ENERGY EFFICIENCY SERVICES LIMITED

(*A JV of PSUs of Ministry of Power, Govt. of India*)
A-13, IWAI Building, 4th& 5thFloors, Sector-1,
NOIDA - 201301.

CONTRACTS DEPARTMENT

INTERNATIONAL COMPETITIVE BIDDING THROUGH OPEN TENDER THROUGH E-PROCUREMENT

SECTION-1

DETAILED INVITATION FOR BIDS (IFB)

FOR

Name of the Work: **International Competitive Bidding (ICB) for Procurement of 5 million Smart Meters for Pan India**.

NIT/Bid Document No.: EESL/06/ICB-Smart Meters-Pan India/171802068 dated 08-Mar-2018.

EESL invites Electronic-bid(E-bid) from interested bidders for the aforesaid work(s)under Single-stage Three-envelope Bidding Process **THROUGH E-TENDERING*.** For details about the IFB, please refer to the details that follow.

Any amendment(s)/corrigendum/clarification(s) with respect to this Tender shall be uploaded on the E-Procurement website only. The bidders should keep themselves updated by regularly visiting the E-Procurement website of EESL for any amendment/corrigendum/ clarification in regard to this Tender.

***The bids for E-tenders will be submitted online on the web site https://eesl.eproc.in. Oral, telephonic, telegraphic bids or those submitted in hard copies/physical form will not be entertained. In case, anything to the contrary is mentioned anywhere in the Tender, the same should be ignored.**

BID DETAILS

NIT/Bid Document No.	EESL/06/ICB-Smart Meters-Pan India/171802068 dtd. 08-Mar-2018.
Bidding Document Cost	Rs. 25,000/- (Indian Rupees Twenty-Five Thousand only) (*non-refundable & non-adjustable*).
Earnest Money Deposit (EMD)/ Bid Security	Rs. 14,24,00,000/- (Rupees Fourteen Crores Twenty-Four Lacs only) (*refundable without interest*) (EMD, only in the form of Bank Guarantee, to be valid up to 225 days from the date of techno-commercial bid opening).
Contract Performance Guarantee/Security	10% of the Contract value, to be valid up to delivery duration (1 year) + warranty duration (i.e. 5.5 years) + three (3) months' claim period + 3 months' mobilization/ testing phase Thus, the total SD/CPG Bank Guarantee period shall be 7 years.
Document Sale Date & Timing ,i.e., Last date & time for downloading RfP from website	From 08-03-2018 to 12-04-2018 (up to 1400 hours IST).
Online Bid Submission Period	From 08-03-2018 to 12-04-2018 (up to **1430 hours** IST).
Pre-bid Meeting	On 20-Mar-2018, at 1130 hrs. IST at EESL Office, Noida **Note:** Bidders are advised to send the queries 3 days prior to the date of pre-bid meeting. Queries shall be in the format attached at attachment-12 of Section-6 of this tender.
Techno-commercial E-bid Opening Date & Time	12-04-2018, at 1500 hrs. IST.
Bid Validity Duration	180 days from the date of opening of techno-commercial bid.
Bid Documents Sections in this Tender	Section-2 – Information to Bidders (ITB). Section-3 – General Conditions of Contract (GCC). Section-4 – Technical Specification and Special Conditions of Contract (SCC). Section-5 – Measurement and Verification. Section-6 – Forms & Procedures.
Contact Person(s) for Technical Queries (*copy of the query to be marked to Contracts Dept. as well*)	Mr. Ajay Kumar Sharma, DGM (Tech.); Mr. R. K. Bhanote, AGM (T) Energy Efficiency Services Ltd. Tel.: 0120-4908000. E-mail: asharma1@eesl.co.in; rbhanote@eesl.co.in
Contact Person(s) for Tender-related Queries	Mr. Kumar Saurabh, DGM (T&C)/ Mr. Rajneesh Rana, GM (Contracts & BD). Energy Efficiency Services Ltd. Tel.: 0120-4908000, 4040830. E-mail: eproc@eesl.co.in
RfP to be addressed to	GM (C & BD), Energy Efficiency Services Limited, C/o Projects & Development India Ltd., PDIL Bhawan, 1st Floor, A-14, Sector-1, NOIDA-201 301, Distt. Gautam Budh Nagar, U.P.

1.0 All the bids must be accompanied by the Bidding Document Cost and the EMD, as mentioned above. **Bids not accompanying the Bidding Document Cost and EMD, or those accompanied**

by these instruments of inadequate value, shall not be entertained and in such cases, the bids shall not be opened.

The Bidding Document Cost has to be necessarily submitted in the form of Demand Draft (DD)/Pay Order/Banker's Cheque in favour of "Energy Efficiency Services Limited", issued by any scheduled/nationalised bank and payable at NOIDA/New Delhi.

The EMD in the form of a Bank Guarantee (BG) should be ***strictly*** as per format at Attachment-2 in Section-6. The BG shall be from any Indian Nationalized Bank/other scheduled Private banks/International banks, to be from among the list of banks given at Annexure I of Section-6. In case of international bidder(s), the BG could be from any such International bank having a branch in India or an Indian Nationalised bank having a branch in the country of origin of the international bidder(s) mentioned in Annexure I. The International Bidders are also required to enclose with their EMD BG a letter of BG confirmation from a corresponding Indian bank. The EMD must remain valid for duration of 45 days beyond the original bid validity duration of 180 days, i.e., 225 days from date of techno-commercial bid opening. If any extension in bid validity is sought by EESL, the bidder may be asked to extend the validity of EMD, which the bidder shall have to do without any cost implications to EESL.

The Bidding Document Cost and the EMD must reach the following address in a sealed envelope superscribed "**EMD and Bidding Document Fee for NIT/Bid Document No. ----------**" before the submission date & time mentioned above.

GM (C & BD),
Energy Efficiency Services Limited,
C/o Projects & Development India Ltd.,
PDIL Bhawan, 1st Floor, A-14, Sector-1,
NOIDA-201 301, Distt. Gautam Budh Nagar, U.P
Tel.: 0120-4908000.

The details of the instruments of Bidding Document Cost and the EMD (DD/BG, etc. as applicable) have to be entered online in relevant fields/columns of the module while submitting the E-bid. It must be ensured by the bidder that the original instruments towards Bidding Document Cost and EMD are received by EESL before opening time of the techno-commercial bids for verification of the details of the same as given online by the bidder. Failure to comply with this would render the bid liable for rejection and the bid will not be opened online. EESL will not be responsible for any delay, loss or non-receipt of Bidding/RfP Document Cost or EMD sent by post/courier.

Any relaxation/exemption sought by bidders shall only be considered in accordance with relevant clauses Section-2 (ITB) regarding submission/payment of EMD and Bidding Document Cost and shall be subject to fulfilment of conditions defined in the said clauses. Since all the conditions explained in the said clauses for seeking exemption from submission of Bidding Document Cost and EMD are self-explanatory, bidders should ascertain about their fulfilment of all conditions and submit their bid accordingly. If at any stage, it is found that false information is furnished or non-compliance of any of the conditions defined at the said clauses, the bid/offer shall be considered as non-responsive and would not be considered for further evaluation. Bidder seeking exemption from submission of the Bidding Document Cost and the EMD has to mandatorily submit/upload the scanned copy of their valid original registration certificate(s)as asked for in the relevant, clause along with other relevant documents as part of their online bid.

2.0 EESL reserves the right to cancel / withdraw the IFB without assigning any reason whatsoever and in such a case, no bidder / intending bidder shall have any claim arising out of such action.

3.0 The subject procurement will be done through e-tendering. The NIT is available on the website ***https://eesl.eproc.in*** or could be viewed after following the link of 'e-Tendering' on EESL's website's Home Page, i.e., http://eeslindia.org from where the bidders registered with EESL (registration process is explained at the Home Page) will be able to download the Tender documents and submit their bids online. The Tender submission, Tender closing and opening will be done electronically and online.

NOTE: EESL has appointed M/s. C1 India Pvt. Ltd., NOIDA as implementation agency for carrying out e-Procurement. Also, as per IT ACT 2000, use of Digital Signature Certificate (DSC) is mandatory for participating in the E-tendering process. New bidders should register on the website https://eesl.eproc.in by payment of one-time registration fee of Rs. 5,000/- through DD in favour of "Energy Efficiency Services Limited".

Bidders are requested to visit "e-Tendering" section at EESL website,www.eeslindia.org for instructions and registration on E-tendering portal.

Steps for Registration on EESL's E-Procurement Portal

(i) Open portal by entering URL https://eesl.eproc.in in internet explorer.
(ii) Download and read 'System Requirement Manual' and Registration Manual from our e-tendering portal https://eesl.eproc.in
(iii) Click on 'Login/Sign Up' link and then Registration link for new registration.
(iv) Fill all mandatory fields and click on submit button.
(v) Login with the user id and password you have created. You will be redirected to a page where you have to enter your challenge phrase which is received in your registered email id.
(vi) Register your class-III Signing and Encryption Digital Signature Certificate (DSC).
(vii) Fill all mandatory fields of Common Info form and upload scan copy of your DD (in favour of "Energy Efficiency Services Limited", Noida) in PDF format of INR 5,000/- and click on save and send the original DD to EESL, Noida office, Covering Letter on your letter head pad and print out of page regarding registration of approval (automatically generated on screen).
(viii) Also read the instructions given under E-tendering link available at home page of EESL website www.eeslindia.org.

Note: Online registration shall be done on e-tendering website, i.e., https://eesl.eproc.in & ingeneral, activation of registration may take 24 hours subject to the submission of original DD. It is sole responsibility of the bidder to register in advance.

A. Digital Signature Certificate:

It is mandatory for all the bidders to have class-III Digital Signature Certificate (DSC) with signing and Encryption certificate (in the name of person who will sign the BID) from any of the licensed Certifying Agency (Bidders can see the list of licensed CAs from the link www.cca.gov.in) to participate in e-tendering of EESL.

B. EESL Global Support Telephones and e-mail id

Contact Details: +91-124-4302033/36/37, +91-8826814007
eeslsupport@c1india.com, sandeep.bhandari@c1india.com

SECTION-2

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SECTION-2

INSTRUCTIONS TO THE BIDDER (ITB) / CONSORTIUM OF BIDDERS

A. The Bidding Documents

1.1 The bidding documents include the following

Section-1	Invitation for Bids (IFB)
Section-2	Instructions to Bidder / Consortium of Bidders
Section-3	General Conditions of Contract
Section-4	Special Conditions of Contract explaining in detail technical specifications, scope of work for supply/supply and installation & Commissioning/Consultancy, drawings, documents in support of bidder's qualifications (Qualifying Requirement), and Online Price Bid format.
Section-5	Measurements and Verification
Section-6	Forms & Procedure Format of Bid Form. Format for submitting BG format in lieu of EMD. Format for Power of Attorney. Format for Certificate regarding acceptance of important terms and conditions. Format for Deviations Statement. Format for submission of Contract Performance Guarantee (CPG). Form of acceptance of Fraud Prevention Policy. Format for submitting BG for Advance Payment, wherever applicable. Format for RTGS/NEFT payments. Format for Declaration of quantity.

The bidder is expected to examine all the instructions, forms, terms, specifications and other information in the bidding documents. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive to the bidding documents in every respect will be at the bidder's risk and may result in rejection of bid.

Definitions

In the "Bid / Tender / Contract Document" as herein defined where the context so admits, the following words and expression will have the following meaning:

1. " Affiliate" shall mean a company that either directly or indirectly
   i) controls or
   ii) is controlled by or
   iii) is under common control with

a Bidding Company (in the case of a single company) and "control" means ownership by one company

2. "B.I.S" shall mean specifications of Bureau of Indian Standards (BIS);
3. "Bid / Tender" shall mean the Techno Commercial and the Price Bid submitted by the Bidder along with all documents/credentials/attachments, formats, etc., in response to this Bid Document, in accordance with the terms and conditions hereof.
4. "Bidder / Tenderer" shall mean Bidding Company submitting the Bid. Any reference to the Bidder includes Bidding Company including its successors, executors and permitted assigns jointly and severally, as the context may require";
5. "Bid Security" shall mean the unconditional and irrevocable bank guarantee/ demand draft to be submitted along with the Bid by the Bidder under ITB Clause 2.4 of this Bid;
6. "Bidding Company" shall refer to such single/consortium company that has submitted the Bid in accordance with the provisions of this Bid;
7. "Bid Deadline" shall mean the last date and time for submission of Bid in response to this Bid as specified in Bid information Sheet and as specified in ITB Clause 3.2 of this Bid document including all amendments thereto;
8. "Bid Document" shall mean all Definitions, Sections, Layouts, Drawings, Photographs, Formats & Annexures etc. as provided in this bid including all the terms and conditions hereof.
9. "Chartered Accountant" shall mean a person practicing in India or a firm whereof all the partners

practicing in India as a Chartered Accountant(s) within the meaning of the Chartered Accountants Act, 1949;

10. "Competent Authority'' shall mean Managing Director (MD) of EESL himself and/or a person or group of persons nominated by MD for the mentioned purpose herein;
11. "Company" shall mean a body incorporated in India under the Companies Act,1956;
12. "Contract" means the agreement entered into between the Employer and the Contractor, as recorded in the Contract Form signed by the parties, including all the attachments and appendices thereto and all documents incorporated by reference therein;
13. "Contract Price / Contract Value" shall mean the sum accepted or the sum calculated in accordance with the prices accepted in Bid and/or the Contract rates as payable to the Contractor for the entire execution and full completion of the Work (Price for Supply, Transportation(including loading, unloading and transfer to Site), Insurance including change order.
14. "Completion of Work" means that the Project/Works have been completed operationally and structurally and Commissioning has been attained as per Technical Specifications.
15. "Commissioning" means successful operation of the Project/Works by the Contractor, for the purpose of carrying out Guarantee Test(s).
16. "Contract Document" shall mean collectively the Bid Document, Design, Drawings, and Specifications, Annexures, agreed variations, if any, and such other documents consisting the bid and acceptance thereof;
17. "Contractor's Equipment" means all plant, Works, equipment, machinery, tools, apparatus, appliances or things of every kind required in or for installation, completion and maintenance of Works that are to be provided by the Contractor, but does not include plant and equipment, or other things intended to form or forming part of the Works.
18. "Day" means calendar day;
19. "Defect Liability Period" means the period of validity of the warranties given by the Contractor (commencing at Completion of the Project/Works, during which the Contractor is responsible for defects with respect to the Project/Works.
20. "Employer" or "EESL" shall mean Energy Efficiency services Limited, New Delhi.
21. "Eligibility Criteria" shall mean the Eligibility Criteria as set forth in Section 3: Technical& Special Conditions of Contract of this BID;
22. "Engineer-in-Charge" shall mean the person designated from time to time by the Employer and shall include those who are expressly authorized by him to act for and on his behalf for operation of this Contract;
23. "Effective Date" means the date from which the Time for Completion shall be determined;
24. "GCC" means the General Conditions of Contract contained in this section;
25. "GHI" shall mean Global Horizontal Irradiation.
26. "Goods" means permanent plant, equipment, machinery, apparatus, articles and things of all kinds to be provided and incorporated in the Works by the Contractor under the Contract but does not include Contractor's Equipment;.
27. "Guarantee Test(s)" means the test(s) specified in the Technical Specificationto be carried out to ascertain whether the Project/Works is able to attain the functional requirements specified in the Technical Specifications.
28. "The Government" means the Government of India.
29. "IEC" shall mean specifications of International Electro-technical Commission;
30. "EESL" shall mean Energy Efficiency Services Limited;
31. "Mobilization" shall mean establishment of adequate infrastructure by the Contractor at Site comprising of construction equipment's, aids, tools tackles, offices with facilities such as power, water, communication etc. including manpower comprising of Engineers, Supervising personnel and an adequate strength of skilled, semi-skilled and un-skilled workers, who with the so established infrastructure shall be in a position to commence execution of Work at site(s), in accordance with the agreed Time Schedule of Completion of Work.
32. "O&M/ AMC" shall mean Operation & Maintenance(O& M)/ Annual Maintenance Contract (AMC) of the supplied equipments;
33. "Parent Company" shall mean a company that holds paid-up equity capital directly or indirectly in the Bidding Company, as the case may be;
34. "Price Bid" shall mean separate Envelope, containing the Bidder's Quoted Price as per the format prescribed in Section-4 (Technical & Special Conditions of Contract) of this BID;
35. "Qualified Bidder" shall mean the Bidder(s) who, after evaluation of their Techno Commercial Bid as per Eligibility Criteria set forth in Section 3: Technical& Special Conditions of Contract of this BID stand qualified for opening and evaluation of their Price Bid;
36. "SNA" shall mean State Nodal Agency.
37. "SCC" means the Special Conditions of Contract.

38. "Statutory Auditor" shall mean the auditor of a Company appointed under the provisions of the Companies Act, 1956 or under the provisions of any other applicable governing law;
39. "Services" means all those services ancillary to the supply of the Works, to be provided by the Contractor under the Contract; e.g. transportation(including loading, unloading and transfer to Site) 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 civil, structural and construction materials required),installation,/Pre-commissioning, commissioning, carrying out guarantee tests, operations, maintenance, the provision of operations and maintenance manuals, training of Employer's personnel and one or two persons from the beneficiaries groups are imparted trainings etc.
40. "Successful Bidder(s) / Contractor(s)" shall mean the Bidder(s) selected by Employer pursuant to this Bid i.e. on whom award is made. They are also called as implementing partner which includes Consultants also.
41. "Site" means the Land and other places upon which the Works are to be installed, and such other land or places as may be specified in the Contract as forming part of the Site. The details of the Site are as contained in Section 3: Technical& Special Conditions of Contract of this BID.
42. "Sub-Contractor" means any person or firm or Company (other than the Contractor) to whom any part of the Work has been entrusted by the Contractor, with the written consent of the Engineer-in-Charge, and the legal representatives, successors and permitted assigns of such person, firm or company.
43. "Standards" shall mean the standards mentioned in the technical specification of the goods and equipment utilized for the Work or such other standard which ensure equal or higher quality and such standards shall be latest issued by the concerned institution like Bureau of Indian standards(BIS), MNRE, etc.
44. "Time for Completion" means the time within which Completion of the Project/Works is to be attained in accordance with the stipulations in the SCC and the relevant provisions of the Contract;
45. "Work" means the "Goods" to be supplied and installed, as well as all the "Services" to be carried out by the Contractor under the Contract;
46. "Wp" shall mean Watt Peak.
47. Third Parties means to which employer has awarded some work and consultant may be required to co-ordinate with third parties as per scope of work.
48. Agreed Remuneration means the fee to which consultant is entitled as per their quoted and agreed price according to the contract.
49. Consultant: The consultant shall be the professional undertaking or the professional individual named in the contract who is appointed by the employer to perform the services.

Interpretations

1. Words comprising the singular shall include the plural & vice versa
2. An applicable law shall be construed as reference to such applicable law including its amendments or re-enactments from time to time.
3. A time of day shall save as otherwise provided in any agreement or document be construed as a reference to Indian Standard Time.
4. Different parts of this contract are to be taken as mutually explanatory and supplementary to each other and if there is any differentiation between or among the parts of this contract, they shall be interpreted in a harmonious manner so as to give effect to each part.
5. The table of contents and any headings or sub headings in the contract has been inserted for case of reference only & shall not affect the interpretation of this agreement.

1.2 Clarification on Bidding Documents

A prospective Bidder requiring any clarification to the bidding documents may notify the EESL in writing or by post or by telex or telefax) at the EESL's mailing address indicated below. The EESL will respond in writing to any request for clarification or modification of the bidding documents that it receives no later than ten (10) days prior to the deadline for submission of bids prescribed by the EESL. Written copies of the EESL's response (including an explanation of the query but not identification of its source) will be sent to all prospective Bidders that have received the bidding documents.

The address of EESL, for communication:
General Manager (Contracts & BD),
Energy Efficiency Services Limited,
C/o Projects & Development India Ltd.,
PDIL Bhawan, 1st Floor, A-14, Sector-1,
NOIDA-201 301, Distt. Gautam Budh Nagar, U.P.

Phone: 0120- 4908000
Fax: 011-4908049
Email: rana@eesl.co.in / ksaurabh@eesl.co.in

The Bidder is advised to visit and examine the site where the facilities are to be installed and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for supply and installation of the facilities. The costs of visiting the site shall be borne by the bidder fully.

EESL will also facilitate the bidder and any of its personnel or agents for getting permission from the authorities, where actual work is to be executed, to enter upon its premises and lands for the purpose of such inspection, but only upon the express condition that the Bidder, its personnel and agents will release and indemnify the EESL and also the authorities , where work is to be executed, 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.

Whenever the bidder is silent about the acceptance of RfP/IFB conditions such as bank guarantee, warranty period, liquidated damages, certification of relation clause no.2.13 [Conflict of Interest] etc. it shall be presumed that the bidder has accepted and certified RfP/IFB conditions and no further correspondence seeking specific confirmation about acceptance of these conditions shall be made.

The Bidder shall be deemed to have examined the Bid document, to have obtained his own information in all matters whatsoever that might affect carrying out the Works in line with the Technical specifications and Scope of Work specified in the document at the offered rates and to have satisfied himself to the sufficiency of his Bid. The bidder shall be deemed to know the scope, nature and magnitude of the work and requirement of materials, equipment, tools and labour involved, , local and national wage structures and as to what all works he has to complete in accordance with the Bid documents irrespective of any defects, omissions or errors that may be found in the Bid documents

1.3 Amendment to bidding documents

At any time prior to the deadline for submission of bids, the EESL may, for any reason, whether at its own initiative, or in response to a clarification requested by a prospective Bidder, amend the bidding documents.

The amendment will be notified in writing or by cable to all prospective bidders who have purchased the bidding documents and will be binding on them. Bidders are required to immediately acknowledge receipt of any such amendment, and it will be assumed that the information contained therein have been taken into account by the Bidder in its bid.

In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their bid, the EESL may, at its discretion, extend the deadline for the submission of bids.

1.4 Cost of tender Documents

Interested bidder/consortium of bidders may download the RfP/ Tender documents from the website www.eeslindia.org or may purchase the detailed RfP from the EESL office, address of which is given above at 1.2, between 0900 hrs. and 1730 hrs. on working days on payment of amount as mentioned in Section-1. The payment would be accepted in the form of crossed Demand Draft (DD)/Pay Order/Banker's Cheque, drawn from any Scheduled Bank, payable at par at NOIDA, in favour of "Energy Efficiency Services Limited".

While submitting the bid (in case tender documents are downloaded from EESL website), bidder shall submit Tender Document Cost as mentioned in Section-1 in the form of DD/Pay Order/Banker's Cheque in favour of "Energy Efficiency Services Limited" payable at NOIDA along with the bid. However bidders who directly purchase the tender documents from EESL can do so by payment of requisite bid document fee at EESL office in the form of DD/Pay order or Banker's Cheque.

Exemption from payment of Tender/Bidding Document Cost/Fee shall be as per the provisions in Clause/Para No. 2.4 of the ITB.

B. Preparation of Bids

2.1 Procedure for Submission of Bid/RfP.

Single Stage Single Envelope Bidding Process:

The Bidder or Consortium of bidders should submit hard copy of the offer, i.e. Techno Commercial and Price Bid together in a single sealed envelope superscripted with Bid/RfP number and date, content of envelope, name of work and Bid opening date. Bid-Form, Power of Attorney, Certificate regarding acceptance of important terms and conditions, Deviations Statement, Form of acceptance of Fraud Prevention Policy, etc. as per format defined in Section-6 (Forms & Procedures) shall also be submitted in the same envelope.

Single Stage Two Envelope Bidding Process:

The Bidder shall seal the proposal in one outer and two inner envelopes labeled as Envelope-I and Envelope-II. Two Envelopes should contain the details of the offer as follows:

Envelope-I should contain (This envelope appear ONLINE in dynamic form in case of E-tenders)

i. Tender Document Cost in the form of DD/Pay Order/Banker's Cheque (wherever applicable).
ii. Bid Security/Earnest Money Deposit in the form of Banker's Cheque/Demand Draft/Pay order in favor of "Energy Efficiency Services Limited" or in the form of Bank Guarantee as prescribed format as Attachment-2 of Section-6 (Forms & Procedures). **(Only EMD and Bid document fee related document to be submitted by post in sealed envelope super-scribed with RfP/Tender reference in case of e-tender).**
iii. Power of attorney to sign the bid as Attachment-3 of Section-6 (Forms & Procedures). Bidders to use their own format.
iv. Certificate regarding acceptance of important terms and conditions as per ITB Clause No. 4.6 as Attachment-4 of Section-6 (Forms & Procedures).
v. Letter of the bidder submitting the bid in the form as stipulated in the bid document, i.e., as per Bid Form as Attachment-1 of Section-6 (Forms & Procedures).
vi. Deviation statement as per Attachment-5 of Section-6 (Forms & Procedures).
vii. Form of acceptance of EESL fraud prevention policy as per Attachment-7 of Section-6 (Forms & Procedures).
viii. Techno-commercial bid as indicated in bid document. Documentary evidence regarding bidder's qualifications to perform the contract as required in qualifying Requirement.

Envelope-II should contain Price Bid, to be submitted in 2nd inner sealed envelope, shall comprise of: (In case of E-tender Price bid is to be submitted ONLINE)

i. Price Bid in the format prescribed in the tender document.

The entire two separately sealed envelopes will then be placed in one outer envelope, sealed and marked properly and submitted to the EESL office on or before the deadline for submission of the bid. Every envelope (2 inner and 1 outer) should be super-scribed with Bid/RfP number and date, content of envelope i.e. bid security/price bid etc., name of work and Bid opening date.

Single Stage Three Envelope Bidding Process:
The Bidder shall seal the proposal in one outer and three inner envelopes labeled as Envelope-I, Envelope-II and Envelope-III. Three Envelopes should contain the details of the offer as follows:

Envelope-I should contain (This envelope appear ONLINE in dynamic form in case of E-tenders).

i. Bid document fee/cost of tender documents inform of DD/Pay order or banker's cheque [wherever applicable].
ii. Bid Security fees/Earnest Money Deposit in form of Banker's Cheque/Demand Draft/Pay order in favor of "Energy Efficiency Services Limited" or in the form of Bank Guarantee as prescribed format [attachment 2 of section - 6, Forms& Procedure]. **(Only EMD and Bid document fee related document to be submitted by post in sealed envelope superscripted with RfP/Tender reference in case of e-tender)**
iii. Letter of the bidder submitting the bid in the form as stipulated in the bid document i.e., as per

Bid Form as attachment 1 of section - 6, Forms& Procedure.

iv. Power of attorney to sign the bid as attachment 3 of section - 6, Forms & Procedure. Bidders to use their own format.

v. Certificate regarding acceptance of important terms and conditions as per ITB clause 4.6 as attachment 4 of section – 6 (Forms& Procedures).

vi. Form of acceptance of EESL fraud prevention policy as per attachment 7 of section-6 (Forms & Procedures).

Envelope-II i.e. Techno commercial Proposal of the bid, to be submitted in 2nd inner sealed envelope, shall comprise of: (This envelope appear ONLINE in dynamic form in case of e tenders)

i. Deviation statement as per attachment 5 of section - 6, Forms & Procedures.

ii. Techno-commercial bid as indicated in bid document. Documentary evidence regarding bidder's qualifications to perform the contract as required in qualifying Requirement.

Envelope-III should contain Price Bid, to be submitted in 3rd inner sealed envelope, shall comprise of: (In case of e tender Price bid is to be submitted ONLINE)

i. Price Bid in the format prescribed in the tender document.

The entire three separately sealed envelopes will then be placed in one outer envelope, sealed and marked properly and submitted to the EESL office on or before the deadline for submission of the bid. Every envelope (3 inner and 1 outer) should be superscripted with Bid/RfP number and date, content of envelope i.e. bid security/price bid etc , name of work and Bid opening date.

Copy of Bid/RfP should be a complete document and should be bound as a volume separately. The document should be page numbered and appropriately flagged and contain the list of contents with page numbers. The deficiency in documentation may result in the rejection of the Bid. All pages of the bid are to be signed by the authorized signatory (authorized through power of attorney) and must be having official seal of the bidder.

Bids not accompanied by cost of tender documents/Bid Security Fees or EMD etc. shall be out-rightly rejected and treated as non-responsive, unless exempted from payment/submission of tender document cost/EMD, in which case, the documents asked for towards exemption need to be enclosed in the bid. Further, their price-bid will be not be opened.
For tenders received in unsealed/unstapled/open condition or without any superscription, resulting in opening of tender before due date, the risk and responsibility of losing confidentiality shall rest with the tenderer (applicable for manual tender only)

2.2 Cost of Bid/ RfP

The Bidder or Consortium of bidders shall bear all costs associated with the preparation and submission of its Bid/RfP, including cost of presentation for the purposes of clarification of the bid, if so desired by the EESL. EESL will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

2.3 Language of Bids

The proposal prepared by the bidder/consortium of bidders and all correspondence and documents relating to the Bid/RfP exchanged by the bidder/consortium of bidders and EESL, shall be written in English language, provided that any printed literature furnished by the bidder/consortium of bidders may be written in another language so long the same is accompanied by an English translation in which case, for purposes of interpretation of the bid, the English translation shall govern.

2.4 Bid Security/Earnest Money Deposit (EMD) (To be submitted Offline before bid submission time)

Amount of Bid Security: Bid Security/Earnest Money deposit as mentioned in Section I is to be submitted.

The bidder shall furnish, as part of its bid, a bid security in a separate envelope (ITB Clause 2.1). The bid security shall, at the bidder's option, be in the form of a Banker's cheque, Demand Draft in favor of "Energy Efficiency Services Limited" or a bank guarantee as per format in section VI. Bid security/EMD shall remain valid for a period of 45 days beyond the original bid validity period. If there is any extension in bid validity period, then EESL may ask the bidder to extend the validity of bid security.

Any bid not accompanied by an acceptable Bid Security and Tender Document cost, unless exempted as per the Tender's provisions, shall be rejected by EESL as being non-responsive and returned to the bidder without being opened. The bid security of a consortium must be in the name of all the partners in the consortium submitting the bid. If lead partner is mentioned in case of consortium, then bid security can be in the name of lead partner.

The bid securities of unsuccessful bidders will be returned as promptly as possible after the award is made to lowest evaluated technically acceptable bidder.

The bid security of the successful bidder will be returned when the bidder has signed the contract agreement, and has furnished the required performance security.

Please note that:

(i) All PSUs and Govt. Department may be exempted from Tender Document Fee and EMD for all Tenders of EESL.
(ii) Vendors registered with NSIC under single point registration scheme certificate may be given exemption from EMD & Tender Document fee for all tenders of EESL subject to following conditions:

(a) NSIC Certificate must be valid for 3 months from the date of Bid-Opening,
(b) Monetary Limit of Annual Turnover in NSIC certificate should be Greater than or equal to the Annual Turnover required for that particular project.
(c) The supply item for which the tendering is done should be mentioned in the list of items attached with NSIC certificate.

The bid security may be forfeited if:

a) If the bidder withdraws its bid during the period of bid validity as specified in the bid.
b) If the bidder does not accept computational/arithmetical error correction made by EESL and as explained in "Financial Evaluation" section of the Bid/ RfP document.
c) If the bidder does not accept assumptions, estimations etc. used for evaluation of bids as specified by EESL in tender documents and revision of his bid accordingly, in case other assumptions are used. If the bidder does not accept the sharing as specified in the bid.
d) If the Bidder refuses to withdraw, without any cost to the EESL, any deviation not listed in Attachment 5 but found elsewhere in the bid; or
e) In the case of successful bidder, if the bidder fails within the specified time limit:
   - To sign the contract agreement within 15 days of placement of LoI/Award letter.
   - To furnish the required performance guarantee, in accordance with the tender document.

2.5 Power of Attorney

Power of Attorney as attachment 3 in first envelope: A power of attorney duly authorized by a notary public, indicating that the person(s) signing the bid has/have the authority to sign the bid and thus the bid is binding upon the bidder during the full period of its validity in accordance with ITB clause 2.10.

2.6 Certificate Regarding Acceptance of Important Conditions

Certificate Regarding Acceptance of Important Conditions as attachment 4 is to be submitted in first envelope.

No deviation, other than mentioned in Deviation statement, is permitted by the EESL, to the provisions of the bidding documents listed in ITB sub-clause 4.6. The Bidders are advised that while making their bid proposals and quoting prices, these conditions may appropriately be taken into consideration. Bidders are required to furnish a certificate indicating their compliance to the provisions relating to the clauses listed in ITB sub-clause 4.6 in Attachment 4. Attachment 4 for acceptance of important conditions duly signed and stamped by the bidder is to be furnished in a separate sealed

first envelope/Online. Any bid not accompanied by such certificate in a separate sealed first envelope/such certificate Online shall be rejected by the EESL and returned to the Bidder without being opened.

2.7 Deviations,

Deviations, if any, from the terms and conditions of bidding documents or technical specifications shall be listed only in Attachment 5 to the bid. The Bidder shall also provide the additional price, if any, for withdrawal of the deviations. However, the attention of the bidders is drawn to the provisions of ITB sub-clause 4.6 regarding the rejection of bids that are not substantially responsive to the requirements of the bidding documents.

Bidders may further note that except for the deviations listed in Attachment 5, the bid shall be deemed to comply with all the requirement in the bidding documents and the bidders shall be required to comply with all such requirements of bidding documents and technical specifications without any extra cost to the EESL irrespective of any mention to the contrary, anywhere else in the bid, failing which the bid security of the bidder may be forfeited.

At the time of award of contract, if so desired by the EESL, the bidder shall withdraw these deviations listed in Attachment-5 at the cost of withdrawal stated by him in his bid. In case the bidder does not withdraw the deviations proposed by him, if any, at the cost of withdrawal stated in the bid, his bid will be rejected and bid security forfeited.

2.8 Bid prices

Unless otherwise specified in the technical specifications, bidders shall quote for the entire facilities on a “single responsibility” basis such that the total bid price covers all the contractor’s obligations mentioned in or to be reasonably inferred from the bidding documents in respect of the design, manufacture, including procurement and subcontracting (if any), delivery, construction, installation, survey cost, monitoring and verification cost and completion of the facilities including supply of mandatory spares or spares to be supplied during warranty (if any). This includes all requirements under the contractor’s responsibilities for testing, pre -commissioning and commissioning of the facilities and, where so required by the bidding documents, 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 bidding documents, all in accordance with the requirements of the General Conditions of Contract and Technical Specification.

Bidders are required to quote the price for the commercial, contractual and technical obligations outlined in the bidding documents. If a Bidder wishes to make a deviation to the provisions of the bidding documents, such deviations shall be listed in Attachment 5 of its bid. The bidder shall also provide the additional price, if any, for withdrawal of the deviations, pursuant to ITB sub-clause 2.7.

Bidders shall give a breakdown of the prices in the manner and detail called for in the price schedules.

2.9 Price Basis

Price basis of the price quoted shall be on F.O.R (Free on Road) destination basis for site. Price mentioned in the quotation must be firm. Hence prices in Letter of Award shall be firm and not subject to escalation till the execution of the complete order and its subsequent amendments accepted by the bidder even though the completion / execution of the order may take longer time than the delivery period specified and accepted in the Letter of Award.

Statutory variation in applicable taxes & duties (other than excise duty) shall only be on account of Employer in case bidder has shown the rates of present taxes in their bid and other prices quoted by the Bidder shall be fixed during the Bidder’s performance of the Contract and not subject to variation on any account. Even in case prices asked in Bid price Schedule are quoted as inclusive of taxes , tax rates shall be shown separately. Bidders shall quote all prices in Indian Rupees only.

2.10 Period of Validity of Bid

Bids shall remain valid for a period of 90 days after the closing date prescribed by the EESL for the receipt of bids. A bid valid for a shorter period may be rejected by the EESL as being non responsive.

In exceptional circumstances, the EESL may solicit the bidder's consent to an extension of the bid validity period. The request and response thereto shall be made in writing thro' letters/ e-mails .If the bidder accepts to prolong the period of validity, the bid security/EMD shall also be suitably extended. A bidder may refuse the request for Bid Validity Extension without forfeiting its bid security. A bidder granting the request will not be required nor permitted to modify its bid.

2.11 Format and Signing of Bid

The original copy of the bid, consisting of the documents listed in ITB sub-clause 1.1 shall be typed or written in indelible ink and shall be signed by the bidder or a person or persons duly authorized to bind the bidder to the contract. The authorization shall be indicated by written power of attorney accompanying the bid and submitted as Attachment 3 to the bid under ITB sub-clause 2.5. All pages of the bid, except for un-amended printed literature, shall be initialed by the person or persons signing the bid.

Any interlineations, erasures or overwriting shall only be valid if they are initialed by the signatory to the bid.

2.12 Contents of the RfP/Bid

The Bidder or consortium of bidders is expected to examine all instructions, forms, terms & conditions and scope of work in the RfP/bid documents. Failure to furnish all information required or submission of an RfP/bid document not substantially responsive to the RfP/bid document in every respect will be at the bidder's risk and may result in the rejection of the RfP/bid.

2.13 Conflict of Interest

EESL's policy requires that a bidder participating in a procurement/contract process under EESL financed projects shall not have a conflict of interest. All bidders found to have a conflict of interest shall be ineligible for award of contract.

A. Bidder may be considered to have a conflict of interest in a bidding process if:

a) it, or any of its affiliates, has been engaged by EESL to provide consulting services for the preparation or implementation of a project, and participates in a bidding to provide goods, works, or non-consulting services resulting from or directly related to such consulting services. Or

b) it submits more than one bid in a bidding process, either individually or as a partner in a joint venture, except for permitted alternative bids. This will result in the disqualification of all bids in which the bidder is involved. However, this does not limit the inclusion of a firm as a subcontractor in more than one bid and the participation of a bidder as a subcontractor in another bid in certain types of procurement/contract, if permitted by the EESL's bidding documents; or

c) it (including its personnel or sub-contractors) has a business or family relationship with a member of a EESL's staff (or of the project implementing staff, or of a recipient of a part of the loan) who: are directly or indirectly involved in the preparation of the bidding documents or specifications of the contract, and/or the bid evaluation process of such contract; or would be involved in the implementation or supervision of such contract unless the authority inviting tenders shall be informed of the fact/ such relationship at the time of submission of the tender and the conflict stemming from such relationship has been resolved in a manner acceptable to the EESL throughout the procurement process and execution of the contract. EESL may in its discretion reject the tender or rescind the contract.; or

d) it does not comply with any other conditions that may be specified in the Company's Standard Bidding Documents relevant to the specific procurement process.

2.14 Disclaimer

EESL and/or its officers, employees disclaim all liability from any loss or damage, whether foreseeable or not, suffered by any person acting on or refraining from acting because of any information including statements, information, forecasts, estimates or projections contained in this document or conduct ancillary to it whether or not the loss or damage arises in connection with any omission, negligence, default, lack of care or misrepresentation on the part of EESL and/or any of its officers, employees.

2.15 Authorized Signatory (Bidder or Consortium of bidders)

The bidder or consortium of bidders as used in the RfP/ bid document shall mean the one who has signed the bid/RfP document forms. The bidder or consortium of bidders should be the duly authorized representative of the bidder/consortium of bidders, for which a certificate of authority/power of attorney will be submitted along with the offer. This should clearly define the authority provided to the authorized representative. Complete offer, all certificates and documents (including reply to any clarifications sought and any subsequent correspondences) shall be furnished and signed on all pages by the authorized representative.
The power of attorney or authorization, or any other document consisting of adequate proof of the ability of the signatory to bind the bidder or consortium of bidders shall be annexed to the bid as attachment 3 in envelope 1. EESL may reject outright any proposal not supported by adequate proof of the signatory's authority.

2.16 Consortium related conditions

The bidder shall have the option to submit the proposal either alone or along with other partner companies. Prerequisites for bidder have been specified in qualifying requirement and other parts of the tender document. The lead partner shall be the sole point of contact for all purposes of the Contract. The lead partner will have the prime and sole responsibility for the execution of the scope of work. Any information/clarification submitted to the lead partner by EESL will mean that the same has been conveyed to all partners. However, the partner companies should not be involved in any major litigation that may have an impact of affecting or compromising the delivery of services as required under this contract. The bidder or any of the partner companies should not have been black-listed by any Central / State Government or Public Sector Undertakings. If at any stage of tendering process or during the currency of the contract, any suppression / falsification of such information is brought to the knowledge, EESL shall have the right to reject the proposal or terminate the contract, as the case may be, without any compensation to the tenderer & forfeiture of bid security/EMD/CPG.

2.17 Contact details of the Bidder or Consortium of bidders

Bidder or Consortium of bidders who wants to receive EESL's response to queries should give their contact details to EESL. The Bidder or Consortium of bidders should send their contact details in writing at the EESL's contact address.

2.18 Inspection / Checking / Testing

All materials / equipments manufactured by the bidder/consortium of bidders against the Letter of Award shall be subject to inspection, check and/or test by the EESL or his authorized representative at all stages and place, before, during and after the manufacture. All these tests shall be carried out in the as per technical specifications and bidder shall submit the relevant test reports. If upon delivery the material / equipment does not meet the specification, the materials / equipment shall be rejected and returned to the bidder for repairs / modification etc. or for replacement. In such cases all expenses including the to-and-fro freight, repacking charges, any other costs etc. shall be to the account of the bidder.

2.19 Removal of Rejected Goods and Replacement

If upon delivery, whether inspected and approved earlier or otherwise, the material/equipment is not in conformity with the specification, the same shall be rejected by EESL or duly authorized representative and notification to this effect will be issued to the bidder normally within 7 days from the date of receipt of the material at the work/site/office.

The bidder shall arrange removal of the rejected items within 15 days from the date of notification. In the event, the bidder fails to lift the materials within the said 15 days, EESL shall be at liberty to dispose off such rejected items in any manner as it may deemed fit. All expenses incurred on storage, disposal etc. shall be recoverable from the bidder.

2.20 Access to Bidders Premises

EESL and/or its authorized representative shall be provided access to bidder and/or his sub- bidder's premises, at any time during the pendency of the Order, for expediting, inspection, checking, etc. of work, if it is felt by EESL.

2.21 Taxes, Levies and Duties

Prices of items shall be quoted as per instruction contained in SCC. However, in general, prices shall be inclusive of sales tax, transportation, insurance, levies , service tax and any other duties payable including entry tax/octroy etc, (wherever applicable) on FOR destination/site basis. All taxes and duties shall be clearly indicated. Bidder is to arrange on its own to deliver the material at site. No road permit is provided by EESL.
For hiring of consultant/consultancy work also service tax shall be quoted exclusive of basic price. However, rates of such taxes consider while preparing the offer should invariably be mention in the offer so that any variation in taxes (except excise duty) can be paid as actual.

2.22 Terms of Payment

The payment will be made by EESL to the bidder in accordance with the terms and conditions specified in section 4 of special conditions of contract of tender document/agreed upon during negotiation and reproduced in Letter of Award.

2.23 Delivery Schedule

Time will be the essence of order and no variation shall be permitted in the delivery time/delivery schedule mentioned in the order unless agreed by EESL without levy of LD. Tentative time schedule is enclosed in the RfP/ bid document. Delivery of the equipment/material described shall be deemed to constitute acceptance of this order and terms and conditions by the bidder at the price specified.

2.24 Source of Supply

The bidder shall ensure that the indigenous capacity is utilized to the fullest extent possible in execution of this order. Where the imports are unavoidable, all such items shall be imported by the bidder in time against his own import license without affecting the contractual delivery schedule.

2.25 Patent Indemnity

Royalties and fees for patents covering material/equipment or processes used in executing the work shall be to the account of the bidder. The bidder shall satisfy all demands that may be made at any time for such royalties and fees and he alone shall be liable for damages, infringement and shall keep EESL indemnified in that regard in the event of any equipment/ material or part there of supplied by the bidder is involved in any suit or other proceedings held to constitute infringement and its used is enjoyed, the bidder shall, at his own expenses, either procure for EESL the right to continue the use of such equipment/material replace it with a non-infringing material / equipment or modify it so it become non- infringing.

Tenderer shall agree to indemnify the EESL or/and hold it/them harmless from against all claims, liability, loss, damage or expense including counsel fees arising from or by reasons of an action or claimed trade mark patent or copyright infringement or any litigation based thereon with respect to any part of the quoted items and such obligation shall survive acceptance of and payment for the items.

2.26. Force Majeure

Bidder shall not be considered in default if delay in delivery occurs due to causes beyond his control such as acts of God, natural calamities, civil wars, strikes, fire, frost, floods, riot. Only those causes which have duration of more than 7 days shall be considered cause of force/ calendar majeure. A notification to this effect duly certified by local chamber of commerce/ statutory authorities shall be given by the bidder to EESL by registered/speed post letter. In the event of delay due to such causes, the delivery schedule will be extended for a length of time equal to the period of force majeure or at the option of EESL, the order may be cancelled. Such cancellation, would be without any liability

whatsoever on the part of EESL. In the event of such cancellation, the bidder shall refund any amount advanced or paid to the bidder by EESL and deliver back any materials issued to him by the Purchaser and release facilities, if any provided by the Purchaser.

2.27 Limitation of Liability

Except in cases of criminal negligence or willful misconduct, the Implementing Partner shall not be liable to the EESL, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits orinterest costs, provided that this exclusion shall not apply to any obligation of the Implementing Partner to pay liquidated damages to the EESL andthe aggregate liability of the Implementing Partner to the EESL, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to any obligation of the Implementing Partner to indemnify the EESL with respect to patent infringement or as specified in SCC.

C. Submission of Bids

3.1 Sealing and Marking of Bids

The Bidder shall seal the original copy of the bid in envelope duly marking the envelopes as "ORIGINAL BID". All envelopes must be super-scribed with name of work, RfP No., envelope no., content of envelope and date and bid opening date. The envelopes shall then the sealed in an outer envelope which should also be super scribed with name of work, RfP/ bid document no./package no. and date and bid opening date.

3.2 Deadline for submission of bids

Bids must be received by the EESL at the address specified as under and the bids will be opened at the same address as per timings stated in IFB and as repeated below.
General Manager (Contracts & BD),
Energy Efficiency Services Limited,
C/o Projects & Development India Ltd.,
PDIL Bhawan, 1st Floor, A-14, Sector-1,
NOIDA-201 301, Distt. Gautam Budh Nagar, U.P.
Phone: 0120- 4908000
Fax: 011-4908049
Email: rana@eesl.co.in / ksaurabh@eesl.co.in

Date of submission of bids: As mentioned in Section I
Date of bid opening: As mentioned in Section I
Bids must be received at the address specified above but no later than the time and date stated as above. In the event of the specified date for submission of bids being declared a holiday for the EESL, the bids will be received up to the appointed time on the next working day.

The EESL may, at its discretion, extend this deadline for submission of bids by amending the bidding documents in accordance with ITB Sub-Clause 1.3, in which case all rights and obligations of EESL and bidders will thereafter be subject to the deadline as extended.

No bid may be withdrawn in the interval between the bid submission deadline and the expiration of the bid validity period specified in ITB Clause 2.10. Withdrawal of a bid during this interval may result in the bidder's forfeiture of its bid security, pursuant to ITB Sub-Clause 2.4.

3.3 Late Bids:

Any bid received by the EESL after the bid submission deadline prescribed by the EESL, pursuant to ITB Clause 3.1& 3.2, will be rejected and returned in unopened condition.

D Bid Opening and Evaluation

4.1 Bid Opening Process

The EESL will open all bids in the presence of bidders' representatives who choose to attend the opening at the time, on the date and at the place specified in the NIT. Bidders' representatives shall

sign a format as proof of their attendance. In the event of the specified date for the opening of bids being declared a holiday for the EESL, the bids will be opened at the appointed time on the next working day.

Bidders' names, bid prices, discounts, the presence or absence of requisite bid security and other such details as the EESL, at its discretion, may consider appropriate, will be announced at the opening. Late bids pursuant to ITB clause 3.2, and/or bids not accompanied by the "Certificate regarding acceptance of important conditions" as per Attachment-4 in a separate sealed envelope pursuant to ITB sub-clause 2.6, and/or bids not accompanied by requisite bid security in a separate sealed envelope pursuant to ITB clause 2.4, will be rejected and returned unopened to the bidder.

Bids that are not opened and read out at bid opening will not be considered for further evaluation, regardless of the circumstances.

The EESL will prepare minutes of the bid opening.

4.2Clarification on Bids

During bid evaluation, the EESL may, at its discretion, ask the bidder for a clarification of its bid. The request for clarification and the response shall be in writing, and no change in the price or substance of the bid shall be sought, offered or permitted. The address for communication will be same as ITB clause 1.2.

4.3 Preliminary Examination of Bids.

The EESL will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

4.4Arithmetical errors rectification process

Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price, which is obtained by multiplying the unit price and quantity, or between sub totals and the total price, the unit or subtotal price shall prevail, and the total price shall be corrected. If there is a discrepancy between words and figures, the amount in words will prevail. If the Bidder does not accept the correction of errors, its bid will be rejected and the bid security will be forfeited in accordance with ITB Sub-Clause 2.4.

The EESL may waive any minor informality, nonconformity or irregularity in a bid that does not constitute a material deviation, whether or not identified by the bidder in Attachment 4 to its bid, and that does not prejudice or affect the relative ranking of any bidder as a result of the technical and commercial evaluation, pursuant to ITB clauses 4.7 and 4.8.

4.5 Preliminary Evaluation

Prior to the detailed evaluation, the EESL will determine whether each bid is of acceptable quality, is generally complete and is substantially responsive to the bidding documents. For purposes of this determination, a substantially responsive bid is one that conforms to all the terms, conditions and specifications of the bidding documents without material deviations, objections, conditionality's or reservations. A material deviation, objection, conditionality or reservation is one (i) that affects in any substantial way the scope, quality or performance of the contract; (ii) that limits in any substantial way, inconsistent with the bidding documents, the EESL's rights or the successful bidder's obligations under the contract; or (iii) whose rectification would unfairly affect the competitive position of other bidders who are presenting substantially responsive bids.

4.6 Acceptance of Important Condition

No deviation, whatsoever, is permitted by the EESL to the provisions relating to the following clauses (Important Conditions). Party is to submit the following as attachment 4 in envelope 1:

Governing Laws - Clause 7 of ITB

Settlement of Disputes	-	Clause 17 of ITB
Terms of payment	-	Clause 2.0 of SCC
Performance Security	-	Clause 5.9 of ITB
Taxes and Duties	-	Clause 8 of ITB
Completion Time Guarantee	-	Clause 9 of ITB
Defects Liability	-	Clause 10 of ITB
Functional Guarantee	-	Clause 11 of ITB
Patent Indemnity	-	Clause 2.25 of ITB
Limitations of Liability	-	Clause 2.27 of ITB
Project information, Estimation, Assumptions and conditions for Evaluation	-	As per Tables in price bid

Bidders are required to furnish a certificate as per Attachment 4, indicating their compliance to the provisions of the above clauses in a separate sealed envelope. In case the certificate as per Attachment-4 duly signed and stamped by the bidder, is not furnished along with the bid in a separate sealed envelope, the bid shall be rejected and returned to the bidder without being opened

At the time of award of contract, if so desired by the EESL the bidder shall withdraw the deviations listed in attachment 5 at the cost of withdrawal stated by him, in his bid. In case the bidder does not withdraw the deviations proposed by him in attachment 5 to his bid, if any; at the cost of withdrawal stated in his bid, his bid will be rejected and security will be forfeited.

The EESL's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence. If a bid is not substantially responsive, it will be rejected by the EESL, and may not subsequently be made responsive by the bidder by correction of the nonconformity.

4.7 Technical Evaluation

The EESL will carry out a detailed evaluation of the bids previously determined to be substantially responsive in order to determine whether the technical aspects are in accordance with the requirements set forth in the bidding documents. In order to reach such a determination, the EESL will examine and compare the technical aspects of the bids on the basis of the information supplied by the bidders, taking into account the following factors:

a) Overall completeness and compliance with the technical specifications and drawings; deviations from the technical specifications as identified in Attachment 5 to the bid; suitability of the facilities offered in relation to the environmental and climatic conditions prevailing at the site; and quality, function and operation of any process control concept included in the bid. The bid that does not meet minimum acceptable standards of completeness, consistency and detail will be rejected for non- responsiveness.

b) Achievement of specified performance criteria by the facilities as per scope of work

c) Type, quantity and long-term availability warranty spare parts and also mandatory and recommended spare parts and maintenance services

d) Any other relevant factors, if any, listed in the tender document, or that the EESL deems necessary or prudent to take into consideration.

4.8 Commercial Evaluation

The comparison shall be of the FOR site price of domestically manufactured plant and equipment including type test charges, if any and mandatory spares, warranty spares plus applicable sales tax & duties as well duties and taxes paid/payable on components and raw materials incorporated or to be incorporated in the plant and equipment including mandatory spares/warranty spares plus the cost of loading, unloading, local transportation, insurance covers, installation and commissioning, civil work other services required under the contract including service tax and surcharge, if any plus any survey cost, monitoring and verification cost, distribution cost, scrap disposal cost, annual maintenance cost, any services as per scope of work, administrative charges and statuary agencies cost including service tax and surcharge, if any. The EESL's comparison will also include the costs resulting from application of the evaluation procedures described in ITB sub-clause 4.9. However, the price of recommended spare parts or optional spares or services, if asked in the bid, shall not be considered for evaluation of bids.

The EESL's evaluation of a bid will take into account, in addition to the bid prices indicated in price schedules in section 4 along with the corrections pursuant to ITB sub-clause 4.3, the following costs and factors that will be added to each bidder's bid price in the evaluation using pricing information available to the EESL, in the manner and to the extent indicated in ITB sub-clause 4.9 and in the technical specifications:

a) The cost of all quantifiable deviations and omissions from the contractual and commercial conditions and the technical specifications as identified in Attachment 5 to the Bid.

b) Compliance with the time schedule called for and evidenced as needed in a milestone schedule provided in the bid.

c) The functional guarantees of the facilities offered as per scope of work.

d) The extra cost of work, services, facilities etc, required to be provided by the EESL of third parties.

4.9 Evaluations of Deviations:

Pursuant to ITB Sub-Clause 4.8, the following evaluation methods will be followed:

a) Technical and Commercial Deviations

The evaluation shall be based on the evaluated cost of fulfilling the contract in compliance with all commercial, contractual and technical obligations under this bidding document. In arriving at the evaluated cost, the price for withdrawal of deviations shown in Attachment 5 to the bid will be used if necessary. If such a price is not given in Attachment-5, the EESL will make its own assessment of the cost of such a deviation for the purpose of ensuring fair comparison of bids.

b) Time schedule (program of performance)

The plant and equipment covered by this bidding are required to be transported/ shipped and installed, and the facilities are to be completed within the period as mentioned below.

Completion of all facilities/work: As per year/months in SSC.

The above date will be the effective date specified in the contract agreement. Bidders are required to base their prices on the time schedule or, where no time schedule is given, on the completion date(s) given above. No credit will be given for earlier completion.

The master network and the key milestone dates will be discussed with the successful bidder and agreed upon in pre-award discussion before issuance of Letter of Award. Engineering drawing and data submission schedule shall also be discussed and finalized before the issuance of Letter of Award.

After the Letter of Award, the contractor shall plan the sequence of work manufacture, supply, installation to meet the above stated dates of successful completion of facilities and shall ensure all work, manufacture, shop testing, inspection and shipment of the equipment in accordance with the required sequence.

c) Functional Guarantees of the facilities

Bidders shall state the functional guarantees (e.g. performance, efficiency, consumption) of the proposed facilities in response to the technical specifications. In case a minimum (or a maximum, as the case may be) level of functional guarantees is specified in the technical specifications for the bids to be considered responsive, bids offering plant and equipment with such functional guarantees less (or more) than the minimum (or maximum) specified shall be rejected.

d) Work, services, facilities etc., to be provided by the EESL

Where bids include the undertaking of work or the provision of services or facilities by the EESL in excess of the provisions allowed for in the bidding documents, the EESL shall assess the costs of such additional work, services and/or facilities during the duration of the contract. Such costs shall be added to the bid price for evaluation.

4.10 Illustrative Method of Evaluation

	Any Bidder(INR)
1 Quoted bid price without taxes and duties (After considering airthmatical errors)	
i) Ex works including Excise duty price including Type test Charges/Lab Test charges + inland transportation including inland Transit insurance etc. For equipment and spares	N1
ii) Prices for dismanting and/or installation	N2
iii) Prices for additional Warranty, if any	N3
iv) Total Price	N(N1+N2+N3)
2. Taxes and Duties	
i) CST/VAT	T1
ii) Service Tax	T2
iii) Total	T(T1+T2)
3. Cost Compensation	
i) Technical Cost Compensation	TCC
ii) Commercial Cost Compensation	CCC
iii) Total	TCC+CCC
4. Adjustments for Functional Guarantees	X
5. Final Evaluated Bid Price	N+T+TCC+CCC+X

4.11 Contacting the Employer

Subject to ITB Clause 20, no Bidder shall contact the Employer on any matter relating to its bid, from the time of the opening of bids to the time the contract is awarded.

Information relating to the examination, evaluation and comparison of bids and recommendations for the award of contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful bidder has been announced. Any effort by a Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decisions may result in rejection of the Bidder's bid.

E Award of Contract

5.1 Post qualification

In the absence of pre-qualification, the EESL will determine to its satisfaction whether the bidder selected as having submitted the lowest evaluated responsive bid/or bidder giving highest return to EESL, as the case may be, as mentioned in special condition of contract is qualified to satisfactorily perform the contract in terms of the qualifying requirements stipulated in IFB/NIT and section 3.

The determination will take into account the bidder's financial, technical and production capabilities, in particular its contract, work in hand, future commitments and current litigation. It will be based upon an examination of the documentary evidence of the bidder's qualifications submitted by the bidder in RfP forms in section IV to the bid, as well as such other information as the EESL deems necessary and appropriate.

