UTF-8"?> <result> <errorCode></errorCode> <tokens> <token></token> ... <token></token> <tokens> </result></pre> <p>Note :</p> <p>errorCode definition refer to chart 3.</p> <p>If succeeded, need return an array of <tokens>elements</p>
Function definition	<pre>public String getClearEventToken (String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo) { ... }</pre>

Functionality	To get the set up Max Power Limit Mode Token			
Application	To set up Max Power Limit Mode Token			
Function name	getMaxPowerLimitToken			
Parameter list	Parameter name	Type	Scope or length	Description
	meterno.	String	String of 12 numbers	Meterno.
	sgc	String	String of 6 numbers	Supply group code
	tariffIndex	Int	1-99	Tariff index
	keyVersion	Int	1-9	Key version
	keyExpiredTime	Int	0-255	Key expire time
	keyNo	Long	0-65535	Key Sequence
	seq	Int	1-255	Token Sequence
	activatingModel	Int	0-1 0 : Normal Mode 1 : Immediately switch mode	Active Mode This parameter always 1.
	activatingDate	String	YYYY-MM-DD	Active Date Change Date type to String type : adapt to all kinds development languages
	maxPowerLimits	int[]	1-2047 (array length :2) scale&unit:0.1kW	Max Power array
	Hours	Int[]	0-23 (array length :2)unit:hour	Active time
Return value	<p>urn XML String</p> <p>format:</p> <pre> xml version="1.0" encoding="UTF-8"?> <result> <errorCode></errorCode> <tokens> <token></token> . <tokens> result> </pre>			

	<p>orCode definition refer to chart 3.</p> <p>succeeded, need return an array of <tokens>elements</p>
Function definition	<pre>public String getMaxPowerLimitToken (String meterNo, String Sgc,int tarriffIndex, int keyVersion, int keyExpiredTime , long keyNo, int , int activatingModel, String date int[] maxPowerLimits, int[] hours)</pre>

3.2.4.3 Generate Setup Max Power Limit Mode Token

3.2.4.4 Generate Setup Single Tariff Token

Functionality	To get the Setup Single Tarrif Token			
Application	To set up single tarrif			
Function name	getSingleTariffToken			
Parameter list	Parameter name	Type	Scope or length	Description
	meterNo	String	String of 12 numbers	MeterNo.
	sgc	String	String of 6 numbers	Supply group code
	tariffIndex	Int	1-99	Tariff index
	keyVersion	Int	1-9	Key version
	keyExpiredTime	Int	0-255	Key expire time
	keyNo	Long	0-65535	Key Sequence
	seq	Int	1-255	Token Sequence
	activatingDate	String	YYYY-MM-DD	Active date Change Date type to String type : adapt to all kinds development languages
	activatingModel	Int	0-1 0 : Normal Mode 1 : Immediately switch mode	Active Mode always 1.
	validate	Int	0-7	Validate always 0.
rate	Int	1-8191 (scale&unit : 0.01TK) By the integer bits and fractional bits, up to two decimal places, the maximum rate of price can be set to 81.91	Unit price	
Return value	Return XML String Xml format: <?xml version="1.0" encoding="UTF-8"?>			

	<pre> <result> <errorCode></errorCode> <tokens> <token></token> ... <token></token> <tokens> </result> Note : errorCode definition refer to chart 3. If succeeded, need return an array of <tokens>elements </pre>
Function definition	<pre> public String getSingleTariffToken(String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime , long keyNo, int seq, String activatingDate, int activatingModel,int validDate, int rate) { ... } </pre>

3.2.4.5 Generate Setup Step Tariff Token

Functionality	To get the Setup Step Tarrif Token			
Application	To set up step tarrif			
Function name	getStepTariffToken			
Parameter list	Parameter name	Type	Scope or length	Description
	meterNo	String	String of 12 numbers	Meterno.
	sgc	String	String of 6 numbers	Supply group code
	tariffIndex	int	1-99	Tariff index
	keyVersion	int	1-9	Key version
	keyExpiredTime	int	0-255	Key expire time
	keyNo	long	0-65535	Key Sequence
	seq	int	1-255	Token Sequence
	activatingDate	String	YYYY-MM-DD	Active date Change Date type to String type : adapt to all kinds development languages
	validate	int	0-7	Effective date
	activatingModel	Int	0-1 0 : Normal Mode 1 : Immediately switch mode	Effective Mode Always 1
rates	int[]	Length 4 1-8191(scale&unit : 0.01TK) By the integer bits and fractional bits, up to two decimal places, the maximum rate of price can be set to 81.91	Price array	

	steps	int[]	1-4096 (the max array length :8) scale&unit:1 kWh	Step array
Return value	<p>Return XML String Xml format: <?xml version="1.0" encoding="UTF-8"?> <result> <errorCode></errorCode> <tokens> <token></token> ... <token></token> <tokens> </result> for example : 0-100 kWh rate : 2.3TK 100-200kWh rate: 2.7TK 200-300kWh rate: 3.2TK 300-∞ rate: 4.5TK rate[]={2.3,2.7,3.2,4.5} steps[]={100,200,300}</p> <p>If succeeded, need return an array of <tokens>elements</p>			
Function definition	<pre>public String getStepTariffToken(String meterNo, String Sgc, int tarrifIndex,int keyVersion, int keyExpiredTime, long keyNo, int seq,String activatingDate, int activatingModel, int validDate, int[] rates, int[] steps) { ... }</pre>			

