TAMIL NADU POWER DISTRIBUTION CORPORATION LIMITED

SPECIFICATION FOR PROCUREMENT OF

LT SINGLE PHASE SMART METER (5-30A)

THROUGH E-TENDERING

(THROUGH TAMILNADU GOVERNMENT E-PROCUREMENT PORTAL)

SPECIFICATION NO. M.230/2025-26

OFFICE OF THE CHIEF ENGINEER /

MATERIALS MANAGEMENT,

TNEB AVENUE /NPKKR MAALIGAI,

144, ANNA SALAI,

4TH FLOOR WESTERN WING,

CHENNAI – 600002.

TAMILNADU.

E Mail : cemm@tnebnet.org

Website for online bid submission: https://tntenders.gov.in
Service Provider: National Informatics Centre

INSTRUCTIONS FOR ONLINE BID SUBMISSION:

The bidders are required to submit soft copies of their bids electronically on the TAMILNADU GOVERNMENT E PROCUREMENT Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the TAMILNADU GOVERNMENT E PROCUREMENT Portal, prepare their bids in accordance with the requirements and submitting their bids online on the TAMILNADU GOVERNMENT E PROCUREMENT Portal. More useful information for submitting online bids on the TAMILNADUE GOVERNMENT PROCUREMENT Portal may be obtained at
: **https: //tntenders.gov.in/nicgep/app**

A.REGISTRATION:

Bidders are required to enroll on the e-Procurement module of the Tamil Nadu Government E procurement Portal (URL: **https://tntenders.gov.in)**
1) By clicking on the link "**Online bidder Enrollment**" on the TAMILNADU GOVERNMENT E -PROCUREMENT Portal which is free of charge.

2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.

3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the TAMILNADU E PROCUREMENT Portal.

4) Upon enrolment, the bidders will be required to **register their valid Digital Signature Certificate(DSC)** (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify /nCode / eMudhra etc.), with their profile.
5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
6) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

B. SEARCHING FOR TENDER DOCUMENTS:

1) There are various search options built-in in the TAMILNADU GOVERNMENT E PROCUREMENT Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the TAMILNADU GOVERNMENT E PROCUREMENT Portal.

2) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the TAMILNADU GOVERNMENT

E PROCUREMENT Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender documents.
3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

C. PREPARATION OF BIDS:

1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.

2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with Black and White option which helps in reducing size of the scanned document.

4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Space" or 'Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

D. ELECTRONIC SUBMISSION OF BIDS:

The bidder shall submit online the requirements under qualification criteria and technical documents required and SCHEDULE OF PRICE /BOQ vide ANNEXURE-A. All the documents are required to be signed digitally by the bidder. After electronic online bid submission, the system generates a unique bid reference number which is time stamped. This shall be treated as acknowledgment of bid submission.

E. PROCEDURE FOR SUBMISSION OF BIDS:

1) Bidder should log- in to the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.

2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.

3) **Bidder has to select the payment option as "online" to pay the tender fee / EMD as applicable and enter details of the instrument.**

i. The online payment Gateway has been enabled for TNPDCL in TN Tenders portal (**https://tntenders.gov.in**). All the payments for the tenders like EMD will be carried out by the Bidders only through online payment mode.

Note: As the internet banking process(NEFT/RTGS) may take some time for confirming the receipt of EMD, bidders may planned such a way to pay the EMD accordingly to avoid any delay in bank confirmation. After getting success status of EMD payment only, the bidder can submit the bid.

ii. The EMD amount should be the exact amount and no excess or less amount should be transferred through online payment gateway. If excess or short, the tender status will be shown as invalid.

iii .If submitting EMD as BG/PEMD/Udayam(SSI) (as mentioned in the specification), then select the exempted from EMD payment as "YES". Then upload the EMD excemption documents only in "pdf" files.

iv.The bidder has to submit the tender document online well in advance before the Prescribed time to avoid any delay or problem during the submission process. If there is any delay, due to other issues, bidder only is responsible.

4) Bidder should prepare the EMD as per the instructions specified in the tender document.

5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by the bidder. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder etc). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.

6) **The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.**

7) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid openers public keys.

8) The uploaded bid documents become readable only after the tender opening by the authorized bid openers.