An affirmative determination will be a prerequisite for award of the contract to the bidder. A negative determination will result in rejection of the bidder's bid, in which event the EESL will proceed to the next lowest evaluated bid/next bid giving highest return to EESL to make a similar determination of that bidder's capabilities to perform satisfactorily.

The capabilities of the vendors and subcontractors proposed in section 3, if permitted, to the bid to be used by the lowest evaluated bidder or bidder giving highest return to EESL as per SCC will also be evaluated for acceptability. Their participation should be confirmed with a letter of intent between the parties, as needed. Should a vendor or subcontractor be determined to be unacceptable, the bid will not be rejected, but the Bidder will be required to substitute an acceptable vendor or subcontractor without any change to the bid price.

The Employer reserves the right to assess the capacity and capability of the bidder/ his collaborator to satisfactory execute the contract. Such assessment shall include but not be limited to the evaluation of adequacy of facilities, services, resources, design / engineering capability and financial capability

5.2 Award criteria

Subject to ITB Clause 5.5, the EESL will award the contract to the successful Bidder whose bid has been determined to be substantially responsive and to be the lowest evaluated technically acceptable bid or bid offering highest return to EESL as the case may be as per tender documents and special conditions of contract, further provided that the Bidder is determined to be qualified to perform the contract satisfactorily

Except for the deviations listed in Attachment-5, the bidder would be required to comply with all the requirements of bidding documents without any extra cost to EESL failing which his bid security will be forfeited. Further, the EESL may request the bidder to withdraw any or all of the deviations listed in Attachment – 5 to the winning bid, at the price shown for the deviation in Attachment 5 to the bid. In case the bidder does not withdraw the deviations proposed by him, if any, at the cost of withdrawal stated in the bid, his bid will be rejected and bid security forfeited.

The mode of contracting with the Successful Bidder will be as per stipulation briefly indicated below:

(i) First Contract: For supply of plant and equipment.

(ii) Second Contract: For providing all services i.e. inland transportation for delivery at site, inland transit insurance, unloading, storage, handling at site, installation (including civil. Structural steel work & allied work, if applicable) insurance covers other than inland transit insurance, erection, testing &commissioning, conducting Guarantee tests in respect of all the Goods supplied under the 'First Contract' and all other

(iii) Services as specified in the Contract Documents.

The above Contracts will contain a cross-fall breach clause specifying that breach of one Contract will constitute breach of the other Contract which will confer a right on the Employer to terminate the other Contract also at the risk and the cost of the Contractor

5.3 Quantity Variation

The EESL reserves the right to vary the quantity of any of the spares and maintenance equipment upto +/- 20% and/or delete any items of spares altogether at the time of Award of Contract.

Successful bidder, on whom award is made, is to supply this quantity variation at same price and terms and conditions of contract.

5.4 Additions / Alterations / Modifications

EESL reserves the right to make minor additions/alterations/modifications to the quantity of the items to the extent of +/- 20% in the Letter of Award. The bidder shall supply such quantities also at the same rate as originally agreed to and incorporated in the Letter of Award. However EESL may increase this quantity, if required.

5.5 EESL's right to accept any bid and to reject any or all bids

The EESL reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of contract, without thereby assigning any reason thereof and incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the EESL's action.

5.6 Letter of Intent / Letter of Award

Prior to the expiration of the period of bid validity, the EESL will notify the successful bidder in writing by issuing Letter of Intent or Letter of Award either through telefax/ scanned e-mail or though registered/speed post/couriered letter, that its bid has been accepted. The letter of award will constitute the formation of the contract. In case, bidder does not return the duplicate copy of LOA with duly signed and acceptance within 10 days, then the LOA will be deemed to be accepted by the successful bidder, on whom award is made.

The bidder shall return duplicate copy of the LoI/LoA/contract and the other enclosed documents duly signed as a token of acceptance, within 15 days from the date of receipt of this order. Bidder is to make two original copies of contract containing Contract agreement at top, and then Letter of award, techno commercial offer, copy of price bid and copy of all tender documents are to be placed. Three more copies of the contract to be submitted by the bidder in addition to two original at bidder's own cost. Total five copies of contract including two originals copies are to be submitted. This is to be done on instructions of Contract deptt.

Upon the successful bidder's furnishing of the performance security pursuant to ITB Clause 5.9, the EESL will promptly notify each unsuccessful bidder and will discharge its bid security.

5.7 Cancellation

EESL reserves the rights to cancel the order in the part or in full by giving one week advance notice thereby if-

- The bidder fails to comply with any of the terms of the order.
- The bidder becomes bankrupt or goes in to liquidation.
- The bidder makes general assignment for the benefit of the creditors and any receiver is appointed for the property owned by the bidder.

5.8 Modifications

This order constitutes an entire agreement between the parties hereto. Any modifications to this Order shall become binding only upon the same being confirmed in writing duly signed by both the parties.

Signing the Contract Agreement

At the same time as the EESL notifies the successful Bidder that its bid has been accepted, the EESL will send the bidder the contract agreement provided in the bidding documents, incorporating all agreements between the parties.

Within twenty-one (21) days of receipt of the contract agreement, the successful bidder shall sign and date the contract agreement and return it to the EESL. Contract agreement will contain agreement on stamp paper, bid documents and bidder's offer etc.

5.9 Performance security

Within twenty-eight (28) days after receipt of the letter of award, the successful bidder shall furnish the performance security for ten percent (10%) of the contract price or as specified in tender documents and in the form provided in the section "Forms and Procedures" of the bidding documents or in another form acceptable to the EESL.

In case Joint Deed(s) of Undertaking by the Contractor along with his associate(s)/collaborator(s) form part of the Contract, then, unconditional Bank Guarantee(s) from such associate(s)/collaborator(s) for amount(s) specified in Bid

Failure of the successful Bidder to comply with the requirements of ITB Clause 5.7 or Clause 5.8 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security, in which event the EESL may make the award to the next lowest evaluated bidder or call for new bids.

5.10 Corrupt or Fraudulent practices:

The EESL requires that bidders observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the EESL: defines, for the purposes of this provision, the terms set forth below as follows:
a. i) "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution ; and

ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the EESL, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the EESL of the benefits of free and open competition;

b) will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

c) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract of the EESL.

5.11 Ineligibility for Future Tenders

Notwithstanding the provisions specified in ITB sub clause 2.4 and ITB sub clause 5.7 and 5.8, if a bidder after having been issued and letter of award, either does not sign the contract agreement pursuant to ITB clause 5.7 or does not submit a acceptable performance security pursuant to ITB clause 5.9, such bidder may be considered ineligible for participating in future tenders of EESL for a period as may be decided by the EESL.

Successful bidder is to submit interchangeability certificate for its product supplied for replacement during warranty and maintenance period and even when it is purchased from open market. In case due to change in technology , the supplied product is not available during warranty/ maintenance period than the improved version of product can be used in warranty/ maintenance period with same or improved technical parameters or the combination thereof after written communication of Engineer in Charge at same cost& terms and conditions. Successful Bidder, on whom letter of award has been placed, has also to confirm that the prices of improved version of product is not lesser than the original product or its parts in comparison.

Note: Special Terms and Conditions will prevail upon the instruction to Bidders.

6.0 Liquidated Damages

In case of any delay in the execution of the order beyond the stipulated time schedule including any extension permitted in writing, EESL reserves the right to recover from the bidder a sum equivalent to 0.5% of the value of the delayed equipment installation/unexecuted portion of work for each week of delay and part thereof subject to a maximum of 5% of the total value of the contract.

Alternatively, EESL reserves the right to purchase and distribute equipment/ material from elsewhere at the sole risk at the cost of successful bidder/contractor and recover all such extra cost incurred by EESL in procuring the material from resources available including EMD/Bid Security/encashment of Bank Guarantee or any other sources etc. Further, if any extra cost is incurred by EESL due to delay in work completion by the party beyond the completion time as per P.O./L.O.A., the same shall also be recovered from party's invoice/EMD/BGs etc .

Alternatively, EESL may cancel the order completely or partly without prejudice to his right under the alternatives mentioned above.

7.0 Governing Law

The Contract shall be governed by and interpreted in accordance with laws in force in India. The Courts of Delhi shall have exclusive jurisdiction in all matters arising under the Contract.

8.0 Tax and Duties

8.1 Except as otherwise specifically provided in the Contract, the Implementing Partner shall bear and pay all taxes, duties, levies and charges assessed on the Implementing Partner, its Sub Implementing Partners 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.

8.2 Notwithstanding above Sub-Clause 8.1 above, the EESL shall bear and promptly reimburse all customs and import duties, if imposed in future, on the Plant and Equipment including Type Test and mandatory spares supplied from abroad and specified in Price Schedule (and on spare parts to be supplied from abroad and specified in Schedule, when awarded) and that are to be incorporated into the Facilities, by the law of the country where the Site is located. However, if the plant and equipment are shipped in Shipper's containers, then the custom duty levied on the cost of empty containers shall be borne and paid/ reimbursed by the Implementing Partner. The EESL shall also bear and pay/ reimburse to the Implementing Partner/Assignee of Foreign Implementing Partner (if applicable) Sales Tax (but not the surcharge in lieu of Sales Tax), Local Tax including Entry Tax / Octroi (if applicable) in respect of direct transactions between the EESL and the Implementing Partner, if imposed on the Plant and Equipment including Type Test and Mandatory Spares manufactured within the EESL's country and specified in Price (and also on locally supplied spares quoted when awarded) to be incorporated in the Facilities, by the law of country where the site is located. For this purpose, the Ex-works price if quoted in foreign currency and so incorporated in the contract, shall be converted to Indian Rupees as per the TT buying exchange rates established by State Bank of India prevailing on the actual date of Ex-works (India) dispatch.

All taxes, duties and levies on works contract, if any, shall be to the Implementing Partner's account and no separate claim in this regard will be entertained by the EESL.

8.3 If any tax exemptions, reductions, allowances or privileges is available to the Implementing Partner in the country where the Site is located, the EESL shall use its best endeavors to enable the Implementing Partner to benefit from any such tax savings to the maximum allowable extent.

8.4 For the purpose of the Contract, it is agreed that the Contract Price specified in Contract Price and Terms of Payment of the Contract Agreement is based on the taxes, duties, levies and charges prevailing at the date seven (7) days prior to the last date of bid submission in the country where the Site is located (hereinafter called "Tax" in this Sub-Clause 8.4). If any rates of Tax are increased or de-creased, a new Tax is introduced, an existing Tax is abolished, or any change in interpretation or application of any Tax occurs in the course of the performance of Contract, which was or will be assessed on the Implementing Partner in connection with performance of the Contract, an equitable adjustment of the Contract Price shall be made to fully take into account any such change by addition to the Contract Price or deduction there-from. However, these adjustments would be restricted to direct transactions between the EESL and the Contractor/assignee of Foreign Implementing Partner (if applicable). These adjustments shall not be applicable on procurement of raw materials, intermediary components etc. by the Implementing Partner/assignee and also not applicable on the bought out items dispatched directly from sub-vendor's works to site.

9.0 Completion Time Guarantee:

9.1 If the Successful bidder, on whom award is made/Implementing Partner/Consultant fails to attain Completion of the Facilities or any part thereof within the Time for Completion or any extension thereof under ITB Clause 2.23, the Successful bidder, on whom award is made/Implementing Partner/Consultant shall pay to the EESL liquidated damages in the amount computed at the rates specified in the SCC. The aggregate amount of such liquidated damages shall in no event exceed the amount specified as "Maximum" in the SCC. Once the "Maximum" is reached, the EESL may consider termination of the Contract.

Such payment shall completely satisfy the Successful bidder, on whom award is made/Implementing Partner/Consultant obligation to attain Completion of the Facilities or the relevant part thereof within the Time for Completion or any extension thereof under ITB Clause 2.23. The Implementing Partner shall have no further liability whatsoever to the EESL in respect thereof.

However, the payment of liquidated damages shall not in any way relieve the Successful bidder, on whom award is made/Implementing Partner/Consultant from any of its obligations to complete the Facilities or from any other obligations and liabilities of the Implementing Partner under the Contract.

10.0 Defect Liability

10.1 The Successful bidder, on whom award is made/Implementing Partner/Consultant warrants that the Facilities or any part thereof shall be free from defects in the design, engineering, materials and workmanship of the Plant and Equipment supplied and of the work executed, wherever applicable.

10.2 The Defect Liability Period shall be eighteen (18) months from the date of Completion of the Facilities (or any part thereof) or twelve (12) months from the date of Operational Acceptance of the Facilities (or any part thereof), whichever first occurs, unless specified otherwise in the SCC.

If during the Defect Liability Period any defect should be found in the design, engineering, materials and workmanship of the Plant and Equipment supplied or of the work executed by the Implementing Partner, the Implementing Partner shall promptly, in consultation and agreement with the EESL regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good (as the Implementing Partner shall, at its discretion, determine) such defect as well as any damage to the Facilities caused by such defect. The Implementing Partner shall not be responsible for the repair, replacement or making good of any defector of any damage to the Facilities arising out of or resulting from any of the following causes:

- improper operation or maintenance of the Facilities by the EESL
- operation of the Facilities outside specifications provided in the Contract.
- Normal wear and tear.

10.3 The EESL shall give the Successful bidder, on whom award is made/Implementing Partner a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The EESL shall afford all reasonable opportunity for the Implementing Partner to inspect any such defect.

10.4 The EESL shall afford the Implementing Partner all necessary access to the Facilities and the Site to enable the Implementing Partner to perform its obligations.
The Implementing Partner may, with the consent of the EESL, remove from the Site any Plant and Equipment 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.

10.5 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 EESL may give to the Implementing Partner a notice requiring that tests of the defective part of the Facilities shall be made by the Implementing Partner immediately upon completion of such remedial work, whereupon the Implementing Partner shall carry out such tests.

If such part fails the tests, the Implementing Partner 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 in character shall in any case be not less than what has already been agreed by the EESL and the Implementing Partner for the original equipment/part of the Facilities.

10.6 If the Implementing Partner 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 EESL may, following notice to the Implementing Partner, proceed to do such work, and the reasonable costs incurred by the EESL in connection therewith shall be paid to the EESL by the Implementing Partner or may be deducted by the EESL from any monies due to the Implementing Partner or claimed under the Performance Security.

10.7 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 EESL because of any of the aforesaid reasons.Upon correction of the defects in the Facilities or any part thereof by repair/ replacement, such repair/replacement shall have the Defect Liability Period extended by a period of twelve (12) month from the time such replacement/ repair of the Facilities or any part therof.

10.8 In addition, the Implementing Partner shall also provide an extended warranty for any such component of the Facilities and during the period of time as may be specified in the SCC. Such obligation shall be in addition to the defect liability specified under ITB Clause 10.2 or as specified in SCC.

11.0 Functional Guarantees

11.1 The Implementing Partner guarantees that during the Guarantee Test, the Facilities and all parts thereof shall attain the Functional Guarantees as specified in the Contract Agreement, subject to and upon the conditions therein specified.

11.2 If, for reasons attributable to the Implementing Partner, the guaranteed level of the Functional Guarantees specified in the Contract Agreement are not met either in whole or in part, the Implementing Partner shall, within a mutually agreed time, 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 such Guarantees. The Implementing Partner shall notify the EESL upon completion of the necessary changes, modifications and/or additions, and shall seek the EESL's consent to repeat the Guarantee Test. If the specified Functional Guarantees are not established even during the repeat of the Guarantee Test, the EESL may at its option, either

- Reject the Equipment and recover the payments already made, or
- Terminate the Contract and recover the payments already made, or
- Accept the equipment after levy of liquidated damages in accordance with the provisions specified in the Contract Agreement.

12.0 Inspections and Tests

12.1 Inspection of Goods: The Employer or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Employer. (SCC and the Technical Specifications shall specify what inspections and tests the Employer requires and where they are to be conducted). The Employer shall notify the Contractor in writing in a timely manner of the identity of any representatives retained for these purposes.
12.2 The inspections and tests may be conducted on the premises of the Contractor or its subcontractor(s), at point of delivery and/or at the Goods final destination. If conducted on the premises of the Contractor or its subcontractor(s), all reasonable Works and assistance, including access to drawings and production data shall be furnished to the inspectors at no cost to the Employer.
12.3 Should any inspected or tested Goods fail to conform to the specifications, the Employer may reject and the Contractor shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Employer.

12.4 The Employer's right to inspect, test and, where necessary, reject the Goods after the arrival at Site shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Employer or its Representative prior to the Goods shipment.
12.5 Nothing in GCC Clause 6 shall in any way release the Contractor from any warranty or other obligations under this Contract.
12.5 Manuals and Drawings
12.6 Before the Goods and Services are taken over by the Employer, the Contractor shall supply operation and maintenance manuals together with drawings of the goods and equipment. These shall be in such detail as will enable the Employer to operate, maintain, adjust and repair all parts of the equipment as stated in the specifications.
12.7 The manuals and drawings shall be in the English ruling language and in such form and numbers as stated in the contract.
12.8 Unless and otherwise agreed, the goods and equipment shall not be considered to be completed for the purpose of taking over until such manuals and drawings have been supplied to the Employer.
12.9 It shall be the obligation of the Contractor to train and familiarise the designated person by the Employer in regard to the operation manual and drawings.

13.0 Insurance

13.1 The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery. For delivery of goods at site, the insurance shall be obtained by the Contractor, for an amount not less than the Contract Price of the goods from “warehouse to warehouse” (final destinations) on “All Risks” basis including War risks and strikes.

14.0 Transportation, Demurrage Wharfage, Etc.

14.1 Contractor is required under the Contract to transport the Goods to place of destination defined as Site. Transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the Contractor, and the related cost shall be included in the Contract Price.
Successful bidder, on whom letter of award is placed, is to ensure all safety guidelines, rules and regulations, labour laws etc. Successful bidder indemnify EESL for any accident, injury met by its labour, employee or any other person working for him. Any compensation sought by its labour, employee or any other person working for him shall be paid by successful bidder as per settlement solely. EESL has no role to play in this matter

15.0 Warranty

15.1 The Contractor warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Contractor further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except when the design and/or material is required by the Employer's Specifications) or from any act or omission of the Contractor, that may develop under normal use of the supplied Goods in the conditions prevailing in the country of final destination.
15.2 This warranty of all the Works shall remain valid for 2 year after the Commissioning. The Contractor shall, in addition, comply with the performance and/or guarantees specified under the Contract. If for reasons attributable to the Contractor, these guarantees are not attained in whole or in part, the Contractor shall:

15.3 make such changes, modifications, and/or additions to the Goods or any part thereof as may be necessary in order to attain the contractual guarantees specified in the Contract at its own cost and expense and to carry out further performance tests in accordance with SCC Clause 2; OR
15.4 pay liquidated damages to the Employer with respect to the failure to meet the contractual guarantees.

15.5. The Employer shall notify the Contractor in writing of any claims arising under this warranty.

15.6Upon receipt of such notice, the Contractor shall, within the period of 15 days and with all reasonable speed, repair or replace the defective Goods or parts thereof, free of cost at the ultimate destination. The Contractor shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie on the Employer for the replaced parts/goods thereafter. In the event of any correction of defects or replacement of defective material during the Warranty period, the Warranty for the corrected or replaced material shall be extended to a further period.

15.7If the Contractor, having been notified, fails to remedy the defect(s) within 15 days, the Employer may proceed to take such remedial action as may be necessary, at the Contractor's risk and expense and without prejudice to any other rights which the Employer may have against the Contractor under the Contract. The performance guarantee and liquidated damaged be entitled to be recovered without prejudice to other rights of the Employer.

16.0 Termination for Default

16.1 The Employer may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Contractor, terminate the Contract in whole or part:
16.2 if the Contractor fails to deliver any or all of the Goods and complete the Work within the period(s) specified in the Contracor within any extension thereof granted by the Employer pursuant to GCC Clause 20; or
16.3if the Contractor fails to perform any other obligation(s)/duties under the Contract.
16.4 If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

16.5 In the event the Employer terminates the Contract in whole or in part, pursuant to GCC Clause 22.1, the Employer may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered, and the Contractor shall be liable to the Employer for any excess costs for such similar Goods or Services. However, the Contractor shall continue the performance of the Contract to the extent not terminated.

17.0. Settlement of Disputes

17.1 Adjudicator

17.1.1 If any dispute of any kind whatsoever shall arise between the EESL and the Implementing Partner in connection with or arising out of the Contract, including without prejudice to the generality of the foregoing, any question regarding its existence, validity or termination, or the execution of the Facilities—whether during the progress of the Facilities or after their completion and whether before or after the termination, abandonment or breach of the Contract—the parties shall seek to resolve any such dispute or difference by mutual consultation. If the parties fail to resolve such a dispute or difference by mutual consultation, then the dispute shall be referred in writing by either party to the Adjudicator, with a copy to the other party.

17.1.2 The Adjudicator shall give its decision in writing to both parties within twenty-eight (28) days of a dispute being referred to it. If the Adjudicator has done so, and no notice of intention to commence arbitration has been given by either the EESL or the Implementing Partner within fifty-six (56) days of such reference, the decision shall become final and binding upon the EESL and the Implementing Partner. Any decision that has become final and binding shall be implemented by the parties forthwith.

17.1.3 Should the Adjudicator resign or die, or should the EESL and the Implementing Partner agree that the Adjudicator is not fulfilling its functions in accordance with the provisions of the Contract; another retired Judge of High Court/Supreme Court of India shall be jointly appointed by the EESL and the Implementing Partner as adjudicator under the Contract. Failing agreement between the two within twenty eight (28) days, the new retired judge of High Court/Supreme Court of India shall be appointed as the Adjudicator under the Contract at the request of either party by the Appointing Authority specified in the SCC. The adjudicator shall be paid fee plus reasonable expenditures incurred in the execution of its duties as adjudicator under the contract. This cost shall be divided equally between the EESL and the Implementing Partner.

17.2 Arbitration

17.2.1 If either the EESL or the Implementing Partner is dissatisfied with the Adjudicator's decision, or if the Adjudicator fails to give a decision within twenty-eight (28) days of a dispute being referred to it, then either the EESL or the Implementing Partner may, within fifty-six (56) days of such reference, give notice to the other party, with a copy for information to the Adjudicator, of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.

17.2.2 Any dispute in respect of which a notice of intention to commence arbitration has been given, in accordance with Sub-Clause 17.2.1, shall be finally settled by arbitration. Arbitration may be commenced prior to or after completion of the Facilities.

17.2.3 Any dispute submitted by a party to arbitration shall be heard by an arbitration panel composed of three arbitrators, in accordance with the provisions set forth below.

17.2.4 The EESL and the Implementing Partner shall each appoint one arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the two arbitrators do not succeed in appointing a third arbitrator within twenty-eight (28) days after the latter of the two arbitrators has been appointed, the third arbitrator shall, at the request of either party, be appointed by the Appointing Authority for arbitrator designated in the SCC.

17.2.5 If one party fails to appoint its arbitrator within forty-two (42) days after the other party has named its arbitrator, the party which has named an arbitrator may request the Appointing Authority to appoint the second arbitrator.

17.2.6 If for any reason an arbitrator is unable to perform its function, the mandate of the Arbitrator shall terminate in accordance with the provisions of applicable laws as mentioned in ITB Clause 7 (Governing Law) and a substitute shall be appointed in the same manner as the original arbitrator.

17.2.7 Arbitration proceedings shall be conducted (i) in accordance with the rules of procedure designated in the SCC, (ii) in the place designated in the SCC, and (iii) in the language in which this Con-tract has been executed.

17.2.8 The decision of a majority of the arbitrators (or of the third arbitrator chairing the arbitration, if there is no such majority) shall be final and binding and shall be enforceable in any court of competent jurisdiction as decree of the court. The parties thereby waive any objections to or claims of immunity from such enforcement.

17.2.9 The arbitrator(s) shall give reasoned award.

17.3 Notwithstanding any reference to the Adjudicator or arbitration herein,

- the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree
- the EESL shall pay the Implementing Partner any monies due to the Implementing Partner.

18.0MSME Bidder

Are you registered as MICRO, SMALL or MEDIUM Enterprise under MSMED Act 2006?
If YES,
A) Please indicate relevant category with copy
of documentary proof issued by the concerned authorities :
B) Does your firm fall under MSE's owned by SC/ST
Entrepreneurs.? If so, enclose a copy of documentary evidence:

IN ADDITION TO ABOVE FOLLOWING WILL ALSO BE APPLICABLE FOR CONSULTANCY/PROJECT MANAGEMENT CONTRACT SERVICES.

19.0 THIRD-PARTY CONSULTANCY SERVICES

19.1The Employer(EESL) is obliged, at its own expense, to make the necessary provision for the performance of those services by third parties commissioned by it, as described in Special Conditions of Contract

20.0 SCOPE OF SERVICES

20.1 The Consultant shall deliver the Services in fulland on time.
20.2 The Services to be performed by the Consultant encompass all the part services described and explained in Special Conditions of Contract, Terms of Reference plus Tender Documents and The Consultant's bid. Furthermore, the Consultant must deliver all the standard and special services as defined intender RfP.
20.3 The Consultant shall work together with third parties wherever commissioned by the Employer. The Employer is not responsible for these third parties or their performance, when the work is assigned to consultant to co-ordinate with them. In addition, the Consultant must comprehensively coordinate their services with its own services, as far as possible.

20.1STANDARD AND SPECIAL SERVICES
20.1.1 In addition to the Services specified explicitly in the Contract, the Consultant shall also perform all other services, if necessary, that are not listed under the contractual services, but are customarily required in order to properly discharge the contractual obligations ("standard services"). The standard services shall be fully compensated through the Agreed Remuneration in the contract.
20.1.2 "Special Services" are services that are not included under the contractual or standard services, but must necessarily be delivered by the Consultant in order to properly perform its duties under the Contract, because the external circumstances of service delivery have changed unexpectedly, or because the Employer has suspended the Services *Force Majeure* or because the Employer, with the prior consent of EESL, requires services that were not included in theinvitation to tender but are necessary.
No extra cost is payable to fulfill the standard and / or special services.

20.2 DUE DILIGENCE
20.2.1 Except where otherwise stipulated in this Contract, or otherwise legally stipulated within the country or within another legal system (including the legal system in the Consultant's jurisdiction) by provisions that impose higher demands than this Contract, when performing its obligations under this Contract the Consultant shall exercise due diligence and provide the Services in compliance with professional practice and to the recognized quality standards, in accordance with current scientific and generally accepted engineering standards. The Consultant must document its work, the progress of the Project and the decisions it takes in an appropriate form that is acceptable to the Employer, bearing in mind the requirements of tender/RfP/Letter of Award.

20.3 REPORTING
20.3.1 The Consultant shall inform the Employer promptly of all extraordinary circumstances that arise *during the performance of the services and of all* matters requiring EESL approval. The consultant is to make reports as defined in scope of work and submit the same as per timelines defined in the contract.

20.4 STAFFING
20.4.1 The Consultant shall employ the staff specified in bid [Staffing Schedule] to implement performance of the Services. The list of designated key staff and any changes to it shall require the prior written approval of the Employer.
20.4.2 The Employer may require the Consultant to terminate the contract of, or replace, any staff member who fails to meet the requirements as per contract. Any such demand must be submitted in writing to the Consultant stating the reasons for it.

20.4.3 If staff employed by the Consultant need to be replaced, the Consultant shall ensure that the staff member in question is replaced promptly by an individual who possesses at least equivalent qualifications.
20.4.4If any one of the Consultant's staff falls ill for more than one month and this jeopardizes the performance of this Contract by the Consultant, the Consultant shall replace this staff member with another staff member who possesses at least equivalent qualifications.
20.4.5 Staff shall only be replaced after prior approval by the Employer, such approval not to be unreasonably withheld. The exchange, replacement, or planned dispensation of replacement (as exception to existing rules) of key staff specified by name shall require the prior approval of EESL.

20.4.6 If the Consultant must terminate the contract of, or replace, any staff during the Contract period, the costs thus accrued shall be borne by the Consultant, except where staff are removed or replaced at the Employer's request. In this case, the Employer shall meet the costs of replacing the staff member, unless the staff member in question does not meet the requirements.

20.5 CONTACT PERSON OF THE CONSULTANT

20.5.1 The Consultant shall appoint for the exercise ofall rights and obligations arising from this Contract a natural person as its contact person for the Employer under this Contract.

20.5.2 The Consultant shall specify and provide respective contact data to the Employer - for an individual at the Consultant's place of business who can be reached at any time in cases of emergency or crisis as well as a deputy of the Consultant. The Consultant shall notify the Employer without delay of any change of elected person or their contact data.

21.0 INDEPENDENCE OF THE CONSULTANT

21.1 The Consultant undertakes that neither the Consultant nor any enterprise associated with the Consultant shall bid for the Project as manufacturer, supplier, or building contractor. This prohibition also applies to any bidding for any further consulting services, insofar as such consulting services might lead to a restriction of competition or a conflict of interests. Any violation of this stipulation may lead to the immediate cancellation of this Contract and require the reimbursement of any and all costs incurred by the Employer up to the time of such violation as well as compensation for any and all losses and damages incurred by the Employer as a result of such cancellation.

22.0 COMMENCEMENT AND COMPLETION

22.1.1 The Consultant shall begin performing the Services on the prescribed date on which execution of the Contract shall take place, but not earlier than and without undue delay after the Contract has come into force. The Consultant shall deliver the Services in accordance with the time schedule in the bid [Time Schedule for the Performance of the Services defined in SCC], and shall complete the Services within the Completion Period, subject to any further extensions to this Contract accorded by employer.
22.1.2 In relation to optional services (if any), the Consultant shall commence delivery of the optional services not earlier than upon receipt of notification from the Employer,
22.1.3 Any change to the time schedule *[Time Schedule for the Performance of the Services]* due to a reasonable request by either party shall be mutually agreed upon in writing.

23.0 FORCE MAJEURE

In addition to Force Majeure defined in clause 2.26, following will also be applicable for consultancy work.
23.1 In the event of Force Majeure, the contractual obligations, as far as affected by such event, shall be suspended for as long as performance remains impossible due to the Force Majeure, provided that one party to the Contract receives notification of the Force Majeure event from the other party within two weeks after its occurrence and both the parties agree for that to be a force majeure. Any and all liability of the Consultant for damages arising due to its absence caused by the Force Majeure is excluded.

23.2 In the event of Force Majeure, the Consultant shall be entitled to an extension of the Contract equal to the delay caused by such Force Majeure. If the performance of the Services is rendered permanently impossible by the Force Majeure, both parties to this Contract shall be entitled to terminate the Contract on mutual agreement basis only.
23.3 In case of suspension or termination of the Contract due to Force Majeure, the Services performed up to the time of the Force Majeure and all necessary expenditure (which is evidenced) of the Consultant arising from the discontinuing of the Services shall be invoiced on the basis of contractual prices subject to employer agreement with the work. Neither party shall make any further claims.

24.0SUSPENSIONS OR TERMINATION

24.1 The Employer may fully or partially suspend the Services or terminate this Contract after serving written notice of at least 30 days. In this event, the Consultant must immediately take all measures necessary to ensure that the Services are discontinued and the expenditure minimized. The Consultant shall hand over all reports, drafts and documents to be drawn up by the date in question to the Employer. In case of termination Force majeure shall apply mutatis mutandis.
24.2 If the Consultant fails to meet its contractual obligations without sufficient reason; in accordance with the Contract; or on time, the Employer may serve a notice upon the Consultant and request it to duly perform its Services. If the Consultant fails to remedy the performance deficit within a period of 21 days of having been called upon to do so by the Employer, the Employer shall be entitled, after this period has elapsed, to terminate the Contract by written notice.
24.3 If the termination of the Contract is due to a default on the part of the Consultant, the Consultant shall be entitled to demand the Agreed Remuneration for the Services performed until the date of termination but not yet remunerated. The Employer shall be entitled to demand compensation for the direct damages caused by the default.

25.0 REMUNERATION OF THE CONSULTANT

25.1 The Consultant shall receive the remuneration agreed in the Special Conditions and bid price schedule for performing the Services owed under this Contract, subject to the conditions listed therein and the conditions below.

26.0 TERMS OF PAYMENT

26.1 Except where otherwise agreed in the Special Conditions, the Employer shall pay the Consultant's remuneration as follows:

(a) Advance payment, due within 30 days of award of Contract upon presentation of an invoice against equivalent advance bank guarantee, if mentioned in SCC.
(b) Payments based on deliverables as per tender/SCC or as agreed upon in amendments.
(c) The final payment shall be made after the Services have been performed in full and confirmation had been provided by the Employer to that Consultant.

27.0 METHOD OF PAYMENT

Payment shall be made according to the conditions set out in the Special Conditions or as agreed upon.

28.0INSURANCE AGAINST LIABILITY AND DAMAGES

28.1 The Consultant is advised to take out insurance for the period of the Contract, on the terms specified in the Special Conditions, including, but not limited to, the following:

a) Professional liability insurance;
b) Personal liability insurance;
c) Equipment insurance covering loss of or physical damage to all equipment acquired, used, provided or paid for by the Employer within the context of this Contract; and
d) Motor vehicle third party liability insurance and motor vehicle comprehensive insurance for the vehicles acquired in connection with this Contract.

EESL will not be responsiblein case any accident/ mis-happenings with consultant employee or contract person and for any equipment damage or theft occurs and in no case EESL shall pay for it..

In case of any contradiction in ITB and SCC, than SCC will prevail.

LIST OF ACRONYMS

EMD: Earnest Money Deposit
EoI: Expression of Interest
SCC: Special Conditions of Contract
INR: Indian Rupees
IST: Indian Standard Time
LED: Light Emitting Diodes
LoI: Letter of Intent
LoA: Letter of Acceptance

MoU: Memorandum of Understanding
MoP: Ministry of Power
RECL: Rural Electrification Corporation Ltd
EESL: Energy Efficiency Services Ltd
O&M: Operation & Maintenance
RfP: Request for Proposal
R&M: Repair & Maintenance
SD: Security Deposit
CPG: Contract Performance Guarantee
FTL: Fluorescent Tube Light
SVL: Sodium Vapor Lamp
PMA: Project Management Agency

SECTION-3

GENERAL CONDITIONS OF CONTRACT (GCC)

GENERAL CONDITIONS CONTRACT (GCC)		
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A. Contract and Interpretation

1. Definitions

1.1 The following words and expressions shall have the meanings hereby assigned to them:

"Contract" means the Contract Agreement entered into between the EESL and the Implementing Partner, together with the Contract Documents referred to therein; they shall constitute the Contract, andthe term "the Contract" shall in all such documents be construed accordingly.

"Contract Documents" means the documents listed in Article. 1.1 (Contract Documents) of the Form of Contract Agreement (including any amendments thereto).

"GCC" means the General Conditions of Contract hereof.

"SCC" means the Special Conditions of Contract.

"Day" means calendar day of the Gregorian calendar.

"Month" means calendar month of the Gregorian calendar.

"Employer" means EESL, New Delhi/Noida and includes the legal successors or permitted assigns of the EESL.

"Project Manager" means the person appointed by the EESLin themanner provided in GCC Sub-Clause 17.1 (Project Manager) hereof and named as such in the SCC to perform the duties delegated by the EESL.

"Contractor or Implementing Partner" means the person(s) whose bid to perform the Contract has been accepted by the EESL and is named as such in the Con- tract Agreement, and includes the legal successors or permitted assigns of the Implementing Partner.

"Contractor or Implementing Partner's Representative" means any person nominated by the Implementing Partner and approved by the EESL in the manner provided in GCC Sub- Clause 17.2 (Implementing Partner's Representative and Construction Manager) hereof to perform the duties delegated by the Implementing Partner.

"Sub Contractor or SubImplementing Partner," including vendors, means any person to whom execution of any part of the Facilities, including preparation of any design or supply of any Plant and Equipment, is sub-contracted directly or indirectly by the Implementing Partner, and includes its legal successors or permitted assigns.

"Adjudicator" means the person or persons named as such in the SCC to make a decision on or to settle any dispute or difference between the EESL and the Implementing Partner referred to him or her by the parties pursuant to GCC Sub-Clause 6.1 (Adjudicator) hereof.

"Contract Price" means the sum specified in Article 2.1 (Contract Price) of the Contract Agreement, subject to such additions and adjustments thereto or deductions there from, as may be made pursuant to the Con-tract.

"Facilities" means the Plant and Equipment to be supplied and installed, as well as all the Installation Services to be carried out by the Implementing Partner under the Contract.

"Plant and Equipment" means permanent plant, equipment, machinery, apparatus, articles and things of all kinds to be provided and incorporated in the Facilities by the Implementing Partner under the Contract (including the spare parts to be supplied by the Implementing Partner under GCC Sub-Clause 7.3 here-of), but does not include Implementing Partner's Equipment.

"Installation Services" means all those services ancillary to the supply of the Plant and Equipment for the

Facilities, to be provided by the Implementing Partner under the Contract; e.g., transportation and provision of marine or other similar insurance, inspection, expediting, Site preparation works (including the provision and use of Implementing Partner'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 of EESL's Personnel etc.

"Contractor or Implementing Partner's Equipment" means all plant, 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 Implementing Partner, but does not include Plant and Equipment, or other things intended to form or forming part of the Facilities.

"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 Contract as forming part of the Site.

"Effective Date" means the date from which the Time for Completion shall be determined as stated in Article 3 (Effective Date for Determining Time for Completion) of the Form of Contract Agreement.

"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 stipulations in the SCC and the relevant provisions of the Contract.

"Completion" means that the Facilities (or a specific part thereof where specific parts are specified in the SCC) have been completed operationally and structurally and put in a tight and clean condition, and that all work in respect of Pre-commissioning of the Facilities or such specific part thereof has been completed; and Commissioning has been attained as per Technical Specifications.

"Pre-commissioning" means the testing, checking and other requirement specified in the Technical Specifications that are to be carried out by the Implementing Partner in preparation for Commissioning as provided in GCC Clause 24 (Completion) hereof.

Commissioning" means trial/intial operation of the Facilities or any part thereof by the Implementing Partner, which operation is to be carried out by the Con tractor as provided in GCC Sub-Clause 25.1 (Commissioning) hereof, for the purpose of carrying out Guarantee Test(s).

"Guarantee Test(s)" means the test(s) specified in the Technical Specifications to be carried out to ascertain whether the Facilities or a specified part thereof is able to attain the Functional Guarantees specified in the Technical Specifications in accordance with the provisions of GCC Sub Clause 25.2 (Guarantee Test) hereof.

Operational Acceptance" means the acceptance by the EESL of the Facilities (or any part of the Facilities where the Contract provides for acceptance of the Facilities in parts), which certifies the Implementing Partner's fulfilment of the Contract in respect of Functional Guarantees of the Facilities (or the relevant part thereof) in accordance with the provisions of GCC Clause 28 (Functional Guarantees) hereof and shall include deemed acceptance in accordance with GCC Clause 25 (Commissioning and Operational Acceptance) hereof.

Defect LiabilityPeriod" means the period of validity of the warrantiesgiven by the Implementing Partner commencing at Completion of the Facilities or a part thereof, during which the Implementing Partner is responsible for defects with respect to the Facilities (or the relevant part thereof)as provided in GCC Clause 27 (Defect Liability) hereof.

2. **ContractDocuments**

2.1 Subject to Article1.2 (Order of Precedence) of the Contract Agreement all documents forming part of the Contract (and all parts thereof) are intended to be correlative, complementary and mutually explanatory. The Contract shall be read as a whole.

2.2 The Contract will be signed in three originals and the Implementing Partner shall be provided with one signed original and the rest will be retained by the EESL.

2.3 The Implementing Partner shall provide free of cost to the EESL all the engineering data, drawing and descriptive materials submitted with the bid,in at least five (5) copies to form a part of the Contract

immediately after Notification of Award/ letter of Award.

2.4 Subsequent to signing of the Contract, the Implementing Partner at his own cost shall provide the EESL with at least five(05) true copies of Contract Agreement within thirty (30) days after signing of the Contract.

3. **Interpretation**

3.1 **Language**

3.1.1 Unless the Implementing Partner is a national of the EESL's country and the EESL and the Implementing Partner agree to use the local language, all Contract Documents, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be written in English, and the Contract shall be construed and interpreted in accordance with that language.

3.1.2 If any of the Contract Documents, correspondence or communications are prepared in any language other than the governing language under GCC Sub-Clause 3.1.1 above, the English translation of such documents, correspondence or communications shall prevail in matters of interpretation.

3.2 Singular and Plural
The singular shall include the plural and the plural the singular, except where the context otherwise requires.

3.3 Headings
The headings and marginal notes in the General Conditions of Contract are included for ease of reference, and shall neither constitute a part of the Contract nor affect its interpretation.

3.4 Persons
Words importing persons or parties shall include firms, corporations and government entities.

3.5 Inco terms
Unless inconsistent with any provision of the Contract, the meaning of any trade term and the rights and obligations of parties there under shall be as prescribed by Incoterms.

Inco terms means international rules for interpreting trade terms published by the International Chamber of Commerce (latest edition), 38 Cours Albert 1er, 75008 Paris, France.

3.6 Construction of the Contract

3.6.1 The Contracts to be entered into between the EESL and the successful bidder shall be as under :

i) First Contract: For Ex-works (India) supply of plant and equipment and accessories by bidder including mandatory spares and spares to be supplied during warranty

ii) Second Contract: for providing all services i.e. loading, inland/air/shipment transportation for delivery at site, inland/air/shipment transit insurance, unloading, storage, handling at site, installation, insurance covers other than inland transit insurance, testing, commissioning and conducting Guarantee tests in respect of all the equipments supplied under the 'First Contract' and all other services including civil works, if any, as specified in the Contract Documents including sales tax and duties as asked in price bid in section IV. It will also cover cost for Repair and Maintenance and equipmentsand/or additional warranty, where ever asked for ,supplied under the 'First Contract' and all other services including civil works, if any, as specified in the Contract Documents. All items in second contract must be quoted including service tax.

iii) Third Contract: For providing all services including Awareness programme for public/stake holders/workshops/printing brochure and other materials, Survey cost, Monitoring and verification cost, scrap disposal cost, arrangement of office at both sites and Statuary agencies cost including service tax.

All the above Contracts will contain a cross-fall breach clause specifying that breach of one Contract will constitute breach of the other Contracts which will confer a right on the Employer to terminate the other Contracts also at the risk and the cost of the contractor /Implementing Partner for the Project, for which awards have been made.

In case, value of second contract viz transportation, insurance is lower or the supply cost includes transportation, insurance etc than three contract may be merged in two contract.

Arbitration: 1. Appointing authority for adjudicator: MD, EESL

2. The place of arbitration shall be: New Delhi

Prices are to be quoted as Firm during currency of contract. No price adjustment is allowed.

General:

1. In case of investment partner, A project manager is to be deputed from their side for co-coordinating activities.
2. Word Implementing Partner for any Project used in General Conditions of contract includes persons of Investment partner, executing and implementing agencies etc
3. Notification of award means Letter of Intent and Letter of award

3.6.2 The award of separate Contracts shall not in any way dilute the responsibility of the Implementing Partner for the successful completion of the Facilities as per Contract Documents and a breach in one Con-tract shall automatically be construed as a breach of the other Contract(s) which will confer a right on the EESL to terminate the other Contract(s) also at the risk and the cost of the Implementing Partner.

3.7 Entire Agreement

Subject to GCC Sub-Clause 16.4 hereof, the Contract constitutes the entire agreement between the EESL and Implementing Partner with respect to the subject matter of Contract and supersedes all communications, negotiations and agreements (whether written or oral) of parties with respect thereto made prior to the date of Contract.

3.8 Amendment

No amendment or other variation of the Contract shall be effective unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party here to.

3.9 Independent Contractor or Implementing Partner

The Implementing Partner shall be an independent Implementing Partner performing the Contract. The Contract does not create any agency, partnership, joint venture or other joint relationship between the parties here to.

Subject to the provisions of the Contract, the Contractor or Implementing Partner shall be solely responsible for the manner in which the Contract is performed. All employees, representatives or Sub Contractor or Sub Implementing Partners engaged by the Implementing Partner in connection with the performance of the Contract shall be under the complete control of the Implementing Partner and shall not be deemed to be employees of the EESL, and nothing contained in the Contract or in any subcontract awarded by the Implementing Partner shall be construed to create any contractual relationship between any such employees, representatives or Sub Contractor or Sub Implementing Partners and the EESL.

3.10 Joint Venture or Consortium

If the Implementing Partner is a joint venture or consortium of two or more firms, all such firms shall be jointly and severally bound to the EESL for the fulfilment of the provisions of the Contract and shall designate one of such firms to act as a leader with authority to bind the joint venture or consortium. The composition or the constitution of the joint venture or consortium shall not be altered without the prior consent of the EESL.

3.11 **Non-Waiver**

3.11.1Subject to GCC Sub-Clause 3.11.2 below, 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, nor shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.

3.11.2Any waiver of a party's rights, powers or remedies under the Contract must be in writing, must be 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 waived.

3.12 **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.

3.13 **Country of Origin**
"Origin" means the place where the materials, equipment and other supplies for the Facilities are mined, grown, produced or manufactured, and from which the services are provided.

4. **Notices**

4.1Unless otherwise stated in the Contract, all notices to be given underthe Contract shall be in writing, and shall be sent by personal delivery, airmail post, special courier, cable, telegraph, telex, facsimile or Electronic Data Interchange (EDI) to the address of the relevant party set out in the Contract Coordination Procedure to be finalised pursuant to GCC Sub-Clause 17.2.3.1, with the following provisions.

4.1.1Any notice sent by cable, telegraph, facsimile or shall be confirmed within two (2) days after despatch by notice sent by airmail/ post or special courier, except as otherwise specified in theContract.

4.1.2Any notice sent by airmail post or special courier shall be deemed (in the absence of evidence of earlier receipt) to have beendelivered ten (10) days after despatch. In proving the fact ofdespatch, it shall be sufficient to show that the envelope containing such notice was properly addressed, stamped and conveyedto the postal authorities or courier service for transmission by airmail or special courier.

4.1.3Any notice delivered personally or sent by telegraph, facsimileshall be deemed to have been delivered on date of its despatch.

4.1.4Either party may change its postal, cable, telex, facsimile or EDIaddress or addressee for receipt of such notices by ten (10) days' notice to the other party in writing.

4.2Notices shall be deemed to include any approvals, consents, instruction orders and certificates to be given under the Contract.

5**. Governing Law**

5.1The Contract shall be governed by and interpreted in accordance withlaws in force in India. The Courts of Delhi shall have exclusive jurisdictionin all matters arising under the Contract.

6**. Settlement of Disputes**

6.1 **Adjudicator**
6.1.1 If any dispute of any kind whatsoever shall arise between the EESL and the Implementing Partner in connection with or arising out ofthe Contract, including without prejudice to the generality of theforegoing, any question regarding its existence, validity or termination, or the execution of the Facilities—whether during theprogress of the Facilities or after their completion and whetherbefore or after the termination, abandonment or breach of theContract—the parties shall seek to resolve any such dispute ordifference by mutual consultation. If the parties fail to resolvesuch a dispute or difference by mutual consultation, then thedispute shall be referred in writing by either party to the Adjudicator, with a copy to the other party.

6.1.2 The Adjudicator shall give its decision in writing to both parties within twenty-eight (28) days of a dispute being referred to it. If theAdjudicator has done so, and no notice of intention to commence arbitration has been given by either the EESL or the Implementing Partner within fifty-six (56) days of such reference,

the decision shallbecome final and binding upon the EESL and the Implementing Partner. Any decisionthathas become final and binding shall beimplemented by the parties forthwith.

6.1.3 Should the Adjudicator resign or die, or should the EESL and the Implementing Partner agree that the Adjudicator is not fulfilling its functions in accordance with the provisions of the Contract; anotherretired Judge of High Court/Supreme Court of India shall be jointlyappointed by the EESL and the Implementing Partner as adjudicatorunder the Contract. Failing agreement between the two withintwenty eight (28) days, the new retired judge of High Court/Supreme Court of India shall be appointed as the Adjudicatorunder the Contract at the request of either party by the AppointingAuthority specified in the SCC. The adjudicator shall be paid feeplus reasonable expenditures incurred in the execution of itsduties as adjudicator under the contract. This cost shall be dividedequally between the EESL and the Implementing Partner.

6.2 **Arbitration**

6.2.1 If either the EESL or the Implementing Partner is dissatisfied with the Adjudicator's decision, or if the Adjudicator fails to give a decision within twenty-eight (28) days of a dispute being referred to it, then either the EESL or the Implementing Partner may, within fifty-six (56) days of such reference, give notice to the other party, with a copy for information to the Adjudicator, of its intention to com- mence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.

6.2.2 Any dispute in respect of which a notice of intention to commence arbitration has been given, in accordance with GCC Sub-Clause 6.2.1, shall be finally settled by arbitration. Arbitration may be commenced prior to or after completion of the Facilities.

In case the Contractor is a Public Sector Enterprise or a Government Department

6.2.3 In case the Contractor is a Public Sector Enterprise or a Government Department, the dispute shall be shall be referred for resolution in Permanent Machinery for Arbitration(PMA) of the Department of Public Enterprise, Government of India. Such dispute or difference shall be referred by either party for Arbitration to the sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may makea further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary/Additional Secretary, when so authorized by the Law Secretary, whose decision shall bind the Parties finally and conclusively. The Parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.

In case the Contractor is not a Public Sector Enterprise or a Government Department

6.2.4 In all other cases, any dispute submitted by a party to arbitration shall be heard by an arbitration panel composed of three arbitrators, in accordance with the provisions set forth below.

6.2.5 The Employer and the Contractor shall each appoint one arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the two arbitrators do not succeed in appointing a third arbitrator within twenty-eight (28) days after the latter of the two arbitrators has been appointed, the third arbitrator shall, at the request of either party, be appointed by the Appointing Authority for arbitrator designated in the SCC.

6.2.6 If one party fails to appoint its arbitrator within forty-two (42) days after the other party has named its arbitrator, the party which has named an arbitrator may request the Appointing Authority to appoint the second arbitrator.

6.2.7 If for any reason an arbitrator is unable to perform its function, the mandate of the Arbitrator shall terminate in accordance with the provisions of applicable laws as mentioned in GCC Clause 5(Governing Law) and a substitute shall be appointed in the same manner as the original arbitrator.

6.2.8 Arbitration proceedings shall be conducted in accordance with The Arbitration and Conciliation Act, 1996 and its subsequent thereof. The venue of arbitration shall be New Delhi.

6.2.9 The decision of a majority of the arbitrators (or of the third arbitrator chairing the arbitration panel, if there is no such majority) shall be final and binding and shall be enforceable in any court of competent jurisdiction as decree of the court. The parties thereby waive any objections to or claims of immunity from such enforcement.

6.2.10 The arbitrator(s) shall give reasoned award.

Notwithstanding any reference to the Adjudicator or arbitration herein,

the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree

the Employer shall pay the Contractor any monies due to the Contractor.

B. Subject Matter of Contract

7. Scope of Facilities

7.1 Unless otherwise expressly limited in the Technical Specifications, the Implementing Partner's obligations cover the provision of all Plant and Equipment and the performance of all Installation Services required for the design, the manufacture (including procurement, quality assurance, construction, installation, associated civil works, Precommissioning and delivery) of the Plant and Equipment and the installation, completion, commissioning and performance testing of the Facilities in accordance with the plans, procedures, specifications, drawings, codes and any other documents as specified in the Technical Specifications. Such specifications include, but are not limited to, the provision of supervision and engineering services; the supply of labour, materials, equipment, spare parts (as specified in GCC Sub-Clause 7.3 below) and accessories; Implementing Partner'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 EESL, as set forth in Appendix 6 (Scope of Works and Supply by the EESL) to the Contract Agreement.

7.2 The Contractor or Implementing Partner 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.

7.3 In addition to the supply of Mandatory Spare Parts if asked and warranty spares included in the Contract, the Implementing Partner agrees to supply spare parts required for the operation and maintenance of the Facilities. 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 EESL and the Implementing Partner, and the price of such if asked spare parts shall be that given in Price Schedule which shall be added to the Contract Price. The price of such spare parts shall include the purchase price there for and other costs and expenses (including the Implementing Partner's fees) relating to the supply of spare parts. The prices of spares covered under the Price Schedule shall be kept valid for a period as specified in SCC.

7.3.1 The Contractor / Implementing Partner agrees that the spare parts recommended by him for 3 years operation and quoted in price Schedule shall be supplied by him at the same terms and conditions as are otherwise applicable to this Contract. Further, the Implementing Partner also agrees to supply spare parts required for the operation and maintenance of the Facilities as per provision of subsequent paragraphs of this Sub-Clause.

7.3.1.1 All the spares for the equipment under the Contract will strictly conform to the Specification and other relevant documents and will be identical to the corresponding main equipment/components supplied under the Contract and shall be fully interchangeable.

7.3.1.2 All the mandatory spares covered under the Contract shall be produced along with the main equipment as a continuous operation and the delivery of the spares will be effected along with the main equipment in a phased manner and the delivery would be completed by the respective dates for the various categories of equipment as per the agreed network. In case of recommended spares the above will be applicable provided the orders for the recommended spares have been placed with the Implementing Partner prior to commencement of manufacture of the main equipment.

7.3.1.3 The Implementing Partner will provide the EESL with the manufacturing drawings, catalogues, assembly drawings and any other document required by the EESL so as to enable the EESL to identify the recommended spares. Such details will be furnished to the EESL as soon as they are prepared but in any case not later than six months prior to commencement of manufacture of the corresponding main equipment.

7.3.1.4 To enable the EESL to finalise the requirement of recommended spares which are ordered subsequent to placement of order for main equipment/plant, in addition to necessary technical details, catalogue and such other information brought-out herein above, the Implementing Partner will also provide a justification in support of reasonableness of the quoted prices of spares which will, inter-alia, include documentary evidence that the prices quoted by the Implementing Partner to the EESL are not higher than those charged by him from other customers in the same period.

7.3.1.5 In addition to the spares recommended by the Implementing Partner, if the EESL further identifies certain items of spares, the Implementing Partner will submit the prices and delivery quotation for such spares within thirty (30) days of receipt of such request with a validity period of six (6) months for consideration by the EESL and placement of order for additional spares if the EESL so desires.

7.3.1.6 The quality plan and the inspection requirement finalised for the main equipment will also be applicable to the corresponding spares.

7.3.1.7 The Contractor or Implementing Partner will provide the EESL with all the addresses and particulars of his sub-suppliers while placing the order on vendors for items/components/equipment covered under the Contract and will further ensure with his vendors that the EESL, if so desires, will have the right to place order for spares directly on them on mutually agreed terms based on offers of such vendors.

7.3.1.8 The Contractor orImplementing Partner shall guarantee the long term availability of spares to the EESL for the full life of the equipment covered under the Con-tract. The Implementing Partner shall guarantee that before going out of production of spare parts of the equipment covered under the Contract, he shall give the EESLatleast 2 years advance notice so that the latter may order his bulk requirement of spares, if it so desires. The same provision will also be applicable to Sub-Implementing Partners. Further, in case of discontinuance of manufacture of any spares by the Contractor and/or his Sub- Contractor or Implementing Partner, Implementing Partner will provide the EESL, two years in advance, with full manufacturing drawings, material specification and technical information including information on alternative equivalent makes required by the EESL for the purpose of manufacture/procurement of such items.

7.3.1.9 The prices of all future requirements of item of spares beyond 3 years operational requirement will be derived from the corresponding ex-works price at which the order for such spares have been placed by EESL as a part of mandatory spares or recommended spares, or from the rates of mandatory spares or recommended spares as quoted by/ negotiated with the Implementing Partner. Ex-works order price of future spares shall be computed in accordance with the price adjustment provisions covered under the main Contract excepting that the base indices will be counted from the scheduled date of Commissioning of the last equipment under the main project and there will be no ceiling on the amount of variation in the prices. The above option for procuring future recommended spares by the EESL shall remain valid for the period of 5 years from the date of Commissioning of the equipment.

7.3.1.10 The Implementing Partner will indicate in advance the delivery period of the items of spares, which the EESL may procure in accordance with above sub-clause. In case of emergency requirements of spares, the Con-tractor would make every effort to expedite the manufacture and delivery of such spares on the basis of mutually agreed time schedule.

7.3.1.11 In case the Implementing Partner fails to supply the mandatory, recommended or long term spares in the terms stipulated above, the EESL shall be entitled to purchase the same from the alternate sources at the risk and the cost of the Implementing Partner and recover from the Implementing Partner, the excess amount

paid by the EESL over the rates worked on the above basis. In the event of such risk purchase by the EESL, the purchases will be as per the Works and Procurement Policy of the EESL prevalent at the time of such purchases and the EESL at his option may include a representative from the Implementing Partner in finalising the purchases.

7.3.1.11 It is expressly understood that the final settlement between the par-ties in terms of relevant clauses of the Contract Documents shall not relieve the Implementing Partner of any of his obligations under the provision of long term availability of spares and such provisions shall continue to be enforced till the expiry of 5 years period reckoned from the scheduled date of Commissioning of the Plant and Equipment unless other-wise discharged expressly in writing by the EESL. Further, the provisions pertaining to long term availability of spares shall be ex-tended beyond 5 years applicability period mentioned hereinabove if so desired by the EESL and at the mutually acceptable escalation formula.