3.2.4.6 Generate Setup TOU Tariff Token

Functionality	To get the Setup TOU tariff Token			
Application	To set up TOU tariff			
Function name	getTOUtariffToken			
Parameter list	Parameter name	Type	Scope or length	Description
	meterNo.	String	String of 12 numbers	Meterno.
	Sgc	String	String of 6 numbers	Supply group code
	tarrifIndex	Int	1-99	Tariff index
	keyVersion	Int	1-9	Key version
	keyExpiredTime	Int	0-255	Key expire time
	keyNo	long	0-65535	Key Sequence
	Seq	int	1-255	Token Sequence
activatingDate	String	YYYY-MM-DD	Active Date Change Date type to String type : adapt to all kinds development languages	

	activatingModel	Int	0-1 0 : Normal 1 : Immediately switch mode	Active Mode always 1.
	validate	Int	0-7	Effective Date
	rates	Int[]	Length 4 1-8191 (scale&unit : 0.01TK) By the integer bits and fractional bits, up to two decimal places, the maximum rate of price can be set to 81.91	Price
	times	int[]	Length 2 0-23	Hours period
Return value	<p>Return XML String Xml format: <?xml version="1.0" encoding="UTF-8"?> <result> <div style="text-align: right;"><errorCode></errorCode> <tokens> <token></token> . <token></token> <tokens></div> </result></p> <p>Note : errorCode definition refer to chart 3.</p> <p>If succeeded, need return an array of <tokens>elements</p>			
Function definition	<pre>public String getTOUTariffToken(String meterNo, String Sgc, int tarriffIndex,int keyVersion, int keyExpiredTime, long keyNo, int seq,String activatingDate, int activatingModel, int validDate, int[] rates, int[] times) { ... }</pre>			

3.2.4.7 Generate Setup friendly mode Token

Functionality	To get the Setup Friendly Mode Token			
Application	To set up friendly mode			
Function name	getFriendModeToken			
Parameter list	Parameter name	Type	Scope or length	Description
	meterNo	String	String of 12 numbers	Meterno.
	Sgc	String	String of 6 numbers	Supply group code
	tariffIndex	int	1-99	Tariff index
	keyVersion	int	1-9	Key version

	keyExpiredTime	int	0-255	Key expire time
	keyNo	long	0-65535	Key Sequence
	seqNo	int	1-255	Token Sequence
	friendMode	int	0-1 0: friendly mode is enable 1:friendly mode is closed	Friendly mode
	Times	int[]	0-23 (array length :2)	Friendly time interval
	Days	int[]	0-6 means Saturday, Friday, Thursday, Wednesday, Tuesday, Monday and Sunday in sequence. (array length :7)	Weekly holiday Array value 0 means weekend and 1 means ordinary day
	N_of_allowable_days	int	0-99	No of allowable days that friendly hour will work after that without vending meter will not work in friendly hour
Return value	<p>Return XML String Xml format: <?xml version="1.0" encoding="UTF-8"?> <result> <errorCode></errorCode> <tokens> <token></token> . <token></token> <tokens></p> <p></result></p> <p>Note : errorCode definition refer to chart 3.</p> <p>If succeeded, need return an array of <tokens>elements</p>			
Function definition	<pre>public String getFriendModeToken(String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime , long keyNo, int seqNo, int friendMode, int[] times, int[] days) { ... </pre>			

	}
--	---

3.2.4.8 Generate Switch Meter Mode Token

Functionality	To get Switch Meter Mode Token			
Application	To set up switch meter mode			
Function name	getChangeMeterModeToken			
Parameter list	Parameter name	Type	Scope or length	Description
	meterNo	String	String of 12 numbers	Meterno.
	Sgc	String	String of 6 numbers	Supply group code
	tariffIndex	int	1-99	Tariff index
	keyVersion	int	1-9	Key version
	keyExpiredTime	int	0-255	Key expire time
	keyNo	long	0-65535	Key Sequence
	seqNo	int	1-255	Token Sequence
	mode	int	0-1 0:switch to the ordinary meter mode; 1:switch to the Smart Pre-payment meter mode	Meter mode switch
Return value	<p>Return XML String</p> <p>Xml format:</p> <pre><?xml version="1.0" encoding="UTF-8"?> <result> <errorCode></errorCode> <tokens> <token></token> . <token></token> <tokens> </result></pre> <p>Note :</p> <p>errorCode definition refer to chart 3.</p> <p>If succeeded, need return an array of <tokens>elements</p>			
Function definition	<pre>public String getChangeMeterModeToken(String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo, int mode) { ... }</pre>			