9) Upon the successful and timely submission of bids (ie after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

10) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.
11) In all cases, bidder should use their own ID and Password along with Digital Signature certificate at the time of submission of their bid.
12) During the entire e-tender process, the bidders will remain completely anonymous to one another and also to everybody else.

13) The e-tender floor shall remain open from the pre-announced date & time and for as much duration as mentioned above.
14) All electronic bids submitted during the e-tender process shall be legally binding on the bidder. Any bid will be considered as the valid bid offered by that bidder and acceptance of the same by the Buyer will form a binding contract between Buyer and the Bidder for execution of supply.
15) It is mandatory that all the bids are submitted with digital signature certificate otherwise the same will not be accepted by the system.
16) TNPDCL reserves the right to cancel or reject or accept or withdraw or extend the tender in full or in part as the case may be without assigning any reason thereof.
17) The server time shall be treated as final and binding. Bids recorded in the server before the bid closing time will only be treated as valid bid. Bidders are, therefore, advised to submit their bids well before the closing time of e-tender. If any bid reaches the server after the bid closing time as per server time, the same will not be recorded and no complaint in this regard shall be entertained. The **Tender Inviting Authority (TIA)** will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues.
18) Bidders are advised to exercise caution in quoting their bids in e-tender and e-reverse auction as the case may be to avoid any mistake. Bids once submitted can't be recalled.
19) Any order resulting from this bidding process shall be governed by the terms and conditions mentioned in the tender documents.
20) No deviation to the technical and commercial terms & conditions are allowed.

F. ASSISTANCE TO BIDDERS:
1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

2) Any queries relating to the process of online bid submission or queries relating to TAMIL NADU GOVERNMENT E PROCUREMENT Portal in general may be directed to the 24x7 TAMIL NADU GOVERNMENT E PROCUREMENT Portal Help desk.

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TAMIL NADU POWER DISTRIBUTION CORPORATION LIMITED

1)	Tender Specification No.	**M.230 /2025-26**
2)	Name of the work	**e-tender** for procurement of **LT SINGLE PHASE SMART METER (5-30A)**
3)	**Tendered Quantity**	**4,97,460 Nos. (Four Lakh ninety seven thousand four hundred and sixty)**
4)	Method of Tender	**e-Tender Two Part System** (Techno – Commercial bid and Price bid) through **https://tntenders.gov.in**
5)	(a) Earnest Money Deposit (EMD)	**Rs.50.0 Lakhs./- (Rupees Fifty Lakh only)** i)The Online payment Gateway has been enabled for TNPDCL in TN Tenders Portal. (**https://tntenders.gov.in**) All the payments for the tenders like EMD will be carried out by the Bidders only through online payment mode. ii) The EMD amount should be the exact amount and no excess or less amount should be transferred through **online payment gateway**. If excess or short, the tender status will be shown as invalid.
	(b) Bank Guarantee towards EMD	Bank Guarantee in Lieu of EMD value with a validity for a period of one year as on date of tender opening will be accepted. **The BG towards EMD should be submitted in original within 3 days from the date of tender opening failing which offer is summarily rejected**. The Format is enclosed as **ANNEXURE –I.**
	(c) Permanent Earnest Money Deposit (PEMD) Holders	PEMD holders of **Rs. 1.0 Crore** with TNPDCL/TANGEDCO are only eligible to participate in the tender.
	(d) SSI Units	**SSI Units located within Tamil Nadu against UDYAM Registration certificate** are eligible for exemption of EMD against submission of documents as detailed in Section-I. **Undertaking in lieu of EMD should be uploaded.** **The SSI Units located outside the State of Tamil Nadu are not eligible for exemption from payment of EMD** in TNPDCL tenders against UDYAM Registration Certificate even though registered in UDYAM portal for tendered items.