7.3.1.13 The Implementing Partner shall warrant that all spares supplied will be new and in accordance with the Contract Documents and will be free from de-fects in design, material and workmanship and shall further guarantee as under:

(i) For 3 years operational spares (both mandatory and recommended)

a) For any item of spares ordered or to be ordered by the EESL for 3 years operational requirement of the plant which are manufactured as a continuous operation together with the corresponding main equipment/component, the Defect Liability Period will be twelve (12) months from the scheduled date of commercial operation of main equipment/ plant under the Contract. 'Commercial Operation' shall mean the conditions of operation in which the complete equipment covered under the Contract is officially declared by the EESL to be available for continuous operation at different loads upto and including rated capacity. Such declaration by the EESL, however, shall not relieve or prejudice the Implementing Partner any of his obligations under the Contract. In case of any failure in the original component/equipments due to faulty designs, materials and workmanship, the corresponding spare parts, if any, supplied will be replaced without any extra cost to the EESL unless a joint examination and analysis by the EESL and the Implementing Partner of such spare parts prove that the defect found in the original part that failed, can safely be assumed not to be present in spare parts. Such replaced spare parts will have the same Defect Liability as applicable to the replacement made for the defective original part/component provided that such replacement for the original equipment and the spare replaced are again manufactured together. The discarded spare parts will become the property of the Implementing Partner as soon as they have been replaced by the Implementing Partner.

b) For the item of spares ordered or to be ordered by the EESL for 3 years operational requirement of the plant, which with the written approval of the EESL, are not manufactured as a continuous operation will be warranted for 7000 hrs of trouble free operation if used within a period of eighteen (18) months reckoned from the date of delivery at site. However, if such spare parts are put to use after eighteen (18) months of the delivery at Site then the guarantee of such spares will stand valid till the expiry of thirty six (36) months from the scheduled date of Commissioning of equipment/plant covered under the contract or 7000 hrs of trouble free operation after such spares are put in service, whichever is earlier.

c) For long term requirement

For item of spares that may be ordered by the EESL to cover requirements beyond 3 years of Initial Operation of the plant, the warranty will be till the expiry of 7000 hrs of trouble free operation if used within a period of eighteen (18) months from the date of delivery at site. For item of spares that may be used after eighteen (18) months from the date of delivery at site, the warranty period will be 12 months from the date they are put to use or 7000 hrs of trouble free operation, whichever is earlier. In any case the defect liability of spares will expire at the end of forty eight (48) months from the date of their receipt at site.

(ii) The Defect Liability of spares covered in para (b) & (c) above, that are not used within 18 months from the respective date of the delivery at Site will, however, be subject to condition

that all such spares being stored/maintained/preserved in accordance with Implementing Partner's standard recommended practice, if any, and the same has been furnished to the EESL.

8. **Time for Commencement and Completion**

8.1 The Implementing Partner shall commence work on the Facilities from the date of Notification of Award and without prejudice to GCC Sub-Clause 26.2 hereof, the Implementing Partner shall thereafter proceed with the Facilities in accordance with the time schedule specified in Appendix 4 (Time Schedule) to the Contract Agreement or / and as mentioned in special conditions of contract.

8.2 The Implementing Partner 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 SCC or within such extended time to which the Implementing Partner shall be entitled under GCC Clause 40 (Extension of Time for Completion) hereof.

9. **Contractor orImplementing Partner's Responsibilities**

9.1 The Contractor or Implementing Partner shall design, manufacture (including associated purchases and/or subcontracting), install and complete the Facilities with due care and diligence in accordance with the Contract.

9.2 The Contractor orImplementing Partner 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 EESL, and on the basis of information that the Contractor orImplementing Partner 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 at the date twenty-eight (28) days prior to bid submission. The Implementing Partner 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.

9.3 The Implementing Partner shall acquire in its name 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 that are necessary for the performance of the Contract, including, without limitation, visas for the Contractor or Implementing Partner's and Sub Contractor or Implementing Partner's personnel and entry permits for all imported Implementing Partner's Equipment. The Implementing Partner shall acquire all other permits, approvals and/or licenses that are not the responsibility of the EESL under GCC Sub-Clause 10.3 hereof and that are necessary for the performance of the Contract.

9.4 The Implementing Partner shall comply with all laws in force in the country wherethe Facilities are installed and where the Installation Services are carried out. The laws will include all national, provincial, municipal or otherlaws that affect the performance of the Contract and bind upon theImplementing Partner. The Implementing Partner shall indemnify and hold harmless the EESL from and against any and all liabilities, damages, claims, fines, penalties and expenses of whatever nature arising or resulting from the violation of such laws by the Contractor orImplementing Partner or its personnel, including theContractor orSubImplementing Partners and their personnel, but without prejudice to GCC Sub Clause 10.1 hereof.

9.5 Any Plant, Material and Services that will be incorporated in or berequired for the Facilities and other supplies shall have their origin asspecified under GCC Clause 3.13 (Country of Origin).

10. **EESL's Responsibilities**

10.1 The EESL shall ensure the accuracy of all information and/or data tobe supplied by the EESL as described in Appendix 6 (Scope ofWorks and Supply by the EESL) to the Contract, except whenotherwise expressly stated in the Contract.

10.2 The EESL shall be responsible for acquiring and providing legal andphysical possession of the Site and access thereto, and for providingpossession of and access to all other areas reasonably required for theproper execution of the Contract, including all requisite rights of way, asspecified in Appendix 6 (Scope of Works and Supply by the EESL)to the Contract Agreement. The EESL shall give full possession ofand accord all rights of access thereto on or before the date(s) specified in Appendix 6.

10.3 The EESL shall acquire and pay for all permits, approvals and/orlicenses from all local, state or national government authorities or publicservice undertakings in the country where the Site is located which suchauthorities or undertakings require the EESL to obtain them in theEESL's name, are necessary for the execution of the Contract (theyinclude those required for the performance by both the Implementing Partner andthe EESL of their respective obligations under the Contract), including those specified in Appendix 6 (Scope of Works and Supply by theEESL)

to the Contract Agreement.

10.4 If requested by the Implementing Partner, the EESL shall use its best endeavours to assist the Implementing Partner in obtaining in a timely and expeditiousmanner 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 theContractor orImplementing Partner or SubContractor or Implementing Partners or the personnel of the Contractor or Implementing Partner or Sub Contractor or Implementing Partners, as the case may be, to obtain.

10.5 Unless otherwise specified in the Contract or agreed upon by the EESL and the Implementing Partner, the EESL 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, to enable the Implementing Partner to properly carry out Precommissioning, Commissioning and Guarantee Tests, all in accordance with the provisions of Appendix 6 (Scope of Works and Supply by the EESL) to the Contract Agreement at or before the time specified in the program furnished by the Contractor orImplementing Partner under GCC Sub- Clause 18.2 (Program of Performance) hereof and in the manner there-upon specified or as otherwise agreed upon by the EESL and the Contractor orImplementing Partner.

10.6 The EESL shall be responsible for the continued operation of the Facilities after Completion, in accordance with GCC Sub-Clause 24.8, and shall be responsible for facilitating the Guarantee Test(s) for the Facilities, in accordance with GCC Sub-Clause 25.2.

10.7 All costs and expenses involved in the performance of the obligations under this GCC Clause 10 shall be the responsibility of the EESL save those to be incurred by the Implementing Partner with respect to the performance of Guarantee Tests, in accordance with GCC Sub-Clause 25.2.

C. Payment

11. **Contract Price**

11.1 The Contract Price shall be as specified in Article 2 (Contract Price and Terms of Payment) of the Form of Contract Agreement.

11.2 The Contract Price shall be adjusted in accordance with provisions of Appendix-2 (Price Adjustment) to the Contract Agreement,ifapplicable. It will be mentioned in SCC.

11.3 Subject to GCC Sub-Clauses 9.2, 10.1 and 35 (Unforeseen Conditions) hereof, the Implementing Partner shall be deemed to have satisfied itself as to the hereof, correctness and sufficiency of the Contract Price, which shall, expect as otherwise provided for in the Contract, cover all its obligations under the Contract.

12. **Terms of Payment**

12.1 The Contract price shall be paid as specified in Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement. The procedures to be followed in making application for and processing payments shall be those outlined in the same Appendix 1.

12.2 No payment made by the EESL herein shall be deemed to constitute acceptance by the EESL of the Facilities or any part(s) thereof.

12.3 The currency or currencies in which payments are made to the Implementing Partner under this Contract shall be specified in Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement, 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 Contract.

13. **Securities**

13.1 **Issuance of Securities**
The Implementing Partner shall provide the securities specified below in favour of theEESL at the times, and in the amount, manner and form specifiedbelow.

13.2 **Advance Payment Security**

13.2.1 The Implementing Partner shall, within twenty-eight (28) days of the notification of contract award, provide a

security in an amount equalto the advance payment calculated in accordance with Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement, and in the currency or currencies of the contract, with ainitial validity of up to ninety (90) days beyond the schedule dateof Completion of the Facilities in accordance with GCC Clause24. However, in case of delay in completion of facilities underthe package, the validity of the security shall be extended by the period of such delay.

13.2.2 The security shall be in the form of an unconditional bank guarantee as per the proforma provided in Section VII (Forms andProcedures)- Form of Advance Payment Security.The Advancepayment Security shall be reduced prorata every three (3) monthsafter First Running Account Bill/Stage Payment under the Contract based onthe value of equipment/facilities received. Thecumulative amount of reduction at any point of time shall notexceed seventy five percent (75%) of the advance correspondingto cumulative value of the respective equipment Facilities supplied and received as per a certificate issued by the ProjectManager and the balance of 25% released after ninety (90) daysbeyond the Completion of those Facilities. It should be clearlyunderstood that reduction in the value of security for advanceshall not in any way dilute the Implementing Partner's responsibility andliabilities under the Contract including in respect of the Facilitiesfor which the reduction in the value of security is allowed.

13.3 **Contract Performance Security**

13.3.1 The Implementing Partner shall, within twenty-eight (28) days of the Notification of Award, provide securities for the due performance of theContract for ten percent (10%) of the Contract Price of all the Contracts, with ainitial validity upto ninety (90) days beyond the endof scheduled Defect Liability Period of the last equipment coveredunder the package. If the EESL accepts to enters into 'SecondContract' and/or 'Third Contract' with the Assignee of a foreign Implementing Partner, pursuant to GCC Sub-Clause 3.6, the said Assignee, inaddition to the Contract Performance Securities to be provided bythe foreign Implementing Partner for ten percent (10%) of the value of all the Contracts i.e. First Contract, Second Contract and Third Contract, shall provide within twenty eight (28) days of the Notification of Award, separate Contract Performance Security(ies) equivalent to ten percent (10%) of the value of Contract(s) entered into with the Assignee, for the due performance of Contract, with a intial validity up to ninety (90) days beyond the end of Scheduled Defect Liability period of the last equipment covered under the package. However, in case of delay in completion of the defect liability period, the validity of all the contract performance securities shall be extended by the period of such delay.

13.3.2 The performance security shall be denominated in the currency orcurrencies of the Contract, or in a freely convertible currencyacceptable to the EESL, and shall be in the form of unconditional bank guarantee provided in Section-VII (Forms and Procedures)-Form of Performance Security of the bidding documents.

13.3.3 Unless otherwise stipulated in SCC, the security shall be reduced pro rata to the Contract Price of a part of the Facilities for which a separate time for Completion is provided, twenty one (21) months after Completion of the Facilities or where relevant part thereof, or fifteen (15) months after Operational Acceptance of the Facilities (or the relevant part thereof), 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 27.8 hereof, the Implementing Partner shall issue an additional security in an amount proportionate to the Contract Price of that part. The security shall be returned to the Implementing Partner immediately after its expiration, provided, however, that if the Implementing Partner, pursuant to GCC Sub-Clause 27.10, is liable for an extended warranty obligation, the performance security shall be extended for the period and up to the amount agreed upon or as specified in the SCC.

14. **Taxes and Duties**

14.1 Except as otherwise specifically provided in the Contract, the Implementing Partnershall bear and pay all taxes, duties, levies and charges assessed on theImplementing Partner, its SubImplementing Partners or their employees by all municipal, stateor national government authorities in connection with the Facilities in andoutside of the country where the Site is located.

14.2 Notwithstanding GCC Sub-Clauses 14.1 above, the EESL shall bearand promptly reimburse all customs and import duties, if imposed infuture, on the Plant and Equipment including Type Test and mandatoryspares supplied from abroad and specified in Price Schedule (andon spare parts to be supplied from abroad and specified in Schedule, when awarded) and that are to be incorporated into the Facilities,by the law of the country where the Site is located. However, if the plantand equipment are shipped in Shipper's containers, then the customduty levied on the cost of empty containers shall be borne and paid/reimbursed by the Implementing Partner. The EESL shall also bear and pay/reimburse to the Implementing Partner/Assignee of Foreign Implementing Partner (if applicable) Sales Tax (but not the surcharge in lieu of Sales Tax), Local Tax including Entry Tax / Octroi (if applicable) in respect of direct transactions between the EESL and the Implementing Partner, if imposed on the

Plant and Equipment including Type Test and Mandatory Spares manufactured within the EESL's country and specified in Price (and also on locally supplied spares quoted when awarded) to be incorporated in the Facilities, by the law of country where the site is located. For this purpose, the Ex-works price if quoted in foreign currency and so incorporated in the contract, shall be converted to Indian Rupees as per the TT buying exchange rates established by State Bank of India prevailing on the actual date of Ex-works (India) despatch.

All taxes, duties and levies on works contract, if any, shall be to the Implementing Partner's account and no separate claim in this regard will be entertained by the EESL.

14.3 If any tax exemptions, reductions, allowances or privileges is available to the Implementing Partner in the country where the Site is located, the EESL shall use its best endeavours to enable the Implementing Partner to benefit from any such tax savings to the maximum allowable extent.

14.4 For the purpose of the Contract, it is agreed that the Contract Price specified in Article 2 (Contract Price and Terms of Payment) of the Contract Agreement is based on the taxes, duties, levies and charges prevailing at the date seven (7) days prior to the last date of bid submission in the country where the Site is located (hereinafter called "Tax" in this GCC Sub-Clause 14.4). If any rates of Tax are increased or de-creased, a new Tax is introduced, an existing Tax is abolished, or any change in interpretation or application of any Tax occurs in the course of the performance of Contract, which was or will be assessed on the Implementing Partner in connection with performance of the Contract, an equitable adjustment of the Contract Price shall be made to fully take into account any such change by addition to the Contract Price or deduction there-from, as the case may be, in accordance with GCC Clause 36 (Change in Laws and Regulations) hereof. However, these adjustments would be restricted to direct transactions between the EESL and the Contractor/assignee of Foreign Implementing Partner (if applicable). These adjustments shall not be applicable on procurement of raw materials, intermediary components etc. by the Implementing Partner/assignee and also not applicable on the bought out items despatched directly from sub-vendor's works to site.

D. Intellectual Property

15. Copyright

15.1The copyright in all drawings, documents and other materials containingdata and information furnished to the EESL by the Implementing Partnerhereinshall remain vested in the Implementing Partner or, if they are furnished to theEESL directly or through the Implementing Partner by any third party, includingsuppliers of materials, the copyright in such materials shall remain vestedin such third party. The EESL shall however be free to reproduce alldrawings, documents and other material furnished to the EESL for
the purpose of the contract including, if required, for operation and maintenance of the facilities.

16. Confidential Information

16.1 The EESL and the Implementing Partner shall keep confidential and shall not,without the written consent of the other party hereto, divulge to any thirdparty any documents, data or other information furnished directly orindirectly by the other party hereto in connection with the Contract,whether such information has been furnished prior to, during or followingtermination of the Contract. Notwithstanding the above, the Contractor orImplementing Partnermay furnish to its SubContractor or Implementing Partner(s) such documents, data and otherinformation it receives from the EESL to the extent required for theSub Contractor or Implementing Partner(s) to perform its work under the Contract, in which eventtheImplementing Partner shall obtain from such SubContractor or Implementing Partner(s) an undertaking ofconfidentiality similar to that imposed on the Implementing Partner under this GCC
Clause16.

16.2 The EESL shall not use such documents, data and other informationreceived from the Implementing Partner for any purpose other than the operationand maintenance of the Facilities. Similarly, the Implementing Partner shall notuse such documents, data and other information received from the EESL for any purpose other than the design, procurement of Plantand Equipment, construction or such other work and services as are required for the performance of the Contract.

16.3 The obligation of a party under GCC Sub-Clauses 16.1 and 16.2 above, however, shall not apply to that information which

(a) now or hereafter enters the public domain through no fault of that party.

(b) 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 hereto

(c) Otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.

16.4 The above provisions of this GCC Clause 16 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 Facilities or any part thereof.

16.5 The provisions of this GCC Clause 16 shall survive termination, for what-ever reason, of the Contract.

E. **Work Execution**

17. Representatives

17.1 Project Manager

If the Project Manager is not named in the Contract, then within fourteen (14) days of the Effective Date, the EESL shall appoint and notify the Implementing Partner in writing of the name of the Project Manager. The EESL 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 Implementing Partner without delay. The EESL shall take reasonable care to see that no such appointment is made at such a time or in such a manner as to impede the progress of work on the Facilities. The Project Manager shall represent and act for the EESL at all times during the currency 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.

All notices, instructions, information and other communications given by the Implementing Partner to the EESL under the Contract shall be given to the Project Manager, except as herein otherwise provided.

17.2 Contractor's representative & Construction Manager

17.2.1 If the Implementing Partner's Representative is not named in the Contract, then within fourteen (14) days of the Effective Date, the Implementing Partner shall appoint the Implementing Partner's Representative and shall request the EESL in writing to approve the person so appointed. If the EESL makes no objection to the appointment within fourteen (14) days, the Implementing Partner's Representative shall be deemed to have been approved. If the EESL objects to the appointment within fourteen (14) days giving the reason therefor, then the Implementing Partner shall appoint a replacement within fourteen (14) days of such objection, and the foregoing provisions of this GCC Sub-Clause 17.2.1 shall apply thereto.

17.2.2 The Implementing Partner's Representative shall represent and act for the Implementing Partner at all times during the currency of the Contract and shall give to the Project Manager all the Implementing Partner's notices, instructions, information and all other communications under the Contract.

All notices, instructions, information and all other communications given by the EESL or the Project Manager to the Implementing Partner under the Contract shall be given to the Implementing Partner's Representative or, in its absence, its deputy, except as herein otherwise provided.

The Implementing Partner shall not revoke the appointment of the Implementing Partner's Representative without the EESL's prior written con-sent, which shall not be unreasonably withheld. If the EESL consents thereto, the Implementing Partner shall appoint some other per-son as the Implementing Partner's Representative, pursuant to the procedure set out in GCC Sub-Clause 17.2.1

17.2.3 The Implementing Partner's Representative may, subject to the approval of the EESL (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 Implementing Partner's Representa-tive, 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 EESL and the Project Manager.

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 17.2.3 shall be deemed to be an act or exercise by the Implementing Partner's

Representative.

17.2.3.1 Notwithstanding anything stated in GCC Sub-clause 17.1 and 17.2.1 above, for the purpose of execution of contract, the EESL and the Implementing Partner shall finalise and agree to a Contract Co-ordination Procedure and all the communication under the Contract shall be in accordance with such Contract Co-ordination Procedure.

17.2.4 From the commencement of installation of the Facilities at the Site until Operational Acceptance, the Implementing Partner's Representative shall appoint a suitable person as the construction manager (hereinafter referred to as "the Construction Manager"). The Construction Manager shall supervise all work done at the Site by the Implementing Partner 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. When-ever the Construction Manager is absent from the Site, a suitable person shall be appointed to act as his or her deputy.

17.2.5 The EESL may by notice to the Implementing Partner object to any representative or person employed by the Implementing Partner in the ex-ecution of the Contract who, in the reasonable opinion of the EESL, may behave inappropriately, may be incompetent or negligent, or may commit a serious breach of the Site regulations provided under GCC Sub-Clause 22.3. The EESL shall provide evidence of the same, whereupon the Implementing Partner shall remove such person from the Facilities.

17.2.6 If any representative or person employed by the Implementing Partner is removed in accordance with GCC Sub-Clause 17.2.5, the Con-tractor shall, where required, promptly appoint a replacement.

18. Work Program

18.1 Contractor orImplementing Partner's Organization

The Implementing Partner shall supply to the EESL and the Project Manager achart showing the proposed organization to be established by the Implementing Partner for carrying out work on the Facilities. The chart shall include theidentities of the key personnel together with the curricula vitae of suchkey personnel to be employed within twenty-one (21) days of the Effective Date. The Implementing Partner shall promptly inform the EESL and theProject Manager in writing of any revision or alteration of such an organization chart.

18.2 **Program of Performance**

Within twenty-eight (28) days after the date of notification of award ofContract, the Implementing Partner shall prepare and submit to the Project Manager a detailed program of performance of the Contract, made in the form ofPERT Network and showing the sequence in which it proposes to design, manufacture, transport, assemble, install and pre-commission theFacilities, as well as the date by which the Implementing Partner reasonably requires that the EESL shall have fulfilled its obligations under theContract so as to enable the Implementing Partner to execute the Contract inaccordance with the program and to achieve Completion and Acceptance of the Facilities in accordance with the Contract. The program sosubmitted by the Implementing Partner shall accord with the Time Schedule included in Appendix 4 (Time Schedule) to the Contract Agreement andany other dates and periods specified in the Contract. The Implementing Partnershall update and revise the program as andwhen appropriate or whenrequired by the Project Manager, but without modification in the Timesfor Completion given in the SCC and any extension granted in accordance with GCC Clause 40, and shall submit all such revisions to the Project Manager.

18.3 **Progress Report**

The Contractor orImplementing Partner shall monitor progress of all the activities specified inthe program referred to in GCC Sub-Clause 18.2 (Program of Performance) above, and supply a progress report to the Project Managerevery month.

The progress report shall be in a form acceptable to the Project Manager and shall also 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.

18.4 **Progress of Performance**

If at any time the Implementing Partner's actual progress falls behind the program referred to in GCC Sub-Clause 18.2 (Program of Performance), or it becomes apparent that it will so fall behind, the Implementing Partner shall, at the request of the EESL 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 under GCC Sub-Clause 8.2 (Time for Commencement and Completion), any extension thereof entitled under GCC Sub-Clause 40.1 (Extension of Time for Completion), or any ex-tended period as may otherwise be agreed upon between the

EESLand the Implementing Partner.

18.5 **Work Procedures**

The Contract shall be executed in accordance with the Contract Documents and the procedures given in the section on Forms and Procedures of the Contract Documents.

If agreed between the EESL and the Implementing Partner, the Implementing Partner 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.

18.6 **Maintenanceof Recordsof Weekly Progress Review meeting at Site**

The Contractor shall be required to attend all weekly site progress review meetings organised by the 'Project Manager' or his authorised representative. The deliberations in the meetings shall interalia include the weekly program, progress of work (including details of manpower, tools & plants deployed by the Contractor vis-a-vis agreed schedule), inputs to be provided by Employer, delays, if any and recovery program, specific hindrances to work and work instructions by Employer. The minutes of the weekly meetings shall be recorded in triplicate in a numbered register available with the Project Manager or his authorised representative. These representative and the Contractor and one copy of the signed records shall be handed over to the Contractor.

19. **Subcontracting**

19.1 Appendix 5 (List of Approved SubImplementing Partners) to the Contract Agreement specifies major items of supply or services and a list of approved Sub-Implementing Partners against each item, including vendors. Insofar as no SubImplementing Partners are listed against any such item, the Implementing Partner shall prepare a list of SubImplementing Partners for such item for inclusion in such list. The Implementing Partner may from time to time propose any addition to or deletion from any such list. The Implementing Partner shall submit any such list or any modification thereto to the EESL for its approval in sufficient time so as not to impede the progress of work on the Facilities. Such approval by the EESL for any of the SubImplementing Partners shall not relieve the Implementing Partner from any of its obligations, duties or responsibilities under the Contract.

19.2 The Implementing Partner shall select and employ its SubImplementing Partners for such major items from those listed in the lists referred to in GCC Sub-Clause 19.1.

19.3 For items or parts of the Facilities not specified in Appendix 5 (List of Approved SubImplementing Partners) to the Contract Agreement, the Implementing Partner may employ such SubImplementing Partners as it may select, at its discretion.

20. **Design and Engineering**

20.1 **Specifications and Drawings**

20.1.1 The Implementing Partner shall execute the basic and detailed design andthe engineering work in compliance with the provisions of theContract, or where not so specified, in accordance with goodengineering practice.

The Implementing Partner shall be responsible for any discrepancies, errorsor omissions in the specifications, drawings and other technicaldocuments that it has prepared, whether such specifications,drawings and other documents have been approved by the ProjectManager or not, provided that such discrepancies, errors oromissions are not because of inaccurate information furnished inwriting to the Implementing Partner by or on behalf of the EESL.

20.1.2 The Implementing Partner shall be entitled to disclaim responsibility forany design, data, drawing, specification or other document, orany modification thereof provided or designated by or on behalfof the EESL, by giving a notice of such disclaimer to the Project Manager.

20.2 **Codes and Standards**

Wherever references are made in the Contract to codes and standardsin accordance with which the Contract shall be executed, the editionor the revised version of such codes and standards current at the datetwenty-eight (28) days prior to date of bid submission shall apply unlessotherwise specified. During Contract execution, any changes in suchcodes and standards shall be applied after approval by the EESL andshall be treated in accordance with GCC Clause 39 (Changes Originating from Implementing Partner).

20.3 **Approval/Review of Technical Documents by Project Manager, where ever applicable**

20.3.1 The Implementing Partner shall prepare (or cause its SubImplementing Partners toprepare) and furnish to the Project Manager the documents listedin Appendix 7 (List of Documents for Approval or Review) to theContract Agreement for its approval or review as specified and asin accordance with the requirements of GCC Sub-Clause 18.2(Program of Performance).

Any part of the Facilities covered by or related to the documentsto be approved by the Project Manager shall be executed only after the Project Manager's approval thereof.

GCC Sub-Clauses 20.3.2 through 20.3.7 shall apply to thosedocuments requiring the Project Manager's approval, but not tothose furnished to the Project Manager for its review only.

20.3.2 Within twenty one (21) days after receipt by the Project Managerof any document requiring the Project Manager's approval in accordance with GCC Sub-Clause 20.3.1, the Project Manager shall either return one copy thereof to the Implementing Partner with its approval endorsed thereon or shall notify the Implementing Partner in writing of its disapproval thereof and the reasons therefor and the modifications that the Project Manager proposes.

20.3.3 The Project Manager shall not disapprove any document, except on the grounds that the document does not comply with some specified provision of the Contract or that it is contrary to good engineering practice.

20.3.4 If the Project Manager disapproves the document, the Implementing Partner shall modify the document and resubmit it for the Project Manager's approval in accordance with GCC Sub-Clause 20.3.2. If the Project Manager approves the document subject to modification(s), the Implementing Partner shall make the required modification(s), and upon resubmission with the required modifications the document shall be deemed to have been approved.

The procedure for submission of the documents by the Implementing Partner and their approval by the Project Manager shall be discussed and finalised with the Implementing Partner.

20.3.5 If any dispute or difference occurs between the EESL and the Implementing Partner in connection with or arising out of the disapproval by the Project Manager of any document and/or any modification(s) thereto that cannot be settled between the parties within a reasonable period, then such dispute or difference may be referred to an Adjudicator for determination in accordance with GCC Sub-Clause 6.1 (Adjudicator) hereof. If such dispute or difference is referred to an Adjudicator, the Project Manager shall give instructions as to whether and if so, how, performance of the Contract is to proceed. The Implementing Partner shall proceed with the Contract in accordance with the Project Manager's instructions, provided that if the Adjudicator upholds the Implementing Partner's view on the dispute and if the EESL has not given notice under GCC Sub-Clause 6.1.2 hereof, then the Implementing Partner shall be reimbursed by the EESL for any additional costs incurred by reason of such instructions and shall be relieved of such responsibility or liability in connection with the dispute and the execution of the instructions as the Adjudicator shall decide, and the Time for Completion shall be extended accordingly.

20.3.6 The Project Manager's approval, with or without modification of the document furnished by the Implementing Partner, shall not relieve the Implementing Partner 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.

20.3.7 The Implementing Partner shall not depart from any approved documentunless the Implementing Partner has first submitted to the Project Manageran amended document and obtained the Project Manager'sapproval thereof, pursuant to the provisions of this GCC Sub-Clause 20.3.

If the Project Manager requests any change in any alreadyapproved document and/or in any document based thereon, theprovisions of GCC Clause 39 (Change in the Facilities) shallapply to such request.

21. **Prourement**

21.1 **Plant and Equipment**

Subject to GCC Sub-Clause 14.2, the Implementing Partner shall manufacture orprocure and transport all the Plant and Equipment in an expeditious and orderly manner to the Site.

21.2 **EESL-Supplied Plant, Equipment, and Materials**

If Appendix 6 (Scope of Works and Supply by the EESL) to theContract Agreement provides that the EESL shall furnish any specificitems of machinery, equipment or materials to the Implementing Partner, the followingprovisions shall apply:

21.2.1 The EESL shall, at its own risk and expense, transport eachitem to the place on or near the Site as agreed upon by theparties and make such item available to the Implementing Partner at thetime specified in the program furnished by the Implementing Partner,pursuant to GCC Sub-Clause 18.2 (Program of Performance),unless otherwise mutually agreed.

21.2.2 Upon receipt of such item, the Implementing Partner shall inspect the samevisually and notify the Project Manager of any detected shortage,defect or default. The EESL shall immediately remedy anyshortage, defect or default, or the Implementing Partner shall, if practicableand possible, at the request of the EESL, remedy suchshortage, defect or default at the EESL's cost and expense. After inspection, such item shall fall under the care, custody andcontrol of the Implementing Partner. The provision of this GCC Sub-Clause21.2.2 shall apply to any item supplied to remedy any suchshortage or default or to substitute for any defective item, or shallapply to defective items that have been repaired.

21.2.3 The foregoing responsibilities of the Implementing Partner and its obligationsof care, custody and control shall not relieve the EESLofliability for any undetected shortage, defect or default, nor placethe Implementing Partner under any liability for any such shortage, defect ordefault whether under GCC Clause 27 (Defect Liability) or underany other provision of Contract.

21.3 **Transportation**

21.3.1 The Implementing Partner shall at its own risk and expense transport all the Plant and Equipment and the Implementing Partner's Equipment to the Site by the mode of transport that the Implementing Partner judges most suitable under all the circumstances.

Packing Material

The Contractor shall ensure that all the plant and equipment are suitably packed and protected to prevent damage or deterioration during its transportation to site, handling and storage at site till the time of its installation. The ownership of all such packing material (except empty shipper's containers on which the customs duty has been paid by the Contractor) shall standtransferred to the Employer upon dispatch of the plant and equipment and endorsement of dispatch documentsinfavouroftheEmployer.

21.3.2 Unless otherwise provided in the Contract, the Implementing Partner shall be entitled to select any safe mode of transport operated by any person to carry the Plant and Equipment and the Implementing Partner's Equipment.

21.3.3 Upon despatch of each shipment of the Plant and Equipment and the Implementing Partner's Equipment, the Implementing Partner shall notify theEESL by telex, cable, facsimile or Electronic Data Interchange (EDI) of the description of the Plant and Equipment and of the Implementing Partner's Equipment, the point and means of dispatch, and the estimated time and point of arrival in the country where theSite is located, if applicable, and at the Site. The Implementing Partner shall furnish the EESL with relevant shipping documents to be agreed upon between the parties.

21.3.4 The Implementing Partner shall be responsible for obtaining, if necessary, approvals from the authorities for transportation of the Plant and Equipment and the Implementing Partner's Equipment to the Site. The EESL shall use its best endeavors in a timely and expeditious manner to assist the Implementing Partner in obtaining such approvals, if requested by the Implementing Partner. The Implementing Partner shall indemnify and hold harmless the EESL from and against any claim for damage to roads, bridges or any other traffic facilities that may be caused by the transport of the Plant and Equipment and the Implementing Partner's Equipment to the Site.

21.4 **Customs Clearance**

The Implementing Partner shall, at its own expense, handle all imported Plant and Equipment and Implementing Partner's Equipment at the point(s) of import and shall handle any formalities for customs clearance, subject to the EESL's obligations under GCC Sub-Clause 14.2, provided that if applicable laws or regulations require any application or act to be made by or in the name of the EESL, the EESL shall take all necessary steps to comply with such laws or regulations. In the event of delays in customs clearance due to fault of the EESL, the

Implementing Partner shall be entitled to an extension in the Time for Completion, pursuant to GCC Clause 40.

22. **Installation**

22.1 **Setting Out/Supervision/Labour**

22.1.1 Bench Mark: The Implementing Partner shall be responsible for the true and proper setting-out of the Facilities in relation to bench marks, reference marks and lines provided to it in writing by or on behalf of the EESL. 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 Implementing Partner 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 EESL, the expense of rectifying the same shall be borne by the EESL.

22.1.2 Implementing Partner's Supervision: The Implementing Partner 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 Implementing Partner 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.

22.1.3 Labour:

(a) The Implementing Partner 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 Implementing Partner is encouraged to use local labor that has the necessary skills.

(b) Unless otherwise provided in the Contract, the Implementing Partner shall be responsible for the recruitment, transportation, accommodation and catering of all labor, local or expatriate, required for the execution of the Contract and for all payments in connection therewith.

(c) The Implementing Partner 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.

(d) The Implementing Partner shall at its own expense provide the means of repatriation to all of its and its SubImplementing Partner's personnel employed on the Contract at the Site to their various home countries. 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 Implementing Partner defaults in providing such means of transportation and temporary maintenance, the EESL may provide the same to such personnel and recover the cost of doing so from the Implementing Partner.

(e) The Implementing Partner shall at all times during the progress of the Contract use its best endeavors to prevent any unlawful, riotous or disorderly conduct or behavior by or amongst its employees and the labor of its SubImplementing Partners.

(f) The Implementing Partner shall, in all dealings with its labor and the labor of its SubImplementing Partners currently employed on or connected with the Contract, pay due regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulations pertaining to the employment of labor.

22.2 **Contractor,sImplementing Partner's Equipment**

22.2.1 AllContractors or Implementing Partners' Equipment brought by the Implementing Partner onto the Site shall be deemed to be intended to be used exclusively for the execution of the Contract. The Implementing Partnershall not remove the same from the Site without the Project Manager's consent that such Implementing Partner's Equipment is no longer required for the execution of the Contract.

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

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

22.3 **Site Regulations and Safety**

The EESL and the Implementing Partner 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 Implementing Partner shall prepare and submit to the EESL, with a copy to the Project Manager, proposed Site regulations for the EESL'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.

22.4 **Opportunities for Other Implementing Partners**

22.4.1 The Implementing Partner shall, upon written request from the EESL or the Project Manager, give all reasonable opportunities for carrying out the work to any other Implementing Partners employed by the EESL on or near the Site.

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

22.4.3 The Implementing Partner shall also so arrange to perform its work as to minimize, to the extent possible, interference with the work of other Implementing Partners. The Project Manager shall determine the resolution of any difference or conflict that may arise between the Implementing Partner and other Implementing Partners and the workers of the EESL in regard to their work.

22.4.4 The Implementing Partner shall notify the Project Manager promptly of any defects in the other Implementing Partners' work that come to its notice, and that could affect the Implementing Partner's work. The Project Manager shall determine the corrective measures, if any, required to rectify the situation after inspection of the Facilities. Decisions made by the Project Manager shall be binding on the Implementing Partner.

22.5 **Emergency Work**

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 Implementing Partner shall immediately carry out such work.

If the Implementing Partner is unable or unwilling to do such work immediately, the EESL may do or cause such work to be done as the EESL may determine is necessary in order to prevent damage to the Facilities. In such event the EESL shall, as soon as practicable after the occurrence of any such emergency, notify the Implementing Partner in writing of such emergency, the work done and the reasons therefor. If the work done or caused to be done by the EESL is work that the Implementing Partner was liable to do at its own expense under the Contract, the reasonable costs incurred by the EESL in connection therewith shall be paid by the Implementing Partner to the EESL. Otherwise, the cost of such remedial work shall be borne by the EESL.

22.6 **Site Clearance**

22.6.1 Site Clearance in Course of Performance: In the course of carrying out the Contract, the Implementing Partner 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 Implementing Partner's Equipment no longer required for execution of the Contract.

22.6.2 Clearance of Site after Completion: After Completion of all parts of the Facilities, the Implementing Partner shall clear away and remove all wreckage, rubbish and debris of any kind from the Site, and shall leave the Site and Facilities clean and safe.

DisposalofScrap

The Contractor shall with the agreement of the Employer promptly remove from the site any 'Scrap' generated during performance of any activities at site in pursuance of the Contract. The term 'Scrap' shall refer to scrap / waste / remnants arising out of the fabrication of structural steel work and piping work at the project site in the course of execution of the contract and shall also include any wastage of cables during the termination process while installing the cables.

The ownership of such Scrap shall vest with the Contractor except in cases where the items have been issued by the Employer from its stores for their installation only without any adjustment to the Contract Price. The removal of scrap shall be subject to the Contractor producing the necessary clearance from the relevant authorities (Custom, Excise etc.), if required by the law, in respect of disposal of the scrap. The liability for the payment of the applicable taxes/duties shall be that of the Contractor. Harmful scrap shall be disposed as per environmental statuary or other guidelines at contractor or implementing partner own cost.

The Contractor shall also indemnify to keep the Employer harmless from any act of omission or negligence on the part of the Contractor in following the statutory requirements with regard to removal/disposal of scrap. The Indemnity Bond shall be furnished by Contractor as per proforma enclosed in Section-VII (Forms and Procedure) as Form No. 14. Further, in case the laws require the Employer to take prior permission of the relevant Authorities before handing over the scrap to the Contractor, the same shall be obtained by the Contractor on behalf of the Employer.

However scrap generated in say replacement of pumps (i.e. old pumps as scrap) or any other scrap which is owned by EESL as per contract agreement, the same shall be disposed by EESL and EESL will get the payment. Contractor or Implementing Partner will co-ordinate with EESL and the agency picking up the scrap, for scrap disposal.

22.7 **Watching and Lighting**

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

22.8 **Work at Night and on Holidays**

22.8.1 Unless otherwise provided in the Contract, no work shall becarried out during the night and on public holidays of the countrywhere the Site is located without prior written consent of theEESL, except where work is necessary or required to ensuresafety of the Facilities or for the protection of life, or to preventloss or damage to property, when the Implementing Partner shallimmediately advise the Project Manager, provided that provisionsof this GCC Sub-Clause 22.8.1 shall not apply to any work which is customarily carried out by rotary or double-shifts.

22.8.2 Notwithstanding GCC Sub-Clauses 22.8.1 or 22.1.3, if and when the Implementing Partner considers it necessary to carry out work at night or on public holidays so as to meet the Time for Completion and requests the EESL's consent thereto, the EESL shall not unreasonably withhold such consent.

23. **Test and Inspection**

23.1 The Implementing Partner 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 Plantand Equipment and any part of the Facilities as are specified in the Contract.

23.2 The EESL and the Project Manager or their designated representatives shall be entitled to attend the aforesaid test and/or inspection, provided that the EESL shall bear all costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and board and lodging expenses.

23.3 Whenever the Implementing Partner is ready to carry out any such test and/orinspection, the Implementing Partner shall give a reasonable advance notice of suchtest and/or inspection and of the place and time thereof to the ProjectManager. The Implementing Partner shall obtain from any relevant third party ormanufacturer any necessary permission or consent to enable theEESL and the Project Manager (or their designated representatives)to attend the test and/or inspection

23.4 The Implementing Partner shall provide the Project Manager with a certified report of the results of any such test and/or inspection.

If the EESL or Project Manager (or their designated representatives)fails to attend the test and/or inspection, or if it is agreed between theparties that such persons shall not do so, then the Implementing Partner mayproceed 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.

23.5 The Project Manager may require the Implementing Partner to carry out any test and/or inspection not required by the Contract, provided that the Implementing Partner'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 impedes the progress of work on the Facilities and/or the Implementing Partner'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.

23.6 If any Plant and Equipment or any part of the Facilities fails to pass any test and/or inspection, the Implementing Partner shall either rectify or replace such Plant and Equipment or part of the Facilities and shall repeat the test and/or inspection upon giving a notice under GCC Sub-Clause 23.3.

23.7 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 and Equipment or part of the Facilities that cannot be settled between the parties within a reasonable period of time, it may be referred to the Adjudicator for determination in accordance with GCC Sub-Clause 6.1 (Adjudicator).

23.8 The Implementing Partner shall afford the EESL and the Project Manager, at the EESL's expense, access at any reasonable time to any place where the Plant and Equipment 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 Implementing Partner a reasonable prior notice.

23.9 The Implementing Partner agrees that neither the execution of a test and/or inspection of Plant and Equipment or any part of the Facilities, nor the attendance by the EESL or the Project Manager, nor the issue of any test certificate pursuant to GCC Sub-Clause 23.4, shall release the Implementing Partner from any other responsibilities under the Contract.

23.10 No part of the Facilities or foundations shall be covered up on the Site without the Implementing Partner carrying out any test and/or inspection required under the Contract. The Implementing Partner shall give a reasonable notice to the Project Manager whenever any such part 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.

23.11 The Implementing Partner 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.

If any part of the Facilities or foundations have been covered up at the Site after compliance with the requirement of GCC Sub-Clause 23.10 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 EESL, and the Time for Completion shall be reasonably adjusted to the extent that the Implementing Partner has thereby been delayed or impeded in the performance of any of its obligations under the Contract.

24. Completion of the Facilities

24.1 As soon as the Facilities orany part thereof has, in the opinionof the Implementing Partner, been completed operationally and structurally and putin a tight and clean condition as specified in the Technical Specifications, excluding minor items not materially affecting the operation or safety o the Facilities, the Implementing Partner shall so notify the EESL in writing.

24.2 Within seven (7) days after receipt of the notice from the Implementing Partnerunder GCC Sub-Clause 24.1, the EESL shall supply the operatingand maintenance personnel specified in Appendix 6 (Scope of Worksand Supply by the EESL) to the Contract Agreement, required forPrecommissioning of the Facilities or any part thereof.

Unless otherwise specified in the Technical Specifications, the EESLshall also provide, within the said seven (7) day period, the raw materials,utilities, lubricants, chemicals, catalysts, facilities, services and othermatters required for Precommissioning of the Facilities or any part thereof.

24.3 As soon as reasonably practicable after the operating and maintenance personnel have been supplied by the EESL and the raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters, if so specified in Appendix 6 (Scope of Works and Supply by the EESL)/ Technical Specifications, have been provided by the EESL in accordance with GCC Sub-Clause 24.2, the Implementing Partner shall commence Precommissioning of the Facilities or the relevant part thereof in preparation for Commissioning.

24.4 As soon as all works in respect of Precommissioning are completed and, in the opinion of the Implementing Partner, the Facilities or any part thereof is ready for Commissioning, the Implementing Partner shall commence Commissioning as per procedures stipulated in Technical Specifications, and as soon as Commissioning is satisfactorily completed, the Implementing Partner shall so notify the Project Manager in writing.

24.5 The Project Manager shall, within fourteen (14) days after receipt of the Implementing Partner's notice under GCC Sub-Clause 24.4, either issue a Completion Certificate in the form specified in the Forms and Procedures section in the bidding documents, stating that the Facilities or that part thereof have reached Completion as at the date of the Implementing Partner's notice under GCC Sub-Clause 24.4, or notify the Implementing Partner in writing of any defects and/or deficiencies.

If the Project Manager notifies the Implementing Partner of any defects and/or deficiencies, the Implementing Partner shall then correct such defects and/or deficiencies, and shall repeat the procedure described in GCC Sub Clause 24.4.

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 Implementing Partner's repeated notice, issue a Completion Certificate stating that the Facilities or that part thereof have reached Completion as at the date of the Implementing Partner's repeated notice.

If the Project Manager is not so satisfied, then it shall notify the Implementing Partner in writing of any defects and/or deficiencies within seven (7) days after receipt of the Implementing Partner's repeated notice, and the above procedure shall be repeated.

24.6 If the Project Manager fails to issue the Completion Certificate and fails to inform the Implementing Partner of any defects and/or deficiencies within fourteen (14) days after receipt of the Implementing Partner's notice under GCC Sub-Clause 24.4 or within seven (7) days after receipt of the Implementing Partner's repeated notice under GCC Sub-Clause 24.5, or if the EESL 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 Implementing Partner's notice or repeated notice, or as of the EESL's use of the Facilities, as the case may be.

24.7 As soon as possible after Completion, the Implementing Partner shall complete all outstanding minor items so that the Facilities are fully in accordance with the requirements of the Contract, failing which the EESL will undertake such completion and deduct the costs thereof from any monies owing to the Implementing Partner.

24.8 Upon Completion, the EESL 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.

25. Commissioning, Guarantee Test and Operational Acceptance

25.1 Commissioning

25.1.1 Commissioning of the Facilities or any part thereof shall becompleted by the Implementing Partner as per procedures detailed in the Technical Specifications.

The EESL shall, unless otherwise specified in Appendix 6(Scope of Works and Supply by the EESL)/ TechnicalSpecifications, supply the operating and maintenance personneland all raw materials, utilities, lubricants, chemicals, catalysts ,facilities, services and other matters required for Commissioningof the Facilities.

25.2 Guarantee Test (where ever applicable)

25.2.1 The Guarantee Test (and repeats thereof) shall be conducted by the Implementing Partner after 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 Contract Documents. The Implementing Partner's and Project Manager's advisory personnel shall attend the Guarantee Test. The EESL shall promptly provide the Implementing Partner with such information as the Implementing Partner may reasonably require in relation to the conduct and results of the Guarantee Test (and any repeats thereof).

25.2.2 If for reasons not attributable to the Implementing Partner, 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 SCC or any other period agreed upon by the EESL and the Implementing Partner, the Implementing Partner shall be deemed to have fulfilled its obligations with respect to the Functional Guarantees, and GCC Sub-Clauses 28.2 and 28.3 shall not apply.

25.3 Operational Acceptance

25.3.1 Subject to GCC Sub-Clause 25.4 (Partial Acceptance) below, Operational Acceptance shall occur in respect of the Facilities or any part thereof when

(a) the Guarantee Test has been successfully completed and the Functional Guarantees are met; or
(b) the Guarantee Test has not been successfully completed or has not been carried out for reasons not attributable to the Implementing Partner within the period from the date of Completion specified in the SCC or any other agreed upon period as specified in GCC Sub-Clause 25.2.2 above, but successful Completion of the Facilities has been achieved; or
(C) the Implementing Partner has paid the liquidated damages specified in GCC Sub-Clause 28.3 hereof; and

(d) any minor items mentioned in GCC Sub-Clause 24.7 hereof relevant to the Facilities or that part thereof have been completed.

25.3.2 At any time after any of the events set out in GCC Sub-Clause 25.3.1 have occurred, the Implementing Partner may give a notice to the Project Manager requesting the issue of an Operational Acceptance Certificate in the form provided in the Bidding Documents or in another form acceptable to the EESL in respect of the Facilities or the part thereof specified in such notice as at the date of such notice.

25.3.3 The Project Manager shall, after consultation with the EESL, and within forty five (45) days after receipt of the Implementing Partner's notice, issue an Operational Acceptance Certificate.

25.3.4 If within forty five (45) days after receipt of the Implementing Partner's notice, the Project Manager fails to issue the Operational Acceptance Certificate or fails to inform the Implementing Partner 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 at the date of the Implementing Partner's said notice.

25.4 Partial Acceptance

25.4.1 If the Contract specifies that Completion and Commissioning shallbe carried out in respect of parts of the Facilities, the provisionsrelating to Completion and Commissioning including the GuaranteeTest shall apply to each such part of the Facilities individually, andthe Operational Acceptance Certificate shall be issued accordingly for

each such part of the Facilities.

25.4.2 If a part of the Facilities comprises facilities such as buildings, forwhich no Commissioning or Guarantee Test is required, then theProject Manager shall issue the Operational AcceptanceCertificate for such facility when it attains Completion, providedthat the Implementing Partner shall thereafter complete any outstanding minoritems that are listed in the Operational Acceptance Certificate.

F. Guarantees and Liabilities

26. Completion Time Guarantee

26.1 The Implementing Partner guarantees that it shall attain Completion of the Facilities (or a part for which a separate time for completion is specified in theSCC) within the Time for Completion specified in the SCC pursuant toGCC Sub-Clause 8.2, or within such extended time to which the Implementing Partnershall be entitled under GCC Clause 40 (Extension of Time for Completion) hereof.

26.2 If the Implementing Partner fails to attain Completion of the Facilities or any part thereof within the Time for Completion or any extension thereof under GCC Clause 40 (Extension of Time for Completion), the Implementing Partner shall pay to the EESL liquidated damages in the amount computed at the rates specified in the SCC. The aggregate amount of such liquidated damages shall in no event exceed the amount specified as “Maximum” in the SCC. Once the “Maximum” is reached, the EESL may consider termination of the Contract, pursuant to GCC Sub-Clause 42.2.2.

Such payment shall completely satisfy the Implementing Partner’s obligation toattain Completion of the Facilities or the relevant part thereof within theTime for Completion or any extension thereof under GCC Clause 40(Extension of Time for Completion). The Implementing Partner shall have no furtherliability whatsoever to the EESL in respect thereof.

However, the payment of liquidated damages shall not in any way relieve the Implementing Partner from any of its obligations to complete the Facilities or from any other obligations and liabilities of the Implementing Partner under the Contract.

Save for liquidated damages payable under this GCC Sub-Clause 26.2, the failure by the Implementing Partner to attain any milestone or other act, matter or thing by any date specified in Appendix 4 (Time Schedule) to the Contract Agreement and/or other program of work prepared pursuant to GCC Clause 18 (Program of Performance) shall not render the Implementing Partner liable for any loss or damage thereby suffered by the EESL.

27. Defect Liability

27.1 The Implementing Partner warrants that the Facilities or any part thereof shall befree from defects in the design, engineering, materials and workmanship of the Plant and Equipment supplied and of the work executed.

27.2 The Defect Liability Period shall be eighteen (18) months from the date ofCompletion of the Facilities (or any part thereof) or twelve (12) monthsfrom the date of Operational Acceptance of the Facilities (or any partthereof), whichever first occurs, unless specified otherwise in the SCC.

If during the Defect Liability Period any defect should be found in thedesign, engineering, materials and workmanship of the Plant andEquipmentsupplied or of the work executed by the Implementing Partner, theImplementing Partner shall promptly, in consultation and agreement with theEESL regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good (as the Implementing Partner shall, at itsdiscretion, determine) such defect as well as any damage to the Facilitiescaused by such defect. The Implementing Partner shall not be responsible for therepair, 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:

(a) improper operation or maintenance of the Facilities by the EESL

(b) operation of the Facilities outside specifications provided in the Contract.

(c) Normal wear and tear.

27.3 The Implementing Partner’s obligations under this GCC Clause 27 shall not apply to

(a) any materials that are supplied by the EESL under GCC Sub- Clause 21.2 (EESL-Supplied Plant, Equipment and Materials), 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 EESL or any matters for which the Implementing Partner has disclaimed responsibility herein.

(c) any other materials supplied or any other work executed by or on behalf of the EESL, except for the work executed by the EESL under GCC Sub-Clause 27.7.

27.4 The EESL shall give the Implementing Partner a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The EESL shall afford all reasonable opportunity for the Implementing Partner to inspect any such defect.

27.5 The EESL shall afford the Implementing Partner all necessary access to the Facilities and the Site to enable the Implementing Partner to perform its obligations under this GCC Clause 27.
The Implementing Partner may, with the consent of the EESL, remove from the Site any Plant and Equipment 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.

27.6 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 EESL may give to the Implementing Partner a notice requiring that tests of the defective part of the Facilities shall be made by the Implementing Partner immediately upon completion of such remedial work, whereupon the Implementing Partner shall carry out such tests.

If such part fails the tests, the Implementing Partner 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 in character shall in any case be not less than what has already been agreed by the EESL and the Implementing Partner for the original equipment/part of the Facilities.

27.7 If the Implementing Partner 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 EESL may, following notice to the Implementing Partner, proceed to do such work, and the reasonable costs incurred by the EESL in connection therewith shall be paid to the EESL by the Implementing Partner or may be deducted by the EESL from any monies due to the Implementing Partner or claimed under the Performance Security.

27.8 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 EESL because of any of the aforesaid reasons.Upon correction of the defects in the Facilities or any part thereof by repair/ replacement, such repair/replacement shall have the Defect Liability Period extended by a period of twelve (12) month from the time such replacement/ repair of the Facilities or any part therof.

27.9 Except as provided in GCC Clauses 27 and 33 (Loss of or DamagetoProperty / Accident or Injury to Workers/Indemnification), the Implementing Partnershall be under no liability whatsoever and howsoever arising, and whetherunder the Contract or at law, in respect of defects in the Facilities or anypart thereof, the Plant and Equipment, design or engineering or workexecuted that appear after Completion of the Facilities or any part thereof,except where such defects are the result of the grossnegligence ,fraud, criminal or wilful action of the Implementing Partner.

27.10 In addition, the Implementing Partner shall also provide an extended warranty for any such component of the Facilities and during the period of time as may be specified in the SCC. Such obligation shall be in addition to the defect liability specified under GCC Sub-Clause 27.2.

28. **Functional Guarantees**

28.1 The Implementing Partner guarantees that during the Guarantee Test, the Facilities and all parts thereof shall attain the Functional Guarantees specified in Appendix 8 (Functional Guarantees) to the Contract Agreement, subject to and upon the conditions therein specified.

28.2 If, for reasons attributable to the Implementing Partner, the guaranteed level of the Functional Guarantees specified in Appendix 8 (Functional Guarantees) to the Contract Agreement are not met either in whole or in part, the Implementing Partner shall, within a mutually agreed time, 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 such Guarantees. The Implementing Partner shall notify the EESL upon completion of the necessary changes, modifications and/or additions, and shall seek the EESL's consent to repeat the Guarantee Test. If the specified Functional Guarantees are not established even during the repeat of the Guarantee Test, the EESL may at its option, either

(a) Reject the Equipment and recover the payments already made, or

(b) Terminate the Contract pursuant to GCC Sub-Clause 42.2.2 and recover the payments already made, or

(c) Accept the equipment after levy of liquidated damages in accordance with the provisions specified in Appendix-8(Functional Guarantees) to the Contract Agreement.

28.3 In case the EESL exercises its option to accept the equipment after levy of liquidated damages, the payment of liquidated damages under GCC Sub-Clause 28.2, up to the limitation of liability specified in the Appendix-8 (Functional Guarantees) to the Contract Agreement, shall completely satisfy the Implementing Partner's guarantees under GCC Sub-Clause 28.2, and the Implementing Partner shall have no further liability whatsoever to the EESL in respect thereof. Upon the payment of such liquidated damages by the Implementing Partner, 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.

29. **Patent Indemnity**

29.1 The Implementing Partner shall, subject to the EESL's compliance with GCC Sub-Clause 29.2, indemnify and hold harmless the EESL 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 EESL 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 Implementing Partner 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.

Such indemnity shall not cover any use of the Facilities or any part thereof other than for the purpose indicated by or to be reasonablyinferred from the Contract, any infringement resulting from the use of theFacilities or any part thereof, or any products produced thereby inassociation or combination with any other equipment, plant or materialsnot supplied by the Implementing Partner, pursuant to the Contract Agreement.

29.2 If any proceedings are brought or any claim is made against the EESLarising out of the matters referred to in GCC Sub-Clause 29.1, the EESL shall promptly give the Implementing Partner a notice thereof, and the Implementing Partner may at its own expense and in the EESL's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

If the Implementing Partner fails to notify the EESL within twenty-eight (28) daysafter receipt of such notice that it intends to conduct any such proceedingsor claim, then the EESL shall be free to conduct the same on its ownbehalf. Unless the Implementing Partner has so failed to notify the EESL withinthe twenty-eight (28) day period, the EESL shall make no admissionthat may be prejudicial to the defense of any such proceedings or claim.

The EESL shall, at the Implementing Partner's request, afford all availableassistance to the Implementing Partner in conducting such proceedings or claim,and shall be reimbursed by the Implementing Partner for all reasonable expenses incurred in so doing.

29.3The EESL shall indemnify and hold harmless the Implementing Partner and its employees, officers and SubImplementing Partners 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 Implementing Partner 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 provided or designed by or on behalf of the EESL.

30. **Limitation of Liability**

30.1 Except in cases of criminal negligence or wilful misconduct,

(a) the Implementing Partner shall not be liable to the EESL, whether incontract, tort, or otherwise, for any indirect or consequential lossor damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to anyobligation of the Implementing Partner to pay liquidated damages to theEESL and

(b) the aggregate liability of the Implementing Partner to the EESL, whetherunder the Contract, in tort or otherwise, shall not exceed the totalContract Price, provided that this limitation shall not apply to anyobligation of the Implementing Partner to indemnify the EESL with respectto patent infringement or as specified in SCC.

G. Risk Distribution

31. Transfer of Ownership

31.1Ownership of the Plant and Equipment (including spare parts) procured in the country where the Site is located shall be transferred to the EESL when the Plant and Equipment are reached at site.

31.2Ownership of the Implementing Partner's Equipment used by the Implementing Partnerand itsSubImplementing Partners in connection with the Contract shall remain with theImplementing Partner or its SubImplementing Partners.

31.3Ownership of any Plant and Equipment in excess of the requirements for the Facilities shall revert to the Implementing Partner upon Completion of the Facilities or at such earlier time when the EESL and the Implementing Partner agree that the Plant and Equipment in question are no longer required for the Facilities, provided quantity of any Plant and Equipment specifically stipulated in the Contract shall be the property of the EESL whether or not incorporated in the Facilities.