3.2.4.9 Generate Set Credit Amount Limit And Overdraw Amount Limit Token

Functionality	To get set credit amount limit and overdraw Amount Limit Token				
Application	To set credit amount limit and overdraw Amount Limit .				
Function name	getSetCreditAmountLimitAndOverdrawAmountLimit				
Parameter list	Parameter name	Type	Scope or length	Description	
	meterNo	String	String of 12 numbers	Meterno.	
	Sgc	String	String of 6 numbers	Supply group code	
	tariffIndex	Int	1-99	Tariff index	
	keyVersion	Int	1-9	Key version	
	keyExpiredTime	Int	0-255	Key expire time	
	keyNo	Long	0-65535	Key Sequence	
	seqNo	Int	1-255	Token Sequence	
	amountType	Int	0-1 0: creditAmountLimit 1: overAmountLimit	Balance Type	
	amountLimit	Int	0~999999999(scale&unit:0.01TK)	Amount	
Return value	<p>Return XML String</p> <p>Xml format:</p> <pre><?xml version="1.0" encoding="UTF-8"?> <result> <errorCode></errorCode> <tokens> <token></token> . <token></token> <tokens> </result></pre> <p>Note : errorCode definition refer to chart 3.</p> <p>If succeeded, need return an array of <tokens>elements</p>				
Function definition	<pre>public String getSetCreditAmountLimitOrOverdrawAmountLimitToken (String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, int seqNo, int amountType, int amountLimit) { ... }</pre>				

3.2.4.10 Generate Logoff Token

Functionality	To get reset Token
----------------------	---------------------------

Application	To reset meter			
Function name	generateLogoffReturnToken			
Parameter list	Parameter name	Type	Scope or length	Description
	meterNo	String	String of 12 numbers	Meterno.
	Sgc	String	String of 6 numbers	Supply group code
	tariffIndex	Int	1-99	Tariff index
	keyVersion	Int	1-9	Key version
	keyExpiredTime	Int	0-255	Key expire time
	keyNo	Long	0-65535	Key Sequence
	seqNo	Int	1-255	Token Sequence
Return value	<p>Return XML String</p> <p>Xml format:</p> <pre><?xml version="1.0" encoding="UTF-8"?> <result> <errorCode></errorCode> <tokens> <token></token> . <token></token> <tokens> </result></pre> <p>Note :</p> <p>errorCode definition refer to chart 3.</p> <p>If succeeded, need return an array of <tokens>elements</p>			
Function definition	<pre>public String generateLogoffReturnToken (String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, int keyNo, int seqNo) { ... }</pre>			

3.2.4.11 Generate Credit/ Management Return Token

Functionality	To get return Credit/Management Return Token			
Application	User should get the return token before credit Return ,and send the meter information to the electricity sale system, or else the electricity sale system will not sale electricity to user ,it will helpful for subsequent management 。			
Function name	resolveReturnToke			
Parameter list	Parameter name	Type	Scope or length	Description
	meterNo	String	String of 12 numbers	Meterno.
	Sgc	String	String of 6 numbers	SGCID
	tariffIndex	int	1-99	Tariff index
	keyVersion	int	1-9	Key version
	keyExpiredTime	int	0-255	Key expire time
	keyNo	long	0-65535	Key Sequence
	Token	String	Custom defined by each manufacturers	Token encryption character String
Return value	<p>Return XML String Xml format: <code><?xml version='1.0' encoding='utf-8'?></code> <code><result></code></p> <p style="text-align: right;"><code><type>0</type></code> <code><balance>454.54</balance></code> <code><sequence>6</sequence></code> <code><event</code> <code><clockSetFlag>1</clockSetFlag></code> <code><batteryVoltageLowFlag>0</batteryVoltageLowFlag></code> <code><openCoverFlag>0</openCoverFlag></code> <code><openBottomCoverFlag>1</openBottomCoverFlag></code> <code><byPassFlag>0</byPassFlag></code> <code><reverseFlag>0</reverseFlag></code><code><nterfereFlag>0</magneticInterfereFlag></code> <code><relayFaultFlag>0</relayFaultFlag></code> <code><overdraftUsedFlag>0</overdraftUsedFlag></code> <code><forwardActiveEnergyTol>11.23</forwardActiveEnergyTol></code> <code><tariffIndex>51</tariffIndex></code> <code></event</code> <code></result></code></p> <p>Note: If token resolve fail then return null.</p>			