		The tenderers shall upload the audited copy of Profit and Loss account / Balance Sheet certified by a Chartered accountant along with the proof for exemption from payment of EMD in order to ensure the SSI status of the firm based on the Annual Turnover and the investment held in Plant and Machinery for extending exemption from paying EMD**.**
6)	URL for online bid submission for e-tender.	**https://tntenders.gov.in**
7)	Date of closing of online e-tender for submission of Techno Commercial Bid & Price Bid.	**01.04.2026 @ 14.00 Hrs.**
	Due date for submission of samples at Central Stores of Chennai/West EDC.	**01.04.2026 @ 17.00 Hrs.**
8)	Date & time of opening of tender electronically	**02.04.2026 @ 14.30 Hrs.**
9)	Specification at website	The tender specification will be placed at TNPDCL web site **(www.TNPDCL.gov.in),** and **https://tntenders.gov.in** The prospective bidders may download the same.
10)	Documents to be duly filled & uploaded by the Tenderers during e-submission	Schedules – **A to L** and other documents (whichever is applicable)
11)	Tenderers during e-submission Clarification to be sought for from	The Chief Engineer, Materials Management, Tamil Nadu Power Distribution Corporation Limited, 4th Floor/Western Wing /NPKRR Maaligai, 144 Anna Salai, Chennai 600002. Email:**cemm@tnebnet.org & semm2@tnebnet.org**
12)	Place at which tenders will be opened	The Superintending Engineer, Materials Management-II, Tamil Nadu Power Distribution Corporation Limited, 4th Floor/Eastern Wing/NPKRR Maaligai, 144 Anna Salai, Chennai 600002. Email: semm2@tnebnet.org

13)	**Samples**	Sample should be submitted to the following stores: **The Stores Officer, Central Stores,** **TNPDCL/CHENNAI WEST EDC,** **No.12, South Phase and** **Ambattur Industrial Estate,** **Chennai-58.** **Mobile No.9445850375** Samples received after the due date & time will not be accepted and offers without Sample will be summarily rejected. (refer Technical specification) Refer –Schedule –L.

Remarks : If the due date for opening the tenders happens to be declared holiday, then the tender will be opened on the next working day, for which no prior intimation will be given.

SPECIFICATION NO. M. 230/2025-26

E-TENDER FOR SUPPLY OF SINGLE PHASE SMART METER (5-20A)

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SECTION – I
EARNEST MONEY DEPOSIT

1.0. Tenderer should pay the specified amount towards Earnest Money Deposit as follows :

1.1 **(a)Earnest Money Deposit: Rs.50.0 Lakhs./- (Rupees fifty lakh only).**

1.2 If submitting Earnest Money Deposit as BG/PEMD/Udyam(SSI) (as mentioned in the specification), then select the exempted from EMD payment as "YES". Then upload the EMD exemption documents only in PDF files.

1.3 After confirming the EMD paid amount / Exemption uploaded, then only the system /tender portal will allow to submit the technical and financial bids.

2.0. **Mode of Payment :**

Payment of EMD:

The online payment Gateway has been enabled for TNPDCL in TN Tenders portal (https://tntenders.gov.in). All the payments for the tenders like Earnest Money Deposit will be carried out by the Tenderer only through online payment mode. The Earnest Money Deposit amount should be the exact amount and no excess or less amount should be transferred through online payment gateway services of State Bank of India (SBI). If excess or short, the tender status will be shown as invalid. The Earnest Money Deposit payment to be made only single payment.

2.1 **Bank Guarantee for EMD:**

Bank Guarantee in lieu of EMD amount with a validity for a period of **one year as on date of tender opening** will be accepted**.**

The BG towards EMD should be submitted in original within 3 days from the date of tender opening failing which their offer is summarily rejected.

The Format is enclosed as Annexure –I.

2.2 **PEMD Holder of TNPDCL:**

The Tenderers who are having valid Permanent EMD with TNPDCL/TANGEDCO for an amount of **Rs.1.0 Crore** are exempted from payment of Earnest Money Deposit and are eligible to participate in the tender.

Firms who have PEMD less than that specified above are not eligible to participate on the basis of the PEMD deposited by them even for lesser quantity and value.

Scanned copy of proof of PEMD shall be uploaded along with the tender. If the Tenderer desires to become a Permanent E.M.D. holder, they are advised to deposit the required amount with the TNPDCL as Permanent E.M.D. well in advance, obtain a certificate from the Financial Controller/Purchase. **PEMD of TANTRANSCO will not be considered for TNPDCL Tenders.**

3.0 EXEMPTION FOR PAYMENT OF EMD:-

Exemption from payment of EMD in respect of SSI Units located within Tamil Nadu against UDYAM Registration certificate.