31.4 Disposalofsurplusmaterial

Ownership of any Plant and Equipment in excess of the requirements for the Facilities (i.e. surplus material) shall revert to the Contractor upon Completion of the Facilities and Guarantee Test or at such earlier time when the Employer and the Contractor agree that the Plant and Equipment in question are no longer required for the Facilities, provided quantity of any Plant and Equipment specifically stipulated in the Contract shall be the property of the Employer whether or not incorporated in the Facilities. The Contractor shall remove from the site such surplus material brought by him in pursuance of the Contract, subject to the Contractor producing the necessary clearance from the relevant authorities (Customs, Excise etc.), if required by law, in respect of re-export or disposal of the surplus material locally. The liability for the payment of the applicable taxes/ duties, if any, on the surplus material so re-exported and/or disposed locally shall be that of the Contractor.

The Contractor shall also indemnify to keep the Employer harmless from any act of omission or negligence on the part of the Contractor in following the statutory requirements with regard to removal / disposal of surplus material. The Indemnity Bond shall be furnished by contractor as per proforma enclosed in Section-VII (Forms and Procedure) as Form No. 14. Further, in case the laws require the Employer to take prior permission of the relevant Authorities before handing over the surplus material to the Contractor, the same shall be obtained by the Contractor on behalf of the Employer.

31.5 Notwithstanding the transfer of ownership of the Plant and Equipment, the responsibility for care and custody thereof together with the risk, of loss or damage thereto shall remain with the Implementing Partner pursuant to GCC Clause 32 (Care of Facilities) hereof until Completion of the Facilities or the part thereof in which such Plant and Equipment are incorporated.

31.5 In case of two/three Contracts entered into between the EESL and the Implementing Partner as per GCC Sub-Clause 3.6 or where the EESL hands over his equipment to the Implementing Partner for executing the Contract, then the Implementing Partner shall at the time of taking delivery of the Equipment through Bill of Lading or other despatch documents furnish Trust Receipt for Plant, Equipment and Materials and also execute an Indemnity Bond in favour of the EESL in the form acceptable to EESL for keeping the equipment in safe custody and to utilise the same exclusively for the purpose of the said Contract. Proforma for the Trust Receipt and Indemnity bond. TheEESL shall also issue a separate Authorisation Letter to the Implementing Partnerto enable him to take physical delivery of plant, equipment and materials from the EESL.

32 Care of Facilities

32.1 The Implementing Partner 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 24 (Completion of the Facilities) 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 Implementing Partnershall also be responsible for any loss or damage to the Facilities caused by the Implementing Partner or its SubImplementing Partners in the course of any work carried out, pursuant to GCC Clause 27 (Defect Liability). Notwithstanding the foregoing, the Implementing Partner 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 referred to in paragraphs (a), (b) and (c) of GCC Sub-Clauses 32.2 and 38.1.

32.2 If any loss or damage occurs to the Facilities or any part thereof or to the Implementing Partner's temporary facilities by reason of

(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 Implementing Partner 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 (Insurance) hereof.

(b) any use or occupation by the EESL or any third party (otherthan a SubImplementing Partner) authorized by the EESL of any part ofthe Facilities.

(c) any use of or reliance upon any design, data or specificationprovided or designated by or on behalf of the EESL, or anysuch matter for which the Implementing Partner has disclaimed responsibilityherein,

the EESL shall pay to the Implementing Partner all sums payable in respect ofthe Facilities executed, notwithstanding that the same be lost, destroyedor damaged, and will pay to the Implementing Partner the replacement value of alltemporary facilities and all parts thereof lost, destroyed or damaged. Ifthe EESL requests the Implementing Partner in writing to make good any lossor damage to the Facilities thereby occasioned, the Implementing Partner shallmake good the same at the cost of the EESL in accordance withGCC Clause 39 (Change in the Facilities). If the EESL does notrequest the Implementing Partner in writing to make good any loss or damage tothe Facilities thereby occasioned, the EESL shall either request achange in accordance with GCC Clause 39 (Change in the Facilities),excluding the performance of that part of the Facilities thereby lost,destroyed or damaged, or, where the loss or damage affects a substantialpart of the Facilities, the EESL shall terminate the Contract pursuantto GCC Sub-Clause 42.1 (Termination for EESL's Convenience) hereof,except that the Implementing Partner shall have no entitlement to profit underparagraph (e) of GCC Sub-Clause 42.1.3 in respect of any unexecutedFacilities as at the date of termination.

32.3 The Implementing Partner shall be liable for any loss of or damage to any Implementing Partner's Equipment, or any other property of the Implementing Partner used or intended to be used for purposes of the Facilities, except (i) as mentioned in GCC Sub-Clause 32.2 (with respect to the Implementing Partner's temporary facilities), and (ii) where such loss or damage arises by reason of any of the matters specified in GCC Sub-Clauses 32.2(b) and (c) and 38.1.

32.3 With respect to any loss or damage caused to the Facilities or any partthereof or to the Implementing Partner's Equipment by reason of any of the mattersspecified in GCC Sub-Clause 38.1, the provisions of GCC Sub-Clause38.3 shall apply.

33 Loss of or Damage to Property; Accident or Injury to workers; Indemnification

33.1 Subject to GCC Sub - Clause 33.3, the Implementing Partner shall indemnify andhold harmless the EESL and its employees and officers from andagainst 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 injuryof any person or loss of or damage to any property (other than theFacilities whether accepted or not), arising in connection with the supplyand installation of the Facilities and by reason of the negligence of theImplementing Partner or its SubImplementing Partners, or their employees, officers or agents,except any injury, death or property damage caused by the negligence of the EESL, its Implementing Partners, employees, officers or agents.

33.2 If any proceedings are brought or any claim is made against the EESLthat might subject the Implementing Partner to liability under GCC Sub-Clause33.1, the EESL shall promptly give the Implementing Partner a notice thereofand the Implementing Partner may at its own expense and in the EESL's nameconduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

If the Implementing Partner fails to notify the EESL within twenty-eight (28) daysafter receipt of such notice that it intends to conduct any such proceedingsor claim, then the EESL shall be free to conduct the same on its ownbehalf. Unless the Implementing Partner has so failed to notify the EESL withinthe twenty-eight (28) day period, the EESL shall make no admission that may be prejudicial to the defense of any such proceedings or claim.

The EESL shall, at the Implementing Partner's request, afford all availableassistance to the Implementing Partner in conducting such proceedings or claim,and shall be reimbursed by the Implementing Partner for all reasonable expensesincurred in so doing.

33.3 The EESL shall indemnify and hold harmless the Implementing Partner and itsemployees, officers and SubImplementing Partners from any liability for loss of ordamage to property of the EESL, other than the Facilities not yettaken over, that is caused by fire, explosion or any other perils, inexcess of the amount recoverable from insurances procured under GCCClause 34 (Insurances), provided that such fire, explosion or other perilswere not caused by any act or failure of the Implementing Partner.

33.4 The party entitled to the benefit of an indemnity under this GCC Clause33 shall take all reasonable measures to mitigate any loss or damagewhich has occurred. If the party fails to take such measures, the other party's liabilities shall be correspondingly reduced.

34 Insurance

34.1 To the extent specified in Appendix 3 (Insurance Requirements) to theContract Agreement, the Implementing Partner shall at its expense take out andmaintain in effect, or cause to be taken out and maintained in effect, during the performance of the Contract, the insurances set forth below inthe sums and with the deductibles and other conditions specified in thesaid Appendix. The identity of the insurers and the form of the policiesshall be subject to the approval of the EESL, who should not
Unreasonably withhold such approval.

(a) Cargo Insurance During Transport

Covering loss or damage occurring while in transit from the Implementing Partner's or SubImplementing Partner's works or stores until arrival atthe Site, to the Plant and Equipment (including spare parts therefor)and to the Implementing Partner's Equipment.

(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 extendedmaintenance coverage for the Implementing Partner's liability in respect of any loss or damage occurring during the Defect Liability Period while the Implementing Partner is on the Site for the purpose of performing its obligations during the Defect Liability Period.

(c)Third Party Liability Insurance

Covering bodily injury or death suffered by third parties (including the EESL's personnel) and loss of or damage to property occurring in connection with the supply and installation of the Facilities.

(d) Automobile Liability Insurance

Covering use of all vehicles used by the Implementing Partner or its SubImplementing Partners (whether or not owned by them) in connection with the execution of the Contract.

(e) Workers' Compensation

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

(f) EESL's Liability

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

(g) Other Insurances

Such other insurances as may be specifically agreed upon by the parties hereto as listed in the said Appendix 3.

34.2 The EESL shall be named as co-insured under all insurance policies taken out by the Implementing Partner pursuant to GCC Sub-Clause 34.1, except for the Third Party Liability, Workers' Compensation and EESL's Liability Insurances, and the Implementing Partner's SubImplementing Partners shall be named as co-insured's under all insurance policies taken out by the Implementing Partner pursuant to GCC Sub-Clause 34.1 except for the Cargo Insurance During Transport, Workers' Compensation and EESL's Liability Insurances. All insurers' rights of subrogation against such co-insured's for losses or claims arising out of the performance of the Contract shall be waived under such policies.

34.3 The Implementing Partner shall, in accordance with the provisions of Appendix 3 (Insurance Requirements) to the Contract Agreement, deliver to the EESL 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 EESL by insurers prior to cancellation or material modification of a policy.

34.4 The Implementing Partner shall ensure that, where applicable, its SubImplementing Partner(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 SubImplementing Partners are covered by the policies taken out by the Implementing Partner.

34.5 The EESL shall at its expense take out and maintain in effect during the performance of the Contract those insurances specified in Appendix 3 (Insurance Requirements) to the Contract Agreement.

34.6 If the Implementing Partner fails to take out and/or maintain in effect the insurances referred to in GCC Sub-Clause 34.1, the EESL may take out and maintain in effect any such insurances and may from time to time deduct from any amount due the Implementing Partner under the Contract any premium that the EESL shall have paid to the insurer, or may otherwise recover such amount as a debt due from the Implementing Partner. If the EESL fails to take out and/or maintain in effect the insurances referred to in GCC 34.5, the Implementing Partner may take out and maintain in effect any such insurances and may from time to time deduct from any amount due the EESL under the Contract any premium that the Implementing Partner shall have paid to the insurer, or may otherwise recover such amount as a debt due from the EESL. If the Implementing Partner fails to or is unable to take out and maintain in effect any such insurances, the Implementing Partner shall nevertheless have no liability or responsibility towards the EESL, and the Implementing Partner shall have full recourse against the EESL for any and all liabilities of the EESL herein.

34.7 Unless otherwise provided in the Contract, the Implementing Partner shall prepare and conduct all and any claims made under the policies effected by it pursuant to this GCC Clause 34, and all monies payable by any insurers shall be paid to the Implementing Partner as per the procedure outlined in GCC Sub- Clause 34.8 below. The EESL shall give to the Implementing Partner all such reasonable assistance as may be required by the Implementing Partner. With respect to insurance claims in which the EESL's interest is involved, the Implementing Partner shall not give any release or make any compromise with the insurer without the prior written consent of the EESL. With respect to insurance claims in which the Implementing Partner's interest is involved, the EESL shall not give any release or make any compromise with the insurer without the prior written consent of the Implementing Partner.

34.8 (i) wherever total damages/loss of equipment/material, would occur, the Implementing Partner will be entitled to payment of all payments received from the underwriters except the following amounts:

(a) The amount paid to the Implementing Partner under the Contract in respect of equipment/material damaged/lost (excluding the pro-rata initial advance) but including the entire amount of escalation, if any, already paid to the Con-tractor.

(b) Custom Duties and other taxes and duties which have already been paid by the EESL.

In the event the claim money settled, is less than the total of the amount in a & b above, then the entire claim money settled will be retained by the EESL and the Implementing Partner will forth-with pay the EESL the short fall amount between the claim money and the total of amounts as per a & b mentioned above.
Subsequent payments, if any, due under the Contract shall be regulated by the relevant terms of payment.

(II) In case of damage to any equipment/material during any stage,the Implementing Partner upon rectification of the damaged equipment tothe satisfaction of the EESL shall be paid to the extent offull claims settled by the underwriters.

35 Unforeseen Conditions

35.1 If, during the execution of the Contract, the Implementing Partner shall encounter onthe Site any physical conditions (other than climatic conditions) or artificialobstructions that could not have been reasonably foreseen prior to thedate of the Contract Agreement by an experienced Implementing Partner on thebasis of reasonable examination of the data relating to the Facilities(including any data as to boring tests) provided by the EESL, and onthe basis of information that it could have obtained from a visual inspectionof the Site (if access thereto was available) or other data readily availableto it relating to the Facilities, and if the Implementing Partner determines that it willin consequence of such conditions or obstructions incur additional costand expense or require additional time to perform its obligations under the Contract that would not have been required if such physical conditionsor artificial obstructions had not been encountered, the Implementing Partner shallpromptly, and before performing additional work or using additional Plantand Equipment or Implementing Partner's Equipment, notify the Project Manager inwriting of

a) the physical conditions or artificial obstructions on the Site thatcould not have been reasonably foreseen.

b) the additional work and/or Plant and Equipment and/or Implementing Partner'sEquipment required, including the steps which the Implementing Partner willor proposes to take to overcome such conditions or obstructions.

c) the extent of the anticipated delay.

d) the additional cost and expense that the Implementing Partner is likely toincur.

On receiving any notice from the Implementing Partner under this GCC Sub-Clause35.1, the Project Manager shall promptly consult with the EESL andImplementing Partner and decide upon the actions to be taken to overcome thephysical conditions or artificial obstructions encountered. Following suchconsultations, the Project Manager shall instruct the Implementing Partner, with acopy to the EESL, of the actions to be taken.

35.2 Any reasonable additional cost and expense incurred by the Implementing Partnerin following the instructions from the Project Manager to overcome suchphysical conditions or artificial obstructions referred to in GCC Sub-Clause 35.1 shall be paid by the EESL to the Implementing Partner as anaddition to the Contract Price.

35.3 If the Implementing Partner 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 35.1, the Time for Completion shall be extended in accordance with GCC Clause 40 (Extension of Time for Completion).

36 Change in Laws and Regulations

36.1 If, after the date seven (7) days prior to the date of Bid submission, inthe country where the Site is located, any law, regulation, ordinance,order or by-law having the force of law is enacted, promulgated, abrogatedor changed (which shall be deemed to include any change in interpretationor application by the competent authorities) that subsequently affectsthe costs and expenses of the Implementing Partner and/or the Time for Completion,the Contract Price shall be correspondingly increased or decreased,and/or the Time for Completion shall be reasonably adjusted to theextent that the Implementing Partner has thereby been affected in the performanceof any of its obligations under the Contract. However, these adjustmentswould be restricted to direct transactions between the EESL and theImplementing Partner/Assignee of Foreign Implementing Partner (if applicable). These adjustmentshall not be applicable on procurement of raw materials, intermediarycomponents etc. by the Implementing Partner/Assignee of Foreign Implementing Partner andshall also not be applicable on bought out items despatched directlyfrom sub-vendor works to site. Further, no adjustment of the ContractPrice and/or payment or reimbursement of taxes, duties or levies shallbe made on account of variation in or withdrawal of Deemed Exportbenefits. Notwithstanding the foregoing, such additional or reduced costsshall not be separately paid or credited if the same has already beenaccounted for in the price adjustment provisions where applicable, in accordance with the Appendix 2 to the Contract Agreement.

37 Force Majure

37.1 "Force Majeure" shall mean any event beyond the reasonable control ofthe EESL or of the Implementing Partner, as the case may be, and which isunavoidable notwithstanding the reasonable care of the party affected.

37.2 If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within fourteen (14) days after the occurrence of such event.

37.3 The party who has given such notice shall be excused from theperformance or punctual performance of its obligations under the Contractfor so long as the relevant event of Force Majeure continues and to theextent that such party's performance is prevented, hindered or delayed.The Time for Completion shall be extended in accordance with GCCClause 40 (Extension of Time for Completion).

37.4 The party or parties affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect thereof upon its or their performance of the Contract and to fulfil its or their obligations under the Contract, but without prejudice to either party's right to terminate the Contract under GCC Sub-Clauses 37.6 and 38.5.

37.5 No delay or non performance by either party hereto caused by the occurrence of any event of Force Majeure shall

a) constitute a default or breach of the Contract

b) (subject to GCC Sub-Clauses 32.2, 38.3 and 38.4) give rise to any claim for damages or additional cost or expense occasioned thereby

If and to the extent that such delay or non performance is caused by the occurrence of an event of Force Majeure.

37.6 If the performance of the Contract is substantially prevented, hindered or delayed for a single period of more than sixty (60) days or an aggregate period of more than one hundred and twenty (120) days on account of one or more events of Force Majeure during the currency of the Contract, the parties will attempt to develop a mutually satisfactory solution, failing which the dispute shall be resolved in accordance with GCC Clause 6.

37.7 Notwithstanding GCC Sub-Clause 37.5, Force Majeure shall not apply to any obligation of the EESL to make payments to the Implementing Partnerherein.

38 War Risks

38.1 "War Risks" shall mean any of the following events occurring or existingin or near the country (or countries) where the Site is located:

a) war, hostilities or warlike operations (whether a state of war is declared or not), invasion, act of foreign enemy and civil war

b) rebellion, revolution, insurrection, mutiny, usurpation of civil or military government, conspiracy, riot, civil commotion and terrorist acts, and

c) any explosion or impact of any mine, bomb, shell, grenade or other projectile, missile, munitions or explosive of war.

38.2 Notwithstanding anything contained in the Contract, the Implementing Partner shall have no liability whatsoever for or with respect to

a) destruction of or damage to Facilities, Plant & Equipment, or any part thereof

b) destruction of or damage to property of the EESL or any third party

c) injury or loss of life

if such destruction, damage, injury or loss of life is caused by any War Risks, and the EESL shall indemnify and hold the Implementing Partner harmless from and against any and all claims, liabilities, actions, lawsuits, damages, costs, charges or expenses arising in consequence of or in connection with the same.

38.3 If the Facilities or any Plant and Equipment or Implementing Partner's Equipment or any other property of the Implementing Partner used or intended to be used for the purposes of the Facilities shall sustain destruction or damage by reason of any War Risks, the EESL shall pay the Implementing Partner for

a) any part of the Facilities or the Plant and Equipment so destroyed or damaged (to the extent not already paid for by the EESL)

b) replacing or making good any Implementing Partner's Equipment or other property of the Implementing Partner so destroyed or damaged so far as may be required by the EESL, and as may be necessary for completion of the Facilities,

c) replacing or making good any such destruction or damage to the Facilities or the Plant and Equipment or any part thereof.

If the EESL does not require the Implementing Partner to replace or make good any such destruction or damage to the Facilities, the EESL shall either request a change in accordance with GCC Clause 39 (Change in the Facilities), excluding the performance of that part of the Facilities thereby destroyed or damaged or, where the loss, destruction or damage affects a substantial part of the Facilities, shall terminate the Contract, pursuant to GCC Sub-Clause 42.1 (Termination for EESL's Convenience).

38.4 Notwithstanding anything contained in the Contract, the EESL shall pay the Implementing Partner for any increased costs or incidentals to the execution of the Contract that are in any way attributable to, consequent on, resulting from, or in any way connected with any War Risks, provided that the Implementing Partner shall as soon as practicable notify the EESL in writing of any such increased cost.

38.5 If during the performance of the Contract any War Risks shall occur that financially or otherwise materially affect the execution of the Contract by the Implementing Partner, the Implementing Partner shall use its reasonable efforts to execute the Contract with due and proper consideration given to the safety of its and its SubImplementing Partners' personnel engaged in the work on the Facilities, provided, however, that if the execution of the work on the Facilities becomes impossible or is substantially prevented for a single period of more than sixty (60) days or an aggregate period of more than one hundred and twenty (120) days on account of any War Risks, the parties will attempt to develop a mutually satisfactory solution, failing which the dispute will be resolved in accordance with GCC Clause 6.

38.6 In the event of termination pursuant to GCC Sub-Clauses 38.3, the rights and obligations of the EESL and the Implementing Partner shall be specified in GCC Sub-Clauses 42.1.2 and 42.1.3, except that the Implementing Partner shall have no entitlement to profit under paragraph (e) of GCC Sub-Clause 42.1.3 in respect of any unexecuted Facilities as of the date of termination.

H. **Change in Contract Element**

39.1 **Changes in the Facilities**

39.1.1 The EESL shall have the right to propose, and subsequently require, that the Project Manager order the Implementing Partner 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 the Facilities as specified in the Contract .

39.1.2 The Implementing Partner may from time to time during its performance ofthe Contract propose to the EESL (with a copy to the ProjectManager) any Change that the Implementing Partner considers necessaryor desirable to improve the quality, efficiency or safety of theFacilities. The EESL may at its discretion approve or rejectany Change proposed by the Implementing Partner.

39.1.3 Notwithstanding GCC Sub-Clauses 39.1.1 and 39.1.2, no change made necessary because of any default of the Implementing Partner 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.

39.1.4 The procedure on how to proceed with and execute Changes is specified in GCC Sub-Clauses 39.2 and 39.3.

39.2 **Changes Originating from EESL**

If the EESL proposes a Change pursuant to GCC Sub-Clause 39.1.1, it shall send to the Implementing Partner a "Request for Change Proposal," requiring the Implementing Partner to prepare and furnish to the Project Manager as soon as reasonably practicable a "Change Proposal," which shall include the following:

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 any other provisions of the Contract.

39.2.2 The pricing of any Change shall, as far as practicable, becalculated in accordance with the rates and prices included inthe Contract. If the rates and prices of any change are in the Contract, the parties thereto shall agree onspecific rates for the valuation of the Change.

39.2.3 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 Implementing Partner under this GCC Clause 39 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 (15) percent, the Implementing Partner may give a written notice of objection thereto prior to furnishing the Change Proposal as aforesaid. If the EESL accepts the Implementing Partner's objection, the EESL and the Implementing Partner shall agree on specific rates for valuation of the change.

39.2.4 Upon receipt of the Change Proposal, the EESL and the Implementing Partner shall mutually agree upon all matters therein contained including agreement on rates if such rates are not available in the Contract or if the limit of 15% set forth in Clause 39.2.3 has been exceeded. Within fourteen (14) days after such agreement, the EESL shall, if it intends to proceed with the Change, issue the Implementing Partner with a Change Order.

If the EESL is unable to reach a decision within fourteen (14) days, it shall notify the Implementing Partner with details of when the Implementing Partner can expect a decision.

If the EESL decides not to proceed with the Change for whatever reason, it shall, within the said period of fourteen (14) days, notify the Implementing Partner accordingly.

39.2.5 If the EESL and the Implementing Partner 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 EESL may nevertheless instruct the Implementing Partner to proceed with the Change by issue of a "Pending Agreement Change Order."

Upon receipt of a Pending Agreement Change Order, the Implementing Partner 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.

39.3 **Changes Originating from Implementing Partner**

39.3.1 If the Implementing Partner proposes a Change pursuant to GCC Sub-Clause 39.1.2, the Implementing Partner 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 39.2.1.

Upon receipt of the Application for Change Proposal, the parties shall follow the procedures outlined in GCC Sub-Clauses 39.2.4 and 39.2.5

40. Extension of Time for Completion

40.1 The Time(s) for Completion specified in the SCC shall be extendedif theImplementing Partner is delayed or impeded in the performance of anyof itsobligations under the Contract by reason of any of the following:

a) any Change in the Facilities as provided in GCC Clause 39 (Change in the Facilities)

b) any occurrence of Force Majeure as provided in GCC Clause 37 (Force Majeure), unforeseen conditions as provided in GCC Clause 35 (Unforeseen Conditions), or other occurrence of any of the matters specified or referred to in paragraphs (a), (b) and (c) of GCC Sub-Clause 32.2

c) any suspension order given by the EESL under GCC Clause 41 (Suspension) hereof or reduction in the rate of progress pursuant to GCC Sub-Clause 41.2 or

d) any changes in laws and regulations as provided in GCC Clause 36 (Change in Laws and Regulations) or

e) any default or breach of the Contract by the EESL, specifically including failure to supply the items listed in Appendix 6 (Scope of Works and Supply by the EESL) to the Contract Agreement, or any activity, act or omission of any other Implementing Partners employed by the EESL or

f) any other matter specifically mentioned in the Contract;

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 Implementing Partner.

40.2 Except where otherwise specifically provided in the Contract, the Implementing Partner 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 EESL and the Implementing Partner shall agree upon the period of such extension. In the event that the Implementing Partner does not accept the EESL's estimate of a fair and reasonable time extension, the Implementing Partner shall be entitled to refer the matter to the Adjudicator, pursuant to GCC Sub-Clause 6.1 (Adjudicator).

40.3 The Implementing Partner shall at all times use its reasonable efforts to minimize any delay in the performance of its obligations under the Contract.

41 Suspension

41.1 The EESL/ Project Manager may, by notice to the Implementing Partner, orderthe Implementing Partner to suspend performance of any or all of its obligationsunder the Contract. Such notice shall specify the obligation of whichperformance is to be suspended, the effective date of the suspensionand the reasons therefore.The Implementing Partner shallthereupon suspendperformance of such obligation (except those obligations necessary forthe care or preservation of the Facilities) until ordered in writing to resume such performance by the Project Manager/ EESL.

If, by virtue of a suspension order given by the Project Manager/EESLother than by reason of the Implementing Partner's default or breach of the Contract, the Implementing Partner'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 Implementing Partner may give a notice to the Project Manager requiring that the EESL 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 39 (Change in the Facilities), excluding the performance of the suspended obligations from the Contract.

If the EESL fails to do so within such period, the Implementing Partner 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 39 (Change in the Facilities) or, where it affects the whole of the Facilities, as termination of the Contract under GCC Sub-Clause 42.1 (Termination for EESL's Convenience).

41.2 If

a) the EESL has failed to pay the Implementing Partner any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement, or commits a substantial breach of the Contract, the Implementing Partner may give a notice to the EESL that requires payment of such sum, requires approval of such invoice or supporting documents, or specifies the breach and requires the EESL to remedy the same, as the case may be. If the EESL fails to pay such sum, 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 Implementing Partner's notice or

b) the Implementing Partner is unable to carry out any of its obligations under the Contract for any reason attributable to the EESL, including but not limited to the EESL's failure to provide possession of or access to the Site or other areas in accordance with GCC Sub-Clause 10.2, or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities; then the Implementing Partner may by fourteen (14) days' notice to the EESL suspend performance of all or any of its obligations under the Contract, or reduce the rate of progress.

41.3 If the Implementing Partner's performance of its obligations is suspended or the rate of progress is reduced pursuant to this GCC Clause 41, 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 Implementing Partner as a result of such suspension or reduction shall be paid by the EESL to the Implementing Partner in addition to the Contract Price, except in the case of suspension order or reduction in the rate of progress by reason of the Implementing Partner's default or breach of the Contract.

41.4 During the period of suspension, the Implementing Partner shall not remove from the Site any Plant and Equipment, any part of the Facilities or any Implementing Partner's Equipment, without the prior written consent of the EESL.

42 Termination

42.1 **Termination for EESL's Convenience**

42.1.1 The EESL may at any time terminate the Contract for any reason by giving the Implementing Partner a notice of termination that refers to this GCC Sub-Clause 42.1.

42.1.2 Upon receipt of the notice of termination under GCC Sub-Clause 42.1.1, the Implementing Partner shall either immediately or upon the date specified in the notice of termination

(a) cease all further work, except for such work as the EESL may specify in the notice of termination for the sole purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition

(b) terminate all subcontracts, except those to be assigned to the EESL pursuant to paragraph (d)(ii) below

(c) remove all Implementing Partner's Equipment from the Site, repatriate the Implementing Partner's and its SubImplementing Partners' personnel from the Site, remove from the Site any wreckage, rubbish and debris of any kind, and leave the whole of the Site in a clean and safe condition.

(d) In addition, the Implementing Partner, subject to the payment specified in GCC Sub-Clause 42.1.3, shall

(i) Deliver to the EESL the parts of the Facilities executed by the Implementing Partner up to the date of termination

(ii) to the extent legally possible, assign to the EESL all right, title and benefit of the Implementing Partner to the Facilities and to the Plant and Equipment as at the date of termination, and, as may be required by the EESL, in any subcontracts concluded between the Implementing Partner and its SubImplementing Partners

(iii) deliver to the EESL all non-proprietary drawings, specifications and other documents prepared by the Implementing Partner or its SubImplementing Partners as at the date of termination in connection with the Facilities.

42.1.3 In the event of termination of the Contract under GCC Sub-Clause 42.1.1, the EESL shall pay to the Implementing Partner the following amounts:

(a) the Contract Price, properly attributable to the parts of the Facilities executed by the Implementing Partner as of the date of termination
(b) the costs reasonably incurred by the Implementing Partner in the removal of the Implementing Partner's Equipment from the Site and in the repatriation of the Implementing Partner's and its SubImplementing Partners' personnel.

(c) any amounts to be paid by the Implementing Partner to its SubImplementing Partners in connection with the termination of any subcontracts, including any cancellation charges.

(d) costs incurred by the Implementing Partner in protecting the Facilities and leaving the Site in a clean and safe condition pursuant to paragraph (a) of GCC Sub-Clause 42.1.2

(e) the cost of satisfying all other obligations, commitments and claims that the Implementing Partner may in good faith have undertaken with third parties in connection with the Contract and that are not covered by paragraphs (a) through (d) above.

42.2 **Termination for Contractor orImplementing Partner's Default**

42.2.1 The EESL, without prejudice to any other rights or remedies it may possess, may terminate the Contract forthwith in the following circumstances by giving a notice of termination and its reasons therefor to the Implementing Partner, referring to this GCC Sub-Clause 42.2:

(a) if the Implementing Partner becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, if the Implementing Partner is a corporation, a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), a receiver is appointed over any part of its undertaking or assets, or if the Implementing Partner takes or suffers any other analogous action in consequence of debt.

(b) if the Implementing Partner assigns or transfers the Contract or any right or interest therein in violation of the provision of GCC Clause 43 (Assignment).

(c) if the Implementing Partner, in the judgement of the EESL has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this Sub-Clause:

"corrupt practice" means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.

"fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the EESL and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the EESL of the benefits of free and open competition.

42.2.2 If the Implementing Partner

(a) has abandoned or repudiated the Contract

(b) has without valid reason failed to commence work on the Facilities promptly or has suspended (other than pursuant to GCC Sub-Clause 41.2) the progress of Contract performance for more than twenty-eight (28) days after receiving a written instruction from the EESL to proceed

(c) persistently fails to execute the Contract in accordance with the Contract or persistently neglects to carry out its obligations under the Contract without just cause

(d) refuses or is unable to provide sufficient materials, services or labor to execute and complete the Facilities in the manner specified in the program furnished under GCC Clause 18 (Program of Performance) at rates of progress that give reasonable assurance to the EESL that the Implementing Partner can attain Completion of the Facilities by the Time for Completion as extended

then the EESL may, without prejudice to any other rights it may possess under the Contract, give a notice to the Implementing Partner stating the nature of the default and requiring the Implementing Partner to remedy the same. If the Implementing Partner fails to remedy or to take steps to remedy the same within fourteen (14) days of its receipt of such notice, then the EESL may terminate the Contract forthwith by giving a notice of termination to the Implementing Partner that refers to this GCC Sub-Clause 42.2.

42.2.3 Upon receipt of the notice of termination under GCC Sub-Clauses 42.2.1 or 42.2.2, the Implementing Partner shall, either immediately or upon such date as is specified in the notice of termination,

cease all further work, except for such work as the EESL may specify in the notice of termination for the sole purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition

(a) terminate all subcontracts, except those to be assigned to the EESL pursuant to paragraph (d) below
(b) deliver to the EESL the parts of the Facilities executed by the Implementing Partner up to the date of termination.
(c) to the extent legally possible, assign to the EESL all right, title and benefit of the Implementing Partner to the Works. and to the Plant and Equipment as at the date of termination, and, as may be required by the EESL, in any subcontracts concluded between the Implementing Partner and its SubImplementing Partners.
(d) deliver to the EESL all drawings, specifications and other documents prepared by the Implementing Partner or its SubImplementing Partners as at the date of termination in connection with the Facilities.

42.2.4 The EESL may enter upon the Site, expel the Implementing Partner, and complete the Facilities itself or by employing any third party. The EESL may, to the exclusion of any right of the Implementing Partner over the same, take over and use with the payment of a fair rental rate to the Implementing Partner, with all the maintenance costs to the account of the EESL and with an indemnification by the EESL for all liability including damage or injury to persons arising out of the EESL's use of such equipment, any Implementing Partner's Equipment owned by the Implementing Partner and on the Site in connection with the Facilities for such reasonable period as the EESL considers expedient for the supply and installation of the Facilities.

Upon completion of the Facilities or at such earlier date as the EESL thinks appropriate, the EESL shall give notice to the Implementing Partner that such Implementing Partner's Equipment will be returned to the Implementing Partner at or near the Site and shall return such Implementing Partner's Equipment to the Implementing Partner in accordance with such notice. The Implementing Partner shall thereafter without delay and at its cost remove or arrange removal of the same from the Site.

42.2.5 Subject to GCC Sub-Clause 42.2.6, the Implementing Partner shall be entitled to be paid the Contract Price attributable to the Facilities executed as at the date of termination, the value of any unused or partially used Plant and Equipment on the Site, and the costs, if any, incurred in protecting the Facilities and in leaving the Site in a clean and safe condition pursuant to paragraph (a) of GCC Sub-Clause 42.2.3. Any sums due to the EESL from the Implementing Partner accruing prior to the date of termination shall be deducted from the amount to be paid to the Implementing Partner under this Contract.

42.2.6 If the EESL completes the Facilities, the cost of completing the Facilities by the EESL shall be determined.

If the sum that the Implementing Partner is entitled to be paid, pursuant to GCC Sub-Clause 42.2.5, plus the reasonable costs incurred by the EESL in completing the Facilities, exceeds the Contract Price, the Implementing Partner shall be liable for such excess.

If such excess is greater than the sums due to the Implementing Partner under GCC Sub-Clause 42.2.5, the Implementing Partner shall pay the balance to the EESL, and if such excess is less than the sums due to the Implementing Partner under GCC Sub-Clause 42.2.5, the EESL shall pay the balance to the Implementing Partner.

The EESL and the Implementing Partner shall agree, in writing, on the computation described above and the manner in which any sums shall be paid.

42.3 **Termination by Contractor or Implementing Partner**

42.3.1 If

(a) the EESL has failed to pay the Implementing Partner any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to Appendix 1

(Terms and Procedures of Payment) of the Contract Agreement, or commits a substantial breach of the Contract, the Implementing Partner may give a notice to the EESL that requires payment of such sum, requires approval of such invoice or supporting documents, or specifies the breach and requires the EESL to remedy the same, as the case may be. If the EESL fails to pay such sum, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Implementing Partner's notice, or

(b) the Implementing Partner is unable to carry out any of its obligations under the Contract for any reason attributable to the EESL, including but not limited to the EESL's failure to provide possession of or access to the Site or other areas or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities which the EESL is required to obtain as per provision of the Contract or as per relevant applicable laws of the country,

then the Implementing Partner may give a notice to the EESL thereof, and if the EESL has failed to pay the outstanding sum, to approve the invoice or supporting documents, to give its reasons for withholding such approval, or to remedy the breach within twenty-eight (28) days of such notice, or if the Implementing Partner is still unable to carry out any of its obligations under the Contract for any reason attributable to the EESL within twenty-eight (28) days of the said notice, the Implementing Partner may by a further notice to the EESL referring to this GCC Sub-Clause 42.3.1, forthwith terminate the Contract.

42.3.2 The Implementing Partner may terminate the Contract forthwith by giving a notice to the EESL to that effect, referring to this GCC Sub-Clause 42.3.2, if the EESL becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, being a corporation, if a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), a receiver is appointed over any part of its undertaking or assets, or if the EESL takes or suffers any other analogous action in consequence of debt.

42.3.3 If the Contract is terminated under GCC Sub-Clauses 42.3.1 or 42.3.2, then the Implementing Partner shall immediately

(a) cease all further work, except for such work as may be necessary for the purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition

(b) terminate all subcontracts, except those to be assigned to the EESL pursuant to paragraph (d)(ii)

(c) remove all Implementing Partner's Equipment from the Site and repatriate the Implementing Partner's and its SubImplementing Partner's personnel from the Site

(d) In addition, the Implementing Partner, subject to the payment specified in GCC Sub-Clause 42.3.4, shall

(i) deliver to the EESL the parts of the Facilitiesexecuted by the Implementing Partner up to the date of termination

(ii) to the extent legally possible, assign to the EESLall right, title and benefit of the Implementing Partner to the Facilities and to the Plant and Equipment as of thedate of termination, and, as may be required by the EESL, in any subcontracts concluded betweenthe Implementing Partner and its SubImplementing Partners

(iii) deliver to the EESL all drawings, specifications and other documents prepared by the Implementing Partner or its SubImplementing Partners as of the date of termination in connection with the Facilities.

42.3.4 If the Contract is terminated under GCC Sub-Clauses 42.3.1 or42.3.2, the EESL shall pay to the Implementing Partner all paymentsspecified in GCC Sub-Clause 42.1.3, and reasonablecompensation for all loss or damage sustained by the Implementing Partnerarising out of, in connection with or in consequence of suchtermination.

42.3.5 Termination by the Implementing Partner pursuant to this GCC Sub-Clause 42.3 is without prejudice to any other rights or remedies of the Implementing Partner that may be exercised in lieu of or in addition to rights conferred by GCC Sub-Clause 42.3.

42.4 In this GCC Clause 42, the expression “Facilities executed” shall include all work executed, Installation Services provided, any or all Plant and Equipment acquired (or subject to a legally binding obligation to purchase by the Implementing Partner and used or intended to be used for the purpose of the Facilities, up to and including the date of termination.

42.5 In this GCC Clause 42, in calculating any monies due from the EESL to the Implementing Partner, account shall be taken of any sum previously paid by the EESL to the Implementing Partner under the Contract, including any advance payment paid pursuant to Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement.

43. **Assignment**

43.1 The Implementing Partner shall not, without the express prior written consent of theEESL, assign to any third party the Contract or any part thereof, orany right, benefit, obligation or interest therein or thereunder, except thatthe Implementing Partner shall be entitled to assign either absolutely or by way ofcharge any monies due and payable to it or that may become due andpayable to it under the Contract.

44. Bankruptcy

If the Contractor shall become bankrupt or have a receiving order made against him or compound with his creditors, or being a corporation commence to be wound up, not being a voluntary winding up for the purpose only of amalgamation
/ reconstruction, or carry on its business under a receiver for the benefit of its creditors or any of them, the Owner ill be at liberty :

to terminate the contract forthwith by notice in writing to the liquidator or receiver or to any person in whom the contract may become vested & to act in the manner provided in GCC clause 42 entitled "Termination" as though the last mentioned notice has been the notice referred to in such clause and the equipment and materials have been taken out of the contractor's hands.

to give such liquidator, receiver or other person, the option of carrying out the contract subject to his providing a guarantee, for the due and faithful performance of the contract up to an amount to be determined by the Owner.

45. Contractor Performance & Feedback and Evaluation System

The Employer has in place an established 'Contractor Performance & Feedback System' against which the contractors performance during the execution of contract shall be evaluated on a continuous basis at regular intervals. In case the performance of the contractor is found unsatisfactory on any of the following four parameters, the contractor shall be considered ineligible for participating in future tenders for a period as may be decided by the Employer.
Financial Status

Project Execution & Project Management Capability

Engineering & QA Capability

Claims & Disputes.

46. Fraud Prevention Policy

The contractor along with their associate/collaborator/sub-contractors/sub-vendors/ consultants/service providers shall strictly adhere to the Fraud Prevention Policy of EESL displayed on its tender website www.eeslindia.org

The Contractor alongwith their associate/collaborator/sub-contractors/sub-vendors/ consultants/service providers shall observe the highest standard of ethics and shall not indulge or allow anybody else working in their organisation to indulge in fraudulent activities during execution of the contract. The contractor shall immediately apprise the Employer about any fraud or suspected fraud as soon as it comes to their notice.

SECTION-4

Scope of Supplies/ Work, Qualifying Requirements, Terms & Conditions, Technical Specifications & Special Conditions of Contract

NOTE: ***THE TERMS & CONDITIONS STIPULATED HEREIN (I.E., IN SECTION-4) WILL SUPERSEDE ANY CONTRADICTORY/SIMILAR/OVERLAPPING TERMS & CONDITIONS IN ANY OTHER SECTION/PART OF THE TENDER***.

PART-A: General Information

Name of the Work: International Competitive Bidding (ICB) for Procurement of 5 million Smart Meters for Pan India.

NIT/Bid Document No.: EESL/06/ICB-Smart Meters-Pan India/171802068 dated 08-Mar-2018.

NOTE:
In the Online Price Bid Form, the quantity stated is the maximum BOQ quantity. However, the bidder is free to quote/propose any quantity, subject to restrictions stated elsewhere in this Tender. The same quantity is required to be mandatorily declared & submitted as per the Declaration/Blanked-Price Bid Sheet format at Attachment-18 of Section-6. Kindly note that the offers shall be evaluated as per this declared quantity only.

BIDS ARE TO BE SUBMITTED AS FOLLOWS: -
(*Please note that, EESL has switched the tender system into E-tendering. Bidders shall submit their bid accordingly as per the terms and conditions of E-tendering mode.*)

Envelope-I should contain

i. **Physical Copy to be Submitted & Scanned Copy to be Uploaded: Bidding Document Cost** in the form of Banker's Cheque/Demand Draft/Pay Order drawn in favour of "Energy Efficiency Services Limited", payable at NOIDA.
ii. **Physical Copy to be Submitted & Scanned Copy to be Uploaded: Bid Security/Earnest Money Deposit** in form of Banker's Cheque/Demand Draft/Pay order in favour of "Energy Efficiency Services Limited" or in the form of Bank Guarantee as per prescribed format at Attachment-2 of Section-6 (*Forms & Procedure*).
iii. **Scanned Copy to be Uploaded: Bid Form** as per the Attachment-1 of Section-6, i.e., letter of the bidder(s) submitting the bid.
iv. **Scanned Copy to be Uploaded: Power of Attorney to Sign the Bid** as per the Attachment-3 of Section-6 - Bidder(s) to use their own format.
v. **Scanned Copy to be Uploaded: Certificate of Acceptance of Important Terms and Conditions** as per ITB Clause No. 4.6, as per the format at Attachment-4 of Section-6.
vi. **Scanned Copy to be Uploaded: Acceptance of EESL's Fraud Prevention Policy** as per the format at Attachment-7 of Section-6.
vii. **Scanned Copy to be Uploaded: Declaration/ Blanked-price Bid Sheet** towards the quantity quoted by the bidder(s)as per the format at Attachment-19 of Section-6.

Envelope-II, i.e., Techno-Commercial Proposal of the Bid Should Contain (*uploaded scanned copies of*) the following:

i. **Deviation Statement** as per the format at Attachment-5 of Section-6.
   NOTE: EESL reserves the right to consider or disregard deviations, and reject bids in case of non-compliance. Bids containing material deviations from or reservation to the terms and conditions and specifications mentioned in the Tender shall be treated as non-responsive and shall not be considered further.
ii. Techno-commercial bid as indicated in bid document, i.e., **documentary evidences regarding bidder's qualifications to perform the Contract, as required per the Qualifying Requirements and Bid Evaluation Criteria**.
iii. One complete set of tender documents and subsequent amendments (if any), duly signed and stamped on each page.
iv. All Necessary Formats (if applicable) Signed and Stamped with complete and valid information of Section – 6.

Envelope-III should contain Price Bid (*to be filled-up online*)

Since the bids are to be submitted through E-tendering mode, the prices are to be filled on e-tender portal only and bidder(s) are requested **not to submit the price bid in hard copy at EESL along with the documents. The same shall not be entertained**.

i. Price Bid Sheet Format is prescribed at **ANNEX-A** in the Tender document – only for illustration purpose ***(prices are to be filled on E-tender portal only)***.

Opening & Further Processing of the Bids

Initially, Envelope–I containing the documents (as stated above) will be opened electronically. Envelope-II will be opened electronically on the same day of only those bidder(s), who have submitted EMD and requisite documents in Envelope-I.

Documents found in Envelope-II shall be scrutinized by EESL w.r.t. the Qualifying Requirements and Bid Evaluation Criteria.

Envelope-III (Price Bid) shall be opened electronically subsequently, subject to acceptance of Techno-Commercial Bid. Price Bid opening date will be intimated to only those bidder(s), who are found technically & commercially acceptable by EESL.

Price-Bid of the techno-commercially disqualified bidder(s) will not be opened and the EMD submitted by them shall be returned on approval of the Competent Authority.

The opened Price Bids shall be evaluated as per the criteria set out in the Tender and the award(s) of Contract shall be recommended accordingly. EMD of the unsuccessful bidder(s) shall be returned after receiving approval of the Competent Authority for award of Contract(s). EMD of the implementation partner(s) shall be returned only on receipt of the CPG by EESL as per the provision of the LOA/Contract (as the case may be).

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PART-B: Scope of Supplies/Work and Qualifying Requirements

1. INTRODUCTION TO ENERGY EFFICIENCY SERVICES LIMITED

A joint venture of NTPC Limited, Power Finance Corporation, Rural Electrification Corporation and POWERGRID, Energy Efficiency Services Limited (EESL) was set up under Ministry of Power to facilitate implementation of energy efficiency projects. EESL is an Energy Service Company (ESCO) that seeks to unlock energy efficiency market in India, estimated to at US$ 12 billion that can potentially result in energy savings of up to 20 per cent of current consumption, by way of innovative business and implementation models.

Till date, EESL, through their flagship programmes UJALA and Street Lighting National Programme annually saves over $ 900 million. EESL has successfully distributed over 200 million LED bulbs and has retrofitted over 2 million LED street lights across India. It also acts as the resource center for capacity building of State DISCOMs, ERCs, SDAs, upcoming ESCOs, financial institutions, etc. EESL is the one-stop turnkey destination to implement energy efficiency for public utilities and corporates at your commercial offices, hospitality and Hotels etc.

Objectives of EESL:

1.1 To facilitate preparation of energy-efficiency projects for Demand Side Measures including municipal functions, agriculture, public building, lighting, etc.
1.2 To implement schemes, programmes and policies of Central and state governments or its agencies.
1.3 To partner with private ESCOs and other companies to promote energy-efficiency.
1.4 To provide consultancy services in the field of energy-efficiency, CDM projects, and other related areas.
1.5 To identify and impart training to build the capacity of stakeholders.

2. BACKGROUND & OBJECTIVE

The Indian power sector is the World's third largest power producer (330 GW installed capacity as on 30-Jun-2017) and the fourth largest consumer of electricity. From being a totally state owned sector, the journey towards corporatization began in the late 1990's with increasing private participation starting with the generation sub-sector and spreading to the transmission and distribution sub-sectors. The integrated state utilities were unbundled to make separate generation, transmission and distribution entities in each state. There has also been significant legislation which supported this reform process and the strengthening of the regulatory commissions to oversee the activities of the power utilities.

Distribution is the most important link in the entire power sector value chain. As the only interface between utilities and consumers, it is the cash register for the entire sector. Post reforms of the 1990s, the Distribution sub-sector is till date dominated by state owned utilities which together control more than 95% of the consumer base. One of the key issue troubling these state utilities is financial viability due to the accumulated losses and continuing performance issues contributing to an average Aggregated Technical and Commercial Loss in excess of 22%.

The central government has supported the distribution sector through several schemes such as Financial Restructuring Packages and several other schemes which have worked to improve the operational performance of the distribution utilities. In 2001, the government had launched the Accelerated Power Development and Reform Programme (APRDP) program to bring down the AT&C losses of Discoms by providing them grants to upgrade their transmission infrastructure. In 2008, the government restructured this scheme and launched it as Restructured Accelerated Power Development and Reforms Programme (R-APDRP). Funds were set aside for states to improve the distribution infrastructure and IT enablement. A strong, efficient and robust distribution system is crucial for providing 24x7 affordable power for all in India.

The central government has also launched the following schemes for the distribution sector:

a) IPDS (Integrated Power Development Scheme) is the next iteration of R-APDRP scheme which means to extend the coverage of IT infrastructure to larger areas in the country.

b) DDUGJY Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) focuses on feeder separation for rural households and agricultural purpose.
c) UDAY (Ujwal Discom Assurance Yojana) is a debt restructuring plan for Discoms with financial assistance tied to achievement of specified outputs such as AT&C loss reduction, coal rationalisation, Smart metering etc.

Smart metering and Smart Grid development in India is driven primarily through the National Smart Grid Mission (NSGM) which was established to plan and monitor the implementation of policies and programmes related to Smart Grid activities in India. There are over 14 smart grid pilots in various stages of implementation across the country which is being monitored by NSGM

In September 2016, the Central Electricity Authority (CEA) released a report on strategy for roll out of smart meters by state/union territories. In August 2015, BIS published the new smart meter standards "IS 16444: AC Static direct connected watthour smart meter- Class 1 and 2 specifications", was revised and published as IS 15959: Part 2- Smart meter in March 2016.

With the pilots and standards in place the stage has been set to scale up the roll-out of smart meters in India.

2.1 Objective of the Project

The Central government has identified smart meters as one of the lynchpins on which the IT infrastructure would be utilised. To meet this objective, Energy Efficiency Services Limited (EESL) seeks to procure smart meters by aggregating the demand from various states and disseminating them to the respective distribution utility.

EESL's ESCO led approach (BOOT Model): The ESCO business model for the project overall includes the following:

i) Implementation of AMI solution (Smart Meters, Communication, HES, Analytics, Cyber security, MDM and associated integration, Back End requirements, O&M during project period)
ii) Set up require backend hardware and integration of AMI meters to the AMI system and also to the legacy system of the utilities
iii) Create a sustainable impact by increasing utility revenues. Hence, some of the priority focus areas are increasing the billing efficiency, increase in customer satisfaction etc.

2.2 Project Areas

The tender volume may also be used to service demand across PAN India (indicative states Bihar, Andhra Pradesh, Tamil Nadu etc.), who may join in time and the same shall be intimated in due course of time as per mutual consultation with the implementing partner.

2.3 Stakeholders Map

For the purpose of this tender, a stakeholder map has been tabulated in Table 1along with web-links for further information perusal by the bidder(s).

Table 1 – Key Stakeholders in Indian Power Sector

S. No.	Name	URL	Role
1	Ministry of Power (MoP)	http://www.powermin.nic.in/	Responsible for evolving general policy in the field of energy
2	Central Electricity Authority (CEA)	http://www.cea.nic.in/	Technical Arm of Indian power sector
3	Energy Efficiency Services Limited (EESL)	https://eeslindia.org/	JV of PSU's for Demand side management initiatives
4	National Smart Grid Mission (NSGM)	http://www.nsgm.gov.in/en	Central government body for accelerating smart grid initiatives in India
5	Bureau of Indian Standards (BIS)	https://www.bis.org.in/	National standards body of India

3. BILL OF QUANTITY

The bill of quantity has been mentioned in Table 2 below.

Table 2 - Bill of Quantity

S. No.	Item Name	Unit	Quantity
1.	Single Phase Whole Current Smart Meters (including GPRS communications module) as per IS 16444 Part 1 with accuracy class 1 and current rating of 10-60A	Numbers	45,00,000
2.	Meter Box for Single Whole Phase Smart Meters (Inclusive of All Necessary Accessories) as per **Appendix A attached in the tender**	Numbers	45,00,000
3.	Three Phase Whole Current Smart Meters (including GPRS communications module) as per IS 16444 Part 1 with accuracy class 1 and current rating of 10-60A	Numbers	4,50,000
4.	Meter Box for Three Phase Whole current Smart Meters (Inclusive of All Necessary Accessories) as per **Appendix B attached in the tender**	Numbers	4,50,000
5.	LT-CT Operated Three Phase Smart Meters (including GPRS communications module)as per IS 16444 Part 2 with accuracy class 0.5S and current rating of -/5A	Numbers	50,000
6.	Meter Box for LT-CT operated Three Phase Smart Meters (Inclusive of All Necessary Accessories) as per **Appendix C attached in the tender**	Numbers	50,000

Bidder(s) shall refer to the Clause 11 of Special Conditions of Contract (SCC) for details on quantity variation.

4. SCOPE OF SUPPLIES/WORK& PROJECT EXECUTION

4.1 Project Scope

EESL intends to procure 5 million (50,00,000) smart electricity meters operating on GPRS communications suitable for **3G/ 4G/ NB LTE or NB IoT with fallback on GPRS** for deployment across PAN India.

Please note that as new states confirm their demand to EESL the State or the allocation per state may change. This shall be communicated during the project award stage.

The scope of the bidder(s) shall include designing, engineering, manufacturing, testing, inspection, packing, supply, transportation & insurance (till delivery at site) , delivery to project site (locations shall be intimated later), unloading, handling and storage of single-phase, three-phase whole current and LT-CT operated three-phase smart meters, along with meter box. The smart meters shall have the replacement warranty period of 5.5 years (after supply) along with operational support post completion of the warranty period for the project duration of upto10 years.

The functionality and specification of these smart meters (unless otherwise mentioned in this document) need to be in accordance with the following standards and/or regulations with latest amendments:

a) IS 16444 (Part 1): a.c. Static Direct Connected Watthour Smart Meter Class 1 and 2 – Specification (as attached in **ANNEX-B**)
b) IS 16444 (Part 2): a.c. Static Transformer Operated Watthour and Var-Hour Smart Meters, Class 0.2S, 0.5S and 1.0S (as attached in **ANNEX-B**)
c) CEA Regulations on "Installation and Operation of Meters', 2006 to be read in conjunction with amendments dated 04 June 2010 and 26 November 2014
d) Smart meter specifications as mentioned in CEA Guidelines on "Functional Requirements of Advanced Metering Infrastructure (AMI) in India" issued in August 2016 (as attached in ANNEX-C). The bidder(s) shall adhere to the clauses related to smart meter functionality and specification as per IS 16444 Part 1and Part 2 with all latest amendments.

Note: Clarifications under CEA guidelines are as follows: -

1. Under CEA Guideline, Page 143 of 209, Supply of In Home Display (IHD): Supply of In-Home Display (IHD) is not included in this tender.

2. Under CEA Guidelines, Page 143 of 209, Testing as per 35 KV high voltage discharge up 35 KV: The Meter shall be immune under external magnetic influences as per CBIP 325. Meter shall be tested for high voltage discharge (Spark) up to 35 KV as per CBIP 325. This test shall be mandatory.

3. Under CEA Guidelines, Page 141 of 209 , Synchronisation of RTC : As per IS 16444/ IS 15884 The clock day/date setting and synchronization shall only be possible through password/Key code command from both the following methods:

- From remote server through suitable communication network;
- Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter.

This is to clarify that the successful bidder(s) owns the responsibility for meters to comply with all the requirements captured in the above-mentioned standards and/or regulations. It is assumed that bidder(s) submitting its response to this tender is prepared to comply with the above-mentioned standards / regulations. The smart meters before delivery, should be type tested at as per IS: 16444 (Part 1 and Part 2) at a National Accreditation Board for Testing and Calibration Laboratories (NABL)-accredited laboratory or any International Laboratory Accreditation Cooperation (ILAC) accredited laboratories in the world. In case the successful bidder(s) fails to comply with these requirements, its order shall be cancelled and shall be blacklisted for atleast 3 years by EESL from future tenders. This condition needs to be mandatorily agreed by the bidder(s).

In the event of the bidder(s) going bankrupt or issues which prevent the bidder(s) from fulfilling the obligations during the tenure of the contract, the bidder(s) must adhere to Escrow principles for ensuring seamless operation. Adherence to such an Escrow arrangement is a pre-condition of award of contract to implementation partner(s).

The desired functional and technical specifications of smart meters have been mentioned in the subsequent sections of this document. However, the intent is not to specify and capture all the aspects of design and installation associated with smart meters mentioned herein. It shall be the obligation of bidder(s) that all the systems, sub-systems and equipment's/devices shall conform in all respect to high standards of engineering, design and workmanship, and shall be capable of performing continuous commercial operation as per best industry standards.

If the GPRS technology becomes obsolete in the project duration and there are no service providers for the same, then EESL will take a suitable decision regarding up-gradation of meter hardware well in advance without any additional cost to the implementation partner(s).

4.2 High Level Solution Architecture and Technical Specification

EESL on behalf of Utilities /Discoms in participating states intend to deploy smart meters in their service areas as per the high level solution architecture (cloud based) depicted in Figure 1. The smart meters supplied by the bidder(s) shall communicate with the Head End System (HES) using GPRS communications module operating in the frequency bands allocated by Government of India. The communications module shall be of pluggable-type and shall be capable of servicing **3G/ 4G/ NB LTE or NB IoT with fallback on GPRS** technology compliant with IPv6.