Return returnTokens:		
Parameter	Scope of Length	Description
Type	0-1 0:credit return token 1:logoff return token	
Balance		Balance of meter
Sequence	0-1 0:credit return token 1:logoff return token	Sequence of meter
clockSetFlag	0-1 0:unhappen 1:happen	Clock set event
batteryVoltageLowFlag	0-1 0:unhappen 1:happen	Battery low voltage event
openCoverFlag	0-1 0:unhappen 1:happen	Meter cover open event
openBottomCoverFlag	0-1 0:unhappen 1:happen	Terminal cover open event
byPassFlag	0-1 0:unhappen 1:happen	Bypass event
reverseFlag	0-1 0:unhappen 1:happen	Reverse event
magneticInterfereFlag	0-1 0:unhappen 1:happen	Magnetic interference event
relayStatusFlag	0-1 0:connect 1:disconnect	Relay status
relayFaultFlag	0-1 0:unhappen 1:happen	Relay fault event
overdraftUsedFlag	0-1 0:no 1:yes	Emergency balance used or not
Function definition	<pre> public String resolveReturnToken (String meterNo, String Sgc, int tarrifIndex, int keyVersion, int keyExpiredTime, long keyNo, String Token) { ... } </pre>	

3.2.5 Test Function Interface Define

	...
	}

4.6 The format of byte after decryption (Just for example):

Data	Length	Address	Data Type	Is Encrypted	Desc
Answer To Reset	4	0			Answer To Reset
Binary Pattern	2	4			Fixed Data 0b1010110011110000 = 0xACF0
Version	1	6	BCD	N	Manufacturers
Meter ID	10	7	BCD	N	Meterno.
Consumer ID	10	17	BCD	N	A/C No.
Utility ID	2	27	BCD	N	Utility ID
Sanctioned Load	6	29	BCD	N	Sanctioned Load
Meter Type	1	35	HEX	N	Meter Type
Sanctioned Load exceeded	1	36	HEX	N	Sanctioned Load exceeded
Last Recharge Amount	2	37	HEX	N	Last Recharge Amount
Last Recharge Date	3	39	BCD	N	
Last Transaction ID	10	42	BCD	N	Last Transaction ID
Card Type	2	100	HEX	N	OABC-Account Card, OBAC-Test Card B, OAAC-Test Card A
Card Used Flag	1	102	Boolean	N	Token in the card has been processed flag. Upon completion of Token processing, write the results, and then update the flag FA. POS point writing Token set the flag FF
Token Total Number	1	103	HEX	N	Token Total Numbe
CS	2	104	HEX	N	Data sum check
	6	106		N	Blank Area:FF
Token 1	10	112	BCD	N	Token area, arranged in strict accordance with the required number in order of priority. No Token fill the whole area F
Token 2	10	122	BCD	N	
Token 3	10	132	BCD	N	
Token 4	10	142	BCD	N	
Token 5	10	152	BCD	N	
Token 6	10	162	BCD	N	
Token 7	10	172	BCD	N	
Token 8	10	182	BCD	N	
Token 9	10	192	BCD	N	
Token 10	10	202	BCD	N	
Token 11	10	212	BCD	N	
Token 12	10	222	BCD	N	
Token 13	10	232	BCD	N	

Data	Length	Address	Data Type	Is Encrypted	Desc
Token 14	10	242	BCD	N	
Token 15	10	252	BCD	N	
Token 16	10	262	BCD	N	
Token 17	10	272	BCD	N	
Token 18	10	282	BCD	N	
Token 19	10	292	BCD	N	
Token 20	10	302	BCD	N	
Token 21	10	312	BCD	N	
Token 22	10	322	BCD	N	
Token 23	10	332	BCD	N	
Token 24	10	342	BCD	N	
Token 25	10	352	BCD	N	
	6	362		N	
Meter ID	20	368	BCD	N	Meter ID
Consumer ID	20	388	BCD	N	Consumer ID
Utility ID	6	408	BCD	N	Utility ID
CS	2	414	HEX	N	
	0	416		N	
Data A	1	416	HEX	N	
Data B	1	417	HEX	N	
Data C	1	418	HEX	N	
Data D	1	419	HEX	N	
Data E	1	420	HEX	N	
Data F	1	421	HEX	N	
CS	2	422	HEX	N	
	0	424		N	
Token 1 Return Code	1	424	HEX	Y	Meter operating results after Token, 0x00: success, 0xFF: default value, the other: the error code.
Token 2 Return Code	1	425	HEX	Y	
Token 3 Return Code	1	426	HEX	Y	
Token 4 Return Code	1	427	HEX	Y	
Token 5 Return Code	1	428	HEX	Y	
Token 6 Return Code	1	429	HEX	Y	
Token 7 Return Code	1	430	HEX	Y	
Token 8 Return Code	1	431	HEX	Y	
Token 9 Return Code	1	432	HEX	Y	
Token 10 Return Code	1	433	HEX	Y	
Token 11 Return Code	1	434	HEX	Y	
Token 12 Return Code	1	435	HEX	Y	
Token 13 Return Code	1	436	HEX	Y	
Token 14 Return Code	1	437	HEX	Y	
Token 15 Return Code	1	438	HEX	Y	
Token 16 Return Code	1	439	HEX	Y	
Token 17 Return Code	1	440	HEX	Y	
Token 18 Return Code	1	441	HEX	Y	
Token 19 Return Code	1	442	HEX	Y	
Token 20 Return Code	1	443	HEX	Y	
Token 21 Return Code	1	444	HEX	Y	