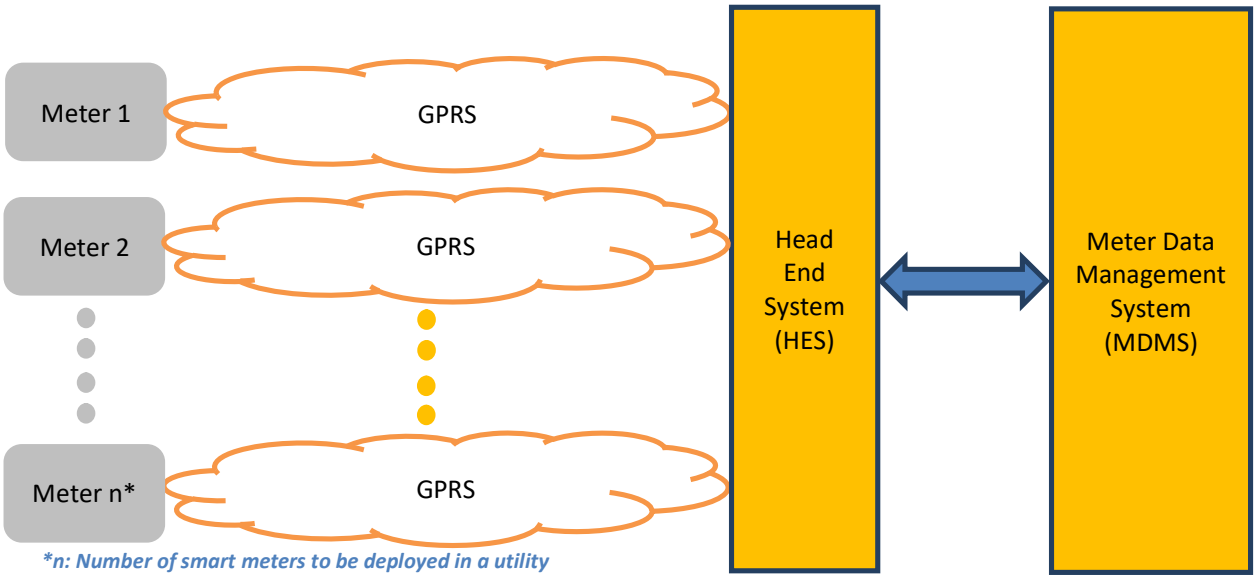


Figure 1 - High Level Solution Architecture of Smart Metering for this Project

4.3 Smart Meter Functionalities

The smart meters shall have the following functionalities:

a) Remote meter data reading at configurable intervals(push/pull)
b) Time of ToU metering
c) Pre paid functionality
d) Net Metering/Billing
e) Alarm/Event detection, notification and reporting
f) Remote load limiter and connection/ disconnection at defined/on demand conditions
g) Remote firmware upgrade

4.4 Integration requirements with implementation partner(s) of subsequent tender of other components of AMI

AMI typically comprises of three key components, namely, meters, communications and information technology. In order to service the complete AMI solution, roll-out EESL issue the tenders as described below.

The first tender (this document) is for the turnkey project for smart meters. Subsequent turnkey tender(s) will shortlist / determine the communication provider and system integrator(s). Given the roll-out volume, the selected smart meter winning bidder(s) may need to work with multiple communication provider(s) / System Integrator(s) and vice-versa. Implementation partner(s) of this tender need to seamlessly integrate with the communication(s)/ system integrator(s) selected in the subsequent tenders with following integration requirements:

a) Implementation Partner(s) must share the meter security keys, all level encryption, password information along with asset information in a format (to be specified after system integrator is appointed) with the system integrator so that during AMI business flows the device and data can be authenticated all the time.
b) Implementation Partner(s) must share the details of meter communication specifically programmed protocols.
c) Implementation Partner (s) must share the meter interface touch points for external applications/ systems.
d) Implementation Partner(s) must share the required APIs including but not limited to reading APIs, configuration APIs and Functional APIs with the System Integrator for execution of business flows. (Installation, reading, configuration).
e) Implementation Partner(s) must share the data storage and retrieval details.
f) Implementation Partner(s) must share the warranty information of all AMI meters to the system integrator for asset management purpose.
g) Implementation Partner(s) must configure the devices to be upgraded remotely (OTA) as and when it is required in case of feature request or fault correction.
h) Implementation Partner(s) must follow and conduct Utility's sample and periodic test program, including (but not limited to) the selection of a sample population of meters, sharing of sample test results as reported by the meter testing systems with the system Integrator.
i) Implementation Partner(s) must share the information related to communication module for the authorisation purpose at system integrator end.

4.5 Meter Service Level Agreement (SLA)

a) The Bidder(s) shall ensure that all information security aspects are exercised tested, implemented and where necessary enhanced not diluted at any point of time.
b) Meter shall record precisely all the incidences and metering parameters required as per specifications.

The SLA for meters is mentioned in Table 3.

Table 3– SLA for Meters

Note: The SLA for meter manufacturer is contingent upon EESL providing appropriate network for communication as well as system integration. Penalties on not adhering to SLA will be subject to EESL making available proper communication network connectivity and system integration. For instance, if out of the total number of meters supplied, x% of them are not able to function properly due to lack of communication network or system integration, penalties on meter manufacturers will not apply on these x% of meters supplied.

S. No.	Defined Parameter	Service Level requirement	Validation Procedure	Performance Liquidated Damage
1.	Meter Failure Rate: Failure is defined as any occurrence when the equipment is not functioning per design specification.)	Less than 1.5% failure rate per annum for all kind of energy meter over the required guarantee period.	Identification of defective meters in the backend system	1.5-3% : 2% penalty on the Warranty period charges on yearly basis 3– 5% : 5% penalty on the Warranty period charges on yearly basis Beyond 5%: 10% penalty on the Warranty period charges on yearly basis
2.	Non-returnable buffer Stock: sufficient stock of meter shall be ensured by the meter manufacturers for warrantee replacement of faulty meters within 24 hours.	0.5% of supplied energy meters	Availability of buffer meter stock in warehouse	Below 0.5%: 10% penalty on the buffer meter cost
3.	Replacement of faulty Meters: faulty meter to be replaced (under warranty only) by the bidder(s) and refurbishment of faulty meters.	Two weeks for 90% refurbishment of faulty meters. Three weeks for 100% refurbishment of faulty meters.	Intimation to Meter manufacturer	95-99.5% : 2% penalty on the Warranty period charges on yearly basis 90% - 95% : 5% penalty on the Warranty period charges on yearly basis Below 90%: 10% penalty on the warranty period charges on yearly basis
4.	Firmware support: Meter manufacturer shall provide respective firmware in case of a malfunctioning or a feature request at no extra cost to EESL/utility (The proposed firmware update will be deployed after successful UAT of the same)	100% within 30 days	Date of written request by System Integrator	1% penalty on the Warranty period charges on yearly basis

4.6 Quality Control / Inspection by EESL

i) The implementing partner shall be wholly responsible for the quality and performance of the supplied smart meters as per the tendered technical specifications.

ii) EESL reserves the right to visit the manufacturing site or the supply chain for quality inspection at any time. EESL at its discretion shall order the type testing of random samples from an independent third-party NABL/ILAC-accredited testing laboratory for which the cost of 3 such tests shall be borne by the implementation partner(s) (excluding the first type test). The cost of additional nos. of tests shall be borne by EESL. The meter box shall also be subject to appropriate tests to ensure compliance towards tendered specification.

iii) After testing, if the smart meter is found not matching the specifications at given test parameters, EESL at its discretion may order for cancellation of complete order or cancellation of the complete lot of product. The complete loss shall be to the account of the supplier.

iv) The items will be supplied in proper packing (as per relevant IS, if any) to avoid any damage during transit, storage and delivery. The implementation partner shall be responsible to transport and insure the smart meters till their delivery at project site (locations shall be intimated later).

v) Inspection / Checking / Testing:

I. **Inspection**

All materials/equipment manufactured by the implementation partner against the Letter of Award (LOA) shall be subject to inspection, check and/or test by the EESL or its authorized representative at all stages and place, before, during and after the manufacture.

If upon delivery, the material / equipment does not meet the specifications, the material / equipment shall be rejected and returned to the supplier for repairs / modification, etc. or for replacement. In such cases, all expenses including the to-and-fro freight, repacking charges, any other costs, etc. shall be to the account of the implementation partner.

All tests shall be carried out as per IS 16444, and the implementation partner shall submit the relevant test reports.

II. **Tests**

The implementation partner needs to get the samples for the first lot to be type-tested under EESL supervision at an NABL/ILAC-accredited Third Party Laboratory. The samples for such tests would be identified by EESL and cost of the sample and shipping shall be borne by the implementation partner(s).

During the tender duration, EESL at implementation partner(s) cost shall conduct additional type tests at NABL-accredited (implementation partner(s)-owned/third party) laboratory to maintain check on the supplied product. The random sample for such tests would be identified by EESL and can be from the manufacturing/supply chain/ customer facility.

III. **Pre-dispatch Tests**

Pre-dispatch Tests: The implementation partner(s) shall maintain and provide statutory test certificates for each supplied batch, confirming compliance to the technical specifications and other tender/LOA requirements. EESL reserves the right to conduct Third Party Inspection to assess acceptability of each lot at its own cost. Only those batches meeting compliance & cleared by EESL Engineer In-Charge (EIC) shall be dispatched by the implementation partner(s).

4.7 Documentation along with supply of smart meters

The bidder(s) shall provide the following documents (both hard copy and soft copy) to EESL/ System Integrator/ Utility for reference:

a) Manual / Guide: User Manuals, FAQ, OEM Functional Manuals and Installation Guides, Business Process Guides and Troubleshooting Guides
b) Certificates: Meter Warranty, Insurance, NABL/ILAC meter test

The above mentioned documents shall be provided in the word format to provide flexibility for customization, if required.

4.8 Risk Mitigation

The implementing partner(s) is expected to work with project managers from communication/ system integrator/ utilities in the participating states for immediately resolving the following risks (non-exhaustive indicative list):

a) Inability to read meters
b) Poor network communication performance
c) Delay in information provided by the utility
d) Project scope creep
e) Unavailability of internal and external resources
f) Rectification of meter faults as per agreed SLAs

4.9 Specific Exclusions (to be covered under separate tender)

The following are excluded from this project:

a) Installation and commissioning of smart meters

b) Installation of Head End System (HES)

c) Installation of Meter Data Management System (MDMS)

d) Integration of HES and MDMS

4.10 Roles and Responsibilities of Stakeholders

The success of the AMI solution would require synergistic action from all key stakeholders. While EESL and DISCOM shall have a set of binding Service level Agreements (SLAs) commitments to adhere to there would be additional expected roles and responsibilities of key entities involved as mentioned below *inter-alia*.

4.10.1 Utility/DISCOM

a) DISCOM shall provide database of consumers and assets as well as periodic updation information.

b) DISCOM has the license for distributor of electricity in the project area, and is responsible for the supply, distribution and sale of electricity, operations and maintenance of the electrical Metering in these areas.

c) DISCOM shall sign an Agreement with EESL to implement AMI in the project area.

d) DISCOM shall work in close coordination with EESL and fulfil its obligations under the Agreement with EESL.

e) DISCOM shall participate in the periodic review meetings as per the project governance structure, and shall support with the required interventions requested. DISCOM shall assign competent manpower to the Project Team. DISCOM shall cooperate with bidder(s) for the timely implementation of the AMI; and for its successful operation during the project period.

f) Support EESL to execute a successful consumer awareness campaign in the project area.

4.10.2 EESL (ESCO)

Note: EESL to carry out the SLAs may act through winning bidder(s) as necessary.

a) EESL shall open a warehouse for each project location so that the meters can be stored in that warehouse.

b) To provide effective redressal to the Consumer grievances and Complaints related to AMI in accordance with the Electricity Laws.

c) Undertake necessary installations for new connections / Replacement of defective Meters to ensure that supply of electricity is provided to the owner or occupier of any premises upon the receipt of application requiring such supply in accordance with the Electricity Supply Code, 2004 as in force from time to time.

d) To ensure the safety of the Smart meters and related other equipment.

e) To define a process to maintain rolling stock of meters and other necessary materials to meet the necessary standards of performance as per the orders and regulations of SERC.

f) To select System Integrator through a transparent public procurement method.

g) During the implementation of the project, EESL shall establish a governance mechanism to ensure that the execution progress is as planned.

4.10.3 Customer

a) The consumer shall allow access to System Integrator to install Smart meter at his/her premises/ pre-defined place.

b) The consumer shall lodge its complaint to the consumer grievance cell of DISCOM and DISCOM will forward all complaints to EESL related to AMI.

4.10.4 State Electricity Regulator / State Government

a) Issue the required enabling regulation/ guidelines related to the AMI project implementation in DISCOM jurisdiction under EESL initiative.

4.10.5 Representatives of Implementation Partners(s)

a) The representatives of bidder(s) shall be responsible for interacting with EESL and identified utilities for coordinating in case of meter replacement, issue handling etc.

b) The Project Director shall be based out of EESL office (location shall be intimated later) and shall be the single point of contact for the identified utilities and EESL

c) The Project Managers shall be based out of utility office (location shall be intimated later)

d) The field persons shall be based out of utility office (location shall be intimated later)

e) These officers are responsible for smooth coordination of the entire project. These officers shall be required to travel to field locations as and when required.

f) These officers shall liaison with other stakeholders such as system integrators, communication service providers etc. to ensure seamless implementation of the project.

PART-C: SPECIAL CONDITIONS OF CONTRACT

1. SECURITY DEPOSIT / CONTRACT PERFORMANCE GUARANTEE

Within twenty-eight (28) days of the receipt of the Notification/Letter of Award (LOA) of Contract from EESL, the bidder(s) shall furnish Security Deposit (SD)/Contract Performance Guarantee (CPG) in the form of a Bank Guarantee (BG) of value equaling 10 % of the total Contract value. The SD/CPG Bank Guarantee must be valid to cover the delivery duration (1 years) + warranty duration (i.e. 5.5 years) + three (3) months' claim period + 3 months' mobilization/ testing phase. Thus, the total SD/CPG Bank Guarantee period shall be 7 years.

Any delay in submission of SD/CPG shall be deemed as accruing of financial benefit to the bidder(s) and EESL may take necessary interest penalty recovery action (interest @ State Bank of India's MCLR + 2 %) from the payments due to the bidder(s) for the period of delay. However, this provision does not bind EESL in any way from proceeding against the bidder(s) (including forfeiture of EMD, cancellation of the LOA, etc.) for non-compliance towards non-submission of the SD/CPG.

The BG shall be from any Nationalized Bank/other scheduled Private banks/International banks, to be from among the list of banks given at Annexure I of Section-6. In case of international bidder(s), the CPG BG could be from any such International bank having a branch in India or a Nationalised Indian bank having a branch in the country of origin of the international bidder(s) mentioned in Annexure I. The International Bidders are also required to enclose with their CPG BG a letter of BG confirmation from a corresponding Indian bank. EESL shall at its discretion have recourse to the said Bank Guarantee for the recovery of any or all amount due from the bidder(s) in connection with the contract including of replacement warranty obligations.

Failure of the bidder(s)to comply with the requirements of IFB/Tender/NIT/LOA shall constitute sufficient grounds for the annulment of the award and forfeiture of the SD/CPG.

2. TERMS OF PAYMENT

i) The payments for different cost heads/components shall be released to the bidder(s) as tabulated below, within 30 days of receipt of the bidder's Tax invoice at EESL office with all the requisite respective documents signed and stamped by EESL's EIC/ authorized representative at designated delivery location. Each invoice shall have the Tax, etc. registration document's photocopy annexed to it.

ii) Bidder(s) needs to ensure completion of all works as per project plan before submitting the invoice. This includes supply of required Hardware and acceptance from the concern officer.

iii) In case of delay in project, the entire cost and/or time over-run shall be the responsibility of the bidder(s) and shall be borne by him only.

iv) Power to withhold: Notwithstanding anything contained in the payment schedule mentioned above, if in the opinion of the EESL, any work done or supply made or service rendered by bidder(s) is deficient in any manner in comparison to the prescribed standards, EESL shall be at liberty to withhold a reasonable portion of the payments due to the bidder(s), till such work/ supply/ service is made conforming to the prescribed standards. These powers to withhold payments shall be without prejudice to any other power/ right of the EESL under this contract.

v) All payments shall be made by EESL, no later than thirty (30) days after submission of an invoice along with supporting documents and acceptance from the EESL, in favour of the Lead Consortium Member. If the invoice is incomplete, then payment due date will start from the date of submission of all necessary documents.

vi) The release of payments shall be progressive and performance/ output-based as per the given Payment Schedule, where the payments shall be made for measured deliverables and outputs on acceptance by EESL.

vii) If any excess payment has been made by EESL due to difference in quoted price in proposal and Contractor's invoice, EESL may without prejudice to its rights recover such amounts by other means after notifying the bidder(s) or deduct such excess payment from any payment subsequently falling due to the bidder(s).

viii) The currency in which payment shall be made to the bidder(s) under this contract is Indian Rupees (INR) or its equivalent in US dollar. The source of selling exchange rate shall be Reserve Bank of India & the date for the selling exchange rate shall be the day of the deadline for bid submission.

ix) EESL reserves the right, at its sole discretion to waive any penalty being imposed on the bidder in case the Implementing Agency fails to meet milestones / agreed service level due to a valid reason beyond the control of bidder or upon EESL's request. Waiver shall be granted on merit and only as an exception by EESL / Utility Officials. Any Delay on account of System Integrator (System Integrator selected though other RFP for providing MDAS/HES-h/w & s/w, Cloud etc) not making the systems available and failure to install the meters would not be attributable to the meter provider and would not lead to imposing penalty on meter provider, EESL may waive the penalty in such a scenario.

x) EESL reserves the right, at its sole discretion to stagger the delivery of meters any such action will be discussed with bidder. Bidder shall be informed of the same in writing. Penalty related to delivery of meter may be waived by EESL if cause of such delay is not in bidders control or the delay is due to EESL request for staggered delivery. Penalty shall be adjusted in case EESL approves such waiver. The penalty recovered shall be adjusted in the subsequent payment and no interest shall be paid on this amount.

At the time of payment of bills, the income tax, if any, shall be deducted at source as per Government rules and guidelines as may be prevailing at the time of payment. Further, for availing the benefit of lower income tax rates supplied from outside India, bidder shall provide Income Tax Clearance Certificate (ITCC)/ Tax Residency Certificate from concerned tax authorities for claiming lower tax deduction, if any.

If some of the expenditures for the Related Services are to be incurred in India, such expenditures should be expressed in the Bid and shall be payable in INR.

The payment schedule for this project is mentioned in below Table.

Table - Payment Schedule

<table>
<tr><th>Payment Milestone</th><th>Payment Terms</th><th>Conditions</th></tr>
<tr><td>Supply Phase</td><td>1. 60% payment upon delivery of material at site / warehouse for the quantity supplied subject to following:
a) Submission and acceptance of DLMS Compliance Matrix, APIs, Data Exchange information and Configuration Diagram, Test Procedures and Type test reports.
b) Acceptance of purchase order.
c) Submission of the necessary Contract Performance Bank Guarantee.
d) PDI report and Material Delivery Clearance Certificate (MDCC)</td><td>Payment shall be released within 30 days after receipt of original monthly-raised Tax invoice at EESL for the supplies delivered, with receipt acknowledged, signed and stamped by EESL authorized representative at designated project location.</td></tr>
<tr><td>Integration and Commissioning Phase</td><td>1. Remaining 30% payment on Integration and commissioning of supplied smart meters with the AMI solution. This shall be released within 30 days after 3 months post successful integration of the targeted smart meters with the backend system. Report from MDMS shall be generated to confirm integration and commissioning of meters with HES and MDMS.
2. In case of delays in integration for which supplier is not responsible, then this 30% shall be released within 30 days after 06 months of supply provided that no major hardware failure was reported for other lots.</td><td>After demonstration of integration and successful execution of test cases and User Acceptance Test (UAT), a report from MDMS shall be generated to confirm integration and commissioning of meters with HES and MDMS verified by EESL and DISCOM/ utility representative.</td></tr>
<tr><td>Warranty phase</td><td>3. Remaining 10% of the payment on submission of tax invoice after operational acceptance by EESL based on the performance, payment to be released as follows-
<table><tr><td>Year -1</td><td>2%</td></tr><tr><td>Year -2</td><td>2%</td></tr><tr><td>Year -3</td><td>2%</td></tr><tr><td>Year -4</td><td>2%</td></tr><tr><td>Year -5</td><td>2%</td></tr><tr><td>Total</td><td>10%</td></tr></table></td><td>SLA report / Duly signed performance report by EESL's Project in charge and DISCOM/ Utility representative.

The year for this purpose shall be counted from the date of respective monthly invoices for supply.</td></tr>
</table>

The bidder(s) shall note the following:

1. The bidder(s) shall provide the following documents at the time of invoicing:
   i. Delivery Challan.
   ii. Goods Receipt Note (GRN).
   iii. Batch Inspection Report.
2. All documents to be duly certified by the EIC/representative, and by the End User/Customer Representative.
3. The payment shall be processed only after receipt of following: -
   i. Acceptance of LOA and signing of Contract Agreement.
   ii. Submission of Contract Performance Guarantee (CPG).
4. Interest shall not be paid on the bank guarantee submitted by bidder(s).

3. LIQUIDATED DAMAGES

For Delay in Supplies: In case of any delay by the bidder(s) beyond the stipulated schedule given at **ANNEX-D**, including any extension permitted in writing, EESL reserves the right to recover from the bidder(s) a sum equivalent to 0.5 % of the value of the delayed supplies for delay per week or part thereof, subject to a maximum of 5 % of the total value of the contract.

Notwithstanding the above, in case of regular and repeated complaints against the bidder(s) and the bidder's failure in providing satisfactory after-sales replacement warranty and maintenance services, EESL reserves the right to forfeit the SD/CPG submitted against the LOA towards non-performance of the contract.

Alternatively, EESL reserves the right to purchase and distribute material from elsewhere at the sole risk at the cost of bidder(s) and to recover all such extra costs incurred by EESL in procuring the material from resources available including EMD/Bid Security/encashment of Bank Guarantee or any other sources, etc. Further, if any extra cost is incurred by EESL due to delay in work completion by the bidder(s) beyond the completion time as per PO, the same shall also be recovered from bidder's invoice/EMD/BGs, etc.

Alternatively, EESL may cancel the order completely or partly without prejudice to its right under the alternatives mentioned above.

4. PRICE BASIS

The prices/rates are inclusive of cost of finished product which includes the following:

a) Packaging and forwarding charges
b) Freight and transit insurance charges covering transportation upto EESL designated warehouse
c) Un loading at EESL designated warehouse
d) All applicable duties and taxes except GST (ISGT, CGST, SGST and UGST)

Prices once quoted shall remain firm, and shall not be subject to any escalation, till completion/execution of the contractual assignments/work and till the contract's validity's extension, if any.

For related services whenever such are specified in the Schedule of Supply, the foreign currency cost component of each item comprising the Related Services, inclusive of all customs duties, sales and other similar taxes applicable in India, payable on the Related Services, if the Contract is awarded to the Bidder.

The currency of the Bid shall be either in Indian Rupees (INR) or US Dollars ($). The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: Indian Rupees. The source of the selling exchange rate shall be Reserve Bank of India. The date for the selling exchange rate shall be the day of the deadline for bid submission. This currency exchange rate would be used for payments in future during the entire contract duration.

5. Warranty:

The smart meters and meter box shall have the replacement warranty period of 5.5 years from the date of receipt or 5 years from the date of installation & commissioning whichever is earlier, along with operational/ service support post completion of the warranty period for the project duration of up to 10 years.

6. EVALUATION CRITERION

a) The offers/bids received against the Tender shall be first evaluated as per the techno-commercial Qualifying Requirements listed elsewhere in the Tender, and in accordance with the extant Procurement Policy of EESL. Price bids of only those bidder(s) shall be opened who qualify against these techno-commercial requirements.

b) It is mandatory to quote for all the items/services requisitioned in the Price Bid Sheet format. Non-compliant bids shall be liable for outright rejection.

c) The price bids shall be evaluated as per the grand-total price of all BOQ items, i.e., the price at "Total (G) (exclusive of GST)" of the Price Bid Sheet format given at **ANNEX-A**. The techno-commercially suitable bidder(s) having the lowest total price, "(G)" of the price bid shall be lowest evaluated bidder(s) (i.e., L-1).

d) The illustrative format & notes for price bid shall be referred at **ANNEX-A**.

e) Bidder(s)shall quote for minimum50% of each line item mentioned in **ANNEX-A**.

f) **For Indian Bidder**: The Indian Bidder has to submit online bids only in the Price Schedule titled, "***Price Schedule for Goods to Be Offered from Within India***".

g) **For International Bidder**: The International Bidder has to submit online bids only in the Price Schedules titled, "***Price Schedule for Goods to Be Offered from Outside India***" and "***Price Schedule for Related Services to be Offered from Inside India***".

h) If a bidder(s) has quoted for full quantity, it shall mean that the bidder(s) is obligated to deliver the entire quantity as per the delivery schedule and agreed terms and conditions.

i) If price matching is not achieved, then EESL reserves the right to terminate the contract at the risk and cost of L-1 bidder(s). Further, this right is without prejudice to the other available rights of EESL under the law.

j) The splitting of the quantity shall be as per below mentioned Table, subject to bidder(s)other than L-1 matching the unit rate of L-1, and provided that minimum this much quantity is quoted by the bidder(s)in their bid.

Table - Splitting of quantity amongst bidders

L-1	L-2	L-3
Min. 50 %	30 %	20 %

k) Subsequently, suitable no. of bidder(s) and as per the quantity quoted for in their bid may be asked to match the price of L-1.

l) It shall, however, be the sole discretion of EESL to award the quantity irrespective of the quantity quoted for by the bidder(s) and the band provided above. Further, it shall be ensured by EESL that L-1 gets awarded minimum 50 % of the quantity.

m) EESL reserves the right to divert awarded quantity of the bidder(s) to other firms at their risk and cost, if the bidder(s) does not perform as per the LOA's terms and conditions.

n) It has been decided to give opportunity to MSEs registered with NSIC (under Single Point Registration Scheme) through NSIC-Consortium route for up to 20 % of Tender quantity, provided that the Consortium-offered rate is in price band of L1 + 15 % (i.e., MSEs quoting price within price band of L1+15 per cent shall be allowed to supply a portion up to 20 % of requirement by bringing down their price to L-1 price where L-1 is a non-MSEs) provided the quality maintained by Consortium strictly adheres to technical specifications, subject to timely delivery schedule, meeting the Qualifying Requirements mentioned above and matching the lowest price as per terms and conditions of the proposed tender without any deviation.

o) EESL reserves the right of reverse bidding on the prospective L-1 price in each work/supply package. In case the discovered L-1 price of any package is higher than the EESL estimated cost or higher than the prevailing price, EESL at its own discretion may go for reverse bidding among the 60% of participant bidders of that package in the order of L-1, L-2….L-7 subject to maximum seven nos. of bidders.

p) Bidder has to indicate the quoted quantity in the separate price bid declaration format.

7. ADJUDICATOR

Adjudicator under the contract shall be appointed by the Appointing Authority i.e. MD (EESL). If the bidder(s) does not accept the Adjudicator proposed by EESL, it should so state in its bid form and make a counter proposal of an adjudicator. If on the day the contract agreement is signed, the EESL and contractor have not agreed on the appointment of adjudicator, the adjudicator shall be appointed, at the request of either party, by the appointing authority specified.

8. ARBITRATION

Arbitration shall be carried out as per Arbitration Act 1996 and its subsequent amendment. The Contract shall be governed by and interpreted in accordance with the laws in force in India. The courts of DELHI shall have exclusive jurisdiction in all matters arising under the contract.

9. COMPLETION TIME/ DELIVERY SCHEDULE

Entire material to be delivered and jobs to be completed as per the delivery schedule from the date of issue of Purchase Order/Letter of Award and as per the **ANNEX-D**.

10. PRE-BID CONFERENCE

10.1 The official representative of the bidder **(only one per bidder)** may attend the Pre-bid Conference as mentioned in Section-1, which shall take place at the following address:

Energy Efficiency Services Limited,
EESL Conference Hall,
Sector-1, NOIDA–201301 (U.P.).

(Bidders are requested to send their queries at least 3 days before the schedule date of Pre-bid meeting only in the prescribed format atAttachment-12 of Section-6 Forms and Procedures)

10.2 The purpose of the meeting shall be to clarify any issues regarding the bid process.

10.3 Record notes of the meeting including the text of the questions raised and responses given shall be transmitted to all the bidders who were present at the meeting. Based on that, amendment can be issued in the tender documents. The clarifications that could not be furnished during pre-bid conference shall be separately communicated to all the bidders.

10.4 Non-attendance at the pre-bid meeting shall not be a cause for rejection of a Bidder(s).

10.5 Based on the discussion in pre bid meeting, EESL reserves the right for modification/change in tender

10.6 The Bidder(s) shall be deemed to have examined the Bid document, to have obtained its own information in all matters whatsoever that might affect carrying out the Works in line with the Technical specifications and Scope of Work specified in the document at the offered rates and to have satisfied himself to the sufficiency of its Bid. The bidder(s) shall be deemed to know the scope, nature and magnitude of the work and requirement of materials, equipment, tools and labor involved, wage structures and as to what all works he has to complete in accordance with the Bid documents irrespective of any defects, omissions or errors that may be found in the Bid documents.

11. **QUANTITY VARIATION:** EESL reserves the right for quantity variation up to +/-20%. Further, EESL reserves the right to place a repeat order in case of urgency for part quantity in the Letter of Award for similar work on same prices, terms and conditions. Also, EESL reserve the right to ask the implementation partner(s) to deliver the part quantity placed on them anywhere in territory of India on same prices, terms and conditions. However, any such quantity variation/placement of Repeat Order shall need to be authorised through prior amendment of the LOA/issuance of fresh LOA to that effect.

12. **INSURANCE:** The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery. For delivery of goods at site, the insurance shall be obtained by the Contractor, for an amount not less than the Contract Price of the goods from "warehouse to warehouse" (final destinations) on "All Risks" basis including War risks and strikes.

13. **TRANSPORTATION, DEMURRAGE WHARFAGE, ETC.:** Implementation partner(s) is required under the Contract to transport the Goods to place of destination defined as Site. Transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the implementation partner(s), and the related cost shall be included in the Contract Price.

    Implementation partner(s), on whom letter of award is placed, is to ensure all safety guidelines, rules and regulations, labour laws etc. Implementation partner(s) indemnify EESL for any accident, injury met by its labour, employee or any other person working for him. Any compensation sought by its labour, employee or any other person working for him shall be paid by implementation partner(s) as per settlement solely. EESL has no role to play in this matter.

14. **INTERCHANGEABILITY OF PRODUCT:** Implementation partner(s) is to submit interchangeability certificate for its product/components supplied for replacement during warranty and maintenance period and even when it is purchased from open market. In case due to change in technology, the supplied product is not available during warranty/ maintenance period, then the improved version of product can be used in warranty/maintenance period with same or improved technical parameters or the combination thereof after written communication of Engineer in Charge at same cost & terms and conditions.

15. **ADHERENCE TO SPECIFICATIONS:** Subsequent to an order being placed against your quotation, received in response to this 'enquiry', if it is found that the materials supplied are not of the right quality or not in accordance with our specifications (required by us) or received in damaged or broken conditions, not satisfactory owing to any reason of which we shall be the sole judge, we shall be entitled to reject the materials, cancel the contract and buy our requirement from the open market / other sources and recover the loss, if any, from the bidder(s) reserving to ourselves the right to forfeit the security deposit, furnished by the bidder(s) against the contract. The bidder(s) shall make its own arrangements to remove the rejected material within a fortnight of instruction to do so.

    Thereafter material shall lie entirely at the bidder's risk and responsibility and storage charges, along with any other charges applicable, shall be recoverable from the bidder(s) .

16. We reserve the right to accept or reject any quotation in full or in part without assigning any reason thereof. We also reserve the right to split and place order on more than one bidder.

17. The bidder(s) should not have been black-listed by Central/ State Government or Public Sector Undertakings. If at any stage of tendering process or during the currency of the contract, any suppression / falsification of such information is brought to the knowledge, EESL shall have the right to reject the proposal or terminate the contract, as the case may be, without any compensation to the tenderer & forfeiture of bid security/EMD/CPG.

18. COST OF TENDER/BIDDING DOCUMENTS / TENDER FEE

Interested bidder(s) may view the tender documents at https://eesl.eproc.in or could be viewed after following the link of 'e-Tendering' on EESL home page, i.e. http://eeslindia.org from where the registered vendors **[registration process is explained at EESL home page in *"E-tendering"* section]** with EESL will be able to download the tender documents and submit their bids online.

The cost of tender documents is **mentioned in Section-1** – (Non-refundable and Non Adjustable) which shall be payable in the form of DD/Pay order or Banker's Cheque in favour of Energy Efficiency Services Limited issued by any scheduled/nationalized bank payable in NOIDA/New Delhi (under this option the details of DD No. & Date, amount, bankers name etc has to be submitted in relevant field/column of online module). Tenders without this cost are liable to be rejected. It should be ensured by the vendor that the original DD is received by EESL before opening time of techno-commercial bids for verification of the details of DD given online by the vendors.

The tender submission, tender closing and opening will be done electronically and online.

EESL shall not be responsible for any delay, loss or non-receipt of Tender Document Cost sent by post/courier. The instrument should reach in original to EESL office before the Bid Opening date. Bids not accompanied with the requisite tender document cost may not be opened.

19. BID SECURITY/EARNEST MONEY DEPOSIT (EMD)

Amount & other details of Bid Security/EMD: **As mentioned in Section-1.**

The details of EMD instrument has to be submitted in relevant field/column of online module. Tenders without Earnest Money Deposit is liable to be rejected. It should be ensured by the vendor that the original BG is received by EESL before opening time of techno-commercial bids for verification of the details of BG given online by the vendors.

The tender submission, tender closing and opening will be done electronically and online.

EESL shall not be responsible for any delay, loss or non-receipt of Tender Document Cost sent by post/courier. The instrument should reach in original to EESL office before the Bid Opening date. Bids not accompanied with the requisite tender document cost may not be opened.

The bid securities of unsuccessful bidder(s) will be returned as promptly as possible after the award is made.

The bid security of the implementation partner(s) will be returned when it has signed the contract agreement, and has furnished the required performance security.

The bid security may be forfeited if:

a. If the bidder(s) withdraws its bid during the period of bid validity as specified in the bid.
b. If the bidder(s) does not accept computational/arithmetical error correction made by EESL and as explained in "Financial Evaluation" section of the Bid/ Tender document.
c. If the bidder(s) does not accept assumptions, estimations etc. used for evaluation of bids as specified by EESL in tender documents and revision of its bid accordingly, in case other assumptions are used. If the bidder(s) does not accept the sharing as specified in the bid.
d. If the Bidder(s) refuses to withdraw, without any cost to the EESL, any deviation not listed in Attachment-5 but found elsewhere in the bid; or
e. In the case of implementation partner(s) fails to sign the contract agreement within28 days of placement of LoI/Award letter and to furnish the required contract performance guarantee, in accordance with the tender document.

*****

ANNEX-A

PRICE BID FORMAT

A1: Price Schedule for Goods to Be Offered Within India

(produced here for illustration purpose; to be filled-up ONLINE only)

Name of the Bidder: _____

Item Name	Proposed Quantity	Unit of Measurement	Base price per unit exclusive of GST (IGST/ CGST/SGST/ UGST) (in Rs.) on F.O.R. destination	Total exclusive of GST (IGST/ CGST/SGST/ UGST) (in Rs.) on F.O.R. destination basis (in figure)	Total exclusive of GST (IGST /CGST/SGST/UGST) (in Rs.) on F.O.R. destination basis (in words)
(1)	(2)	(3)	(4)	(5)=(2)*(4)	(6)
Part-A: Single Phase Smart Meters (including GPRS communications module) maximum 45,00,000 units	45,00,000	(Nos.)			
Part-B: Meter Box for Single phase Smart Meters (Inclusive of All Necessary Accessories) maximum 45,00,000 units	45,00,000	(Nos.)			
Part-C: Three Phase Whole Current Smart Meters (including GPRS communications module) maximum 4,50,000 units	4,50,000	(Nos.)			
Part-D: Meter Box for Three Phase whole current Smart Meters (Inclusive of All Necessary Accessories) maximum 4,50,000 units	4,50,000	(Nos.)			
Part-E: LT-CT Operated Three Phase Smart Meters (including GPRS communications module) maximum 50,000 units	50,000	(Nos.)			

Part-F: Meter Box for LT-CT operated Three Phase Smart Meters (Inclusive of All Necessary Accessories) maximum 50,000 units	50,000	(Nos.)			
Total (G) = (Part-A + Part-B + Part-C + Part-D + Part-E + Part-F)			Grand Total (G)		

A2: Price Schedule for Goods *to Be Offered from Outside India*

Name of the Bidder: _____

S. No.	Description	Quantity	Unit of Measurement	Country of Origin	Currency (USD/ INR)	Unit Price* CIF (...) or CIP (...)	Unit Price FOB (...) or FCA (...)	Total Price CIF or CIP	Total Price CIF or CIP (in Words)	Total Price FOB or FCA	Total Price FOB or FCA (in Words)
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9= 7 x 3**	**10**	**11 = 8 x 3**	**12**
A	Single Phase Smart Meters (including GPRS communications module) maximum 45,00,000 units	45,00,000	(Nos.)				N/A (Bidder to quote zero here in the online Price Bid Form)			N/A (Bidder to quote zero here in the online Price Bid Form)	
B	Meter Box for Single phase Smart Meters (Inclusive of All Necessary Accessories) maximum 45,00,000 units	45,00,000	(Nos.)								
C	Three Phase Whole Current Smart Meters (including GPRS communications module) maximum 4,50,000 units	4,50,000	(Nos.)								
D	Meter Box for Three Phase whole current Smart Meters (Inclusive of All Necessary Accessories) maximum 4,50,000 units	4,50,000	(Nos.)								
E	LT-CT Operated Three Phase Smart Meters (including GPRS communications module) maximum 50,000 units	50,000	(Nos.)								
F	Meter Box for LT-CT operated Three Phase Smart Meters	50,000	(Nos.)								

	(Inclusive of All Necessary Accessories) maximum 50,000 units										
	Total (**X**) = A+B+C+D+E+F										

A3: Price Schedule for Related Services to be Offered from Inside India

S. No.	Description	Quantity	Unit of Measurement	Country of Origin	Unit Price		Total Price per Item	
					(a) Foreign Currency	(b) Local Currency	(a) Foreign Currency	(b) Local Currency
1	**2**	**3**	**4**	**5**	**6(a)**	**6(b)**	**7(a) = 3 x 6(a)**	**7(b) = 3 x 6(b)**
A	Inland transportation (within India) including loading, unloading, transfer to Site, insurance, custom duty, custom clearance, port charges and other costs incidental to delivery	5000000	Nos.					

Notes:

Column 6 (Tables A1 and A2): Only to be used if EESL wishes to reserve transportation and insurance to domestic companies or other designated sources. Identification of the lowest evaluated bid must be on the basis of the CIF or CIP price, but EESL may sign the contract on FOB or FCA terms and make its own arrangement for transportation and/or insurance.

Column 5 and 6 Currency as per Clause 4 (Price Basis) of SCC

Notes applicable to Tables A1, A2 and A3 above:

1. The bidder(s) has to mandatorily quote for all the line items/services/jobs enlisted in the Price Bid Sheet format. Else, the bid shall be liable for outright rejection.
2. If there is a discrepancy between the individual unit rates and the total amount, the unit rates will prevail.
3. Bid with variable price(s) will not be accepted.
4. Prices once quoted shall remain firm, and subject not be subject to any escalation, till completion/execution of the contractual assignments/work and till the contract's validity's extension, if any.
5. The contractor shall need to be mandatorily registered with the relevant Tax Authority (ies) for the LOA items (services, where applicable), and furnish photocopy of their tax registration certificate(s) and PAN along with each Tax invoice.
6. Deposit of all statutory taxes, duties, levies, etc. to government authorities shall be the sole responsibility of the contractor and the contractor shall indemnify EESL for any tax claims/problems, etc. with the statutory authority/Government or State authorities.
7. Income tax, TDS, etc. will be deducted at source by EESL as per government policies.
8. Benefit of any reduction in taxes & duties during the execution of contract shall be passed on to EESL by the implementing partner(s).
9. Applicable taxes, duties, cess, etc. shall be paid on actuals as applicable in the state where the products are delivered, provided that the bidder(s) is registered with the relevant tax authorities.
10. The above prices cover supply at EESL designated warehouse in the two states, including loading, unloading, transfer to site, insurance, and other costs incidental to delivery. The quoted prices shall cover the warranty period as defined in the Tender document.
11. The bidder(s) shall comply with all the statutory compliances, specifically pertaining to The Legal Metrology Act 2009.
12. EESL shall provide necessary further information pertaining to the Maximum Retail Price (MRP) to be imprinted on the packaged commodity. The bidder(s) shall pay the Excise Duty (ED) on the applicable price. The difference in the ED amount, if any, shall be adjusted by EESL to the price of the bidder(s)
13. Further, the bidder(s) must make sure that any compliances, to be ensured by EESL are communicated to EESL by the bidder(s) and if required, EESL may take assistance from the bidder(s) to execute such compliance(s) and the bidder(s) shall be reimbursed the statutory fee only, for performing compliance(s) on behalf of EESL applicable on EESL.
14. EESL have the rights to accept or reject any bid or part without assigning any reason.
15. Maximum quantity is mentioned here for illustration purpose for determination of L-1 only. Bidder(s) shall mention the appropriate quantity as per its capacity.
16. Minimum quantity to be quoted against each item mentioned in above table is 50% of the maximum quantity.
17. Illustrations: 1. USD = United states Dollar, 2. INR= Indian National Rupees, 3. CIF = Cost, Insurance and Freight, 4. CIP= Carriage and Insurance Paid, 5. FOB= Free on Board, 6. FOR = Free on Road, 7. FCA = Free Carrier

I/We have read all the terms and conditions of the Tender/IFB/NIT and the Annexure(s) thereto and agree to accept and abide by the same in total. The above quotation has been prepared after taking into account all the terms and conditions of the Tender/IFB/NIT.

(SEAL)

Name _____
In the capacity of _____
Signed _____
Duly authorized to sign the Bid for and on behalf of _____
Date _____

(Reaffirmed 0)

भारतीय मानक
Indian Standard

IS 16444 : 2015

ए.सी. स्थैतिक सीधा जुड़ा वाटआवर स्मार्ट मीटर वर्ग 1 एवं 2 — विशिष्टि

a.c. Static Direct Connected Watthour Smart Meter Class 1 and 2 — Specification

ICS 91.140.50

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली-110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002
www.bis.org.in www.standardsbis.in

August 2015 Price Group 4

Equipment for Electrical Energy Measurement, Tariff and Load Control Sectional Committee, ETD 13

FOREWARD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Equipment for Electrical Energy Measurement, Tariff and Load Control Sectional Committee had been approved by the Electrotechnical Division Council.

Several programmes have been launched by Government of India to reform the energy and power sector. One such initiative was introduction of IT enabled services that has set the platform for deploying Smart Grids in India. The Smart Grid via its environment friendly and consumer centric approach would offer enhanced reliability, security, safety and efficiency for grid operations. The transition to Smart Grid would achieve the overarching objectives of Government to reduce AT&C losses and provide 24×7 power for all.

Advanced Metering Infrastructure (AMI) is a crucial part of a Smart Grid. It is an integrated system of smart meters, communication networks and data management systems that enables two way communication between the utilities and consumer premises equipment. The functional blocks of AMI typically include HES — Head end system, WAN — Wide area network, NAN — Neighbourhood area network, Data concentrator unit (DCU)/ Gateway and HAN — Home area network.

Smart Meter is a composite unit consisting of metrology elements, two way communication module/modules and control elements. It will have functions such as measurement, computation, event capturing, storing, communication and control. The smart meter would be required to provide data and information that are needed by various Smart Grid applications.

Smart grid deployment process is still evolving. Various domains of Smart Grids are infused with professional interventions to adopt and rollout standards-based technologies and products. Many standard making bodies like IEC, IEEE, NIST, CEN, CENELEC, ITU, ETSI, IETF are engaged in standardization activities pertaining to Smart Grids.

The Electrotechnical department of Bureau of Indian Standards has prepared many metering standards such as IS13779 : 1999 'ac Static watthour meters (Class 1 and 2) (*first revision*)', IS 14697 : 1999 'ac Static transformer operated watthour and var-hour meters, class 0.2S and 0.5S — Specification', IS 15884 : 2010 'Alternating current direct connected static pre-payment meters for active energy (Class 1 and 2) — Specification' and IS 15959 : 2011 'Electricity metering — Data exchange for meter reading, tariff and load control — Companion specification'. This standard on the smart meter has been prepared by Bureau of Indian Standards based on the technical specifications and functional requirements published in June 2013 by Central Electricity Authority.

While preparing this standard it has been endeavoured not to contradict on principle of the adopted/referred standards of other International organizations/institutions on which this standard is based upon. However, in case of any divergence/disparity, not amounting to conflict of interpretations that may be revealed later, provisions of this standard will prevail.

This standard specifies the requirements for smart meters only. Requirements for any other components shown or referred in the text or diagrams such as DCU, HES, IHD, HHU may be specified separately for functional and technical aspects taking into consideration the features and provisions of this standard for deployment of AMI. The requirements of other components chosen shall be finalised between buyer and seller.

While finalizing this standard a separate standard covering requirements for data exchange specific to smart meter has been prepares and it is in the final stage of approval. Therefore IS 15959 : 2011 is being revised as follows:

> IS 15959 (Part 1) : 2011 'Data exchange for electricity meter reading, tariff and load control: Part 1 Comparison specification' (through Amendment)
>
> IS 15959 (Part 2) : 2011 'Data exchange for electricity meter reading, tariff and load control: Part 2 Comparison specification for smart meter (*under preparation*)

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)' . The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

a.c. STATIC DIRECT CONNECTED WATTHOUR SMART METER CLASS 1 AND 2 — SPECIFICATION

1 SCOPE

1.1 This standard specifies static watt-hour smart meters of accuracy class 1 and 2 for the measurement of alternating current electrical active energy of frequency 50 Hz for single phase and three phase balanced and unbalanced loads. It applies to their type tests, routine tests and acceptance tests.

1.2 It applies to:

a) static watt-hour direct connected meters consisting of measuring element(s), time of use of register(s), display, load switch and built in type bi-directional communication module all integral with the meter housing.

b) alternately the bi-directional communication module could be plug-in type on a dedicated slot with suitable sealing arrangement. The plug-in module shall be field swappable with suitable integrated communication module as agreed between buyer and seller.

1.3 The smart meter types as specified in **1.2** (a) and **1.2** (b) shall be suitable for indoor/outdoor usage and capable of forward (import) or both forward (import) and reverse (export) energy measurement.

1.4 It does not apply to:

a) watt-hour meters where the voltage across the connection terminal exceeds 600 V (line to line voltage for meters for poly phase systems,

b) meters operated with external current transformers,

c) portable meters, and

d) meters without internal load switch.

2 REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

IS No./ International Standards	*Title*
13779 : 1999	a.c. Static watthour meters, Class 1 and 2 — Specification
15884 : 2010	Alternating current direct connected static prepayment meters for active energy (Class 1 and 2) — Specification
15959 (Part 1) : 2011	Data exchange for electricity meter reading, tariff and load control : Companion specification
15959 (Part 2) : 2011	Data exchange for electricity meter reading, tariff and load control: Part 2 Companion specification for smart meter
IEEE 802.15.4 : 2003	Standard for local and metropolitan area networks
IEEE 1901 : 2010	Standard for broadband over power line networks: Medium access control and physical layer specifications
IEEE 1901.2 : 2013	Standard for low-frequency narrow band power line communications for smart grid applications
ITU-T G.9901 : 2014	Narrowband orthogonal frequency division multiplexing power line communication transceivers — Power spectral density specification
ITU-T G.9903 : 2014	Narrowband orthogonal frequency division multiplexing power line communication transceivers for G3-PLC networks
ITU-T G.9904 : 2012	Narrowband orthogonal frequency division multiplexing power line communication transceivers for prime networks

3 TERMINOLOGY

3.1 General Definitions — For the purpose of this standard all definitions given in IS 13779, IS 15884 and IS 15959 (Part 1) shall apply. In addition definitions given in **3.2** shall be applicable.

3.2 Definitions of General Smart Metering Terms

3.2.1 *Smart Meter* — Smart meter is an ac static watt-

hour meter with time of use registers, internal connect and disconnect switches with two way communication capability. It is designed to measure flow of forward (import) or both forward (import) and reverse (export), store and communicate the same along with other parameters defined in this standard. It shall be remotely accessed for collecting data/events, programming for select parameters.

3.2.2 *Neighbourhood Area Network [NAN]* — This is a network comprising of group of smart meters and any other network elements such as DCU all of which communicate in a two way mode.

3.2.3 *Data Concentrator Unit [DCU]* — This device is part of NAN. It acts as a secured aggregate router and is an interface between smart meter and HES. It shall facilitate secured two way data transfer either in transparent/store and forward mode as per system designs. The other terminologies like/Network Element/Grid Router/Access point/edge router shall be synonymously used in place of DCU. This standard does not cover the requirements of DCU.

3.2.4 *Head End System [HES]* — This entity is a set of ICT based systems situated at the top of AMI system and receives data and events over NAN/WAN. HES is responsible for using these data/information and manage NAN/WAN components, smart meters and IHD. HES is also responsible for handling security keys, passwords intended for smart meter programmability and firmware upgrade and host applications such as remote connect/disconnect, analytics, billing, messaging etc. This standard does not cover the requirements of HES.

3.2.5 *In Home Display [IHD]* — This is a compact display module meant for mounting inside the consumer premises. The IHD shall receive data/ messages from smart meter and send responses to smart meter as and when required from HES. This standard does not cover the requirements of IHD

3.2.6 *Hand Held Unit [HHU]* — This is a device used to communicating locally over the optical port to the smart meter. Communication functionality requirements are as mentioned in IS 15959 (Part 2).

4 GLOSSARY OF TERMS

AMI : Advanced metering infrastructure
AT&C : Aggregate technical and commercial
CEA : Central electricity authority
COSEM : Companion specification for energy metering
DCU : Data concentrator unit
DLMS : Device language message specification
DoT : Department of telecom
DSM : Demand side management
DR : Demand response
ETA : Equipment type approval
ETSI : European telecommunications standards institute
HAN : Home area network
HES : Head end system
HHU : Hand held unit
ICT : Information and communications technology
IEC : International electrotechnical commission
IEEE : Institute of electrical and electronics engineers
IETF : Internet engineering task force
IHD : In home display
IS : Indian standard
ITU : International telecommunication union
LCD : Liquid crystal display
NAN : Neighbourhood area network
OFC : Optical fibre communication
PLC : Power line communication
RF : Radio frequency
ToU : Time of use
WAN : Wide area network
WPC : Wireless planning co-ordination
NFAP : National frequency allocation Plan

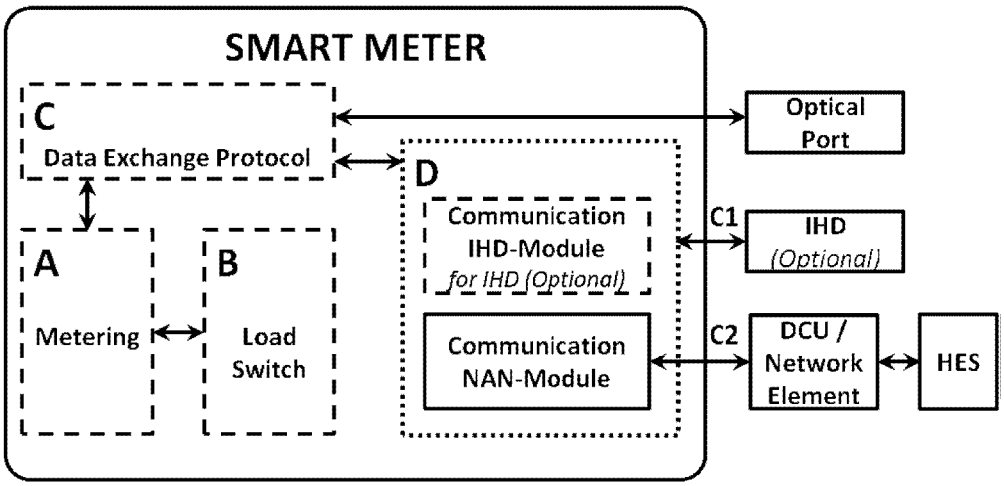
5 SMART METER ARCHITECTURE

5.1 The smart meter is a component of Advanced Metering Infrastructure. For the purpose of this standard the smart meter is conceived as single unit comprising of following functional zones:

a) Metering,
b) Load switch,
c) Metering protocol, and
d) Communication modules.

5.2 The Smart Meters may have wide usage and the buyer may like to choose desired features to meet the objectives of their overall system and site conditions. In order to facilitate such a flexible approach, the Smart Meter architecture are categorized into two variants. Based on the technical feasibility buyer may choose the combination of the variants best suited for a given geographical area. The Smart Meter shall have either NAN or WAN module as mandatory communication module for communicating to DCU or HES respectively. If IHD is chosen, then there could be a suitable additional communication module within the Smart Meter. The two variants are diagrammatically represented in Fig. 1 and Fig. 2. These variants are applicable to both built in type and pluggable type of Smart Meters.

Variant 1



LEGEND

A – Metrology
B – Load switch for control
C – Metering protocol
D – Communication

Optical port — As per IS 15959 (Part 2)
C1 – IHD Connectivity SM ↔ IHD (optional)
C2 – NAN Connectivity SM ↔ DCU

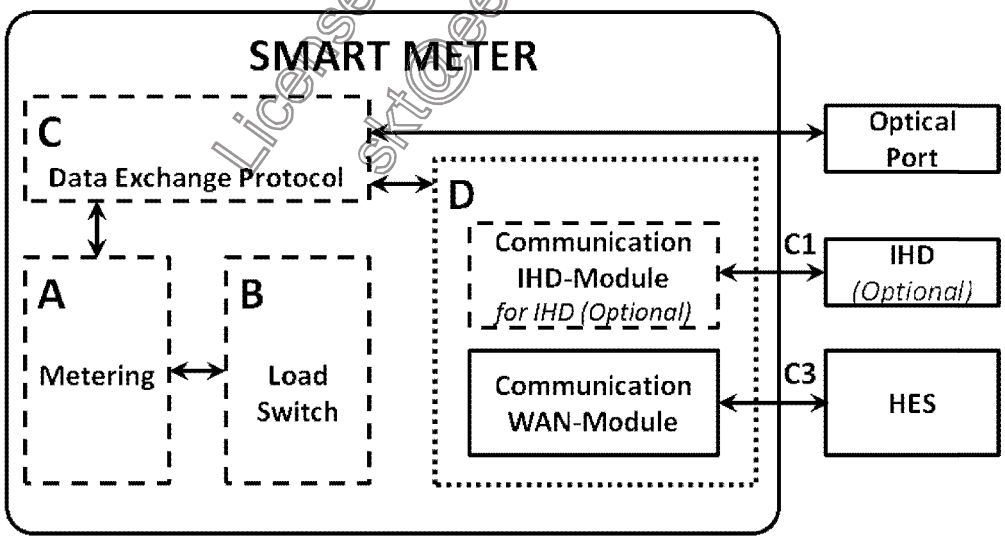
NOTES

1 The Smart Meter variant based on Fig. 1 shall provide connectivity C2 for two way communication with DCU using a NAN module.

2 If IHD is chosen this Smart Meter shall provide connectivity C1 for two way communication with IHD using the same NAN module or a suitable additional module as per buyer-seller agreement.

FIG. 1 SMART METER ARCHITECTURE

Variant 2



LEGEND

A – Metrology
B – Load switch for control
C – Metering protocol
D – Communication

Optical port — As per IS 15959 (Part 2)
C1 – IHD Connectivity SM ↔ IHD (Optional)
C3 – WAN Connectivity SM ↔ HES

NOTES

1 The Smart Meter variant based on Fig. 2 shall provide connectivity C3 for two way communication with HES using a WAN module.

2 If IHD is chosen this Smart Meter shall provide connectivity C1 for two way communication with IHD using a suitable additional module as per buyer-seller agreement.

FIG. 2 SMART METER ARCHITECTURE

6 METERING

6.1 Metering Requirement

Metering and metrology requirement shall be according to IS 13779.

6.1.1 *Classification*

The classification as per **4** of IS 13779 shall apply.

6.1.2 *Ratings*

6.1.2.1 *Standard reference voltage*

As per **5.1** of IS 13779.

6.1.2.2 *Standard basic current*

As per **5.2** of IS 13779.

6.1.2.3 *Maximum current*

As per **5.3** of IS 13779 with maximum current not exceeding 100A for both 3 Phase and 1 Phase meters.

6.1.2.4 *Standard reference frequency*

As per **5.4** of IS 13779

6.2 General Constructional Requirements

The requirements given in **6.1** to **6.4** of IS 13779 shall apply.The communication modules shall be either built in type or plug in type as mentioned in **1.2**. The plug-in communication modules shall be properly secured on the smart meter, both physically and electrically, so as to avoid any possible tampering with adequate provision for sealing. The load switch for disconnect/ connect purpose shall be mounted inside the meter with suitable arrangement.

6.2.1 *Terminals — Terminal Block(s) — Protective Earth Terminal*

The requirements given in **6.4** of IS 13779 shall apply.

6.2.2 *Terminal Cover*

The requirements given in **6.5, 6.5.1, 6.5.2** and **6.7** of IS 13779 shall apply

6.3 Clearance and Creepage Distances

The requirements given in **6.6** of IS 13779 shall apply.

6.4 Resistance to Heat and Fire

The requirements given in **6.8** of IS 13779 shall apply.

6.5 Mechanical Requirements

The requirements for mechanical shall be as per **12.3** of IS 13779 and the requirements for protection against penetration of dust and water shall be as per **6.9** and **12.5** of IS 13779 shall apply.

6.6 Display of Values

The requirements given in **6.10** of IS 13779 shall apply. The non-volatile memory shall support retention period of 10 years.

6.7 Output Device

The requirements given in **6.11** of IS 13779 shall apply. Distinct LED/LCD indicators shall be provided for Communication in Progress (for example — TxD mode, RxD mode), Load switch Close/Open conditions.

6.8 Marking of Smart Meter

6.8.1 The requirements given in **7** of IS 13779 shall apply.

The following additional information shall also be provided as applicable in the name plate:

a) Communication technology for WAN or NAN (with carrier frequency).
b) Communication technology if IHD is supported (with carrier frequency).
c) Symbol of load switch.

6.8.2 The use of Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the license for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6.9 Climatic Condition

The requirements given in **8** of IS 13779 shall apply.

6.10 Electrical Requirements

6.10.1 *Power Consumption*

The measurement of power consumption in the voltage and current circuits shall be determined as described in the followings.

6.10.1.1 *Voltage circuits*

The active and apparent power consumptions of a direct-connected composite Smart Meter for each circuit at reference voltage, reference temperature, and reference frequency shall not exceed 5.0 W and 15 VA during the idle mode of communication module. This applies to either one NAN or one WAN module present in the Smart Meter. If a separate module for servicing to IHD is present, the above figures shall not exceed 6W and 18VA during the idle mode of communication module.

The additional power requirement during data

transmission shall not exceed 7W per communication module. In the case of plug in communication modules, the Smart Meter shall be capable of sourcing 7W for powering the plug in communication module during data transmission.

6.10.1.2 *Current Circuit*

The apparent power taken by each current circuit of a direct connected payment meter at maximum current, reference frequency and reference temperature shall not exceed a maximum of 4 VA.

6.10.2 *Influence of Supply Voltage*

The requirements given in **4.4.2** of IS 15884 shall apply.

6.10.3 *Influence of Short —Time Overcurrents*

The requirements given in **4.4.3** of IS 15884 shall apply.

6.10.4 *Influence of Self-Heating*

The requirements given in **4.4.4** of IS 15884 shall apply.

6.10.5 *Influence of Heating*

The requirements given in **4.4.5** of IS 15884 shall apply.

6.10.6 *Insulation Requirements*

The requirements given in **9.5** of IS 13779 shall apply.

6.10.7 *Immunity to Earth Fault*

The requirements given in **9.6** of IS 13779 shall apply.

6.11 Electromagnetic Compatibility

The requirements given in **4.5** and **5.5** of IS 15884 shall apply.

6.12 Accuracy Requirements

The requirements given in **11, 11.1, 11.2, 11.3, 11.4, 11.5, 11.6** and **11.7** of IS 13779 shall apply.

6.13 Test and Test Conditions

Given in **10** of this standard.

7 LOAD SWITCH REQUIREMENT

7.1 Load Switching Capability

The smart meter shall be provided with switching elements, integral with the meter enclosure, to control the flow of electricity to the load at the instance of connect/disconnect commands as per functional needs of the system. For Single Phase Smart Meter, two load switches one each in phase and neutral shall be provided. For Three Phase Smart Meters load switches one in each phase shall be provided. The switches are to be rated to carry maximum current continuously under normal operating conditions and to withstand the switching transients during make and break operations.

7.2 Performance Requirements for Load Switching

The requirements given in **4.6.6.2** of IS 15884 shall apply.

8 DATA EXCHANGE PROTOCOL

The requirements as per IS 15959 (Part 1) shall apply. The data exchange protocol chosen for Smart Meter shall be as per IS 15959 (Part 2) including specific requirements for Smart Meters for the application layer. This application layer protocol which is primarily DLMS/COSEM shall work through the other layers as given in **9**.

9 COMMUNICATION REQUIREMENT

The NAN, WAN and IHD communication modules that are shown in Fig. 1 and Fig. 2 are for establishing connectivity with Smart Meter by the external entities such as DCU and HES respectively and optionally with IHD. These are either wired or wireless communication technology, the choice of technology shall be chosen by the buyer based on the technical feasibility best suited for a given geographical area. The communication module(s) may be of PLC or RF for NAN and cellular technologies or OFC technology for WAN.

9.1 Connectivity Technologies

9.1.1 The connectivity C1, C2 and C3 in variant 1 (Fig. 1) and variant 2 (Fig. 2) are generally designed with wired or wireless technology for the physical medium. For connectivity C1 and C2 if PLC (wired) technology is chosen the standards may be any one of those given in **2**. For connectivity C1 and C2 if RF (wireless) technology is chosen the standard may be as per IS 15959 (Part 2).

9.1.2 Wherever PLC technology is used the "AC line connection for coupling/decoupling shall be from within for both plug-in/built in type smart meter".

9.1.3 The technology for WAN may be any of the cellular technologies supporting: 2G/3G/4G or an optical fiber communications network complying to IPv6.

9.1.4 The standards cited in **9.1.1** are indicative and non-exhaustive. Other suitable standards from ITU/IEC/IEEE/CEN/CENELEC/ETSI may be considered for NAN and WAN as per agreement between the supplier and the purchaser.

9.2 RF Technology Requirements

The RF technology if used for NAN/IHD communication modules shall be in the frequency bands notified by Government of India.

Wireless technologies need to comply with the Indian statutory bodies that govern communication related aspects such as WPC (Wireless Planning Co-ordination wing) which oversees licensing and management of all wireless spectrums in India. Equipment Type Approval (ETA) is to be obtained for communication modules as per Department of Telecom, Government of India requirements.

Radio emission characteristics for the chosen band shall comply with latest NFAP and the G.S.R (General Statutory Rules) notifications from Department of Telecom, Government of India.

9.3 Communication Layer Protocol

9.3.1 The smart meter may use a layered Communication protocol stack. The top four layers of such a stack shall be as mentioned below:

Application	IS 15959 (Part 1) and IS 15959 (Part 2)
Transport	TCP/UDP
Network	IPv6 RPL
Adaptation	6LoWPAN RFC (6282)

9.3.2 For Connectivity C1 and C2 the network protocol shall be IPv6 RPL and 6Low PAN [RFC 6282] for convergence/adoption layer. For Connectivity C3 the network protocol shall be IPv6 RPL and IETF RFC 2464, 5072 and 5121, PPP (IETF RFC 1661).

9.3.3 The other layers may be as per **9.1**.

10 TESTS AND TEST CONDITIONS

The smart meter both built-in and pluggable types as a composite unit shall be subjected to specified tests for meteorology, for load switching capability, for data exchange protocol and for smart meter communicability.

10.1 Test for Metrology

The tests for metrology shall include the "Type Tests, Routine Tests, and Acceptance Tests" identified in IS 13779. The schedule and recommended sequence of type tests shall be as given below in Table 1. In Table 1, the sequence of tests mentioned is as that of Table 20 in IS 13779. The clause numbers in Table 1 against the name of the tests are the numbers of this standard.

10.2 Number of Samples and Criteria for Conformity

The requirements given in **12** of IS 13779 shall apply.

Table 1 Schedule of Type Tests

(*Clause* **10.1**)

Sl No.	Test	Ref. to Clause of this Standard
(1)	(2)	(3)
i)	**Test of Insulation Properties**	**6.10.6**
	Impulse voltage test	
	ac High voltage test	
	Insulation resistance test	
ii)	**Test of Accuracy Requirements**	**6.12**
	Test on limits of error	
	Interpretation of test results	
	Test of meter constant	
	Test of starting condition	
	Test of no-load condition	
	Test of ambient temperature influence	
	Test of repeatability of error	
	Test of influence quantities	
iii)	**Test of Electrical Requirement**	**6.10**
	Test of power consumption test	**6.10.1**
	Test of influence of supply voltage	**6.10.2**
	Test of influence short-time over currents	**6.10.3**
	Test of influence of self-heating	**6.10.4**
	Test of influence of heating	**6.10.5**
	Test of influence of immunity to earth fault	**6.10.7**
iv)	**Test for Electromagnetic Compatibility**	**6.11**
	Radio interference measurement	
	Fast transient burst test	
	Test of immunity to electrostatic discharges	
	Test of immunity to electromagnetic HF field	
	Surge Immunity Test	
v)	**Test for Climatic Influences**	**6.9**
	Dry heat test	
	Cold test	
	Damp heat cyclic test	
vi)	**Test for Mechanical Requirements**	**6.5**
	Vibration test	
	Shock test	
	Spring hammer test	
	Protection against penetration of dust and water	
	Test of resistance to heat and fire	

NOTES

1 Following tests shall be carried out to assess for smart meter functional condition after the "Type test and acceptance test" for metrology is carried out but before 'test of resistance to heat and fire'.

a) Accuracy of the meter at pre-defined points [5 percent I_b, I_b and I_{max}] UPF.

b) Access and data read test.

c) Remote disconnect/connect

2 For procedure to conduct functional tests [(b), (c) of note 1] reference may be made to IS 15959 (Part 2).

10.3 Display

Minimum 6+1 digits LCD display. For testing purpose, high resolution display having at least 3 decimal digits shall be provided.

10.4 Test for Load Switch

The requirements as per **4.6.6.2** of IS 15884 shall apply. This test shall be tested on a separate sample.

10.5 Test for Data Exchange Protocol

This test shall be carried out on optical port and the tests shall be performed as per IS 15959 (Part 1) and IS 15959 (Part 2) for conformity.

10.6 Tests for Smart Meter Communicability

10.6.1 The modules for WAN/NAN/IHD shall be approved by designated agency authorized by DoT and shall have ETA as mentioned in **9.2**.

10.6.2 *Test for Smart Meter Communicability*

This standard provides for use of suitable communication technologies in the design of smart meters. However to assess the communication capability a few tests including a test for end to end communication capability are identified and included in IS 15959 (Part 1) . These tests are meant for carrying out using Connectivity C1, C2 and C3.

11 SMART METER FUNCTIONAL REQUIREMENTS

The Smart Meter developed as per this standard is required to support handling of following operational requirements:

11.1 Disconnection Mechanism

The Smart Meter shall support disconnection (all the switches shall operate) under the following conditions:

a) Over current (minimum 105% of I_{max} in any phase for predefined persistence time),
b) Load control limit (programmable and set by utility),
c) Pre-programmed event conditions (factory set),
d) Disconnect signal from utility control centre, and
e) In case of pre-paid facility under defined/ agreed conditions.

NOTES

1 Persistence time value to be provided by utility.
2 List of events for disconnection to be pre-programmed shall be provided by utility.

11.2 Reconnection Mechanism

The local reconnection due to disconnection under over current and load control limit shall be as follows:

a) The switch re-connection shall be decided by meter locally. It will try to re-connect the load up to predefined time, with predefined interval (time and interval is programmable by utility). If the consumption is within limits meter shall remain in normal connect mode,
b) If the consumption is still more than the programmed limits, it will lock out and wait for 30 min (lock out period). After this period the meter shall reconnect the load and if the consumption is still above the limit, the procedure as defined above in (a) shall be repeated with status update to HES, and
c) In all conditions other than 'Over current and load control limit' reconnection shall normally be done from HES. In case of failure of communication with HES, reconnection shall be possible through optical port locally with specified security.

11.3 Reconnection Mechanism for Prepayment Meter

As per agreed prepayment structure with utility.

11.4 Status of Load Switch

Indication of status of load switch (that is connected/ disconnected) shall be available on display as well as at HES.

11.5 All connections and disconnections shall also be logged as events.

11.6 Smart Meters shall respond to:

a) Meter readings on demand from HES,
b) Scheduled meter reading from HES,
c) Remote Firmware upgrade from HES, and
d) All programming requests from HES.

11.7 Smart Meter shall detect 'First breath (power on) and Last gasp (power off)' condition and communicate to HES.

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Indian Standard

IS 16444 (Part 2) : 2017

ए. सी. स्थैतिक ट्रान्सफार्मर संचालित वाट ऑवर एवं वार ऑवर स्मार्ट मीटर वर्ग 0.2S, 0.5S तथा 1.0S

भाग 2 विशिष्टि ट्रान्सफार्मर संचालित स्मार्ट मीटर

a.c. Static Transformer Operated Watthour and Var-Hour Smart Meters, Class 0.2S, 0.5S and 1.0S

Part 2 Specification Transformer Operated Smart Meters

ICS 91.140.50

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FOREWORD

This Indian Standard (Part 2) was adopted by the Bureau of Indian Standards, after the draft finalized by the Equipment for Electrical Energy Measurement, Tariff and Load Control Sectional Committee had been approved by the Electrotechnical Division Council.

Several programs have been launched by Government of India to reform the energy and power sector. One such initiative was introduction of IT enabled services that have set the platform for deploying Smart Grids in India. The Smart Grid *via* its environment friendly and consumer centric approach would offer enhanced reliability, security, safety and efficiency for grid operations. The transition to Smart Grid would achieve the over arching objectives of Government to reduce AT&C losses and provide 24×7 power for all.

Advanced Metering Infrastructure (AMI) is a crucial part of a Smart Grid. It is an integrated system of smart meters, communication networks and data management systems that enables two way communications between the utilities and consumer premises equipment. The functional blocks of AMI typically include HES — Head end system, WAN — Wide area network, NAN — Neighborhood area network, Data concentrator unit (DCU)/ Gateway and HAN — Home area network.

Smart meter is a composite unit consisting of metrology elements, two way communication module/modules and control elements. It will have functions such as measurement, computation, event capturing, storing, communication and control. The smart meter would be required to provide data and information that are needed by various Smart Grid applications.

Smart grid deployment process is still evolving. Various domains of Smart Grids are infused with professional interventions to adopt and rollout standards-based technologies and products. Many standard making bodies like IEC, IEEE, NIST, CEN, CENELEC, ITU, ETSI, and IETF are engaged in standardization activities pertaining to Smart Grids.

The Electrotechnical department of Bureau of Indian Standards has formulated many metering standards such as IS 13779 : 1999 'a.c. Static watthour meters (Class 1 and 2) (*first revision*)', IS 14697 : 1999 'a.c. Static transformer operated watthour and var-hour meters, class 0.2S and 0.5S — Specification', IS 15884 : 2010 'Alternating current direct connected static pre-payment meters for active energy (Class 1 and 2) — Specification', IS 15959 (Part 1) : 2011 'Electricity metering — Data exchange for meter reading, tariff and load control — Companion specification Part 1 Static Energy Meter' and IS 16444 : 2015 'a.c. Static Direct Connected Watthour Smart Meter Class 1 and 2 — Specification'. This standard on the smart meter has been formulated by Bureau of Indian Standards based on the technical specifications and functional requirements published in June 2013 by Central Electricity Authority.

The letter 'S' denotes special measuring range designated for transformer operated applications, generally for large power measurements. Current transformers also 'S' designated as per IS 2705 (Part 2) : 1992 'Current transformers: Part 2 Measuring current transformers (*second revision*)' have measuring ranges comparable to those of static meters covered by this standard. For the sake of overall accuracy throughout the measuring range, static meters covered by this standard should preferably be connected with 'S' designated current transformers. For example class 0.5 S meters is used with 0.2 S CT and class 0.2 S meter is used with 0.2 S CT.

While formulating this standard it has been endeavored not to contradict on principle of the adopted/referred standards of other International organizations/institutions on which this standard is based upon. However, in case of any divergence/disparity, not amounting to conflict of interpretations that may be revealed later, provisions of this standard will prevail.

This standard specifies the requirements for smart meters only. Requirements for any other components shown or referred in the text or diagrams such as DCU, HES, IHD, HHU may be specified separately for functional and

Indian Standard

a.c. STATIC TRANSFORMER OPERATED WATTHOUR AND VAR-HOUR SMART METERS, CLASS 0.2S, 0.5S AND 1.0S

PART 2 SPECIFICATION TRANSFORMER OPERATED SMART METERS

1 SCOPE

1.1 This standard (Part 2) specifies ac static transformer operated watthour and var-hour smart meters of accuracy class 0.2S,0.5S and 1.0S for the measurement of alternating current electrical active and reactive energy of frequency in the range 50 Hz for single phase and three phase balanced and unbalanced loads. It applies to their type tests, routine tests and acceptance tests.

1.2 It applies only to transformer operated static watthour and var-hour meters consisting of measuring element(s) and register(s) enclosed together in the meter case. It also applies to operation indicator(s) and test output(s). It also applies to multirate tariff meters and meters which measure energy in both directions.

1.3 Some versions of static reactive energy (var-hour) meters may deemed to be covered by this standard as if these are active energy (watthour) meters of appropriate accuracy class with necessary adjustment to power factor. Although it is possible to achieve Class 0.2 S accuracy in static var-hour meters, it is of general opinion that accuracy attainable for var-hour measurement is one level inferior to that in the case of kWh measurement with identical design of measuring elements. Therefore, it is possible for this standard to cover static var-hour meter, Class 0.2 S, and 0.5 S for reactive energy measurement in all transformer operated applications. Only 'power factor' wherever it has appeared in this standard, shall be read as 'sin Ø inductive' or 'sin Ø capacitive'. Where Ø is respectively the lagging or the leading power factor angle

1.4 It applies to,

a) transformer operated static watt-hour meters consisting of measuring element(s), time of use of register(s), display and built in type bi-directional communication module all integral with the meter housing.
b) Alternately, the bi-directional communication module could be plug-in type on a dedicated slot with suitable sealing arrangement. The plug-in module shall be field swappable with suitable integrated communication module as agreed between the buyer and the seller.

1.5 The smart meter types as specified in **1.4** (a) and **1.4** (b) shall be suitable for indoor usage and capable of 'forwarded only' or 'import and export' energy measurement.

1.6 It does not apply to,

a) watthour meters and var-hours meters where the voltage across the connection terminal exceeds 600 V (line to line voltage for meters for poly phase systems), and
b) portable meters, and outdoor meters.

1.7 For rack-mounted meters, the mechanical requirements are not covered in this standard.

2 REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No./ International Standard	*Title*
14697: 1999	a.c. Static transformer operated watt-hour and var-hour meters, Class 0.2S, 0.5S and 1.0S — Specification
15959 (Part 1): 2011	Data exchange for electricity meter reading, tariff and load control — Companion : specification Static energy meter
(Part 2): 2016	Smart meter
IEEE 802.15.4: 2003	Standard for local and metropolitan area networks
IEEE 1901: 2010	Standard for broadband over power line networks: Medium access control and physical layer specifications
IEEE 1901.2: 2013	Standard for low-frequency narrow band power line communications for smart grid applications
ITU-T G.9901: 2014	Narrowband orthogonal frequency division multiplexing power line communication transceivers — Power spectral density specification

IS No./ International Standard	*Title*
ITU-T G.9903 : 2014	Narrowband orthogonal frequency division multiplexing power line communication transceivers for G3- PLC networks
ITU-T G.9904: 2012	Narrowband orthogonal frequency division multiplexing power line communication transceivers for prime networks

3 TERMINOLOGY

3.1 General Definitions — For the purpose of this standard all definitions given in IS 14697, IS 15959 (Parts 1, 2 and 3) and the following shall apply.

3.2 Definitions of General Smart Metering Terms

3.2.1 *Smart Meter —* Smart meter is an a.c. static transformer operated watthour and Var-hour meter with time of use registers and two way communication capabilities.

It is designed to measure 'forwarded only' or 'import and export' energy, store and communicate the same along with other parameters defined in this standard. It shall be remotely accessed for collecting data/events, programming for selected parameters.

Load switch is not applicable for the meters covered in this standard.

3.2.2 *Neighborhood Area Network [NAN]* — This is a network comprising of group of smart meters and any other network elements such as DCU all of which communicate in a two way mode.

3.2.3 *Data Concentrator Unit [DCU]* — This device is part of NAN. It acts as a secured aggregate router and is an interface between smart meter and HES. It shall facilitate secured two way data transfer either in transparent/store and forward mode as per system designs. The other terminologies like Network Element/ Grid Router/Access point/edge router shall be synonymously used in place of DCU. This standard does not cover the requirements of DCU.

3.2.4 *Head End System [HES]* — This entity is a set of ICT based systems situated at the top of AMI system and receives data and events over NAN/WAN. HES is responsible for using these data/information and manage NAN/WAN components, smart meters and IHD. HES is also responsible for handling security keys, passwords intended for smart meter programmability and firmware upgrade and host applications such as remote connect/disconnect, analytics, billing, messaging etc. This standard does not cover the requirements of HES.

3.2.5 *In Home Display [IHD]* — This is a compact display module meant for mounting inside the consumer premises. The IHD shall receive data/ messages from smart meter and send responses to smart meter as and when required from HES. This standard does not cover the requirements of IHD.

3.2.6 *Hand Held Unit [HHU]* — This is a device used to communicating locally over the optical port to the smart meter. Communication functionality requirements are as mentioned in IS 15959 (Part 2).

3.2.7 *Forwarded Energy*

It is the measurement of energy in import register for energy in both forward and reverse direction.

3.2.8 *Import Energy*

It is the measurement of energy in import register for energy in forward direction only

3.2.9 *Export Energy*

It is the measurement of energy in export register for energy in reverse direction only.

4 GLOSSARY OF TERMS

AMI	:	Advanced metering infrastructure
AT&C	:	Aggregate technical and commercial
CEA	:	Central electricity authority
COSEM	:	Companion specification for energy metering
DCU	:	Data concentrator unit
DLMS	:	Device language message specification
DoT	:	Department of telecom
DSM	:	Demand side management
DR	:	Demand response
ETA	:	Equipment type approval
ETSI	:	European telecommunications standards institute
HAN	:	Home area network
HHU	:	Hand held unit
ICT	:	Information and communications technology
IEC	:	International electro technical commission
IEEE	:	Institute of electrical and electronics engineers
IETF	:	Internet engineering task force
IHD	:	In home display
IS	:	Indian standard
ITU	:	International telecommunication union
LCD	:	Liquid crystal display
NAN	:	Neighborhood area network
PLC	:	Power line communication
RF	:	Radio frequency

ToU : Time of use
WPC : Wireless planning co-ordination
NFAP : National frequency allocation plan

5 SMART METER ARCHITECTURE

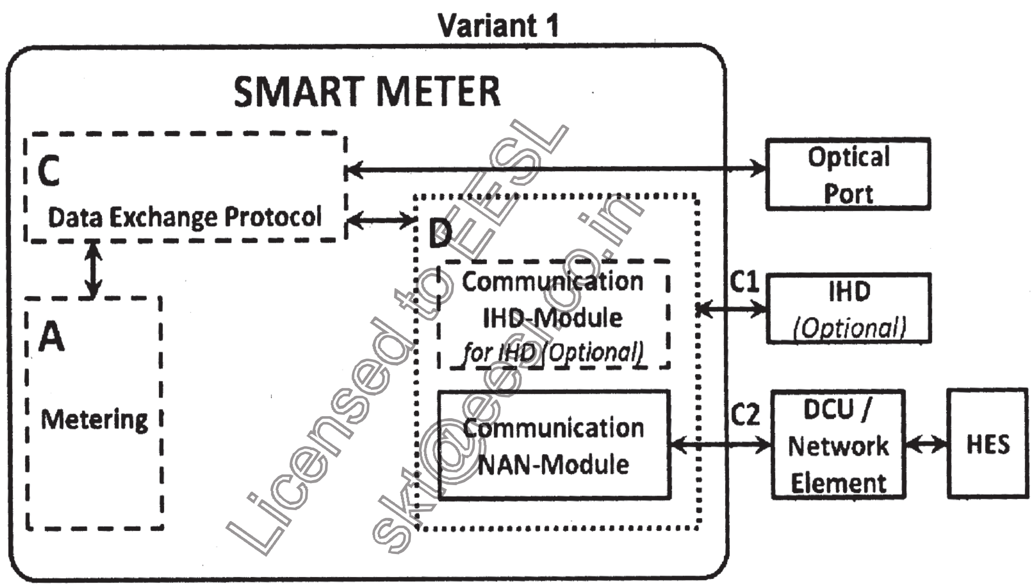
5.1 The smart meter is a component of Advanced Metering Infrastructure. For the purpose of this standard the smart meter is conceived as single unit comprising of following functional zones:

a) Metering,
b) Load switch (not applicable in this part of standard for transformer operated meters),
c) Data exchange and communication protocol, and
d) Communication modules.

2.2 The smart meters may have wide usage and the buyer may like to choose desired features to meet the objectives of their overall system and site conditions. In order to facilitate such a flexible approach, the Smart meter architecture are categorized into two variants.

Based on the technical feasibility buyer may choose the combination of the variants best suited for a given geographical area. The Smart meter shall have either NAN or WAN module as mandatory communication module for communicating to DCU or HES, respectively.

If IHD is chosen, then there could be a suitable additional communication module within the Smart Meter. The two variants are diagrammatically represented in Fig. 1 and Fig. 2. These variants are applicable to both built in type and pluggable type of smart meters.



LEGEND

A – Metrology
C – Data Exchange and Metering Protocol
D – Communication

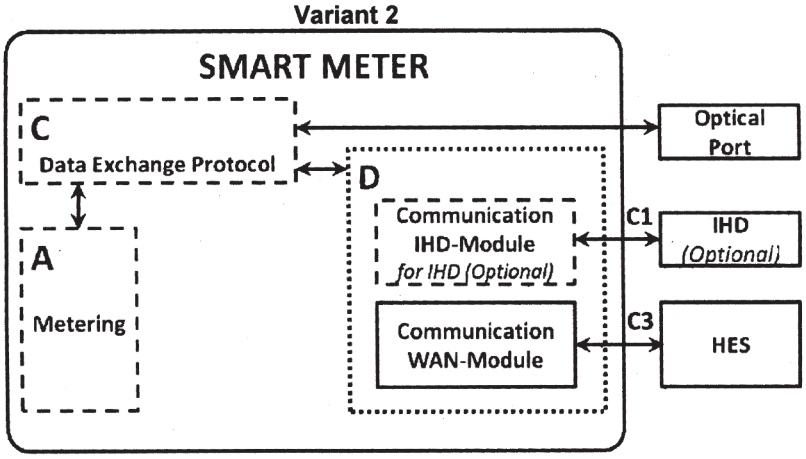
Optical port — As per IS 15959 (Part 2)
C1 – IHD Connectivity SM →IHD (optional)
C2 – NAN Connectivity SM→DCU

NOTES

1 The smart meter variant based on Fig. 1 shall provide connectivity C2 for two way communication with DCU using a NAN module.

2 If IHD is chosen this smart meter shall provide connectivity C1 for two way communication with IHD using the same NAN module or a suitable additional module as per buyer-seller agreement.

FIG. 1 SMART METER ARCHITECTURE (FOR TRANSFORMER OPERATED METERS)



LEGEND

A – Metrology
C – Metering protocol
D – Communication
Optical port — As per IS 15959 (Part 2)
C1 – IHD Connectivity SMIHD (Optional)
C3 – WAN Connectivity SMàHES

NOTES

1 The smart meter variant based on Fig. 2 shall provide connectivity C3 for two way communication with HES using a WAN module.

2 If IHD is chosen this smart meter shall provide connectivity C1 for two way communication with IHD using a suitable additional module as per buyer-seller agreement.

FIG. 2 SMART METER ARCHITECTURE (FOR TRANSFORMER OPERATED METERS)

6 METERING

6.1 Metering Requirement

Metering and metrology requirement shall be according to IS 14697.

6.1.1 *Classification*

The classification as per **4** of IS 14697 shall apply.

6.1.2 *Ratings*

6.1.2.1 *Standard reference voltage*

As per **5.1** of IS 14697.

6.1.2.2 *Standard basic current*

As per **5.2** of IS 14697.

6.1.2.3 *Maximum current*

As per **5.3** of IS 14697.

6.1.2.4 *Standard reference frequency*

As per **5.4** of IS 14697.

6.2 General Constructional Requirements

The requirements given in **6.1** to **6.4** of IS 14697 shall apply. The communication modules shall be either built in type or plug in type as mentioned in **1.4**. The plug-in communication modules shall be properly secured on the smart meter, both physically and electrically, so as to avoid any possible tampering with adequate provision for sealing.

6.2.1 *Terminals-Terminal Block(s) —Protective Earth Terminal*

The requirements given in **6.4** of IS 14697 shall apply.

6.2.2 *Terminal Cover*

The requirements given in **6.5, 6.5.1, 6.5.2** and **6.7** of IS 14697 shall apply.

6.3 Clearance and Creepage Distances

The requirements given in **6.6** of IS 14697 shall apply.

6.4 Resistance to Heat and Fire

The requirements given in **6.8** of IS 14697 shall apply.

6.5 Mechanical Requirements

The requirements for mechanical shall be as per **12.3** of IS 14697 and the requirements for protection against penetration of dust and water shall be as per **6.9** and **12.5** of IS 14697 shall apply.

6.6 Display of Values

The requirements given in 6.10 of IS 14697shall apply. The non-volatile memory shall support retention period of 10 years.

6.7 Output Device

The requirements given in **6.11** of IS 14697 shall apply. Distinct LED/LCD indicators shall be provided for communication in progress.

6.8 Marking of Smart Meter

6.8.1 The requirements given in **7** of IS 14697 shall apply.

The following additional information shall also be provided as applicable in the name plate:

a) Communication technology for WAN or NAN (with carrier frequency).
b) Communication technology if IHD is supported (with carrier frequency).

6.8.2 *BIS Certification Marking*

The use of Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act,* 1986 and the Rules and Regulations made thereunder. The details of conditions under which the license for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6.9 Climatic Condition

The requirements given in **8** and **12.6** of IS 14697 shall apply.

6.10 Electrical Requirements

6.10.1 *Power Consumption*

The measurement of power consumption in the voltage and current circuits shall be determined as described in the followings.

6.10.1.1 *Voltage circuits*

The active and apparent power consumptions of a transformer operated Smart meter for each circuit at reference voltage, reference temperature, and reference frequency shall not exceed 5.0 W and 15 VA during the idle mode of communication module. This applies to either one NAN or one WAN module present in the smart meter. If a separate module for servicing to IHD is present, the above figures shall not exceed 6W and 18VA during the idle mode of communication module.

The additional power requirement during datatransmission shall not exceed 7 W per communication module. The smart meter shall be capable of sourcing additional power for powering the plugin communication module as agreed to between the buyer and the seller.

6.10.1.2 *Current circuit*

The apparent power taken by each current circuit of a CT operated smart meter at maximum current, reference frequency and reference temperature shall not exceed a maximum of 1 VA.

6.10.2 *Influence of Supply Voltage*

The requirements given in **9.2.1** and **9.2.2** of IS 14697 shall apply.

6.10.3 *Influence of Short —Time Over currents*

The requirements given in **9.2.3** of IS 14697 shall apply.

6.10.4 *Influence of Self-Heating*

The requirements given in **9.3** of IS 14697 shall apply.

6.10.5 *Influence of Heating*

The requirements given in **9.4** of IS 14697 shall apply.

6.10.6 *Insulation Requirements*

The requirements given in **9.5** of IS 14697 shall apply.

6.10.7 *Immunity to Earth Fault*

The requirements given in **9.6** of IS 14697 shall apply.

6.11 Electromagnetic Compatibility

The requirements given in **10** of IS 14697 shall apply.

6.12 Accuracy Requirements

The requirements given in **11**, **11.1**, **11.2**, **11.3**, **11.4**, **11.5**, **11.6** and **11.7** of IS 14697 shall apply.

6.13 Test and Test Conditions

Given in **9** of this standard.

7 DATA EXCHANGE PROTOCOL

The requirements as per IS 15959 (Part 1) shall apply. The data exchange protocol chosen for Smart Meter shall be as per IS 15959 (Part 3) including specific requirements for Smart Meters for the application layer. This application layer protocol which is primarily DLMS/COSEM shall work through the other layers as given in **8**.

8 COMMUNICATION REQUIREMENT

The NAN, WAN and IHD communication modules that are shown in Fig. 1 and Fig. 2 are for establishing connectivity with smart meter by the external entities such as DCU and HES, respectively and optionally with IHD. These are either wired or wireless communication technology, the choice of technology shall be chosen by the buyer based on the technical feasibility best suited for a given geographical area. The communication module(s) may be of PLC or RF for NAN and cellular technologies or OFC technology for WAN.

8.1 Connectivity Technologies

8.1.1 The connectivity C1, C2 and C3 in variant 1

(*see* Fig.1) and variant 2 (*see* Fig. 2) are generally designed with wired or wireless technology for the physical medium. For connectivity C1 and C2, if PLC (wired) technology is chosen the standards shall be any one of those given in Fig. 2. For connectivity C1 and C2, if RF (wireless) technology is chosen the standard may be as per IS 15959 (Part 2).

8.1.2 Wherever, PLC technology is used the 'AC line connection for coupling/decoupling shall be from within for smart meter with plug-in/built in type smart meter'.

8.1.3 The technology for WAN may be any of the cellular technologies supporting: 2G/3G/4G or an optical fibre communications network complying to IPv6.

8.1.4 The standards cited in **8.1.1** are indicative and non-exhaustive. Other suitable standards from ITU/IEC/IEEE/CEN/CENELEC/ETSI may be considered for NAN and WAN as per agreement between the supplier and the purchaser.

8.2 RF Technology Requirements

The RF technology, if used for NAN/IHD communication modules shall be in the frequency bands notified by Government of India.

Wireless technologies need to comply with the Indian statutory bodies that govern communication related aspects such as WPC (Wireless Planning Co-ordination wing) which oversees licensing and management of all wireless spectrums in India.

Equipment Type Approval (ETA) is to be obtained for communication modules as per Department of Telecom, Government of India requirements.

Radio emission characteristics for the chosen band shall comply with latest NFAP and the G.S.R (General Statutory Rules) notifications from Department of Telecom, Government of India.

8.3 Communication Layer Protocol

The smart meter may use a layered Communication protocol stack. The top four layers of such a stack shall be as mentioned below:

Application	:	IS 15959 (Part 1) and IS 15959 (Part 2)
Transport	:	TCP/UDP
Network	:	IPv6 RPL
Adaptation	:	6LoWPAN RFC (6282)

8.3.1 For Connectivity C1 and C2 the network protocol shall be IPv6 RPL and 6Low PAN [RFC 6282] for convergence/adaptation layer. For Connectivity C3 the network protocol shall be IPv6 RPL and IETF RFC 2464, 5072 and 5121, PPP (IETF RFC 1661).

NOTE — For network and adaptation layers, the connectivity option is valid only for C1 and C2 not for C3, mentioned in Fig. 1 and Fig. 2.

8.3.2 The other layers may be as per **8.1**.

9 TESTS AND TEST CONDITIONS

The smart meter with plug-in/built in communication modules as a composite unit shall be subjected to specified tests for metrology, for data exchange protocol and for smart meter communicability.

9.1 Test for Metrology

The tests for metrology shall include 'Type Tests', 'Routine Tests' and 'Acceptance Tests', as identified in IS 14697. The schedule and recommended sequence of type tests shall be as given below in Table 1. In Table 1, the sequence of tests mentioned is as that of Table 16 in IS 14697. The clause numbers in Table 1 against the name of the tests are the numbers of this standard.

9.2 Number of Samples and Criteria for Conformity

Type tests shall be applied to three test specimens. In the event of one specimen failing to comply in any respect, further three specimens shall be taken, all of which shall comply with the requirement of standards. Additional one sample for test for data exchange protocol shall be submitted.

The requirement given in **12** of IS 14697 shall apply

NOTE — Smart meter is to be submitted along with communication module in its place as integral part of the meter.

9.3 Display

Minimum 7 digits LCD display. For testing purpose, high resolution display having at least 3 decimal digits shall be provided.

9.4 Test for Data Exchange Protocol

This test shall be carried out on optical port as per IS 15959 (Part 3) Table 27 (List of tests Category D3 Transformer operated three phase a.c. static watthour smart meters for HV/LV consumer application) and Table 28 (List of tests for Category D4 Transformer operated three phase a.c. static watthour smart meters for Boundary/Bank /Ring /ABT metering application). The test shall be performed on a separate sample.

9.5 Tests for Smart Meter Communicability

9.5.1 The modules for WAN/NAN/IHD shall be approved by designated agency authorized by DoT and shall have ETA as mentioned in **8.2**.

Table 1 Schedule of Type Tests
(*Clause* 9.1)

Sl No.	Test	Ref to, Clause of this Standard
(1)	(2)	(3)
i)	**Test of Insulation Properties**	**6.10.6**
	Impulse voltage test	
	a.c. High voltage test	
	Insulation resistance test	
ii)	**Test of Accuracy Requirements**	**6.12**
	Test on limits of error	
	Interpretation of test results	
	Test of meter constant	
	Test of starting condition	
	Test of no-load condition	
	Test of ambient temperature influence	
	Test of repeatability of error	
	Test of influence quantities	
iii)	**Test of Electrical Requirement**	**6.10**
	Test of power consumption test	**6.10.1**
	Test of influence of supply voltage	**6.10.2**
	Test of influence short-time over currents	**6.10.3**
	Test of influence of self-heating	**6.10.4**
	Test of influence of heating	**6.10.5**
	Test of influence of immunity to earth fault	**6.10.7**
iv)	**Test for Electromagnetic Compatibility**	**6.11**
	Radio interference measurement	
	Fast transient burst test	
	Test of immunity to electrostatic discharges	
	Test of immunity to electromagnetic HF field	
	Surge Immunity Test (as per Clause 7.2.6 of IEC62052-11)	
v)	**Test for Climatic Influences**	**6.9**
	Dry heat test	
	Cold test	
	Damp heat cyclic test	
vi)	**Test for Mechanical Requirements**	**6.5**
	Vibration test Shock test	
	Spring hammer test	
	Protection against penetration of dust and water	
	Test of resistance to heat and fire	

NOTE — Following tests shall be carried out to assess for smart meter functional condition and functionality of communication module after the 'Type test and acceptance test' for metrology is carried out but before 'Test of resistance to heat and fire':

a) Accuracy of the meter at pre-defined points [5 percent I_b, I_b and I_{max}] UPF.
b) Manufacturer shall demonstrate the functionality of communication module by data read test, that is reading kWh energy register through the communication module.

9.5.2 *Test for Smart Meter Communicability*

Test for Smart meter communicability shall be carried out as per the provisions of **28** of IS 15959 (Part 3).

NOTE — This note is optional test to be mutually decided between the buyer and the seller.

10 SMART METER FUNCTIONAL REQUIREMENTS

The smart meter developed as per this standard is required to support handling of following operational requirements:

10.1 Smart meters shall respond to the following:

a) Meter readings on demand from HES,
b) Scheduled meter reading from HES,
c) Remote Firmware upgrade from HES, and
d) All programming requests from HES.

10.2 Smart meter shall detect 'First breath (power on) and Last gasp (power off)' condition and communicate to HES.

technical aspects taking into consideration the features and provisions of this standard for deployment of AMI. The requirements of other components chosen shall be finalized between buyer and seller.

A separate standard covering requirements for data exchange specific to smart meter has been formulated and released. Therefore IS 15959 : 2011 has been revised as follows:

IS 15959	Data exchange for electricity meter reading, tariff and load control — Companion specification:
(Part 1) : 2011	Static energy meter
(Part 2) : 2015	Smart meter
(Part 3) : 2017	Smart meter (Transformer operated kWh and kvarh, Class 0.2S, 05S and 1.0S) *under print*

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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Functional Requirements of

Advanced Metering Infrastructure (AMI)

In

India

CENTRAL ELECTRICITY AUTHORITY

August, 2016

1. Functional Requirements for Advanced Metering Infrastructure (AMI)

These functional requirements define the minimum functionalities and performance for AMI system proposed to be developed in India. The main objective of AMI is to enable two way communication between smart energy meter and Head End System(HES) to enable remote reading, monitoring & control of electrical energy meters (consumer, feeder, DT meters etc.) to serve as repository of record for all raw, validated and edited data. The sanitized data may be subscribed by other utility function for higher order analysis and billing and collection engine etc.

2. Basic Functions of AMI

The AMI system shall help utility to manage their resource and business process efficiently. AMI system shall support the following minimum functionalities:

a) Remote Meter data reading at configurable intervals(push/pull)

b) Time of day (TOD)/TOU metering

c) Pre paid functionality

d) Net Metering/Billing

e) Alarm/Event detection, notification and reporting

f) Remote Load Limiter and connection/ disconnection at defined/on demand conditions

g) Remote firmware upgrade

h) Integration with other existing systems like IVRS, Billing & collection software, GIS mapping, consumer indexing, new connections & disconnection, analysis software, Outage Management System etc.

i) Import of legacy data from existing modules/ MDAS of RAPDRP where ever possible. The extent and modalities of integration with the existing system including RAPDRP has to be worked out by the bidder.

j) Security features to prevent unauthorized access to the AMI including Smart meter & meter data etc. and to ensure authentication of all AMI elements by third party.

This is only an indicative but not exhaustive list. The system should be capable to support the other functionalities as per the requirement of utilities.

The System should accurately maintain system time synchronization across all devices to ensure accuracy of data. The system should support the interfacing with the future Smart Grid functionalities like outage management system, distribution automation including self-healing system, distribution transformer monitoring units, Electric vehicle, distributed energy resources etc. The communication network shall preferably be able to support multiple applications.

The Bidder shall submit an approach paper describing overall architecture and operational philosophy of the proposed AMI solution and methodology for achieving different functionalities, specified in this document and also highlight additional features, if any.

3. General AMI System Requirement

Smart Meter (Single phase whole current, Three phase whole current, CT & PT operated three phase meters and CT operated three phase meters) for consumers/ system shall be provided based on Radio Frequency (RF) mesh in license free frequency band/ Power Line Carrier Communication (PLCC) or GPRS/3G/4G communication technology or combination of these technologies as per the site requirement and to ensure the performance level given in this document. The smart meter data using RF mesh/PLCC shall be collected by Data Concentrator Units(DCUs)/Access point and transported to HES through WAN while the data from smart meters using GPRS/3G/4G technology shall be transported directly to HES through WAN. The AMI Implementing Agency (AIA) shall be responsible for proper data exchange among Smart meter, DCU, MDM, HES and other operational/requisite software as part of fully functional AMI system.

AIA shall adhere with the appropriate security algorithm for encryption and decryption. For smooth functioning of the entire system, it is essential that the details of such algorithm including the mechanism of security key generation be kept in a secured escrow account which shall be used by the utility only in case of termination of the contract for reasons whatsoever.

AIA may design appropriate architecture for providing end to end metering solution. AIA is free to decide upon the best solution out of all the available options. However, the entire responsibility of fully functional AMI system shall rest with one agency i.e. AIA in order to meet the performance levels as given in this document. The communication provider may adopt Radio Frequency (RF) mesh in license free frequency band/ Power Line Carrier Communication (PLCC) or GPRS/3G/4G communication technology or RF based canopy system or a combination of these technologies as per the site requirement adopting best available technology in the proposed area of implementation.

The following core components of AMI system shall be provided:

a) Smart Meters

b) Communication infrastructure

c) Head End System(HES)

d) Meter Data Management System (MDM)

e) Web application with updated on-line data of consumers etc.

f) Mobile app: AMI Implementing Agency (AIA) shall provide a mobile app through which consumer shall be able to log in through android/iOS/Window based mobile app to see information related to his/her energy consumption. App shall also provide platform for implementation of peak load management functionality by providing existing tariff & incentives rates, participation options etc. This mobile

app shall be part of complete system and therefore no additional cost shall be payable for upgradation / maintenance separately.

4. Smart Meters (Single phase & Three phase)

- Single Phase & Three Phase whole current smart meters shall comply with the enclosed Technical Specifications. Three Phase CT operated meter shall comply IS 14697 till the relevant IS for CT operated smart meters is available. The supplier / manufacturer would furnish valid BIS certification before supply of meters.

- The Smart meter installation shall be done by the AMI Implementing Agency (AIA) as per the rules and regulations and practices of Utility.

After meter installation, customer identification no., meter ID, its hardware & software configuration, name plate details, make, type i.e. 1 Phase or 3 Phase, etc.(as per requirement of utility) shall be updated in DCU/HES/MDM. The information would also be updated on the portal/app for providing information to consumers.

5. Communication infrastructure

The communication infrastructure should either be based on RF mesh network / PLC or cellular network or a combination of these. The communication network shall be based on suitable standards from ITU/IEC/IEEE/CEN/ CENELEC/ ETSI for NAN and WAN network. Communication network shall provide reliable medium for two-way communication between various nodes (smart meter) & HES. RF based network should use license free frequency band available in India. The engagement of network service provider would be in the scope of AMI Implementing Agency to meet the performance level as given in the document.

5.1. General Requirement

The AMI Implementing Agency (AIA) shall design a reliable, interference free & robust communication network keeping in view the site conditions. It shall be flexible in terms of providing communication in variable terrain & urban density.

The AIA shall design the network architecture keeping in view the existing and planned infrastructure of the utility. During designing, suitable consideration shall be kept for future expansion as per requirement of Utility. Before designing the communication network, the AMI Implementing Agency (AIA) shall do the site survey and would provide the most efficient communication infrastructure.

The entire infrastructure & associated civil works required for installation & commissioning of equipment/devices like DCUs, repeaters, routers & access points etc. shall be in the scope of AMI Implementing Agency (AIA). The operational testing of all the network elements has to be demonstrated by the bidder to the satisfaction of the utility.

The network solution offered by the bidder should have disaster recovery mechanism in place. The redundancy mechanism of HES and MDM and their disaster recovery plan shall also be described by the Bidder.

The quality of installation of the various equipment & power supply wiring to all field equipment shall be as per standards/ regulations/prevailing practices of the utility. The supply of electricity needed for operation and maintenance of entire AMI system shall be the provided by the utility free of cost.

A suitable network management system (NMS) shall be provided to monitor the performance of the communication network round the clock. The NMS shall provide viewing of all the networking elements deployed at site and enable configuration & parameterization of the networking devices and the nodes.

5.2 Network Security

The Network shall have adequate cyber security measures not limited to the measures as described below. The network security would be extended to all the interfaces also.

- **Secure Access Controls:** The system shall include mechanisms for defining and controlling user access to the operating system environment and applications. Best practices from enterprise security including password strength, password aging, password history, reuse prevention etc. must be followed for access control.
- **Authorization Controls:** A least-privilege concept such that users are only allowed to use or access functions for which they have been given authorization shall be available.
- **Logging:** Logs must be maintained for all attempts to log on (both successful and unsuccessful), any privilege change requests (both successful and unsuccessful), user actions affecting security (such as password changes), attempts to perform actions not authorized by the authorization controls, all configuration changes etc. Additionally, the access to such logs must be controlled in accordance to the least-privilege concept mentioned above, so that entries may not be deleted, accidentally or maliciously.
- **Hardening:** All unnecessary packages must be removed and/or disabled from the system. Additionally, all unused operating system services and unused networking ports must be disabled or blocked. Only secure maintenance access shall be permitted and all known insecure protocols shall be disabled.
- **Malicious Software Prevention:** Implementation of anti-virus software and other malicious software prevention tools shall be supported for all applications, servers, data bases etc.
- **Network Security:** The network architecture of the HES must be secure with support for firewalls and encryption. The system shall also allow host-based firewalls to be configured, as an additional layer of security if the network firewall were to fail.

5.3. Communication Network Elements (DCU based or Router Based):

5.3.1. Data Concentrator Unit (DCU) based Communication Network

The Data Concentrator Unit is a gateway for communication of data between the Smart Meters and the HES. The Data Concentrator Unit receives information from the Smart Meter on a scheduled / need basis and stores the data, which can be accessed by HES for onward transfer to MDM.

The DCU provides the central link between Smart Meters and HES, enabling continuous/periodic meter read and control. DCU shall exchange data from smart meters on RF / PLC communication and with HES on WAN.

If communication system is DCU based RF network, then following requirement shall be met.

5.3.1.1 Hardware & Power Supply of DCU

- Enclosure/box of DCU shall be minimum IP55 or better compliant. A suitable mounting arrangement required for DCU installation shall also be provided.
- A suitable and optimum power supply shall be provided keeping in view that even in case of outage in one or two phases, DCU can be powered. DCU should be capable of withstanding surges & voltage spikes of 6KV as per IEC 61000-4-5 standards. Power supply shall be terminated on suitable sized MCB to facilitate isolation during on-site maintenance.
- DCU shall have battery with backup for 1 hour for normal meter reading, to push tamper event, carry out on demand reading and the network health status / connectivity continuity & check. DCU should have the suitable feature to send power outage and restoration message to the HES. The battery shall have a guaranteed life of 10 years.
- DCU shall have built in Real Time Clock (RTC) with separate battery backup. The battery shall have a guaranteed life of 10 years. It shall have self-diagnostic feature for RTC, memory, battery, communication module, etc. Alternatively, Software driven RTC may also be used as per agreement between supplier and utility.

5.3.1.2 Configuration, Functionality & Interface of DCU

DCU shall have following configuration functionalities:

- It shall be able to configure the communication with underlying nodes/meters.
- It shall pull data from the field devices and push the data at configured intervals to the HES. It should also support the HES in pulling data from the field devises/meters. The data acquisition (Push/Pull) frequency shall be programmable. DCU shall be capable to prioritize control commands.
- DCU shall ensure a secure communication to HES and shall have internal memory for storing interval data for at least 5 days.
- DCU shall support on demand read and ping of individual/group of meters.

- It shall support IPv4 / IPv6 network addressing.
- DCU shall push events like tamper, power off etc. to HES immediately on occurrence/receipt from field devices/meters.
- The equipment shall be weatherproof, dustproof and constructed for outdoor installation on poles (minimum rating: IP-55). A suitable mounting provision shall be made for the equipment.
- Enclosure: Provision for security sealing shall be provided and in case the gasket of the cover is used for protection against moisture, dust and insects, the gasket shall be made of weather and aging resistant material.
- The list of standards followed in all the devices/equipment used in communication network shall be furnished

5.3.1.3 DCU Communication

- The communication architecture shall be any, as defined under IS 16444.
- The DCU shall ensure the appropriate backhaul for secure transfer of data to HES. In case of GPRS/3G/4G backhaul, it shall support SIM card from any service provider. It shall have Wide Area Network (WAN) connectivity to the HES through suitable means.
- DCU shall be able to communicate with meters either on RF mesh (license free band) or PLC.
- DCU shall periodically monitor meter reads/downstream commands and shall retry and reconnect in case of failed events/reads.
- It shall push events like tamper, power off etc. to HES immediately on occurrence/receipt from field devices/meters. DCU shall be able to acquire and send data to HES for full capacity (as per designed for no. of meters/field devices) to ensure the performance level. Full capacity of DCU is required to be indicated in the offer.
- After Power Interruption, on restoration of power supply, DCU shall establish communication with underlying devices as well as upstream application automatically.
- DCU shall be able to communicate with the nearest meters depending on topographical features. For further communication among the meters, distance of the other meters with the DCU shall not be a constraint as communication of the nearest meters shall be established with other meters through appropriate mesh formation / other formation.
- Remote Firmware Upgrade: The DCU shall support remote firmware upgrades as well as remote configuration from the control center. Configuration of programmable parameters of smart meters shall be done through HES.

- All meters falling under one DCU shall be commissioned and checked for proper communication in presence of utility in-charge.

- DCU shall keep the records of minimum of the following events:

  - No of packet failures
  - Retry attempts
  - Missed periodic readings
  - Failure to connect
  - Tamper events

5.3.2 Router based RF Mesh Network

If communication system is router based RF mesh network, then following requirement shall be met. In this type of communication network, different nodes (smart meters) shall interconnect with each other using RF mesh network and they shall communicate with nearby routers to transfer the data to access points. In such communication network, if any routers/repeaters/access points fail, then nodes connected on that device shall automatically reconfigure the mesh with available nearby nodes.

5.3.2.1 General Requirement of Router based RF Mesh Network:

The general requirements for the Router based RF network are specified below:

i) The communication network shall have dynamic & self-healing capability. If one of the communication element like router or access point fails then nodes connecting to that element shall switch to best available element for communication of data to HES.

ii) It shall support IPv4 / IPv6 network addressing.

iii) Each node shall keep a track of best available nearby nodes.

iv) The communication network equipment shall use licence free frequency spectrum as defined by Government of India.

v) All the communication network equipment shall be certified by WPC, Government of India for operation in licence free frequency band.

vi) Suitable network management system (NMS) shall be available to monitor the performance of the communication network round the clock. The NMS shall provide viewing of all the networking elements deployed at site and enable configuration, parameterization of the networking devices and the nodes.

vii) It shall support remote firmware upgrading

viii) It shall be secure enough to avoid all cyber threats like DDoS, spoofing, malwares etc.

ix) The communication network shall ensure secure communication of data to HES.

x) The equipment shall be weatherproof, dustproof and constructed for outdoor installation on poles (minimum rating: IP-55). A suitable mounting provision shall be made for the equipment.

xi) Enclosure: Provision for security sealing shall be provided and in case the gasket of the cover is used for protection against moisture, dust and insects, the gasket shall be made of weather and aging resistant material.

xii) The list of standards followed in all the devices/equipment used in communication network shall be furnished.

xiii) Routers / Access Points shall have suitable power supply arrangements. Provision of battery backup for at least 1 hour shall be there to continue operation in case of power supply failure. The life expectancy of battery shall be 5 years or more.

5.3.2.2 Configuration, Functionality & Interface

Access points shall have following configuration functionalities:

- It shall be able to configure the communication with underlying nodes/end points.
- It shall support on demand read and ping of individual/group of meters.
- It shall push events like tamper, power off etc. to HES immediately on occurrence/receipt from field devices/meters.
- It shall have Wide Area Network (WAN) connectivity to the HES through suitable means.
- It shall communicate with routers/nodes/end points on RF mesh (license free band).
- It shall periodically monitor meter reads/downstream commands and shall retry and reconnect in case of failed events/reads.
- After power Interruption, on restoration of power supply, it shall establish communication with underlying devices as well as upstream application (HES) automatically.
- Access point shall facilitate recording of
  - No of packet failures
  - Retry attempts
  - Missed periodic reading
  - Failure to connect
  - Tamper events
- It shall be capable to handle interval data of suitable nos. of any type of smart meter (1ph/3ph). Access point shall be able to acquire and send data to HES for full capacity (No. of meters/field devices it is designed for) within a suitable time period to achieve the performance level. Full capacity of access point is required to be indicated in the offer.
- Access point shall support remote firmware upgrades as well as remote configuration from the control center.

5.3.3 Testing of the DCU /Access Point

DCU/Access Point shall be tested for the following:

- Radio interference measurement (CIS PR 22)
- Surge test (IEC 610004-5)
- Fast transient burst test (IEC 61000-4-4)
- Test of immunity to electrostatic discharges (IEC 61000-4-2)
- Test of immunity to electromagnetic HF field (IEC 61000-4-3)
- Resistance to heat and fire

The bidder shall provide IP-55 compliance test certificate for DUC/Access Point.

6. Head End System (HES)

The main objective of HES is to acquire meter data automatically avoiding any human intervention and monitor parameters acquired from meters.

The AMI Implementing Agency (AIA) shall provide the HES suitable to support the collection and storage of data as per performance level for a defined no. of smart meters with facility of future expansion as per the requirement of the utility.

(NOTE: The no of smart meters/future expansion may be provided by utility as per their requirement)

HES would perform all the requisite functions as per the defined functionalities of AMI and it is the responsibility of the AMI Implementing Agency (AIA)/ System Integrator to supply the requisite software and hardware to achieve the defined functionalities of AMI. HES shall ensure data integrity checks, for example, checksum, time check, pulse, overflow, etc. on all metered data.

HES shall be developed on open platform based on distributed architecture for scalability without degradation of the performance using additional hardware. HES shall support storage of raw meter data, alarms and alerts for minimum 3 days. Adequate data base and security features for storage of data at HES need to be ensured.

The suggested functions of HES (not exhaustive) may be :

- Acquisition of meter data on demand & at user selectable periodicity
- Two way communication with meter/ DCU
- Signals for connect & disconnect of switches present in end points like meter
- Audit trail and Event & Alarm Logging
- Encryption of data for secure communication
- Maintain time sync with DCU / meter
- Store raw data for defined duration

- Handling of Control signals / event messages on priority
- Setting of Smart meter configurable parameters
- Communication device status and history
- Network information in case more than one technology is deployed in field between the two devices
- Critical and non-critical reporting functionality. The suggestive critical events may be alarms and event log for meter events like tamper/power failures etc., if data is not received from DCU/Meter, if relay does not operate for connect / disconnect or there is communication link failure with DCU/Meter or network failure while non critical events may be retry attempts on communication failure, periodic reading missing and failure to connect etc.

6.1 Configuration

HES shall facilitate programming of following meter parameters:

- Load profile capture period
- Demand integration period
- Setting of parameters for time of day (TOD/TOU) billing
- Prepaid function
- Net metering
- Billing date
- Clock setting/time synchronization
- Load curtailment limit
- Event setting for connect/disconnect
- Number of auto reconnection attempt
- Time interval between auto reconnection attempt
- Lock out period for relay
- Remote firmware upgrade
- Password setting
- Push schedule
- Setting threshold limits for monitored parameters
- Provision for adding more programming features in future

(The AIA may suggest more parameters as per the requirement)

6.2. Integration

HES shall preferably interface with MDM on standard interfaces and the data exchange models and interfaces shall comply with CIM / XML / IEC 61968 or any other open standard. The solution shall be Service Oriented Architecture (SOA) enabled.

7. Meter Data Management System (MDM)

The Meter Data Management System shall support storage, archiving, retrieval & analysis of meter data and various other MIS along with validation & verification algorithms. It shall act as a central data repository. MDM shall have capability to import raw or validated data in defined formats and export the processed and validated data to various other systems sources and services in the agreed format. It shall provide validated data for upstream systems such as billing, consumer Information system, customer care, analytics, reporting, Network planning & analysis, load analysis/forecasting, Peak Load Management, Outage management etc.

MDM should also support the future requirement of utility and should support the integration of other smart grid functionalities like Distribution Transformer Health Monitoring system, self-healing system etc. as and when implemented by the utility.

The vendor shall specify and deliver an initial system that supports the collection and storage of data for meeting the performance level for the ***defined no of consumers/ smart meters*** **(The exact Number have to be defined by the utility as per no of consumers of city/town/village)** with facility of future expansion.

The MDM shall have the ability to selectively choose which data to be maintained and which to be purged or archived as per requirement of Utility (user selectable).