Data	Length	Address	Data Type	Is Encrypted	Desc
Token 22 Return Code	1	445	HEX	Y	
Token 23 Return Code	1	446	HEX	Y	
Token 24 Return Code	1	447	HEX	Y	
Token 25 Return Code	1	448	HEX	Y	
Recharge Date&Time	6	449	HEX	Y	SSMMHHDDMMYY, Meter recharge time, Pre-payment System writes all F
Recharge Amount	4	455	HEX	Y	unit:0.01, The amount of recharge
Token Return Code CS	2	459	HEX	Y	
	3	461	HEX	Y	
Billing Date&Time	6	464	BCD	Y	SSMMHHDDMMYY
Active energy import (Current Month)	4	470	BCD	Y	unit:0.01 kWh
Taka Recharged(Current Month)	4	474	HEX	Y	Unit 0.01
Taka Used(Current Month)	4	478	HEX	Y	unit 0.01
Active Maximum Power (MD)	3	482	BCD	Y	Active Maximum Power (MD)
Reactive Maximum Power (MD)	3	485	BCD	Y	Reactive Maximum Power (MD)
Active energy import T1(Current Month)	4	488	BCD	Y	Active energy import T1(Current Month)
Active energy import T2(Current Month)	4	492	BCD	Y	Active energy import T2(Current Month)
Reactive energy import T1(Current Month)	4	496	BCD	Y	Reactive energy import T1(Current Month)
Reactive energy import T2(Current Month)	4	500	BCD	Y	Reactive energy import T2(Current Month)
Total Charge T1(Current Month)	4	504	HEX	Y	Unit:0.01
Total Charge T2(Current Month)	4	508	HEX	Y	unit:0.01
Number of Power Failures	2	512	HEX	Y	Number of Power Failures
Number of Sanctioned Load Exceeded	2	514	HEX	Y	Number of Sanctioned Load Exceeded
Month Average Power Factor	2	516	BCD	Y	
Last 1 Month CS	2	518	HEX	Y	
	0	520		Y	
Billing Date & Time	6	520	BCD	Y	SSMMHHDDMMYY
Active energy import (Current Month)	4	526	BCD	Y	unit:0.01 kWh
Taka Recharged(Current Month)	4	530	HEX	Y	Unit:0.01
Taka Used(Current Month)	4	534	HEX	Y	Unit:0.01
Active Maximum Power (MD)	3	538	BCD	Y	
Reactive Maximum Power (MD)	3	541	BCD	Y	
Active energy import T1(Current Month)	4	544	BCD	Y	
Active energy import T2(Current Month)	4	548	BCD	Y	
Reactive energy import T1(Current Month)	4	552	BCD	Y	
Reactive energy import T2(Current Month)	4	556	BCD	Y	
Total Charge T1(Current Month)	4	560	HEX	Y	Unit:0.01
Total Charge T2(Current Month)	4	564	HEX	Y	Unit:0.01
Number of Power Failures	2	568	HEX	Y	
Number of Sanctioned Load Exceeded	2	570	HEX	Y	