7.1. Functional Requirements

7.1.1 Asset Management

- The MDM shall maintain information and relationships between the current installed meter location (apartment, shop, industry/ address etc.), Consumer information (Name etc.), Consumer account no, Meter ID, Type of Meter (type of consumer, 1 phase/3phase, with or without relay, etc.), Meter configuration (Demand integration period, Load profile capture period etc.), GIS supplied information (longitude, latitude , connection with feeder/ transformer/ pole etc.) etc.
- The software should support tracking the status of meters and communication equipment from the date when they are installed in the field. The history of in-service asset location is maintained throughout the device life with start and end dates associated with each in-service location reference.
- Ability to report and log any damage / deterioration in the meter attributable to consumer /utility.

7.1.2 AMI Installation Support

- The MDM shall also support device lifecycle management from device registration, installation, provisioning, operations and maintenance to decommissioning etc. The MDM shall generate exceptions for meter or modules not delivering the correct meter data after installation.

- The MDM shall provide a reconciliation report that identifies the meters that have been installed but not communicating for a designated (configurable) period. MDM shall generate reports on the number of meters installed in comparison to the number of meters successfully communicating.

7.1.3 Meter Data

- The MDM shall accept input, process, store, and analyze Meter data from HES and meter data collected through hand held meter reading instruments and manual meter reads. In case of manual reads, provision should be there to insert associated notes like assessed energy, etc.
- The MDM should accept input, process, store, and analyze non-billing meter data such voltage and power quality data (like under/over voltage etc) as they are available from AMI Head End Systems. The MDM should also support schedule and on-demand meter reads and pinging of meter energized states by authorized users and by other utility systems.

- The MDM shall provide storage of all collected Meter Data, events and alarm. It shall have capacity of storing 5 years data or more via archiving.

- Correctly track & resolve energy usage across meter changes with no loss of individual meter data.

- Provide complete history and audit trail for all data collected from meters including commands sent to meters and other devices for 30 days (configurable period).

- Execute on-demand read processes.

- Handle special metering configurations like net metering/multiple meters at same premises.

- The MDM shall have the ability to manage at a minimum 15 minute interval data.

- Data Integrity- AMI Implementing Agency (AIA) shall ensure data integrity checks on all metered data received from data collection systems.

7.1.4 Data Validation, Estimation, and Editing (VEE)

- The validation and estimation of metered data shall be based on standard estimation methods. The MDM should also support and maintain following data-

a. **Registered Read Data** including register reads, daily billing cycle, as well as derived billing determinants like TOU

b. **Interval Data** channels with variable intervals and variable units of measure

c. **Calculated Data** that is derived or computed such as billing determinants and aggregated loads.

d. **Event data** storage of all collected event and alarm data from meters, network equipment, and MDMS itself

- MDM shall flag, alarm and trigger an estimating process including but not limited to when the following anomalies occur in the cumulative ("CUM") register reads
  - o CUM Decrements within a billing cycle (except net-metering)
  - o CUM reads increments more than configurable threshold
  - o Future or old read dates
  - o Number of digits exceeds number of meter dials
- MDM shall detect, flag, alarm and trigger an estimating process including but not limited to when the following anomalies occur in Time of Use (TOU) register reads
  - o Register Decrements (except net-metering)
  - o Resets (to zero) (except net-metering)
  - o CUM reads increments more than configurable threshold
  - o Future or old read dates
  - o Erratic compared to CUM read (sum of TOU reads minus CUM read)
- MDM shall detect, flag, alarm and trigger an estimating process including but not limited to when the following anomalies occur in Demand register reads
  - o Do not reset on cycle
  - o Do not reset coincident with customer move-out or move-in
  - o Reset off cycle inappropriately
  - o Too high
- All data shall be transferred to billing system after meter data validation and estimation including transformer / feeder station wise energy audit.
- MDM shall estimate usage for non-metered service points such as street lights, farm lights, traffic signals, etc.
- The MDM shall maintain both the original received raw data in a non-manipulated state, in addition to VEE data.
- Notwithstanding the latency of data collection via the AMI system, once the MDM receives meter read data, the VEE process occurs in real-time and the post-VEE data is then immediately available to user or external systems.
- The MDM shall be able to automatically flag data changes from manual edits, VEE (Validating, Editing and Estimating) rules and data source corrections and electronically generate audit trail with timestamps and user-ids.

7.1.5 Billing Determinants Calculations

The MDM-

- Shall allow configuring multiple TOU/TOD options (e.g. the number and duration of TOU rate periods) by customer type, tariffs and day type (weekend, weekdays, and holidays) and by season.

- Shall support the processing of interval data into billing determinants to include the following at a minimum:

o Total Consumption

o Consumption in different time blocks for ToU billing

o Maximum Demand (in kW and kVA)

o Number of tamper counts

o Average power factor

- Shall process interval data and frame it into the appropriate TOU periods for consumption and demand; for example, roll up 15/30 minute data intervals into hourly data.

- Shall have the ability to properly account for special metering situations such as check metering, sub metering, prepaid metering and net metering when calculating billing determinants and sending them to billing and other systems.

- Shall have the ability to properly account for special situations including, but not limited to, curtailment requests, demand response scenarios when calculating billing determinants and sending them to billing software.

7.1.6 Exception Management

- Ability to capture and log data exceptions, problems and failures and to generate management reports, provide trend analysis, automate generation of service requests and track corrective actions.

- Ability to group, prioritize, filter and send system generated alarms and events to predetermined email addresses, cellular text messages to phone numbers/SMS/customer care etc.

- Exception Generation - MDM shall generate exceptions based on configurable business rules including but not limited to the following:

- Meter tamper alerts

- Communication module health alerts for Meter/DCU

- If the consumption is less/more than pre-defined average consumption

- Negative Consumption (not for net-metering)

- Power outage indications received from the Smart meter

7.1.7 Service Orders

- The MDM shall generate service orders based on configurable rules for various events and alarms such as stop meter, tampers, problem in communication networks, AMI host server, etc.
- MDM shall send service orders via SMS, email, etc. with the email addresses / phone numbers being configurable. MDM shall receive feedback on action taken on the service order and track the status of service orders.

7.1.8 Customer Service Support

- The solution shall provide customers with access to current and historical consumption and interval data, outage flags, voltage and power quality indications. The data shall be displayed in graphical and tabular form depending on user choice. The Customer may also access data through customer portal. The solution shall integrate via a user friendly graphical interface.
- MDM shall support email/SMS notification of configured alarms & events to selected users.
- The MDM shall support the web portal or shall have the ability to interface with the 3rd party portal/utility portal to provide the consumer near real time online views of both usage and cost and helping consumers to understand electricity usage and cost information, alerts and notifications and energy savings tips with different levels of detail. The portal should support the view for past electricity usage, last week's, yesterday's, current days or other period etc. as per selection. The portal should provide user friendly access to consumer for their data via colorful graphs and charts and can download the data into a spreadsheet.
- Shall support mobile app through which consumer shall be able to log in through android/iOS/Window based mobile app to see information related to his energy consumption. App shall also provide platform for implementation of peak load management functionality by providing existing tariff & incentives rates, participation options etc.

7.1.9 Analysis

The MDM shall have analysis capability based on configurable business rules including but not limited to the following:

- Display consumption/load profiles by configurable period (15/30 min, hour, day, month, year etc.) day type (weekday, weekend, holiday, festival wise etc.) and by tariff, customer type, or any user specified collection of meters.
- Generate peak & off-peak load patterns by aggregating all loads of DT/Feeder/consumer group.
- Perform DT/feeder wise energy audit.
- Perform load analysis for different groups and categories of consumers.
- Ability to provide the data to load forecasting, load research or demand response applications and perform error management like: Missed reads and

intermittent meter reads before taking into forecasting, load research or demand response

- Ability to configure the system to effectively visualize consumption trends, identify unusual patterns, and visualize load analysis to understand which assets are being over utilized.
- Analyzing data to identify new patterns of usage, Setting fraud alert / transformer overload alerts / demand – supply gap alert etc.
- Ability to receive and store outage and restoration event data from smart meters and outage systems and to log all such events for analysis.

7.1.10 Reporting

The solution shall include a list of the standard reports that are provided with the MDM including but not limited to following:

- Daily data collection report
- Usage exceptions
- VEE validation failures
- Missing interval Read date and times (on hourly, daily, weekly & monthly basis)
- Physical meter events (install, remove, connect, disconnect) & meter reset report
- Meter flags
- Meter inventory
- defective meters
- AMI performance measurements
- Threshold Exception

  The solution shall support users modifying standard reports to better meet specific reporting requirements.
- The MDM shall enable the Utility to deliver reports in standard digital format such as PDF, Excel, etc.
- Ability for GUI (Graphical User Interface) to set up or change report delivery to configurable email addresses, network file directories, ftp sites or printer systems without modifying source program code and without any proprietary language skills.
- All queries shall be generated through user driven drop down menu in GUI. The Bidder shall provide example queries to support internal report generation needs.
- Ability to provide daily & weekly interface exception reports between MDM and other subsystems e.g. billing, outage, etc.

- In case more than one technology of AMI (example PLC and RF between Smart Meter & DCU) deployed in the field The MDM shall generate report on the performance and availability of data being delivered per AMI technology.

7.1.11 Revenue Protection Support

- Ability to analyze meter tampering flags, power outages, usage trends and usage profiles to identify potential energy diversion situations, and produce daily reports, monthly reports and service order requests for investigation.
- The business rules for revenue protection alerts shall be configurable via a user-friendly interface.
- The MDM shall filter out revenue protection alerts that may be caused by field activities if the field activity information is provided to the MDM.
- The MDM shall support the analytics/investigation (i.e. view current and historical usage patterns) to valid suspected revenue protection issues.

7.1.12 Demand Control/Demand Response Support

Bidder shall describe how its MDM supports Smart Grid Demand Response programs involving Demand Response (DR) systems as part of PLM. The solution shall support the following analysis:

- Totaling the actual consumption during the DR event.
- Totaling the actual consumption of different groups that participated in the DR event.
- Comparing the actual to baseline consumption for the groups in above.
- The MDM shall support the tracking, monitoring and managing of Smart Meter and events, and monitors customer response to facilitate payment of customer incentives.

7.1.13 OMS/ other smart grid functionality support

MDM shall support Smart Grid OMS system as per the requirement of the utility. MDM shall support the interfacing with OMS software for providing AMI meter data needed for fault location identification and other requisite services like updating the data after attending the fault etc.

MDM should also support the interfacing of other smart grid functionalities like Distribution Transformer Health Monitoring system, self-healing system, electric vehicle etc. as and when implemented by the utility.

7.1.14. Additional Features

➢ **Net-Metering**

- MDM shall flag, alarm and trigger an estimating process including but not limited to when the following anomalies occur:

  - CUM decrements of forward energy within a billing cycle
  - Register decrements for Time of Use (ToU) of forward energy
  - Power generated(exported) by any net-metering consumer more than the installed capacity of solar PV rooftop system
  - Energy exported(exported) in any given day by any net-metering consumer more than the programmable threshold value

➢ **Prepaid functionality**

The prepaid functionality can either be availed at smart meter level or through MDM. In case of MDM, following shall apply

- The MDM should support pre-payment metering and capability to interface with pre-payment application.
- The prepayment should support the system that payment and connection parameters are stored centrally and the details are being updated to consumer portal/ app.
- The system should periodically monitor the energy consumption of prepaid consumer and decrease the available credit based on consumption.
- The system should send connect/disconnect command on the basis of available credit as per notified rules & regulations.
- The system should send low-credit notifications to the consumer when their balance approaches a threshold.

7.2 User Interface

The AMI Implementing Agency (AIA) shall provide user interface for the following:

Utility:

User interface for utility shall have ability for at least the following functionality:

- Compare total energy costs on one rate schedule vs. one or many alternative rates.
- Enable the user to see how different options within a rate affect costs.
- Enable the user to see how adjusting load or consumption levels or shifting them to different time periods influences costs.
- Compare multiple facilities against each other based on costs, average spend, cost per area and cost by weather.

- Display meter data at a user defined configurable cycle through a GUI that allows authorized users to view energy usage patterns and the data behind them for selected customers.

- Allow authorized users to view metered data, initiate and view reports, modify configurations, and initiate and update service requests via a GUI.

- Display via a GUI the energy usage profile for a single meter or group of meters. The load profile shall illustrate energy consumption and peak demand in user defined intervals for a user-specified time period.

- Display via a GUI the energy usage profile for a single meter or group of meters according to Time of Use (ToU) tariff.

- Access to a minimum of 5 years of historical energy usage and meter reads through the GUI.

- GUI to clearly and visually distinguish between metered, estimated, allocated and substituted data.

- GUI to provide role-based access based on user identity and user role. Shall have following types of users:

  - Administrator
  - Operator
  - Field staff
  - Viewer/Guest

- Configure the look, feel, and functionality of the MDM in accordance with business needs, business processes, and business conventions. (e.g. GUI, content, look and feel of screens, validation rules, exception handling, etc.).

- Ability for utility through user interface to set up alarm and event notifications that can be directed to a combination of configurable email addresses, cellular text messages or phone numbers.

- User interface for utility to update the credit amount of prepaid consumers to MDM. Such type of user interface before login shall require password & login i.d. for authentication. User interface after getting information like consumer i.d., mobile number & recharge amount etc. shall update the same to MDM. The details of payment information shall also update to consumer through SMS, email etc.

Consumer:

User interface for all authorized consumers shall have ability for at least the following functionality:

- View metered data, initiate and view reports
- View data according to Time of Use(ToU) tariff
- Can make request for connection/disconnection
- User can update mobile number/email

- Can initiate service requests for maximum demand updating, meter checking etc.
- In case on net-metering consumers, user can view data for both import & export
- In case of prepaid consumers, consumers can view recharge history & present balance.
- Prepaid consumers shall be provided facility to recharge their account by logging on user interface. User interface shall require consumer id., mobile number & password for secure login. This user interface shall be integrated with the present online payment gateway of utility.

7.3 Integration with other Systems

MDM shall preferably interface with other systems on standard interfaces and the data exchange models and interfaces shall comply with CIM / XML / IEC 61968/IS15959/ Indian Companion Specification/ any other open standard. MDM solution shall be Service Oriented Architecture (SOA) enabled.

MDM integration with other systems shall include but not limited to the following:

- HES for data exchange from other AMI solutions
- Utility Administration
- Existing other Data Collection Systems
- IVR system, CRM, Consumer Portal
- Billing and collection system
- GIS Systems integration with CIS and with MDM system
- Support of interface with HHU or manual reading system etc.

AMI Implementing Agency(AIA) should provide suitable number of HHUs to read and update the data in MDM in case of any communication failure between meter and HES/MDM.

8. Performance Levels

(a) These performance levels shall apply to the complete AMI system.

(b) AMI system include the communications links provided by Network Provider /third parties such as telecommunications companies and AMI Implementing Agency (AIA) has to ensure the desired performance level.

(c) The performance levels are average performance levels over the period of a year and exclude force majeure events.

The following are the required performance levels -

- **Performance levels for collection of daily meter readings (as per IS 16444/15959 part 2)**

The following are the performance levels required for the daily collection of the previous day's interval energy data and total accumulated energy:

(1) All interval data from 95% of meters within 8 hours after midnight; and

(2) All interval data from 99.9% of meters within 24 hours after midnight.

- **Performance levels for remote reads of individual meters if data is not received on daily basis**

The performance level of an individual read applies to the collection of seven days of interval energy data and the current total accumulated energy from a particular AMI meter whose data is not being received on daily basis. The performance level required shall be:

(1) Action performed at 90% of meters within 1 Hour;

(2) Action performed at 99% of meters within 2 hours; and

(3) Action performed at 99.9% of meters within 6 hours.

- **Performance level for remote load control commands for selected consumers,**

The performance level required for individual meters shall be:

(1) Action performed at 95% of meters within 5 minutes;

(2) Action performed at 99% of meters within 10 Minutes

- **Performance level for remote connect/disconnect for selected consumers,**

The performance level required for selected individual meters shall be:

(1) Action performed at 90% of meters within 10 minutes;

(2) Action performed at 99% of meters within 1 hour; and

(3) Action performed 99.9% of meters within 2hours.

- **Performance levels for Meter loss of supply and outage detection**

Alarms to be received within 5 minutes for 90% of meters.

- **Performance levels for remotely altering settings in meter/ firmware upgrade**

The performance level required for individual meters shall be:

(1) Action performed at 99% of meters within 24 hours; and

(2) Action performed at 99.9% of meters within 36 hours.

- **Performance levels to remotely read events logs**

Performance level required for reading the full event log that pertains to an individual meter shall be:

(1) Action performed at 90% of meters within 30 minutes;

(2) Action performed at 99% of meters within 1 hour; and

(3) Action performed at 99.9% of meters within 6 hours.

To read the event logs pertaining to all meters:

(1) The data pertaining to 99.5% of meters with in 1 day;

- **Performance levels for updating of data on consumer portal/ app**

The performance level of updating of individual consumer data on portal/ app after receiving the data in MDM shall be:

(1) Action performed for 90% of consumers within 1 hour after receiving the data in MDM;
(2) Action performed at 99.5% of meters within 6 hours after receiving the data in MDM.

The performance level for generation of bills would be as per requirement of the utility. The performance levels regarding meter discovery time line after installation, on demand reading of meter data for operational purposes, outage restoration enquiry response time etc. would also be declared by the bidder.

Additionally, the Disaster Management timelines in terms of Recovery Time Objective (RTO) and Recovery Point Objective (RPO) of HES have to be defined by the bidder.

9. Performance Requirement for User Interface

The user interface performance testing shall be done as per following criteria-

S.No.	User Interface Requirements	Response Time
1	Any real time display and application display on workstation console along with data values shall appear on screen.	Within 2 sec
2	Manual data entry of the new value appears on screen.	Within 2 sec
3	Display Update rate	2 sec for 4 displays together
4	Response time for display of Alarm and event after receipt in system	Within 1 sec of receipt in system

5	Requests for printing of displays (to be acknowledged with an indication of request is being processed).	Within 2 sec
6	Requests for generation of reports (to be acknowledged with an indication of request is being processed).	Within 2 sec

10. Technical Obsolescence

The systems including communication technologies, which are at a risk of technical obsolescence over the next few years and over the operating life of the system should be identified and reported. This may also include end-of-sale and end-of-support policies governing the proposed technologies. The compatibility between the various elements of the system need to be considered and mitigation options, not be limited to periodic update from OEM/System supplier, shall be indicated in detail.

Technical Specification
of
Single phase whole current
Smart Meter

TECHNICAL SPECIFICATIONS FOR WHOLE CURRENT A.C. SINGLE PHASE TWO WIRE SMART ENERGY METER OF ACCURACY CLASS 1.0 WITH BI-DIRECTIONAL COMMUNICATION FACILITY SUITABLE FOR ADVANCED METERING INFRASTRUCTURE (AMI)

1. SCOPE

The specification covers the design, manufacturing, testing, supply and delivery of AC whole current 1 phase 2 wires Smart Energy Meter with bidirectional communication facility. The meter shall be suitable for Advanced Metering Infrastructure (AMI). The meter shall communicate with DCU/Access Point/ HES on any one of the communication technologies mentioned in IS16444, as per the requirement of the utility.

2. BASIC FEATURES

The Smart Meter would have the following minimum basic features-

- Measurement of electrical energy parameters
- Bidirectional Communication
- Integrated Load limiting switch
- Tamper event detection, recording and reporting
- Power event alarms such as loss of supply, low/ high voltage
- Remote firmware upgrade
- Net metering features
- On demand reading

3. GENERAL STANDARDS APPLICABLE FOR METERS

Unless otherwise specified elsewhere in this specification, the performance and testing of the meters shall conform to the following standards with latest amendments thereof:

S. No.	Standard No.	Title
1	IS 13779 with latest amendments	AC Static Watt-hour Meter class 1& 2
2	IS 16444 with latest amendments	A.C. Static Direct Connected Watt Hour Smart Meter Class 1 and 2- Specification
3	IS 15884 with latest amendments	Alternating Current Direct Connected Static Prepayment Meters for Active Energy (Class 1 and 2)- Specification

4	IS 15959 Part 1 & Part 2 with latest amendments	Data Exchange for Electricity Meter Reading, Tariff and Load Control- Companion Standards

4. COMMUNICATION

Meter shall have ability to communicate with DCU/Access Point/HES on any one of the technologies mentioned in IS16444 in a secure manner, as per the site conditions and as per design requirement of AMI Implementing agency. In case of GPRS/3G/4G based meter, the meter shall accommodate SIM card of any service provider. In case of Plug in type communication module, the meter shall log communication module removal /non responsive event with snapshot.

4.1 Remote Load control facility would be as per IS 16444.

5. OTHER SPECIFICATIONS

Particulars	**Specification**
Applicable Standards	The meters shall comply with IS 16444 for all requirements. Those parameters which are not covered in IS 16444 have been specifically mentioned in this specification.
Reference Voltage	As per relevant IS
Current Rating	5-30 A/ 10-60 A (as per the requirement of the utility)
Starting Current	As per IS 16444
Accuracy	Class 1.0 as per IS 16444
Limits of error	As per IS 16444
Operating Temperature range	As per IS 16444
Humidity	As per IS 16444
Frequency	As per IS 16444
Influence Quantities	As per IS 16444
Power Consumption of meter	As per IS 16444
Current and Voltage Circuit	As per IS 16444
Running at No Load	As per IS 16444
Test output device	As per IS 16444
Meter Display	As per IS 16444
Name Plate & marking Meter Display	As per IS 16444
Parameters to be measured	As per IS 16444 / As per IS 15959 Part-2

Maximum Demand resetting	As per IS 15959 Part 2
Time of Use registers	As per IS 15959 part 2
Power Quality Information	As per IS 15959 part 2
LED/LCD Indicators	As per IS 16444
Load Survey/Interval Data	As per IS 15959 part 2
Tamper/ Event Recording	As per IS 15959 part 2
Measuring Elements	As per IS 16444
Alarm	As per IS 16444/ 15959 Part 2
Load Control	As per IS 16444
Connect/Disconnect and status of load switch	As per IS 16444
Programmability	As per IS 16444
Communication	As per IS 16444.
Communication Protocol	As per IS 16444
Remote Firmware upgrade	As per IS 15959 part 2
Real Time Clock(RTC)	As per IS 16444/ IS 15884 The clock day/date setting and synchronization shall only be possible through password/Key code command from one of the following: • From remote server through suitable communication network. • Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter; (The methodology for the synchronization would be as per requirement of utility)
Data Retention	As per CEA regulations
Battery Backup	Meter shall be supplied with separate battery backup for RTC.

Guarantee	Manufacturer Shall undertake a guarantee to replace meter up to a period of 60 months from the date of supply. The meter which are found defective/inoperative within the guarantee period, these defective/inoperative meters shall be replaced within one month of receipt of report for such defective/inoperative meters
First Breath(power on) and Last gasp (power off) condition detection and communication to HES	As per IS 16444

5.1 DATA DISPLAY FACILITY (AUTO/MANUAL)

Data Display shall be in three modes-

1. Auto Scroll
2. Scroll with Push Button
3. High Resolution (Shall display energy values with resolution of 2 digits before decimal and 3 digits after decimal in push button mode)

The display order shall be:

- Auto Scroll
  - Cumulative Active Energy kWh along with legend.
  - Current calendar month MD in kW with legend.
  - Instantaneous voltage
  - Instantaneous current

These parameters should be displayed on the LCD/LED continuously for a period of 15 seconds on Auto scroll. In case of power failure, the meter should display above parameters with push button.

- Scroll with Push-button
  - Internal diagnostics
  - Cumulative kWh
  - Date
  - Real Time
  - Voltage in (V)
  - Current (I)
  - Power (kW)
  - Current month MD in kW
  - Last month cumulative kWh
  - Last month MD in kW
  - Last month MD occurrence Date

- Last month MD occurrence Time
- Meter Serial Number

The meter's display should return to default display mode (continues auto scroll) if push button is not operated for more than 10 seconds. (The order of display may be revised as per requirement of the utility)

6. ANTI TAMPER FEATURES

The meter shall continue recording energy under any tamper condition and would log the event and send alarm at Head End System after detection of the defined theft features as per IS 15959 Part 2.

(Optional test as per requirement of utility: The Meter shall be immune under external magnetic influences as per CBIP 325. Meter shall be tested for high voltage discharge (Spark) up to 35 KV as per CBIP 325.)

7. TESTS

7.1 Type Tests & Test Certificates

Smart meter shall be type tested for all the type tests as per IS: 16444 (latest version) in a third party independent lab. The number of sampling for testing of meters and criteria for conformity would be as per IS 16444.

Necessary copies of test certificates shall be submitted as per agreement with the utility.

7.2 Routine & Acceptance Tests

The Factory Acceptance and Routine tests shall be carried out as per IS 16444. Apart from above test, meter shall be also be tested for all functional requirement through communication as part of acceptance test

8. GENERAL & CONSTRUCTIONAL REQUIREMENTS

8.1 Meter Shall be BIS marked as per IS 16444.

8.2 General & construction requirement shall be as per IS 16444/IS 13779

8.3 In Home Display (IHD) shall be optional and the specifications of the same would be as per agreement between the bidder and the utility.

9. METER BASE & COVER- Meter base & cover shall be as per IS 16444/ IS 13779. The meter Base & cover shall be break to open design. The material for meter base and cover shall be made of high grade polycarbonate.

10. **TERMINAL BLOCK & COVER** - As per IS 16444/IS 13779

11. DESIGN

Voltage circuit, sealing arrangement, terminal block, terminal cover and nameplate etc. shall be in accordance with IS-16444 (latest version).

The meter shall be compact and reliable in design, easy to transport and immune to vibration and shock involved in transportation and handling.

12. CIRCUITRY - as per IS 16444

The supplier should submit the details of source/agencies from whom purchase of various components of meters used by them to the utility/purchaser.

13. NAME PLATE AND MARKING

The meter should bear a name plate clearly visible, effectively secured against removal and indelibly/distinctly marked in accordance with relevant IS. In addition, in the middle of the name plate the words “Name of the Utility”, purchase order no. & year/month of manufacturing shall either be punched or marked indelibly. The rating plate information shall be as per relevant IS.

14. CONNECTION DIAGRAM: As per IS 16444

15. FIXING ARRANGEMENTS:

The meter shall be mounted type. The Meter should have three fixing holes, one at top and two at the bottom. The Top hole should be such that the holding screw is not accessible to the consumer after fixing the meters. The lower screws should be provided under sealable terminal cover. The requisite fixing screws shall be supplied with each meter.

16. SEALING ARRANGEMENT:

Arrangements shall be provided for proper sealing of the meter cover so that access to the working parts shall not be possible without breaking the seal. The sealing arrangement and number of seals shall be as per relevant IS/ requirement of utility.

17. **METER BOX:** The Meter Box would be provided as per requirement of the utility/ purchaser.

18. PACKING

The meters shall be suitably packed for vertical/horizontal support to withstand handling during transportation. The meter shall be packed appropriately to ensure safe transportation, handling, identification and storage. All packing materials shall be as per environment law in force. The primary packing shall ensure protection against humidity, dust, grease and safeguard the meter’s performance until its installation. The secondary packing shall provide protection during transportation. The packing case shall indicate “Fragile in nature” and

direction of placement of box. Each packing shall indicate marking details like Manufacturer's name, S.No. of meters, quantity etc.

19. TRANSPORTATION

The meter shall be compact in design. The meter block unit shall be capable of withstanding stresses likely to occur in actual service and rough handling during transportation. The meter shall be convenient to transport and immune to shock and vibration during transportation and handling.

The meter should not be exposed to undue shock and mishandling during transportation. The stacking of box inside transport media should be such as to avoid their free movement. The packing should also be protected from rain and dust by transport media. The Bidder shall be responsible for any damage during transit due to inadequate or improper packing.

20. TESTING AND MANUFACTURING FACILITIES AT MANUFACTURER'S PLACE

The manufacturer shall have NABL accredited laboratory to ensure accurate testing calibration as per IS 13779 for acceptance test.

21. INSPECTION

❖ All meters shall be duly tested and sealed by the firm at their premises prior to inspection. Manufacturer seal may be provided on one side of meter. For the other side, the seal with engrave as Utility name may be sent in a pack for provision by utility after completion of test by the utility & after receipt of the meter.

❖ The utility/ purchaser may inspect the meter randomly as per sampling plan for acceptance test as per IS 16444. The meters shall be tested for all functional requirements as part of acceptance test as per IS 16444. After testing, these sample meters shall be additionally sealed and would be kept in safe lock for verification if needed.

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Technical Specification
of
Three phase whole current
Smart Meter

TECHNICAL SPECIFICATIONS FOR WHOLE CURRENT A.C. THREE PHASE FOUR WIRE SMART ENERGY METER OF ACCURACY CLASS 1.0 WITH Bi DIRECTIONAL COMMUNICATION FACILITY SUITABLE FOR ADVANCED METERING INFRASTRUCTURE (AMI)

1. SCOPE

The specification covers the design, manufacturing, testing, supply and delivery of AC whole current 3 phase 4 wires Smart Energy Meter with bidirectional communication facility. The meter shall be suitable for Advanced Metering Infrastructure (AMI). The meter shall communicate with Data Concentrator Unit (DCU) / Access Point / HES on any one of the communication technologies mentioned in IS16444, as per the requirement of the utility / authorized system integrator.

2. BASIC FEATURES

The Smart Meter would have the following minimum basic features-

- Measurement of electrical energy parameters
- Bidirectional Communication
- Integrated Load limiting switch /relay
- Tamper event detection, recording and reporting
- Power event alarms such as loss of supply, low/ high voltage
- Remote firmware upgrade
- Net metering features
- On demand reading

3. GENERAL STANDARDS APPLICABLE FOR METERS

Unless otherwise specified elsewhere in this specification, the performance and testing of the meters shall conform to the following standards with latest amendments thereof:

S.No.	**Standard No.**	**Title**
1	IS 13779 with latest amendments	AC Static Watt-hour Meter class 1& 2
2	IS 16444 with latest amendments	A.C. Static Direct Connected Watt Hour Smart Meter Class 1 and 2- Specification
3	IS 15884 with latest amendments	Alternating Current Direct Connected Static Prepayment Meters for Active Energy (Class 1 and 2)- Specification

4	IS 15959 Part 1 & Part 2 with latest amendments	Data Exchange for Electricity Meter Reading, Tariff and Load Control- Companion Standards

4. COMMUNICATION

Meter shall have ability to communicate with Data Concentrator Unit (DCU) / Access Point / HES on any one of the technologies mentioned in IS16444 in a secure manner, as per the site conditions and as per design requirement of AMI Implementing agency. In case of GPRS/3G/4G based meter, the meter shall accommodate SIM card of any service provider. In case of Plug in type communication module, the meter shall log communication module removal/ non responsive event with snapshot.

4.1 Remote Load control facility would be as per IS 16444.

5. OTHER SPECIFICATIONS

Particulars	**Specification**
Applicable Standards	The meters shall comply with IS 16444 for all requirements. Those parameters which are not covered in IS 16444 have been specifically mentioned in this specification.
Reference Voltage	As per relevant IS
Current Rating	10-60 A /10-100 A (as per the requirement of the utility)
Starting Current	As per IS 16444
Accuracy	Class 1.0 as per IS 16444
Limits of error	As per IS 16444
Operating Temperature range	As per IS 16444
Humidity	As per IS 16444
Frequency	As per IS 16444
Influence Quantities	As per IS 16444
Power Consumption of meter	As per IS 16444
Current and Voltage Circuit	As per IS 16444
Running at No Load	As per IS 16444
Test output device	As per IS 16444
Meter Display	As per IS 16444
Name Plate & marking Meter Display	As per IS 16444
Parameters to be measured	As per IS 16444 / As per IS 15959 Part-2

Maximum Demand resetting	As per IS 15959 Part-2
Time of Use registers	As per IS 15959 Part-2
Power Quality Information	As per IS 15959 Part-2
LED/LCD Indicators	As per IS 16444
Load Survey/Interval Data	As per IS 15959 Part-2
Tamper/ Event Recording	As per IS 15959 Part-2
Measuring Elements	As per Is 16444
Alarm	As per IS 16444/ As per IS 15959 Part-2
Load Control	As per IS 16444
Connect/Disconnect and status of load switch	As per IS 16444
Programmability	As per IS 16444
Communication	As per IS 16444.
Communication Protocol	As per IS 16444
Remote Firmware upgrade	As per IS 15959 Part-2
Time Synchronization	As per IS 16444/IS 15884 The clock day/date setting and synchronization shall only be possible through password/Key code command from one of the following: • From remote server through suitable communication network. • Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter; (The methodology for the synchronization would be as per requirement of utility)
Data Retention	As per CEA regulations
Battery Backup	Meter shall be supplied with separate battery backup for RTC.

Guarantee	Manufacturer Shall undertake a guarantee to replace meter up to a period of 60 months from the date of supply. The meter which are found defective/inoperative at the time installation or become inoperative/defective within the guarantee period, these defective/inoperative meters shall be replaced within one month of receipt of report for such defective/inoperative meters
First Breath(Power on) and Last gasp(Power off) condition detection and communication to HES	As per Is 16444

5.1 DATA DISPLAY FACILITY (AUTO/MANUAL)

Data Display shall be in three modes-

1. Auto Scroll
2. Scroll with Push Button
3. High Resolution (Shall display energy values with resolution of 2 digits before decimal and 3 digits after decimal in push button mode)

The display order shall be-

- Auto Scroll
  - Cumulative Active Energy kWh along with legend.
  - Cumulative Energy in kVAh with legend
  - Current calendar month MD in kW with legend.
  - Current calendar month MD in kVAh with legend
  - Instantaneous voltage V_{RN}
  - Instantaneous voltage V_{YN}
  - Instantaneous voltage V_{BN}
  - Instantaneous current I_R
  - Instantaneous current I_Y
  - Instantaneous current I_B

These parameters should be displayed on the LCD/LED continuously for a period of 15 seconds on Auto scroll. In case of power failure, the meter should display above parameters with push button.

- Scroll with Push-button
  - Internal diagnostics

- Cumulative kWh
- Cumulative kVAh
- Date
- Real Time
- Voltage V_{RN} (V)
- Voltage V_{YN} (V)
- Voltage V_{BN} (V)
- Current I_R (I)
- Current I_Y (I)
- Current I_B(I)
- Power (kW)
- Power (kVA)
- Current month MD in kW
- Current month MD in kVAh
- Last month cumulative kWh
- Last month cumulative kVAh
- Last month MD in kW & occurrence Date
- Last month MD in kVAh & occurrence Date
- Average power factor
- Meter Serial Number

The meter's display should return to default display mode (continues auto scroll) if push button is not operated for more than 10 seconds. (The order of display may be as per the requirement of utility)

6. ANTI TAMPER FEATURES

The meter shall continue recording energy under any temper condition and would log the event and send alarm at Head End System after detection of the defined theft features as per IS 15959 Part 2.

(Optional test as per requirement of utility: The Meter shall be immune under external magnetic influences as per CBIP 325. Meter shall be tested for high voltage discharge (Spark) up to 35KV as per CBIP 325)

7. TESTS

7.1 Type Tests & Test Certificates

Smart meter shall be type tested for all the type tests as per IS: 16444 (latest version) in a third party independent lab. The number of sampling for testing of meters and criteria for conformity would be as per IS 16444.

Necessary copies of test certificates shall be submitted as per agreement with the utility.

7.2 Routine & Acceptance Tests

The Factory Acceptance and Routine tests shall be carried out as per IS 16444. Apart from above test, meter shall also be tested for all functional requirement through communication as part of acceptance test.

8. GENERAL & CONSTRUCTIONAL REQUIREMENTS

8.1 Meter Shall be BIS marked as per IS 16444.

8.2 General & construction requirement shall be as per IS 16444/IS 13779.

8.3 In Home Display(IHD) shall be optional and the specifications of the same would be as per agreement between the bidder and the utility.

9. METER BASE & COVER-

The meter Base & cover shall be as per IS 16444/IS 13779. The meter base and cover break to open design. The material for meter base and cover shall be made of high grade polycarbonate.

10. **TERMINAL BLOCK & COVER** - As per IS 16444/IS 13779

11. DESIGN

Voltage circuit, sealing arrangement, terminal block, terminal cover and nameplate etc. shall be in accordance with IS-16444 (latest version).

The meter shall be compact and reliable in design, easy to transport and immune to vibration and shock involved in transportation and handling.

12. CIRCUITRY – As per IS 16444

The supplier should submit the details of source/agencies from whom purchase of various components of meters used by them to the utility/purchaser.

13. NAME PLATE AND MARKING

The meter should bear a name plate clearly visible, effectively secured against removal and indelibly/distinctly marked in accordance with relevant IS. In addition, in the middle of the name plate the words “Name of the Utility”, purchase order no. & year/month of manufacturing shall either be punched or marked indelibly. The rating plate information shall be as per relevant IS.

14. CONNECTION DIAGRAM: As per IS 16444

15. FIXING ARRANGEMENTS:

The meter shall be mounted type. The Meter should have three fixing holes, one at top and two at the bottom. The Top hole should be such that the holding screw is not accessible to the consumer after fixing the meters. The lower screws should be provided under sealable terminal cover. The requisite fixing screws shall be supplied with each meter.

16. SEALING ARRANGEMENT:

Arrangements shall be provided for proper sealing of the meter cover so that access to the working parts shall not be possible without breaking the seal. The sealing arrangement and number of seals shall be as per relevant IS/ requirement of utility.

17. METER BOX: The Meter Box would be provided as per requirement of the utility.

18. PACKING

- The meters shall be suitably packed for vertical/horizontal support to withstand handling during transportation.
- The meter shall be packed appropriately to ensure safe transportation, handling, identification and storage.
- All packing materials shall be as per environment law in force. The primary packing shall ensure protection against humidity, dust, grease and safeguard the meter's performance until its installation.
- The secondary packing shall provide protection during transportation.
- The packing case shall indicate "Fragile in nature" and direction of placement of box.
- Each packing shall indicate marking details like Manufacturer's name, S.No. of meters, quantity etc.

19. TRANSPORTATION

- The meter shall be compact in design. The meter block unit shall be capable of withstanding stresses likely to occur in actual service and rough handling during transportation.
- The meter shall be convenient to transport and immune to shock and vibration during transportation and handling.
- The meter should not be exposed to undue shock and mishandling during transportation.
- The stacking of box inside transport media should be such as to avoid their free movement.
- The packing should also be protected from rain and dust by transport media.

- The Bidder shall be responsible for any damage during transit due to inadequate or improper packing.

20. TESTING AND MANUFACTURING FACILITIES AT MANUFACTURER'S PLACE

The manufacturer shall have NABL accredited laboratory to ensure accurate testing calibration as per IS 13779 for acceptance test.

21. INSPECTION

❖ All meters shall be duly tested and sealed by the firm at their premises prior to inspection. Manufacturer seal may be provided on one side of meter. For the other side, the seal with engrave as Utility name may be sent in a pack for provision by utility after completion of test by the utility & after receipt of the meter.

❖ The utility/ purchaser may inspect the meter randomly as per sampling plan for acceptance test as per IS 16444. The meters shall be tested for all functional requirements as part of acceptance test as per IS 16444. After testing, these sample meters shall be additionally sealed and kept in a safe lock for verification, if needed.

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ANNEX-D

DELIVERY SCHEDULE AND TIMELINES

Year / Implementation Partner	Total meters supplied in 1 years Refer b.&c. below	Delivery Locations
Implementation Partner 1	25,00,000	Bidder shall be fully liable to execute the works at Locations across PAN India – details shall be intimated later.
Implementation Partner 2	15,00,000	
Implementation Partner 3	10,00,000	
Total	**50,00,000**	

Please note that:

a. Year 1 is defined as one year after date of project award. Quantities for single-phase whole current, three phase whole current and LT-CT operated whole current meters shall be mutually decided between EESL and the utilities identified in Uttar Pradesh and Haryana states identified by EESL.
b. Year 1 above will start after 3 months of the date of letter of award.
c. Delivery needs to be uniformly done throughout the year on monthly pro-rata basis.
d. The above delivery schedule is indicative. EESL will provide the final delivery schedule at the time of award of contract.

Appendix-A

Technical Specifications for Polycarbonate Meter Cover Box for Single Phase Meters

Technical Specifications for Polycarbonate Meter Box for Single Phase Meter

1.0 SCOPE:

This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at store/site and performance of single phase meter box intended to contain one number single phase whole current energy meter complete with all accessories for trouble free and efficient operation.

2.0 APPLICABLE STANDARDS: -

The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest edition of the following Indian/International standards and shall conform to the regulations of the local statutory authorities.

a)	IS: 14772-2000	General requirements for enclosures for accessories for household and similar fixed electrical installations- specifications.
b)	IS: 11731(Part-II) -1992	Methods of test for determination of Flammability of solid electrical insulating material when exposed to an igniting source.
c)	IS 4249-1967	Specification for classification and method of test for non- ignitable and self-extinguishing properties of solid electrical insulating materials.
d)	IS 5133(Part II)-1969	Specification for boxes for the enclosure of electrical accessories.
e)	IS 2500(Part 1)-2000	Sampling procedure for inspection by attributes part-1 sampling schemes indexed by acceptance quality limit (AQL) for lot by lot inspection.
f)	UL 746-C	Polymeric Materials in Electrical equipment.

3.0 CLIMATIC CONDITIONS OF THE INSTALLATION:

1.	Max. ambient air temperature	60^0C
2.	Min. ambient air temperature	(-)5^0C
3.	Average Daily Max. ambient temperature	40^0C
4.	Max. yearly weighted average ambient temperature	32^0C
5.	Max. altitude above mean sea level	1000 m
6.	Minimum Relative Humidity (%age)	26
7.	Max. Relative Humidity (%age)	95
8.	Avg. No. of Rainy days/year	120
9.	Avg. annual rainfall	900 mm
10.	Maximum wind pressure	195 kg/m2

The atmosphere is generally laden with mild acid and dust particles suspended during dry months and subjected to fog in cold months. The design of the equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1g.

4.0 GENERAL TECHNICAL REQUIREMENTS:

Sl. No	DESCRIPTION	REQUIREMENT
1	Application	Outdoor

2	Degree of protection	IP 55
3	Flammability requirement	FVo
4	Grade of material	Polycarbonate with fire retardant, Self- Extinguishing, UV stabilized and anti-oxidation properties.
5	Material a) Base: b) Cover:	The meter box (base and Cover) shall be made of polycarbonate material which complies following properties; Meter box shall be weather proof, capable to withstanding temperatures of boiling water for 5 minutes continuously without distortion or softening. It shall withstanding Glow wire test at 650^0C as per IS : 14772. Polycarbonate Lexan 943 A or equivalent Grade with dark grey color. Polycarbonate Lexan 943 A or equivalent Grade with Transparent configuration.
6	Material of the gasket	Rubber gasket
7	Material withstand temperature.	125 Deg C ± 2 Deg C

5.0 GENERAL CONSTRUCTIONS:

5.1 The meter box shall be weather proof, tamper proof and shall be made of Injection moulded polycarbonate material with self-extinguishing, UV stabilized, recyclable and Anti oxidation properties. The box shall be of adequate strength, unbreakable and shall be made in two pieces (base and cover).The base shall be dark grey color whereas the cover shall be completely transparent.
The meter Box shall have roof tapering down to both the sides for easy flow of rainwater.
The thickness of the box shall not be less than 3mm on the load bearing side and other sides, door and roof shall not be less than 2.5 mm.
The box shall be designed in such a way that there should be the following clearances between the meter and the Meter box:
Between Sides of the meter body and meter box – 30 mm minimum (excluding the flanges on the meter body for sealing screws.)
Between the lower edge of the terminal block and the Meter box – 70 mm Minimum
Between the back of the meter and the meter box base – 10 mm Minimum
Between the top of the meter and the meter box cover – 20 mm Minimum

The meter box shall have a taper roof for easy flow of rain water and shall have degree of protection IP 55 for affording protection against dust & water.

5.2 The meter base supports inside the box should have adequate strong enough molded supports within the block to avoid damage during tightening of screws and raised by about 10 mm in the box for ease of wiring. While fixing, the meter screws should not protrude outside..

5.3 The design of the meter box shall be such that it may facilitate easy wiring and access to the meter terminals. Nylon gland of internal diameter of approx. 20 mm shall be provided for I/C and O/G cables of size 2C x 16 sq. mm or as approved by the EESL.

5.4 The box cover shall be fixed to the base through two number hinges (approx length 30 - 60 mm). The arrangement for hinges shall be provided on the side of the base and shall be such that it may avoid unauthorized access to inside of the box. Hinges should be outside and enclosed by polycarbonate material and once the box is closed and sealed, hinges should not be approachable. Box cover shall be openable by more than 90 degrees.

5.5 For holding and sealing the box, two U-shaped latches shall be provided. The latch shall be GI sheet with minimum thickness 2 mm, to secure it with the base of the box.. The latch shall be provided along with suitable clamp assembly in base as well as cover, such that these are fully covered by the latch after closing. The clamp along with the latch shall have a sealing hole such as to provide a through sealing arrangement in the assembly.

5.6 For fixing the box to flat wall or wooden board 4Nos. holes (2Nos.key holes at top) of minimum 6 mm dia. shall be provided at the four corners of the meter box. For fixing of Box on flat wall, 4 Nos. 5mm diameter 40mm long pan head self- taping screws and washers shall be provided by the supplier with every Box. 4 Nos. plastic fixing plugs of 50mm length suitable for self-tapping screws shall also be provided (Fixing clamp and accessories for pole mounting/ wall mounting, shall be in the scope of Agency, who shall be installing the meters in the field based on the actual site conditions & pole sizes. These are not to be supplied with the boxes).

5.7 Push button arrangement shall be required on the cover of the box to operate the meter display push button from outside the meter box to read the meter display parameters without opening the meter box cover.

5.8 A provision in form of depression should be provided on the meter box cover to download the meter data from the meter using the CMRI probe without opening the meter box cover. This shall be provided in such a way that the optical probe of the CMRI cable can be placed on top of the meter box cover in a suitable depression in the meter box cover which is aligned suitably with the meter optical port. Also the meter box cover shall have provision of sealing this depression. The depression so provided should be covered so that there is no physical access to the meter optical port while using this depression.

5.9 Suitable rubber gasket of round shape all around the cover along its periphery shall be provided for protection.

5.10 After closing and sealing the meter box, it should not be possible to allow entry of any sharp object even forcefully inside the box without breaking base/cover. Suitable overlapping (approx 10 mm) shall be provided between base and cover to avoid access to the meter or its accessories inside the meter box by any means after sealing the box.

5.11 The tolerance permissible in overall dimension of MCB shall be +/- 2%.

6.0 NAME PLATE AND MARKING:

The equipment shall be provided with durable and legible name plate, effectively secured against its removal under any circumstances, so far as possible. Name plate shall be embossed with "PO/ Work Order No with date", "NAME OF DISCOM". The name plate shall be indelibly and distinctly marked with all essential particulars as per the relevant standards along with the following information:

a) Manufacturer's name
b) Serial number

c) Month and Year of manufacture

7.0 Tests: All routine acceptance & type tests shall be carried out in accordance with the relevant IS/IEC. All routine & acceptance tests shall be witnessed by the EESL/DISCOMs authorized representative(s). All the components shall also be type tested as per the relevant standards. Following tests shall be necessarily conducted on the meter box in addition to others as specified in IS/IEC standards.

7.1 Type test:

Technical Specifications for Polycarbonate Meter Box for Single Phase Meter

Sr. No.	Test/Standard	Requirement
1.	Protection against electric shock (IS:14772 -2000)	Enclosure shall be so designed that when it is mounted for normal use, the live parts of any correctly installed accessories or any parts of these accessories which may become live due to a fault shall not be accessible.
2.	Resistance to ageing, humid conditions, Ingress of solid objects and to harmful ingress of water (IS:14772 -2000)	Resistance to Ageing: Enclosure shall be kept in a heating cabinet with temp 70 ±2 C° for 7 days as per IS. After completion of the test, the enclosure shall not show any cracks. **Humid conditions:** Enclosure shall be kept in a cabinet with humidity between 91 to 95 % for 7 days as per IS. After completion of the test, enclosure shall not show any damage. **Resistance against ingress of solid objects and to harmful ingress of water:** Enclosure shall be subjected to test for degree of protection (IP 55) as per IS 12063.
3.	Mechanical strength/Impact Resistance Test (IS:14772 2000)/(UL:746C)	The sample shall be subjected to Impact resistance test as per the respective standards and shall not show occurrence of any of the following: 1. Making uninsulated live parts accessible to contact. 2. Producing a condition that might affect the mechanical performance of the enclosure. 3. Producing a condition that would increase the likelihood of an electric shock.
4.	Resistance to heat /Ball Pressure Test (IS:14772 -2000)	The test shall be made on one sample in a heating cabinet at a temp of 125 ±2°C as per IS. After completion of test , the diameter of the impression caused by the ball shall be measured and should not exceed 2 mm.
5.	Resistance to Abnormal heat and fire/ Glow wire test (IS: 14772-2000)	Parts of insulating materials which might be exposed to thermal stresses due to electric effects shall not be affected by abnormal heat and by fire. The compliance shall be checked by means of the glow wire test performed at 650°C, according to IS 11000 (Part 2/section 1) with no flame and glowing.
6.	Resistance to Tracking (IS 14772-2000)	The sample when tested as per clause no 17 of IS: 14772, shall show no flashover after completion.
7.	Flammability test (IS:.11731(Part II) 1986)/UL:94)	The sample shall comply to flammability requirements of category FVO/ Vo as per respective standards.
8.	Test for self-extinguishing Property (IS:4249-1967)	The sample when tested as per clause 3.5.1 of IS 4249 shall comply to the specified requirements.
9.	Test for water absorption (IS:5133 (Part-II)-1969)	The sample shall be heated to a temperature of 50±3°C for 24 hours, as per IS and after completion, the water content absorbed should not be more than 1%.

10.	UV Light Exposure (UL-746C)	The sample when exposed to UV light as per the defined test method, shall comply to the following a) **Physical Properties:** The average value of physical properties after the UV light exposure shall not be lower than 70% of its initial value (without UV aging) i.e. the variation shall not be more than 30%. b) **Flammability Test:** After the UV light exposure, the flammability requirement of FVO shall remain unchanged. c) **Flexural Strength:** After the UV light exposure, Flexural strength shall not be lower than 70% of its initial value (without UV aging) i.e. the variation shall not be more than 30%.

7.2 Routine tests:

1. Marking
2. Visual Examination and Dimensions
3. Protection against electric shock

7.3 Acceptance tests:

1. Marking
2. Visual Examination and Dimensions
3. Protection against electric shock
4. Mechanical strength/Impact Resistance Test
5. Resistance to Abnormal heat and fire / Glow wire test
6. Flammability test

8.0 PACKING:

Bidder shall ensure that all the equipment's covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment's from damage in transit.

9.0 GUARANTEED TECHNICAL PARTICULARS:

No.	Particulars	Unit	Requirement	Bidders to confirm
1	Application		Outdoor	
2	Degree of protection		IP 55	
3	Flammability requirement		FVo	
4	Grade of Material		Polycarbonate with fire retardant, Self-Extinguishing, UV Stabilized and anti- oxidation properties.	
5	Material a) Base b) Cover		 a) Base : Polycarbonate Lexan 943 A or equivalent Grade with dark grey colour b) Cover : Polycarbonate	

Technical Specifications for Polycarbonate Meter Box for Single Phase Meter

No.	Particulars	Unit	Requirement	Bidders to confirm
			Lexan 943 A or equivalent Grade transparent	
6	Thickness of box a) Base & Cover	mm	Base : 3mm Cover 2.5 mm	
7	Material of the gasket		Rubber Gasket	
8	Material withstand temperature	°C	125°C	
10	Construction features of the box			
a)	Clearance from Meter surface : (minimum) Left , Right side : 30 mm Bottom : 70 mm Front & back : 10 mm Top : 20 mm			
b)	Display Push button operating arrangement at cover of the box			
d)	Sealing arrangement (with latch)		2 Nos.	
e)	Hinges		2 Nos.	
f)	Colour of Meter Box (Base & Cover)		Base : Dark Grey Cover : Transparent	
g)				
h)	No. of holes for fixing the meter box		4 Nos.	
	Total no. of fixing screws to be provided		4 Nos.	
i)	Overlapping length between base & cover	mm	Approx. 10 mm	
j)	Incoming & outgoing cable holes		2 Nos. to be provided	
k)	Weight of complete box in Kg. with +/- tolerance		Please confirm	
l)	Whether recyclable material		Please confirm	

Appendix-B

Technical Specifications for Polycarbonate Meter Cover Box for Three Phase Meters

Technical Specifications for Polycarbonate Meter Box for Three Phase Meter

1.0 SCOPE:

This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at store/site and performance of Three phase meter box intended to contain one number Three phase whole current energy meter complete with all accessories for trouble free and efficient operation.

2.0 APPLICABLE STANDARDS: -

The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest edition of the following Indian/International standards and shall conform to the regulations of the local statutory authorities.

a)	IS: 14772-2000	General requirements for enclosures for accessories for household and similar fixed electrical installations- specifications.
b)	IS: 11731(Part-II) -1992	Methods of test for determination of Flammability of solid electrical insulating material when exposed to an igniting source.
c)	IS 4249-1967	Specification for classification and method of test for non- ignitable and self-extinguishing properties of solid electrical insulating materials.
d)	IS 5133(Part II)-1969	Specification for boxes for the enclosure of electrical accessories.
e)	IS 2500(Part 1)-2000	Sampling procedure for inspection by attributes part-1 sampling schemes indexed by acceptance quality limit (AQL) for lot by lot inspection.
f)	UL 746-C	Polymeric Materials in Electrical equipment.

3.0 CLIMATIC CONDITIONS OF THE INSTALLATION:

1.	Max. ambient air temperature	60^0C
2.	Min. ambient air temperature	(-)5^0C
3.	Average Daily Max. ambient temperature	40^0C
4.	Max. yearly weighted average ambient temperature	32^0C
5.	Max. altitude above mean sea level	1000 m
6.	Minimum Relative Humidity (%age)	26
7.	Max. Relative Humidity (%age)	95
8.	Avg. No. of Rainy days/year	120
9.	Avg. annual rainfall	900 mm
10.	Maximum wind pressure	195 kg/m2

The atmosphere is generally laden with mild acid and dust particles suspended during dry months and subjected to fog in cold months. The design of the equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1g.

4.0 GENERAL TECHNICAL REQUIREMENTS:

Sl. No	DESCRIPTION	REQUIREMENT
1	Application	Outdoor

2	Degree of protection	IP 55
3	Flammability requirement	FVo
4	Grade of material	Polycarbonate with fire retardant, Self- Extinguishing, UV stabilized and anti-oxidation properties.
5	Material a) Base: b) Cover:	The meter box (base and Cover) shall be made of polycarbonate material which complies following properties; Meter box shall be weather proof, capable to withstanding temperatures of boiling water for 5 minutes continuously without distortion or softening. It shall withstanding Glow wire test at 650^0C as per IS : 14772. Polycarbonate Lexan 943 A or equivalent Grade with dark grey color. Polycarbonate Lexan 943 A or equivalent Grade with Transparent configuration.
6	Material of the gasket	Rubber gasket
7	Material withstand temperature.	125 Deg C ± 2 Deg C

5.0 GENERAL CONSTRUCTIONS:

5.1 The meter box shall be weather proof, tamper proof and shall be made of Injection moulded polycarbonate material with self-extinguishing, UV stabilized, recyclable and Anti oxidation properties. The box shall be of adequate strength, unbreakable and shall be made in two pieces (base and cover).The base shall be dark grey color whereas the cover shall be completely transparent.
The meter Box shall have roof tapering down to both the sides for easy flow of rainwater.
The thickness of the box shall not be less than 3mm on the load bearing side and other sides, door and roof shall not be less than 2.5 mm.
The box shall be designed in such a way that there should be the following clearances between the meter and the Meter box:
Between Sides of the meter body and meter box – 30 mm minimum (excluding the flanges on the meter body for sealing screws.)
Between the lower edge of the terminal block and the Meter box – 70 mm Minimum
Between the back of the meter and the meter box base – 10 mm Minimum
Between the top of the meter and the meter box cover – 30 mm Minimum

The meter box shall have a taper roof for easy flow of rain water and shall have degree of protection IP 55 for affording protection against dust & water.

5.2 The meter base supports inside the box should have adequate strong enough molded supports within the block to avoid damage during tightening of screws and raised by about 10 mm in the box for ease of wiring. While fixing, the meter screws should not protrude outside..

5.3 The design of the meter box shall be such that it may facilitate easy wiring and access to the meter terminals. Nylon gland of internal diameter of approx. 30 mm shall be provided for I/C and O/G cables of size 4C x 35 sq. mm or as approved by the EESL.

5.4 The box cover shall be fixed to the base through two number hinges (approx length 30 - 60 mm). The arrangement for hinges shall be provided on the side of the base and shall be such that it may avoid unauthorized access to inside of the box. Hinges should be outside and enclosed by polycarbonate

material and once the box is closed and sealed, hinges should not be approachable. Box cover shall be openable by more than 90 degrees.

5.5 For holding and sealing the box, two U-shaped latches shall be provided. The latch shall be GI sheet with minimum thickness 2 mm, to secure it with the base of the box.. The latch shall be provided along with suitable clamp assembly in base as well as cover, such that these are fully covered by the latch after closing. The clamp along with the latch shall have a sealing hole such as to provide a through sealing arrangement in the assembly.

5.6 For fixing the box to flat wall or wooden board 4Nos. holes (2Nos.key holes at top) of minimum 6 mm dia. shall be provided at the four corners of the meter box. For fixing of Box on flat wall, 4 Nos. 5mm diameter 40mm long pan head self- taping screws and washers shall be provided by the supplier with every Box. 4 Nos. plastic fixing plugs of 50mm length suitable for self-tapping screws shall also be provided (Fixing clamp and accessories for pole mounting/ wall mounting, shall be in the scope of Agency, who shall be installing the meters in the field based on the actual site conditions & pole sizes. These are not to be supplied with the boxes).

5.7 Push button arrangement shall be required on the cover of the box to operate the meter display push button from outside the meter box to read the meter display parameters without opening the meter box cover.

5.8 A provision in form of depression should be provided on the meter box cover to download the meter data from the meter using the CMRI probe without opening the meter box cover. This shall be provided in such a way that the optical probe of the CMRI cable can be placed on top of the meter box cover in a suitable depression in the meter box cover which is aligned suitably with the meter optical port. Also the meter box cover shall have provision of sealing this depression. The depression so provided should be covered so that there is no physical access to the meter optical port while using this depression.

5.9 Suitable rubber gasket of round shape all around the cover along its periphery shall be provided for protection.

5.10 After closing and sealing the meter box, it should not be possible to allow entry of any sharp object even forcefully inside the box without breaking base/cover. Suitable overlapping (approx 10 mm) shall be provided between base and cover to avoid access to the meter or its accessories inside the meter box by any means after sealing the box.

5.11 The tolerance permissible in overall dimension of MCB shall be +/- 2%.

6.0 NAME PLATE AND MARKING:

The equipment shall be provided with durable and legible name plate, effectively secured against its removal under any circumstances, so far as possible. Name plate shall be embossed with "PO/ Work Order No with date", "NAME OF DISCOM". The name plate shall be indelibly and distinctly marked with all essential particulars as per the relevant standards along with the following information:

a) Manufacturer's name
b) Serial number
c) Month and Year of manufacture

7.0 Tests: All routine acceptance & type tests shall be carried out in accordance with the relevant IS/IEC. All routine & acceptance tests shall be witnessed by the EESL/DISCOMs authorized representative(s). All the components shall also be type tested as per the relevant standards. Following tests shall be necessarily conducted on the meter box in addition to others as specified in IS/IEC standards.

7.1 Type test:

On next page….

Technical Specifications for Polycarbonate Meter Box for Three Phase Meter

Sr. No.	Test/Standard	Requirement
1.	Protection against electric shock (IS:14772 -2000)	Enclosure shall be so designed that when it is mounted for normal use, the live parts of any correctly installed accessories or any parts of these accessories which may become live due to a fault shall not be accessible.
2.	Resistance to ageing, humid conditions, Ingress of solid objects and to harmful ingress of water (IS:14772 -2000)	Resistance to Ageing: Enclosure shall be kept in a heating cabinet with temp 70 ±2 C° for 7 days as per IS. After completion of the test, the enclosure shall not show any cracks. **Humid conditions:** Enclosure shall be kept in a cabinet with humidity between 91 to 95 % for 7 days as per IS. After completion of the test, enclosure shall not show any damage. **Resistance against ingress of solid objects and to harmful ingress of water:** Enclosure shall be subjected to test for degree of protection (IP 55) as per IS 12063.
3.	Mechanical strength/Impact Resistance Test (IS:14772 2000)/(UL:746C)	The sample shall be subjected to Impact resistance test as per the respective standards and shall not show occurrence of any of the following: 1. Making uninsulated live parts accessible to contact. 2. Producing a condition that might affect the mechanical performance of the enclosure. 3. Producing a condition that would increase the likelihood of an electric shock.
4.	Resistance to heat /Ball Pressure Test (IS:14772 -2000)	The test shall be made on one sample in a heating cabinet at a temp of 125 ±2°C as per IS. After completion of test , the diameter of the impression caused by the ball shall be measured and should not exceed 2 mm.
5.	Resistance to Abnormal heat and fire/ Glow wire test (IS: 14772-2000)	Parts of insulating materials which might be exposed to thermal stresses due to electric effects shall not be affected by abnormal heat and by fire. The compliance shall be checked by means of the glow wire test performed at 650°C, according to IS 11000 (Part 2/section 1) with no flame and glowing.
6.	Resistance to Tracking (IS 14772-2000)	The sample when tested as per clause no 17 of IS: 14772, shall show no flashover after completion.
7.	Flammability test (IS:.11731(Part II) 1986)/UL:94)	The sample shall comply to flammability requirements of category FVO/ Vo as per respective standards.
8.	Test for self-extinguishing Property (IS:4249-1967)	The sample when tested as per clause 3.5.1 of IS 4249 shall comply to the specified requirements.
9.	Test for water absorption (IS:5133 (Part-II)-1969)	The sample shall be heated to a temperature of 50±3°C for 24 hours, as per IS and after completion, the water content absorbed should not be more than 1%.

10.	UV Light Exposure (UL-746C)	The sample when exposed to UV light as per the defined test method, shall comply to the following a) **Physical Properties:** The average value of physical properties after the UV light exposure shall not be lower than 70% of its initial value (without UV aging) i.e. the variation shall not be more than 30%. b) **Flammability Test:** After the UV light exposure, the flammability requirement of FVO shall remain unchanged. c) **Flexural Strength:** After the UV light exposure, Flexural strength shall not be lower than 70% of its initial value (without UV aging) i.e. the variation shall not be more than 30%.

7.2 Routine tests:

1. Marking
2. Visual Examination and Dimensions
3. Protection against electric shock

7.3 Acceptance tests:

1. Marking
2. Visual Examination and Dimensions
3. Protection against electric shock
4. Mechanical strength/Impact Resistance Test
5. Resistance to Abnormal heat and fire / Glow wire test
6. Flammability test

8.0 PACKING:

Bidder shall ensure that all the equipment's covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment's from damage in transit.

9.0 GUARANTEED TECHNICAL PARTICULARS:

No.	Particulars	Unit	Requirement	Bidders to confirm
1	Application		Outdoor	
2	Degree of protection		IP 55	
3	Flammability requirement		FVo	
4	Grade of Material		Polycarbonate with fire retardant, Self-Extinguishing, UV Stabilized and anti- oxidation properties.	
5	Material a) Base b) Cover		 a) Base : Polycarbonate Lexan 943 A or equivalent Grade with dark grey colour b) Cover : Polycarbonate	

Technical Specifications for Polycarbonate Meter Box for Three Phase Meter

No.	Particulars	Unit	Requirement	Bidders to confirm
			Lexan 943 A or equivalent Grade transparent	
6	Thickness of box a) Base & Cover	mm	Base : 3mm Cover 2.5 mm	
7	Material of the gasket		Rubber Gasket	
8	Material withstand temperature	°C	125°C	
10	Construction features of the box			
a)	Clearance from Meter surface : (minimum) Left , Right side : 30 mm Bottom : 70 mm Front & back : 10 mm Top : 30 mm			
b)	Display Push button operating arrangement at cover of the box			
d)	Sealing arrangement (with latch)		2 Nos.	
e)	Hinges		2 Nos.	
f)	Colour of Meter Box (Base & Cover)		Base : Dark Grey Cover : Transparent	
g)				
h)	No. of holes for fixing the meter box		4 Nos.	
	Total no. of fixing screws to be provided		4 Nos.	
i)	Overlapping length between base & cover	mm	Approx. 10 mm	
j)	Incoming & outgoing cable holes		2 Nos. to be provided	
k)	Weight of complete box in Kg. with +/- tolerance		Please confirm	
l)	Whether recyclable material		Please confirm	

Appendix C

TECHNICAL SPECIFICATIONS FOR CT OPERATED A.C. THREE PHASE FOUR WIRE -/5A SMART ENERGY METER BOX

Table of Contents

BOX SPECIFICATION **3**

1.1 SCOPE 3

1.2 CONSTRUCTIONAL FEATURES OF METER BOX: 3

2.0 MATERIAL OF METER BOX 4

3.0 RATING PLATE: 4

Box Specification

1.1 Scope

- This specification covers the design, manufacture, testing and supply of anti-corrosive, dust proof, rust proof, shock proof, vermin and water proof, U.V. stabilized and pilfer resistant meter boxes made of Glass reinforced, polyester sheet molding compound (SMC) confirming to IS:13410:1992 (with latest amendment thereof) for installation on distribution transformers of various ratings.
- Meter boxes shall consist of two separate chambers, one suitable to accommodate LT TVM and other suitable for installation of 4 nos. single core, single ratio, ring type CTs of current ratios ranging from 100/5 A - 400/5A

1.2 CONSTRUCTIONAL FEATURES OF METER BOX:

- Meter Box shall be made of minimum 2.5 mm. thick Glass reinforced Polyester sheet moulding compound (SMC) conforming to IS: 13410:1992 with latest amendments thereof.
- LT meter box shall contain two separate chambers. The upper chamber shall be suitable to house 3 phase 4 wire energy meter. The lower chamber of the box is intended for housing 04 nos. ring type LT CTs. Both the chambers of box shall be independent from each other.
- The appropriate size of cables from the secondary of distribution transformer shall pass through ring type LT CTs.
- If any portion of box is closed it shall not be possible to approach it by opening the other portion and vice-versa. It shall be molded in a single piece forming the body of the Meter Box and CT chamber with SMC lid/shed fitted with the base by two nos. concealed brass hinges.
- The concealed brass hinges shall be fitted with the meter Box body base and the cover rigidly in such a way that the same are neither visible nor accessible from outside, thereby making the Meter Box pilfer proof.
- The door/cover in closed position should house properly within collar of meter box body base, which shall also house the edges of the lid/cover so that no direct entry or access is possible.
- The box should have a front door opening with a window provided with toughened glass of minimum 4.0 mm. thickness for viewing and taking meter reading.
- The meter box shall be of moulded type without any fabrication joint made by the process of hot press compression moulding.
- The body of the Meter Box shall have such construction that while installing on the grouted bolts of base-wall/ mounting bracket, the top surfaces of the box shall have little tapering shape frame center towards both sides of the meter box so that easy flow of rainwater etc. is facilitated.
- The meter box should be anti-corrosive, rust-proof, dust-proof, vermin-proof, water-proof, U.V, stabilized and pilfer resistant. The meter box becomes completely closed by providing locking arrangement in the shape of two nos. clamps.
- Clamp shall have separate holes of 1 mm. dia. each across the meter box body base as well as covers for both the chambers separately

- The meter box shall have four wall mounting bracket with proper screws to fix with the bottom base and provision for Four nos. holes each of 6 mm. dia.

- The meter box should neither melt nor become soft or distort when tested up to temperatures 250^{o}C. (As per IS 13360 part 6 sec 10 1992 by 'A' capillary tube method). The thickness of these boxes shall not be less than 2.5 mm on all sides including floor. The box shall have 3 mm thickness on the tongue and groove area. The meter box cover shall have a groove to hold minimum of 2.5 mm Neoprene gasket.
- The tongue of the base shall ensure tongue, Groove and sealing arrangement against rainwater and dust entering inside the box. The box shall have its roof tapering down to both sides for easy flow of water.
- The boxes shall generally comply with the provision of IS: 14772:2000. The boxes shall be suitable for outdoor / indoor application. The box shall be with good workmanship. There should be a minimum of 25 mm clearance on all sides and 25 mm clearance on the front and 10 mm clearance on the back of the meter.
- Sufficient space should be available inside the meter box for making out-going connections of the leads with the terminal block of the meter.

2.0 MATERIAL OF METER BOX

- Material for construction of meter box shall be glass reinforced polyester sheet moulding compound (SMC) as per IS: 13410:1992 Grade S-1 with latest amendment thereof. Thickness of boxes shall be 2.5 mm from all sides. However thickness of partition plate shall be 2.0 mm.
- The material of meter box should be anti corrosive, rust proof, water proof, shock proof and U.V stabilized.
- Material of meter box should not get soften on heating. (Heat distortion temperature should be above 170º C.)
- The material of Meter box should be self-extinguishing as per ISS: 4249 with latest amendment thereof.
- All MS parts of the meter boxes shall be anti corrosive treated.

3.0 RATING PLATE:

Manufacturers should Screen Print the following information on each meter box.

- Name of Manufacturer
- Year of manufacturing
- Type of Meter
- Property of Utility shall be printed on each meter box.

ELIGIBILITY & QUALIFYING REQUIREMENTS

Notes:

i) Apart from the criteria given below, past performance of bidder(s) with EESL, i.e., related to quality, supply, performance, etc. shall be taken into consideration by EESL during bid evaluation.

ii) EESL reserves the right to independently verify the authenticity of the documents submitted/claims made by the bidder(s), and may also ask for presenting the original copy of the submitted document(s). Further, on such verification, if it is found that the bidder(s) has made false claims, submitted forged documents, etc., the bid shall be liable for outright rejection, notwithstanding other rights available under the tendered Terms and Conditions for taking actions against the bidder(s), as deemed fit by EESL.

The eligibility criteria are mentioned in table below.

S No.	Eligibility Criteria	Documents to be submitted and Annexed as given below	Details of the Documents submitted by Bidder(s) in brief
(A)	(B)	(C)	(D)
1	(a) Bidder(s) to be an individual commercial entity. (b) Bidder(s) is allowed to form consortium while submitting its proposal. "Consortium" means firms jointly and severally bound to the EESL for the fulfillment of the provisions of the Contract and such firms shall designate one of such firms to act as a leader with authority to bind the consortium. The composition or constitution of the consortium shall not be altered without the prior consent of the EESL. The consortium of bidders should not exceed three members inclusive of the Bidder itself. (c) Lead bidder of this consortium to be mandatorily in Smart meter or electronic components manufacturing which may be used in Smart meters manufacturing. NSIC consortium and PSUs are exempted with this condition. (d) In case of consortium, bidder(s) shall i) Provide clarity on the roles and responsibility of each consortium member ii) Ensure that a particular company can be a member of only one consortium (either as lead or as a consortium	(a) Declaration from the bidder(s), whether quoting as a stand-alone firm, or as part of a Consortium, name(s) and number of partners of the Consortium and details of their authorized executives, offices and manufacturing facility addresses, and other details. (b) Consortium Agreement (where applicable) to be submitted, clearly delineating the bifurcation of activities/responsibilities/sourcing between/among the Lead Partner and the other Subordinate Partner(s).	Declaration letter ref. no._____, and date _____. Consortium Agreement Ref. No._____, and Date _____.

	member) iii) Enforce that all the members are part of the contractual arrangement between themselves before submitting the bid iv) Submit jointly signed agreement as per attached NOTES: i) In case of Consortium, the bid is to be submitted and all documentation is to be completed by the Lead Bidder on behalf of the Consortium. ii) In case of a Consortium, the Lead Bidder shall be sole point of contact for EESL for the tendering and operation of the Contract. iii) In case of a Consortium, the LOA may be issued only in the name of the Lead Bidder and all payments shall be made to the Lead Bidder, A consortium shall comprise of a maximum of three companies.		
2	For Indian bidder(s) should be a firm registered/incorporated under Indian Companies Act, 1956 or Indian Companies Act, 2013, and further amendment (s). For international bidder(s), it should be in existence in its parent country for last 3 years In case of Consortium, this condition is to be met with by the Lead Bidder.	Certificate of Incorporation issued under Indian Companies Act, 1956 from Registrar of Companies to be submitted. In addition, GST number and PAN card for Indian company. For international firms, an Affidavit regarding declaration of incorporation of office in India. Relevant documents under law of land for that country	Company Incorporation Certificate No._____ Date : _____ Country of origin of goods _____
3	**Applicable only for International Bidder Participating Through an Agent**: In this Tender, either the Indian agent on behalf of the Principals/OEM or Principals/OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender.	Agreement between bidder and local agent for this tender.	

	If an agent submits bid on behalf of the Principals/OEM, the same agent shall not submit a bid on behalf of another Principals/OEM in this Tender for the same item/product.		
4	The product offered by the bidder(s) (including Consortium) for supply against this Tender must meet the Technical Specifications as stipulated in the Tender, and the bidder(s) must be able to provide the after-sales warranty and services. NOTE: Subsequent to award of contract, if it is found that performance declared by bidder(s) in the bid document Test Reports is not matched by the test results of product samples drawn by EESL at the time of supply and tested by NABL accredited labs to meet tender specifications, then in such an event, EESL reserves the right to terminate the contract, forfeit CPG, impose strict action against the bidder(s), which inter-alia extends to other provisions of tender.	(a) NABL or ILAC type test certificate for IS 16444 either at the time of bid submission or before first supply. (b) Write-up on Approach Methodology–for attending service/repair calls and the bidders network for the same.	
5	The Bidder(s) should not be under a declaration of ineligibility / banned / blacklisted for any statutory and/or performance reasons, as on last date of submission of the Bid.	Self-certification at the time of bid submission. For international company, bidder(s) shall declare with reference to the federal / state province in parent country. The bidder(s) shall also self-certify if the international company has been banned /blacklisted by any government organization in India.	Bidder shall use the desired format as attached in the tender document (in Section-6).

Note: All the required documents must be properly annexed and submitted as mentioned above with necessary details in brief in column D.

The qualifying requirements (including Financial and Technical criteria) are mentioned in table below.

Qualification Criteria:

S. No.	Parameter	Applicable for Indian company	Applicable for International company	Document to be provided
Financial Qualification Criteria				
F1	Average annual turnover for each of the last three financial years ending 31st March 2018 (for Indian bidder) or 31st December 2017 (for International bidder, if and as applicable). In case of consortium bids, combined turnover of all the consortium partners shall be considered. NOTE: In case more than 50 % is to be allocated to the L-1/other bidder(s), their QR-qualifying status w.r.t. the revised quantity shall be proportionately verified by EESL before such allocation can be considered.	INR 214 Cr. Balance sheet upto 31st March 2018 or 31st Dec 2017	USD 33 Mn Balance sheet upto 31st March 2018 or 31st Dec 2017	Audited Balance Sheet/ Audited Financial statement and certificate from Chartered Accountant stating turnover from each relevant line of business.
F2	Net worth of bidder and or its holding company /Consortium, as on the last day of preceding financial/accounting year, should be 100% of paid-up share capital. However, individually their net worth shall not be less than 75% of their respective paid-up share capital.	100% of paid-up share capital	100% of paid-up share capital	Audited Balance Sheet/ Audited Financial statement
F3	Profitability in each of these 3 years ending 31st March 2018 or 31st December 2017(as applicable) Profitability in each years of these 3 years ending 31st March 2018 or 31stDec 2017to be satisfied consortium as a whole (To be satisfied consortium as a whole.)	Positive in atleast two of past three years. Mandatory for the last financial year.	Positive in atleast two of past three years. Mandatory for the last financial year	Audited balance sheet/ Audited Financial statement including audited profit and loss statement.

Technical Qualification Criteria				
T1	Bidder(s)/consortium member should be in the business of manufacturing and supplying Smart/Static meters or other Electronic Measurement Equipment, Smart Meter Components and technology.	For at least 3 years as on tender date.	For at least 3 years as on tender date.	Documentary evidence of Purchase orders / Framework agreements for this duration in accordance with NSIC, factory license or DIC as applicable or other documents that prove to this aspect.
T2	Bidder(s)/consortium should have experience of manufacturing and supply of electricity meters.	Cumulative of 5,00,000 electricity meters as per relevant IS/IEC/ANSI standards in the last five years ending on the date of Tender Gazette Notification of Ministry of MSME dated 23rd March 2012, with latest applicable amendment, shall be applicable.	Cumulative of 5,00,000 electricity meters as per relevant IS/IEC/ANSI standards in the last five years ending on the date of tender.	Purchase order from client. Client Certificate (with contact details) for supplies and successful operation of the meter. Tabular details comprising of Order No.; Order Date; Client's Name; Description of Project; Supply/Completion Period (with from-/to- dates); Manufacturing and Supply qty; Ref: PO/Work Completion Certificates/ other documents. EESL reserves the right to contact / visit such client before award of contract.

Note:
The Government of India has announced 'Startup India' initiative for creating a conducive environment for Startups in India vide Policy Circular No. 1(2)(1)/2016-MA dated 10th March 2016 by the Ministry of Micro, Small and Medium Enterprise which will be applicable to this tender as per definition of 'Start-up India' defined in govt. Gazette notification of Ministry of commerce and industry. Any other notifications/guidelines/rules issued by India for startup Govt. of India Initiative will also be applicable for this tender.

Eligibility & Qualifying Requirements/ Criteria (regarding Holding Company) : In case a bidder does not satisfy the financial criteria, stipulated at QR Sr. No. F1, F2, F3 on its own, the Holding Company would be required to meet the stipulated respective criteria, provided that the Net Worth of such Holding Company as on the last day of preceding financial year is at least equal to or more than the paid- up share capital of the Holding Company. In such an event, the bidder would be required to furnish along with its bid, a letter of undertaking from the Holding Company, supported by Board resolution, as per the format enclosed at Attachment-10 of Section-6, pleading unconditional & irrevocable financial support for the execution of the contract by the bidder in case of award.

SECTION-5

1. Measurement and Verification (M&V)

NA for this tender.

Section-6

Forms and Procedures

List of Forms and Procedures

S. No.	Name of the Form	Attachment No.
1	Bid Form	1
2	Format Of Bank Guarantee For Bid Security	2
3	Power Of Attorney	3
4	Certificate Regarding Acceptance Of Important Conditions	4
5	Deviations Statement	5
6	Proforma Of Bank Guarantee For Contract Performance	6
7	Form Of Acceptance Of Fraud Prevention Policy	7
8	Proforma Of Bank Guarantee For Advance Payment	8
9	Format For Extension Of Bank Guarantee	9
10	Proforma Of Letter Of Undertaking	10
11	Certificate For Compliance	11
12	Format For Queries Of Bidders For Pre-Bid Conference	12
13	Format Real Time Gross Settlement (RTGS)/ National Electronic Fund Transfer (NEFT)	13
14	Undertaking Regarding Blacklisting / Non – Debarment	14
15	Price Bid Format	15
16	Declaration Regarding JV partner/subcontractors proposed by the bidder	16
17	Undertaking Regarding Eligibility & Conformity of the Facilities	17
18	Format of Summary of Audited Financial Statements	18
19	Declaration Regarding Proposed Quantity	19

ATTACHMENT – 1

BID FORM

To,

Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors
Sector-1,NOIDA - 201 301.

Subject:-IFB/RfP No./Package No…….... Due for opening on …….

Dear Sir,

With Reference to your subject IFB/RfP, we are pleased to submit our bid for "…….." in a sealed cover as detailed below:

Envelope I: Bid document fee/cost of tender documents [wherever applicable], Bid Security fees/Earnest Money Deposit, Bid Form, Power of Attorney, Certificate regarding acceptance of important terms and conditions, Form of acceptance of EESL fraud prevention policy, affidavit in case of non-compliance.

Envelope II: Deviation statement, Techno-Commercial bid, Signed copy of RfP & subsequent amendments, if any and other attachments.

Envelope III: Price Bid

We confirm that we have quoted as per instructions and terms and conditions of tender documents. We have submitted all the attachments as stated in bidding documents.

We confirm that except as otherwise specifically provided, our bid prices include all applicable taxes including service tax/GST, entry tax(if any) , duties , levies , charges as may be assessed on us.

We further declare that additional conditions, variations, deviations, if any, found in the proposal other than those listed in Attachment-5 save those pertaining to any rebates offered, shall not be given effect to.

We undertake, if our bid is accepted, we shall commence the work immediately upon your Letter of Intent /Letter of Award to us, to achieve completion of work within the time specified in the bidding documents.

If our bid is accepted, we undertake to provide contract performance securities and securities for Deed(s) of Joint Undertaking (as applicable) in the form and amounts and within the times specified in the bidding documents.

We agree to abide by this bid for a period 180 days from the date of opening of bids as stipulated in the bidding documents and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period. Further, the prices of recommended spares, if asked for; contained in our bid shall re-main valid for the entire project period after placement of Letter of Intent/Letter of Award.

Until a formal contract is prepared and executed between us, this bid, together with your written acceptance thereof in the form of your Letter of Intent/ Letter of Award shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest or any other bid you may receive.

We, hereby, declare that only the persons or firms interested in this proposal as principals are named here and that no other persons or firms other than those mentioned herein have any interest in this proposal or in the

contract to be entered into, if the award is made on us, that this proposal is made without any connection with any other person, firm or party likewise submitting a proposal, is in all respects for and in good faith, without collusion or fraud.

Dated:

Authorized Signatories
Name of Bidder
Address of Bidder:
Mobile No. :
Land Line No. :

Our correspondence details are:

1	Name of the bidder	
2	Address of the bidder	
3	Name of the contact person to whom all references shall be made regarding this tender	
4	Designation of the person to whom all references shall be made regarding this tender	
5	Address of the person to whom all references shall be made regarding this tender	
6	Telephone (with STD code)	
7	E-Mail of the contact person	
8	Fax No. (with STD code)	

ATTACHMENT – 2

FORMAT OF BANK GUARANTEE FOR BID SECURITY

(To be on non-judicial stamp paper of Rupees One Hundred Only (INR 100/-) or appropriate value as per Stamp Act relevant to place of execution, duly signed on each page. Foreign entities submitting Bid are required to follow the applicable law in their country)

Bank Guarantee No.....
Date.....

To:

Energy Efficiency Services Limited
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors
Sector-1,NOIDA - 201 301.

Dear Sir(s),

In accordance with invitation for bids under your bidding document/package no……dated……..M/s……having its registered/head office at……. (Here in after called "Bidder") wish to participate in the said bid for…… (Name of package).

We, the ……. (Name and address of the bank), having our head office at …….guarantee and undertake to pay immediately on demand by Energy Efficiency services Limited, the amount of ……..without any reservation, protest, recourse. Any such demand made by the employer shall be conclusive and binding on us irrespective of any dispute or difference raised by the bidder.

The Guarantee shall be irrevocable and shall remain valid upto …….. If any further extension of guarantee is required, the same shall be extended to such period (not exceeding one year) on receiving instructions from……(Bidder's Name)_____, on whose behalf guarantee is issued.

In witness whereof the bank, through its authorized officer, has set its hand and stamp on this……day of ……20……at……

Witness:

Signature:
Name:
Official address:

Signature:
Name:
Designation with Bank Stamp:
Authorized vide Power of Attorney no.
Date

NOTE:

- Bid Security amount shall be as specified in the IFB/ITB.
  Complete mailing address of the Head Office of the Bank to be given. The bank guarantee validity date shall be forty five (45) days after the last date for which the bid is valid.

- The Stamp Paper of appropriate value shall be purchased in the name of guarantee issuing Bank. The Bank Guarantee shall be issued on a stamp paper of value as applicable in the State of the issuing bank in India or the State of Delhi in India or the State of India from where the BG shall be operated, whichever is higher.
- While getting the Bank Guarantee issued, Bidders are required to ensure compliance to the Bank Guarantee Verification Check List. Further, Bidders are required to fill up this Form 16 and enclose the same with the Bank Guarantee.

BANK GUARANTEE CHECK LIST

1	Bank Guarantee No.	
2	Issuing Bank	
3	Nature of BG & No. of Pages	
4	Validity of BG	
5	Package Description	
6	Party & Contracts ref.	Name, Address, Tel, Fax, E—mail
7	Bank Reference	

CHECK LIST

Sl.No.	Details of Checks	YES / NO
a)	Is the BG on non-judicial Stamp Paper of appropriate value, as per Stamp Act?	
b)	Whether date, purpose of purchase of stamp paper and name of the purchaser are indicated on the back of Stamp paper under the Signature of Stamp vendor? (The date of purchase of stamp paper should be not later than the date of execution of BG and the stamp paper should be purchased either in the name of the executing Bank or the party on whose behalf the BG has been issued. Also the Stamp Paper should not be older than six months from the date of execution of BG)	
c)	In case the BG has been executed on Letter Head of the Bank, whether adhesive Stamp of appropriate value has been affixed thereon?	
d)	Has the executing Officer of BG indicated the name, designation and Power of Attorney No. / Signing Power no. etc., on the B?	
e)	Is each page of BG duly signed / initiated by executants and whether stamp of Bank is affixed thereon? Whether the last page is signed with full particulars including two witnesses under seal of Bank as required in the prescribed proforma?	
f)	Does the Bank Guarantees compare verbatim with the proforma prescribed in the bid documents?	
g)	In case of any changes in contents of text, whether changes are of minor/clerical nature (which in no way limits the right of EESL in any manner)?	
h)	Incase of deviations in text of BG, which materially affect the right of EESL, whether the changes have been agreed based on the opinion by Legal Department or BG I considered acceptable on the basis of opinion of law Department already available on the similar issue.	
i)	Are the factual details such as Bid Document No. NOA/LOA/Contact No., Contract Price, Percentage of Advance, Amount of BG and Validity of BG correctly mentioned in the BG ?	
j)	Whether overwriting / cutting if any on the BG have been properly authenticated under signature and seal of executant?	

k)	Whether the BG has been issued by a Bank in line with the provisions of Bid /Contract documents?	
l)	In case BG has been issued by a Bank other than those specified of Bid / Contract Documents, is the BG confirmed by a Bank in India acceptable as per Bid / Contract documents?	

ANNEXURE to ATTACHMENT 2

LIST OF BANKS ACCEPTABLE FOR SUBMISSION OF BANK GUARANTEE FOR BID SECURITY

SCHEDULED COMMERCIAL BANKS

- **SBI AND ASSOCIATES**

Sl.No.	Name of Banks	Sl. No.	Name of Banks
1.	State Bank of India	5.	State Bank of Mysore
2.	State Bank of Bikaner and Jaipur	6.	State Bank of Patiala
3.	State Bank of Hyderabad	7.	State Bank of Saurashtra
4.	State Bank of Indore	8.	State Bank of Travancore

- **NATIONALISED BANKS**

Sl.No.	Name of Banks	Sl. No.	Name of Banks
9.	Allahabad Bank	13.	Canara Bank
10.	Andhra Bank	14.	Central Bank of India
11.	Bank of India	15.	Corporation Bank
12.	Bank of Maharashtra	16	Dena Bank
17.	Indian Bank	18.	Indian Overseas Bank
19.	Oriental Bank of Commerce	20.	Punjab National Bank
21.	Punjab & Sind Bank	22.	Syndicate Bank
23.	Union Bank of India	24.	United Bank of India
25.	UCO Bank	26.	Vijaya Bank
27.	Bank of Baroda		

- **SCHEDULED PRIVATE BANKS (INDIAN BANKS)**

Sl. No.	Name of Banks	Sl. No.	Name of Banks
27.	Bank of Rajasthan	41.	Sangli Bank Ltd.
28	Bharat Overseas Bank Ltd.	42.	South Indian Bank Ltd.
29.	Catholic Syrian Bank	43.	Tamilnad Mercantile Bank Ltd.
30.	City Union Bank	44.	United Western Bank Ltd.
31.	Dhanalakshmi Bank	45.	ING Vysya Bank Ltd.
32.	Federal Bank Ltd.	46	UTI Bank Ltd.
33.	Jammu & Kashmir Bank Ltd.	47.	S.B.I. Commercial & International Bank

			Ltd.
34.	Karnataka Bank Ltd.	**48.**	Ganesh Bank of Kurundwad Ltd.
35.	KarurVysya Bank Ltd.	**49.**	INDUSIND Bank Ltd.
36.	Lakshmi Vilas Bank Ltd.	**50.**	ICICI Bank Ltd.
37.	Lord Krishna Bank Ltd.	**51.**	HDFC Bank Ltd.
38.	Nainital Bank Ltd.	**52.**	Centurion Bank of Punjab Limited
39.	Kotak Mahindra Bank	**53.**	Development Credit Bank Ltd.
40.	Ratnakar Bank Ltd.	**54.**	Yes Bank
		55.	IDFC Bank

(D) SCHEDULED PRIVATE BANKS (FOREIGN BANKS)

Sl.No.	**Name of Banks**	**Sl. No.**	**Name of Banks**
55.	Abu Dhabi Commercial Bank Ltd.	**71.**	Sonali Bank
56.	ABN Amro Bank Ltd.	**72.**	Standard Chartered Bank
57.	American Express Bank Ltd.	**73.**	J.P Morgan Chase Bank
58.	Bank of America NA	**74.**	State Bank of Mauritus
59	Bank of Behrain& Kuwait	**75.**	Development Bank of Singapore
60.	Mashreq Bank	**76.**	Bank of Ceylon
61.	Bank of Nova Scotia	**77.**	Bank International Indonesia
62.	The Bank ofTokyo-Mitsubishi UFJ Limited.	**78.**	Arab Bangladesh Bank
63.	Calyon Bank	**79.**	Cho Hung Bank
64.	BNP Paribas	**80.**	China Trust Bank
65.	Barclays Bank	**81.**	MIzuho Corporate Bank Ltd.
66.	Citi Bank	**82.**	Krung Thai Bank
67.	Deutsche Bank	**83.**	Antwerp Diamond Bank N.V. Belgium
68.	The Hong Kong and Shanghai Banking Corporation Ltd.	**84.**	InternationaleNetherlanden Bank N.V. (ING Bank)
69.	Oman International Bank	**85.**	Bank of China Ltd.
70.	SocieteGenerale		

(E) PUBLIC SECTOR BANK

Sl.No.	**Name of Banks**	**Sl. No.**	**Name of Banks**
86.	IDBI Ltd.		

ATTACHMENT - 3

Tender Document No/Package No: Dated:

Package Details……..

POWER OF ATTORNEY

BIDDER TO ATTACH THE POWER OF ATTORNEY IN THEIR OWN FORMAT

ATTACHMENT - 4

Tender Document No/Package No:……. Dated:

(CERTIFICATE REGARDING ACCEPTANCE OF IMPORTANT CONDITIONS)

Bidder's Name& Address

To,
Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors
Sector-1,NOIDA - 201 301.

Sub: ……

1.0 With reference to our bid proposal no……dated……**for ……../ Package no. …… Dated ……..**, we hereby confirm that we have read the following provisions of the following clauses and further confirm that notwithstanding anything stated elsewhere to the contrary, the stipulation of these clauses are acceptable to us and we have not taken any deviation to these clauses.

Governing Laws	-	Clause 5 of GCC
Settlement of Disputes	-	Clause 6 of GCC
Terms of payment	-	Clause 12 of GCC
Performance Security	-	Clause 13 of GCC
Taxes and Duties	-	Clause 14 of GCC
Completion Time Guarantee	-	Clause 26 of GCC
Defects Liability	-	Clause 27 of GCC
Functional Guarantee	-	Clause 28 of GCC
Patent Indemnity	-	Clause 29 of GCC
Limitations of Liability	-	Clause 30 of GCC
Project information, Estimation, and conditions for Evaluation	-	As per Tables in price bid Assumptions

We further confirm that any deviation to the above clauses found anywhere in our bid proposal, implicit or explicit, shall stand unconditionally withdrawn, without any implication to EESL.

Date: Authorized Signatories

Place: Name of Bidder:

Designation:

Common Seal

Note: In the absence of this certificate, the bid shall be rejected and shall be returned unopened. Bidder can take a print out of it and sign.

ATTACHMENT - 5

Name of the Work……

NIT/ Bid Document No.……

(Deviations Statement)

Bidder's Name and Address:

To,
Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors
Sector-1,NOIDA - 201 301.

Dear Sir,

The following are the deviations and variations from and exceptions to the terms, conditions and specification of the bidding documents for IFB/RfP No._____. These deviations and variations are exhaustive. We are furnishing below the cost of withdrawal for the deviations and variations stated in this Attachment. We shall withdraw the deviations proposed by us in this Attachment at the cost of withdrawal indicated herein, failing which our bid may be rejected and bid security may be forfeited. We confirm that except for these deviations and variations, the entire work shall be performed as per your specifications and conditions of bidding documents. Further, we agree that additional conditions, variations, deviations if any, found in the proposal documents other than those stated in this Attachment, save those pertaining to any rebates offered, shall not be given effect to:

S. No.	Section/Part/ Chapter	Clause No.	Page No.	Statement of Deviations/ Variations	Cost of withdrawal
A. Commercial Deviations :					
B. Technical Deviations :					

Date :
Place :

(Authorized Signatories):
(Name of Bidder):
(Designation):
(Common Seal).....

Note: Continuations sheets of like size and format may be used as per Bidder's requirement.

ATTACHMENT - 6

PROFORMA OF BANK GUARANTEE FOR CONTRACT PERFORMANCE

(On Non – Judicial Stamp Paper of appropriate value and purchased in the name of executing Bank)

Ref.: .....
Bank Guarantee No.….....
Date.....

To,

Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors
Sector-1, NOIDA - 201 301.

Dear Sirs,

In consideration of the EESL, (hereinafter referred to as the 'Owner,' which expression shall unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to M/s…….....with its Registered / Head Office at …….(hereinafter referred to as the 'Contractor', which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns), a Contract by issue of Owner's Letter of Award No…….dated …….and the same having been unequivocally accepted by the Contractor and the contractor (Scope of Contract) having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire Contract equivalent to * …… % (percent) of the said value of the Contract to the Owner.

We ……(Name & address) having its Head Office at ……(hereinafter referred to as the 'Bank', which expression shall, unless repugnant to the context or meaning thereof, include its successors administrators, executors and assigns) do hereby guarantee and undertake to pay the Owner, on demand any all money payable by the Contractor to the extent of ……as aforesaid at any time up to ……(days/months/year) without any demur, reservation, contest, recourse or protest and / or without any reference to the Contractor. Any such demand made by the Owner on the Bank shall be conclusive and binding notwithstanding any difference between the Owner and the Contractor or any dispute pending before any court, tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Owner and further agrees that the guarantee herein contained shall continue to be enforceable till the owner discharges this guarantee.

The owner shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee from time to time to extent the time for performance of the Contract by the Contractor. The owner shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the owner and Contractor or any other course of or remedy or security available to the owner. The Bank shall not be released of its obligations under these presents by any exercise by the owner of its liberty with reference to the matters aforesaid on any of other indulgence shown by the owner or by any other matter or thing whatsoever which under law would, but for this provision, have the effect of relieving the Bank.

The Bank also agree that the Owner at its option shall be entitled to enforce this Guarantee against the Bank as a Principal debtor, in the first instance without proceeding against the Contractor and not withstanding any security or other guarantee that the owner may have in relation to the Contractor's liabilities.

Notwithstanding anything contained herein above our liability under this guarantee is restricted to……..and it shall remain in force up to and including**…….....and shall be extended from time to time for such period (not exceeding one year), as may be desired by M/s……on whose behalf this guarantee has been given.

Witness

Dated this …….day of……..at……

Witness:

Signature:
Name:
Official Address:

Signature
Bank's Rubber Stamp
Name
Designation with Bank Stamp
Attorney as per power of Attorney
No……dated……

Note: ** Validity of Bank Guarantee should be 90 days in excess of the period for which it is required.

BANK GUARANTEE CHECK LIST

1	Bank Guarantee No.	
2	Issuing Bank	
3	Nature of BG & No. of Pages	
4	Validity of BG	
5	Package Description	
6	Party & Contracts ref.	Name, Address, Tel, Fax, E—mail
7	Bank Reference	

CHECK LIST

S.No.	Details of Checks	YES / NO
a)	Is the BG on non-judicial Stamp Paper of appropriate value, as per Stamp Act ?	
b)	Whether date, purpose of purchase of stamp paper and name of the purchaser are indicated on the back of Stamp paper under the Signature of Stamp vendor? (The date of purchase of stamp paper should be not later than the date of execution of BG and the stamp paper should be purchased either in the name of the executing Bank or the party on whose behalf the BG has been issued. Also the Stamp Paper should not be older than six months from the date of execution of BG)	
c)	In case the BG has been executed on Letter Head of the Bank, whether adhesive Stamp of appropriate value has been affixed thereon?	
d)	Has the executing Officer of BG indicated the name, designation and Power of Attorney No./ Signing Power no. etc., on the BG?	
e)	Is each page of BG duly signed / initiated by executants and whether stamp of Bank is affixed thereon? Whether the last page is signed with full particulars including two witnesses under seal of Bank as required in the prescribed proforma?	

f)	Does the Bank Guarantees compare verbatim with the Proforma prescribed in the Bid Documents?	
g)	In case of any changes in contents of text, whether changes are of minor / clerical nature (which in no way limits the right of EESL in any manner)?	
h)	Incase of deviations in text of BG, which materially affect the right of EESL, whether the changes have been agreed based on the opinion by Legal Department or BG I considered acceptable on the basis of opinion of law Department already available on the similar issue.	
i)	Are the factual details such as Bid Document No.NOA/LOA / Contact No., Contract Price, Percentage of Advance, Amount of BG and Validity of BG correctly mentioned in the BG?	
j)	Whether overwriting / cutting if any on the BG have been properly authenticated under signature and seal of executant?	
k)	Whether the BG has been issued by a Bank in line with the provisions of Bid /Contract documents?	
l)	In case BG has been issued by a Bank other than those specified of Bid / Contract Documents, is the BG confirmed by a Bank in India acceptable as per Bid / Contract documents?	

LIST OF BANKS ACCEPTABLE FOR SUBMISSION OF BANK GUARANTEES FOR ADVANCE PAYMENTS, PERFORMANCE SECURITIES AND SECURITIES FOR DEED OF JOINT UNDERTAKING

SCHEDULED COMMERCIAL BANKS

- **SBI and Associates**

Sl.No.	Name of Banks	Sl. No.	Name of Banks
1.	State Bank of India	**5.**	State Bank of Mysore
2.	State Bank of Bikaner and Jaipur	**6.**	State Bank of Patiala
3.	State Bank of Hyderabad	**7.**	State Bank of Saurashtra
4.	State Bank of Indore	**8.**	State Bank of Travancore

- **Nationalised Banks**

Sl.No.	Name of Banks	Sl. No.	Name of Banks
9.	Allahabad Bank	**18.**	Indian Overseas Bank
10.	Bank of India	**19.**	Oriental Bank of Commerce
11.	Bank of Maharashtra	**20.**	Punjab National Bank
12.	Canara Bank	**21.**	Punjab & Sind Bank
13.	Central Bank of India	**22.**	Syndicate Bank
14.	Corporation Bank	**23.**	Union Bank of India
15.	Dena Bank	**24.**	United Bank of India
16.	Indian Bank	**25.**	UCO Bank
17.	Vijaya Bank	**26.**	Bank of Baroda

C. Foreign Banks

Sl.No.	Name of Banks	Sl. No.	Name of Banks
27.	Bank of America NA	34.	Standard Chartered Bank
28.	The Bank of Tokyo-Mitsubishi UFJ Limited.	35.	SocieteGenerale
29.	BNP Paribas	36.	Barclays Bank
30.	Calyon Bank	37.	ABN Amro Bank N. V.
31.	Citi Bank N.A.	38.	Bank of Nova Scotia
32.	Deutsche Bank A. G.	39.	Development Bank of Singapore
33.	The Hong Kong and Shanghai Banking Corporation Ltd.		

D. SCHEDULED PRIVATE BANKS

Sl.No.	Name of Banks	Sl. No.	Name of Banks
40.	ING Vysya Bank Ltd.	43.	UTI Bank Ltd.
41.	ICICI Bank Ltd.	44.	YES Bank
42.	HDFC Bank Ltd.	45.	IDFC Bank.

E. Other Public Sector Banks

Sl.No.	Name of Banks	Sl. No.	Name of Banks
45.	IDBI Ltd.		

ATTACHMENT - 7

FORM OF ACCEPTANCE OF FRAUD PREVENTION POLICY
(On the letter head)

To:

Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors
Sector-1,NOIDA - 201 301.

Sub: Letter of Acceptance of EESL Fraud Policy
Ref: NIT/Bid Document No……..

Dear Sir/Madam,

We have read the contents of the Fraud Prevention Policy of EESL and undertake that we along with our associate / collaborator /sub-contractors / sub-vendors / bidders/ service providers (if applicable) shall strictly abide by the provisions of the Fraud Prevention Policy of EESL.

Thanking You,

Yours faithfully,

Authorized Signatories…….....

Name of Bidder…….

Designation……..

Common Seal…….....

Date:
Place:

FOR DETAILED POLICY, PLEASE VISIT OUR WEBSITE www.eeslindia.org

ATTACHMENT - 8

PROFORMA OF BANK GUARANTEE FOR ADVANCE PAYMENT

(To be stamped in accordance with Stamp Act If any, of the Country of the issuing Bank)

To,

Energy Efficiency Services Limited
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors
Sector-1,NOIDA - 201 301.

Dear Sir,

In consideration of …….. (Employer's Name)…. (here in after referred to as the 'Employer', which expression shall, unless repugnant to the context of meaning thereof include its successors, administrators and assigns) having awarded to M/s…….(Contractor's Name)…..with its Registered /Head Office at……(hereinafter referred to as the 'Contractor' which expression in shall unless repugnant to the context or meaning thereof , include its successors, administrators, executors and assigns), a Contract, by issue of Employer's Letter of Award No……dated……and the same having been unequivocally accepted by the Contractor, resulting into a Contract bearing No……..dated……..valued at ……..for…… ……..(Name of Contract)……..(hereinafter called the 'Contact') and the Employer having agreed to make an advance ('said Advance') to the Contractor amounting to …… (in words and figures)……in terms of the said Contract for performance of the above Contract against Bank Guarantee to be furnished by the Contractor.

We……..(Name and address of the Bank)……having its Head Office at …… (hereinafter referred to as the 'Bank', which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, immediately on demand any or, all monies payable by the Contractor to the extent of ……..(advance amount)……as aforesaid at any time up to……(#)……..without any demur, reservation, contest, recourse or protest and/ or without any reference to the Contractor. Any such demand made by the Employer on the Bank shall be conclusive and binding as to the amount claimed by the Employer under this guarantee not withstanding any difference between the Employer and the contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the employer and further agrees that the guarantee herein contained shall be enforceable till ninety (90) days after expiry of its validity.

The Employer shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee, from time to time to vary the advance or to extend the time for performance of the Contract by the Contractor. The Employer shall have the fullest liberty without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, in the Contract between the Employer and the contractor or any other course or remedy or security available to the Employer. The Bank shall not be released of its obligations under these presents by any exercise by the Employer of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on

the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under law would but for this provision, have the effect of relieving the Bank.
The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

Notwithstanding anything contained hereinabove our liability under this guarantee is limited to …….(advance amount)…….. and it shall remain in force up to and including……..(#) …… and shall be extended from time to time for such period (not exceeding one year). As may be desired by M/s…… (Contractor's Name)……... on whose behalf this guarantee has been given.

Dated this ……day of ……20……. at…….

WITNESS:

(Name)……

(Signature)…….

(Name)……

(Signature)

(Designation with Bank Stamp)

Attorney as per Power Of Attorney No……

Dated……

Notes:

1. (#) this date shall be ninety (90) days beyond the date of Completion of the Facilities.
2. The stamp papers of appropriate value shall be purchased in the name of guarantee issuing Bank.

NOTE:

Complete mailing address of the Head Office of the Bank to be given.
The bank guarantee validity date shall be forty five (45) days after the last date for which the bid is valid.
The Stamp Paper of appropriate value shall be purchased in the name of guarantee issuing Bank.
The Bank Guarantee shall be issued on a stamp paper of value as applicable in the State of the issuing bank in India or the State of Delhi in India or the State of India from where the BG shall be operated, whichever is higher.

While getting the Bank Guarantee issued, Bidders are required to ensure compliance to the Bank Guarantee Verification Check List.

ATTACHMENT - 9

FORMAT FOR EXTENSION OF BANK GUARANTEE

Subject: Design, Manufacture, Supply and Post Implementation Support for Smart Meters.

Bank Guarantee No: …….
Guarantee Amount: …….
Guarantee Cover from …… to ……..

To,
Energy Efficiency Services Limited
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors
Sector-1,NOIDA - 201 301.

Dear Sir,

Extension of Bank Guarantee No ……..for…….favoring yourselves, expiring on ……..on account of M/s……..……..in respect of Contract No……..…dated…….....(hereinafter called original Bank Guarantee).

At the request of M/ s……..……., we……..…..…….Bank, Branch Office at…….……..and having its Head Office at ……..……do hereby extend our liability under the above mentioned Guarantee No…… Dated……..…for a further period of…….Years/Months from ……...to expire on…… Except as provided above, all other Terms and Conditions of the original Bank Guarantee No……..……dated …….……..….shall remain unaltered and binding.

Please treat this as an integral part of the Original Bank Guarantee to which it would be attached.

Yours faithfully,
For.....
Manager/Agent/Accountant
Power of Attorney……...
Dated.....

SEAL OF BANK

ATTACHMENT - 10

PROFORMA OF LETTER OF UNDERTAKING

(To Be Furnished on Non-Judicial Stamp Paper of Appropriate Value)

[To be executed by the Holding Company Supported by Board Resolution and submitted by the Bidder along with the Bid, in case financial support is being extended by the Holding Companyto the Bidder for meeting the stipulated Financial Qualifying]

Ref.:NIT/Bid Document No.:

Our Reference No..... Date: .....

Bidder's Name and Address:

To,
Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors
Sector-1,NOIDA - 201 301.

Dear Sir,

1.0 We, M/s..... (Name of the Holding Company) declare that we are the holding company of M/s..... (Name of the Bidder) and have controlling interest therein.

M/s..... (Name of the Bidder) proposes to submit the bid for the package..... (Name of the package) for..... (Name of the Project) under bid reference no..... dated ..... and have sought financial strength and support from us for meeting the stipulated Financial Qualifying Requirement as per Clause Section 3 and its subsequent amendment.

2.0 We hereby undertake that we hereby pledge our unconditional & irrevocable financial support for the execution of the said package to M/s..... (Name of the Bidder), for the execution of the Contract, in case they are awarded the Contract for the said package at the end of the bidding process. We further agree that this undertaking shall be without prejudice to the various liabilities that M/s..... (Name of Bidder) would be required to undertake in terms of the Contract including the Performance Security as well as other obligations of M/s..... (Name of the Bidder).

3.0 This undertaking is irrevocable and unconditional, and shall remain in force till the successful execution and performance of the entire contract and/or till it is discharged by EESL.

4.0 We are herewith enclosing a copy of the Board Resolution in support of this undertaking.

Witness:

Yours faithfully,

(1).....

(Signature of Authorized Signatory)

on behalf of the Holding Company

(2).....

Name &Designation.....

Name of the Holding Company.....

(Seal of Holding Company)

ATTACHMENT - 11

Certificate for Compliance

(To Be Furnished on Non-Judicial Stamp Paper of Appropriate Value)

Ref.: NIT/Bid Document No.:

Our Reference No..... Date: .....

Bidder's Name and Address:

To,
Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors
Sector-1,NOIDA - 201 301.

Dear Sir,

1.0 With reference to our proposal submitted against the tender, we hereby confirm that we comply with all terms, conditions and specifications of the Bidding Documents read in conjunction with Amendment(s) / Clarification(s) / Addenda/Errata (if any) issued by the EESL prior to opening of Techno-Commercial Bids and the same has been taken into consideration while making our Techno-Commercial Bid & Price Bid and we declare that we have not taken any deviation in this regard.

2. We understand that in case the Products and/or Services offered do not meet the Technical requirements, then our bid shall be rejected as technically non-responsive.

We also confirm that in case we refuse to withdraw additional conditions/deviations/variations/exception, implicit or explicit, found anywhere in the techno-commercial bid, our bid shall be rejected as technically non-responsive.

Yours faithfully,

Authorized Signatories…….....
Name of Bidder …….
Designation……..

Common Seal…….....

Date:
Place:

ATTACHMENT –12

Format for Queries of Bidders for Pre-Bid Conference

(Bidders are requested to send the queries 3 days in advance from the date of pre bid to the contact points mentioned in section 1)

Name of Tender				
Tender No.				
Tender ID (in case of e-tender)				
Bid Opening Date				
Bidder's Name				
Contact person from Bidder with address, e-mail and Contact No.				
Sr. No.	**Section No.** **Page No.** **Para No/ Clause No.**	**Description as Per RFP**	**Queries/ Clarification of the bidder**	**Remarks**
1.	Section No. Page No. Para No/ Clause No.			
2.	Section No. Page No. Para No/ Clause No.			
3.	Section No. Page No. Para No/ Clause No.			

Date:

Authorized Signatories

Name of Bidder

Address of Bidder:

ATTACHMENT –13

REAL TIME GROSS SETTLEMENT (RTGS)/ NATIONAL ELECTRONIC FUND TRANSFER (NEFT)

Bidder's Name and Address:

Sub: RTGS/NEFT Payments

We have agreed to accept admissible payments through electronic mode viz. RTGS/NEFT. For this, we are providing the requisite information herein below. The RTGS/NEFT charges for the above facility may be deducted/Recovered from our admissible payment.

Name Of City	
Bank Code No.	
Branch Code No.	
Bank's Name	
Branch Address	
Branch Telephone/ Fax No.	
Supplier Account No.	
Type of Account	
IFSC Code for NEFT	
IFSC Code for RTGS	
Supplier's name as per Account	
Telephone No. of Supplier	
Supplier's E-mail ID	

A cancelled cheque against above bank account number is also being enclosed.

Encl.: As above:-

Confirmed by Banker
With Seal

Signature of Bidder
With stamp & Address

ATTACHMENT - 14

UNDERTAKING REGARDING BLACKLISTING / NON – DEBARMENT

To,

Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors, Sector-1,
NOIDA - 201 301.

Dear Sirs,

We hereby confirm and declare that we, M/s ----------, is not blacklisted/ debarred by any Government Department/ Public Sector Undertaking/ / or any other agency for which we have Executed/ Undertaken the works/ Services during the last 5 years. We also agreed that, if false/ untrue/ wrong information is furnished/ provided by us, action deemed fit may taken by EESL.

For (Name of Bidder with seal)

Authorized Signatory

Address of Bidder

Date:

ATTACHMENT - 15

Price Bid Format: As per Annexure D

ATTACHMENT - 16

Declaration Regarding JV partner/subcontractors proposed by the bidder

To,

Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors, Sector-1,
NOIDA - 201 301.

Dear Sirs,

We hereby confirm and declare that we, the following, are submitting our proposal in consortium.

Bidder	Name	Contacts	Coordinate
Lead Bidder			
Partner 1			
Partner 2			
Subcontractor			

Yours faithfully,

1. Authorized Signatories with seal
   Name of Lead Bidder
   Address of Lead Bidder

2. Authorized Signatories with seal
   Name of Consortium Partner-1
   Address of Consortium Partner-1

3. Authorized Signatories with seal
   Name of Consortium Partner-2
   Address of Consortium Partner-2

4. Authorized Signatories with seal
   Name of Sub-Contractor
   Address of Sub-Contractor

ATTACHMENT - 17

Undertaking Regarding Eligibility & Conformity of the Facilities

To,

Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors, Sector-1,
NOIDA - 201 301.

Dear Sirs,

We hereby confirm and declare that we, M/s ----------, is eligible to participate and comply with the conformity of the facilities as per requirements of bidding documents.

S.No	Parameter	Documents required as per Bid Documents	Documents Provided by Bidder	Remarks
Financial Criterion				
F1	Annual turnover from supply of meters and its associated maintenance services for each of the last three financial years ending 31st March 2018 or December 2017 whichever applicable.			
F2	Net worth in each of these 3 years.			
F3	Registration in India for last 3 years as on 31st March 2017.			
F4	The Bidder should not be under a declaration of ineligibility/ banned / blacklisted for any statutory and/or performance reasons, as on last date of submission of the Bid.			
T1	Bidder should be in the business of manufacturing and supplying electricity meters.			
T2	Bidder should have experience of manufacturing and supply of electricity meters and should have been in successful operation for atleast last one year.			
T3	Bidder should have quality certifications for its manufacturing and services function.			

S.No	Parameter	Documents required as per Bid Documents	Documents Provided by Bidder	Remarks
T4	The bidder should have support Centers in India.			

Authorized Signatories

Name with seal of Bidder_____

Address of Bidder: _____

Phone No: _____

Fax no.: _____

E-Mail:_____

ATTACHMENT - 18

Format of Summary of Audited Financial Statements

[On the Official Letterhead of the Chartered Account.]

To,

Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors
Sector-1, NOIDA - 201 301.

Sub: Audited Financial Statement for.....

Dear Sir,

Financial Statement of the last three years.**

S.No.	Particular	AY 2017-18	AY 2016-17	AY 2015-16
i.	Annual turnover from supply of meters and its associated maintenance services			
ii.	Total Assets			
iii.	Current Assets			
iv.	Liquid Assets (not earlier than 31.03.2018 or December 2017 whichever applicable)			
v.	Net Worth (not earlier than 31.03.2018 or December 2017 whichever applicable)			

Note: Audited Balance Sheet/ Audited Financial Statements/ Auditor Certificate of last three financial years (2017-18, 2016-17 and 2015-16)

Authorized Signatories

Name with of Bidder_____
Address of Bidder: _____
Phone No: _____
Fax no.: _____
E-Mail:_____

ATTACHMENT –19

Declaration regarding Proposed Quantity

(Produced here for illustration purpose; to be filled-up ONLINE only)

To,

Energy Efficiency Services Limited.
(A JV of PSUs of Ministry of Power, Govt. of India)
A-13, IWAI Building, 4th & 5th Floors, Sector-1,
NOIDA - 201 301.

Dear Sir,

We, M/s…… hereby confirm to provide the offered no. of quantities as mentioned below

Sr. No.	Item Name	Unit	Quantity	Offered Quantity
1.	Single Phase Smart Meters (including GPRS communications module)	(Nos.)	45,00,000	
2.	Meter Box for Single phase Smart Meters (Inclusive of All Necessary Accessories)	(Nos.)	45,00,000	
3.	Three Phase Whole Current Smart Meters (including GPRS communications module)	(Nos.)	4,50,000	
4.	Meter Box for Three Phase whole current Smart Meters (Inclusive of All Necessary Accessories)	(Nos.)	4,50,000	
5.	LT-CT Operated Three Phase Smart Meters (including GPRS communications module)	(Nos.)	50,000	
6.	Meter Box for LT-CT operated Three Phase Smart Meters (Inclusive of All Necessary Accessories)	(Nos.)	50,000	

Authorized Signatories

Name of Bidder_____

Address of Bidder: _____

Phone No: _____

Fax no.: _____

E-Mail: _____