Data	Length	Address	Data Type	Is Encrypted	Desc
Month Average Power Factor	2	572	BCD	Y	
Last 2 Month CS	2	574	HEX	Y	
	0	576		Y	
Billing Date&Time	6	576	BCD	Y	SSMMHHDDMMYY
Active energy import (Current Month)	4	582	BCD	Y	unit:0.01 kWh
Taka Recharged(Current Month)	4	586	HEX	Y	Unit:0.01
Taka Used(Current Month)	4	590	HEX	Y	Unit:0.01
Active Maximum Power (MD)	3	594	BCD	Y	
Reactive Maximum Power (MD)	3	597	BCD	Y	
Active energy import T1(Current Month)	4	600	BCD	Y	
Active energy import T2(Current Month)	4	604	BCD	Y	
Reactive energy import T1(Current Month)	4	608	BCD	Y	
Reactive energy import T2(Current Month)	4	612	BCD	Y	
Total Charge T1(Current Month)	4	616	HEX	Y	Unit:0.01
Total Charge T2(Current Month)	4	620	HEX	Y	
Number of Power Failures	2	624	HEX	Y	
Number of Sanctioned Load Exceeded	2	626	HEX	Y	
Month Average Power Factor	2	628	BCD	Y	
Last 3 Month CS	2	630	HEX	Y	
	0	632		Y	
Billing Date&Time	6	632	BCD	Y	SSMMHHDDMMYY
Active energy import (Current Month)	4	638	BCD	Y	unit:0.01 kWh
Taka Recharged(Current Month)	4	642	HEX	Y	Unit:0.01
Taka Used(Current Month)	4	646	HEX	Y	Unit:0.01
Active Maximum Power (MD)	3	650	BCD	Y	
Reactive Maximum Power (MD)	3	653	BCD	Y	
Active energy import T1(Current Month)	4	656	BCD	Y	
Active energy import T2(Current Month)	4	660	BCD	Y	
Reactive energy import T1(Current Month)	4	664	BCD	Y	
Reactive energy import T2(Current Month)	4	668	BCD	Y	
Total Charge T1(Current Month)	4	672	HEX	Y	Unit:0.01
Total Charge T2(Current Month)	4	676	HEX	Y	Unit:0.01
Number of Power Failures	2	680	HEX	Y	
Number of Sanctioned Load Exceeded	2	682	HEX	Y	
Month Average Power Factor	2	684	BCD	Y	
Last 4 Month CS	2	686	HEX	Y	
	0	688		Y	
Billing Date&Time	6	688	BCD	Y	SSMMHHDDMMYY
Active energy import (Current Month)	4	694	BCD	Y	unit:0.01 kWh

Data	Length	Address	Data Type	Is Encrypted	Desc
Taka Recharged(Current Month)	4	698	HEX	Y	Unit:0.01
Taka Used(Current Month)	4	702	HEX	Y	Unit:0.01
Active Maximum Power (MD)	3	706	BCD	Y	
Reactive Maximum Power (MD)	3	709	BCD	Y	
Active energy import T1(Current Month)	4	712	BCD	Y	
Active energy import T2(Current Month)	4	716	BCD	Y	
Reactive energy import T1(Current Month)	4	720	BCD	Y	
Reactive energy import T2(Current Month)	4	724	BCD	Y	
Total Charge T1(Current Month)	4	728	HEX	Y	Unit:0.01
Total Charge T2(Current Month)	4	732	HEX	Y	Unit:0.01
Number of Power Failures	2	736	HEX	Y	
Number of Sanctioned Load Exceeded	2	738	HEX	Y	
Month Average Power Factor	2	740	BCD	Y	
Last 5 Month CS	2	742	HEX	Y	
	0	744		Y	
Billing Date&Time	6	744	BCD	Y	SSMMHHDDMMYY
Active energy import (Current Month)	4	750	BCD	Y	unit:0.01 kWh
Taka Recharged(Current Month)	4	754	HEX	Y	Unit:0.01
Taka Used(Current Month)	4	758	HEX	Y	Unit:0.01
Active Maximum Power (MD)	3	762	BCD	Y	
Reactive Maximum Power (MD)	3	765	BCD	Y	
Active energy import T1(Current Month)	4	768	BCD	Y	
Active energy import T2(Current Month)	4	772	BCD	Y	
Reactive energy import T1(Current Month)	4	776	BCD	Y	
Reactive energy import T2(Current Month)	4	780	BCD	Y	
Total Charge T1(Current Month)	4	784	HEX	Y	Unit:0.01
Total Charge T2(Current Month)	4	788	HEX	Y	Unit:0.01
Number of Power Failures	2	792	HEX	Y	
Number of Sanctioned Load Exceeded	2	794	HEX	Y	
Month Average Power Factor	2	796	BCD	Y	
Last 6 Month CS	2	798	HEX	Y	
	0	800		Y	
Numbers of open cover	2	800	HEX	Y	
The last time of open cover	6	802	BCD	Y	SSMMHHDDMMYY
The last 2 time of open cover	6	808	BCD	Y	
The last 3 time of open cover	6	814	BCD	Y	
The last 4 time of open cover	6	820	BCD	Y	
Numbers of open cover CS	2	826	HEX	Y	
	4	828		Y	
Numbers of open terminal cover	2	832	HEX	Y	

Data	Length	Address	Data Type	Is Encrypted	Desc
The last time of open terminal cover	6	834	BCD	Y	
The last 2 time of open terminal cover	6	840	BCD	Y	
The last 3 time of open terminal cover	6	846	BCD	Y	
The last 4 time of open terminal cover	6	852	BCD	Y	
Numbers of open terminal cover CS	2	858	HEX	Y	
	4	860		Y	
Numbers of bypass	2	864	HEX	Y	
The last time of bypass	6	866	BCD	Y	
The last 2 time of bypass	6	872	BCD	Y	
The last 3 time of bypass	6	878	BCD	Y	
The last 4 time of bypass	6	884	BCD	Y	
Numbers of bypass CS	2	890	HEX	Y	
	4	892		Y	
Numbers of overload	2	896	HEX	Y	
The last time of overload	6	898	BCD	Y	
The last 2 time of overload	6	904	BCD	Y	
The last 3 time of overload	6	910	BCD	Y	
The last 4 time of overload	6	916	BCD	Y	
Numbers of overload CS	2	922	HEX	Y	
	4	924		Y	
Numbers of missing neutral event	2	928	HEX	Y	
The last time of missing neutral event	6	930	BCD	Y	
The last 2 time of missing neutral event	6	936	BCD	Y	
The last 3 time of missing neutral event	6	942	BCD	Y	
The last 4 time of missing neutral event	6	948	BCD	Y	
Missing neutral event CS	2	954	HEX	Y	
	4	956		Y	
Last Read Time	6	960	BCD	N	POS needs to reset the data after read the date,set all F
Return Token	10	966	BCD	N	POS needs to reset the tokens, set all F
Update Flag	1	976	Boolean	N	The meter is updated to return data, FF-no, FA-updated. POS card is required to write the flag is after read the data
CS	2	977	HEX	N	
Verify Writable	1	1020	HEX		PSC used to check the password is corrected
Error Counter	1	1021			Card Reserved fields
PSC	2	1022			Card Reserved fields

5 GPRS Meters Connection Platform Design
5.1 Concept Description of MIC Communication Access

Smart GPRS meters communicate with MIC using XML format based on TCP. It will use encryption and digital signature technical in TCP linker layer, and in data area of XML document, follow the standard DLMS protocol.

XML Communication Protocol Define

XML Format Define

```
<?xml version='1.0'?>
<h:rt xmlns h='ProtocolHead'>
<h:pv>1</h:pv>
<h:addr>030140000170</h:addr>
<h:dir>down</h:dir>
<h:pt>1</h:pt>
<h:fc>3</h:fc>
<h:seq>7</h:seq>
<h:e>10</h:e>
<h:a>0</h:a>
<h:r>485845110000000000000007</h:r>< h:d>
0A15CEDF16.....0A15CEDF16
</h:d>
<h:sg>0203</h:sg>
</h:rt>
```

XML Label Description :

All data of XML should be transferred using ASCII code.

Protocol Presentation	Protocol Description	Note
<? xml version='1.0' ?>	XMLfixed head format	
<h:rt xmlns h='ProtocolHead'>	To name the space under root element.Protocol Head means the first layer of protocol.	
<h:pv>1</ h:pv>	XMLprotocol internal version number of company. 1: the first version	
<h:f>100000000</h:f>	Address of transmit end, the label means which transmit end the data come from. The address will be 1 if the transmit end is master station; The address will be meter address if the transmit end is meter, whose length is not fixed and the max length is 32 pcs ASCII code.	
<h:dir>down</h:dir>	The direction of transmission. up: meter to server down: server to meter	
<h:pt>1</h:pt >	Data transport protocol in data area. 1 : DLMS transport protocol 2: XML transport protocol (Company will develop in the future, as the second stage)	
<h:fc>1</h:fc>	Function code: it is mainly for front-end processor distinguishes the data types. When front-end processor doesn't analysis the data or decrypt the encrypted data, it can response the frame transmitted from the meters. At the same time, the label can distinguish who is the transmit end. 1 : Link interface test(meter launches) 2 : Link interface test response frame(master station responses) 3 : Request – response frame (master station responses) 4 : Request –confirm/deny frame (master station responses) 5 : Report initially- confirm/deny frame (meter launches) 6 : Report initially confirm frame needed (meter launches) 7 : Report initially confirm frame needless (meter launches) 8 : business password refresh (master station launches) 9 : manufacturer request (mainly for upgrade remotely) (master station launches) 10 : manufacturer respond (mainly for upgrade remotely)) (master station launches)	
<h:seq>3< h:seq>	XML frame serial number, for defining which response frame was responded by the response end. The frame serial number is changed by primary end, it will add 1 when primary end launches one frame of message. The range of variationcan be0-99. Driven end regards the frame serial number of primary end as the response frame serial number. After messages transmitted by starting end, when the responded can't be received timely , the serial number of retransmission will be same if the starting end allows retransmission, and the max retransmission numbers is 3; 2) If the driven end receives two starting frame with the same serial number in series, it means the response hasn't been received yet, then retransmission(and without dealing with the message again); 3) If starting end receives two response frames with the same serial number in series, then will not deal with the second response frame.	
<h:e>10</h:e>	Data encryption algorithm 00 : without using encryption algorithm , data transmitted using plaintext form 10 : AES-128 In GCM Mode	

	11 : AES-192 12 : AES-256 20 : DES 30 : SHA 40 : ECC	
<h:a>1</h:a>	Verify algorithm 0 : without using verify 1 : SHA-256	
<h:r>4827762</h:r>	Random number. The starting end will regard the random number as vector to encrypt the data area, the receiving end will regard the random number as vector to decrypt the data area. It has 12 bytes, as 24 bytes HEX character String in XML.	
<h:d >123456< /h:d >	Data area, if without using encryption algorithm, the flag is plaintext ; if using encryption algorithm, the flag is the plaintext will be encrypted.	
<h:sg>0203<h:sg>	When without using verify, the flag is useless; when using verify, the flag is verify code for plaintext of data area.	
</h:rt>	XML end flag.	

5.2 Function Code Description :

Link interface test: the function is distinguished in data area.

01 :log in

02 :quit

03 :heartbeat

Link interface test response frame: the function is distinguished in data area.

01 :log in

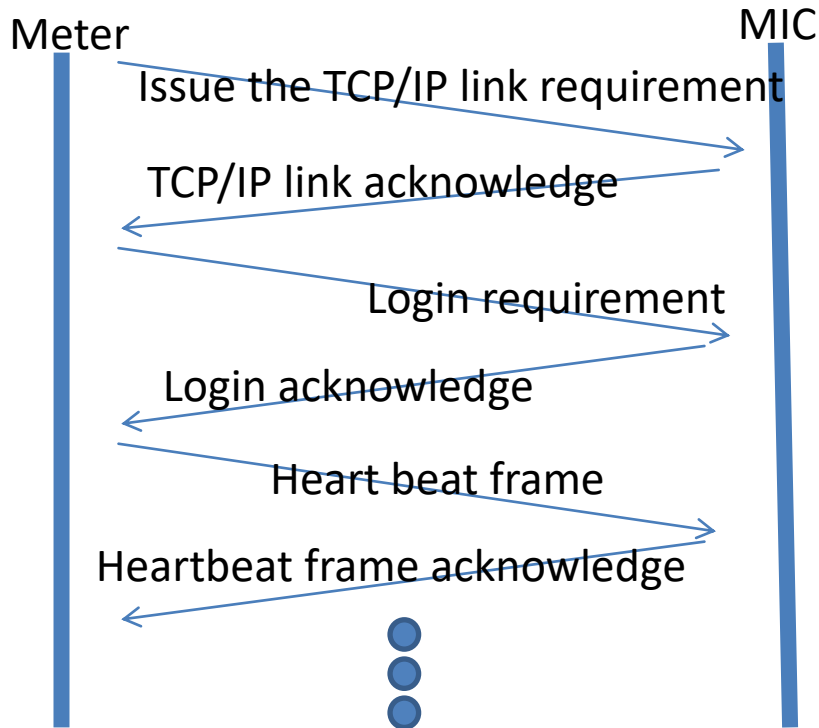
02 :quit

03 :heartbeat

In this system, meters as client side, MIC as server side, link build , log in request and heartbeat are transmitted by meters , and responded by MIC.

Log in frame: For transmitting a group of specific data to the MIC and confirming the link chaining relationship with master station , after meters connected with master station in TCP/IP.

Heartbeat frame: For transmitting a group of data to maintain the TCP/IP link chaining.



Request - response frame

Request - response frame is the request frame transmitted from master station and the response frame responded by meters.

The correct response means in XML layers, encryption and decryption runs correct or other data to be tested are correct, without including part or all deny for DLMS frames in DLMS layers.

Request- confirm\deny frame

Request- confirm\deny frame is the deny frame responded to the master station when errors happened on data that meters transmitted to the master station.

It will response confirm frame if the update key request to master station is correct.

Request- confirm\deny frame format :

Confirm frame	Function code:00	
Deny frame	Function code :01	Error code :01: password error; 02: verify error;03: other error

Report initially-confirm\deny frame

For data meters transmitted to the master station , if need confirmation, front-end processor will using the function code to achieve confirmation and deny for meters.

The format refers to function code 3.

Report initially -confirm frame needed

For data meters reported to the master station initially, if need confirmed , sent according to the function code.

Report initially -confirm frame needless

For data meters reported to the master station initially, if confirmed needless , sent according to the function code.

Business password updated

To update the business password according to the function , sent by master station , encrypted by root key.

Manufacturer request

For self defined commands send from master station to the manufacturers.

Manufacturer response

For self defined commands responded from meters to the manufacturers.

It adopts plaintext transmission mode for data areas of function code 1,2,4,5.

Further information please check<The process of online meter communication >