The SSI Units located outside the State of Tamil Nadu are not eligible for exemption from payment of EMD in TNPDCL tenders against UDYAM Registration Certificate even though registered in UDYAM portal for tendered items.
Undertaking in lieu of EMD as per ANNEXURE-II shall be uploaded for Exemption of EMD for Local SSI units with valid UDYAM Registration Certificate.
The tenderers shall upload the audited copy of Profit and Loss account / Balance Sheet certified by a Chartered accountant along with the proof for exemption from payment of EMD in order to ensure the SSI status of the firm based on the Annual Turnover and the investment held in Plant and Machinery for extending exemption from paying EMD. If the above documents are not uploaded along with the proof of exemption of EMD and Undertaking, the **tenders will not be evaluated.**

3.1 The following categories of Industries are exempted from payment of EMD having UDYAM Registration alone :-

i) SSI Units located in Tamil Nadu state and **registered under UDYAM portal for the tendered item** (by clearly mentioning the 5 digit NIC code).
ii) Departments of the Government of Tamil Nadu.
iii) Undertakings and Corporations owned by the Government of Tamil Nadu.
iv) Labour Contract Co-operative Societies of Tamil Nadu.

3.2 **Undertaking in lieu of EMD as per ANNEXURE-II shall be uploaded for Exemption of EMD for Local SSI units with valid UDYAM Registration Certificate**.

3.3. **The SSI Units located outside the State of Tamil Nadu are not eligible for exemption from payment of EMD in TNPDCL tenders against UDYAM Registration Certificate even though registered in UDYAM portal for tendered items.**

3.4 The bidders who have examined the tender specification together with Schedules attached, participated in the tender by availing EMD exemption is deemed to accept to pay the amount equivalent to EMD amount as stipulated under Clause No.1 above, with costs if any, in the event of non - fulfillment of the conditions stipulated in the tender specification (i.e.) in all cases where EMD paid is to be forfeited.

3.5. The Tenderer is deemed to accept to pay the amount equivalent to EMD immediately when a demand is raised by Board against the Tenderer without any demur in the event of the following.

1. If he withdraws his tender or backs out after acceptance of the tender or fails to remit the Security Deposit.
2. If he revises any of the terms quoted during the validity period.
3. If he violates any of the conditions of the tender specification.

4.0 Government of India, Ministry of MSME Notification :

4.1. Government of India, Ministry of MSME, vide notification No.S.O.2119(E) dated 26.06.2020 has notified certain composite criteria for classifying the enterprises as Micro, Small and Medium Enterprises and insisted Udyam registration in Udyam Registration Portal to obtain an e certificate Viz. Udyam Registration certificate calculation of turnover, calculation of investment, Registration of existing Enterprises and Updation and transition period in classification. The above notification may be adhered to by the tenderers and TNPDCL will adopt the guidelines issued therein in evaluation of bids submitted by the tenderers.

4.2 An enterprise shall be classified as a micro, small or medium enterprises on the basis of the following criteria, namely:

i) A micro enterprise, where the investment in plant and machinery or equipment does not exceed two crore and fifty lakh rupees and turnover does not exceed ten crore rupees;
ii) A small enterprise, where the investment in plant and machinery or equipment does not exceed twenty five crore rupees and turnover does not exceed one hundred crore rupees; and
iii) A medium enterprise, where the investment in plant and machinery or equipment does not exceed one hundred and twenty five crore rupees and turnover does not exceed five hundred and fifty crore rupees.

Enterprise Category	Investment Limit	Turnover Limit
Micro Enterprise	Rs.2.5 Crores	Rs.10 Crores
Small Enterprise	Rs.25 Crores	Rs.100 Crores
Medium Enterprise	Rs.125 Crores	Rs.500 Crores

5.0. **The EMD will not carry any interest.**

6.0. Others viz. Central and other State Government Departments / Undertakings and Corporations other than those in Tamil Nadu shall have to pay Earnest Money Deposit and Security Deposit cum performance Guarantee.

7.0. The Bidders are informed that mere uploading of bid by the Bidder, who has exempted from EMD payment, shall be considered as token of acceptance of the bidder to pay the amount equivalent to EMD, together with costs if any, in the events of non-fulfillment of conditions stipulated in the Tender Specification ie., in all cases where EMD paid will be forfeited. The EMD forfeiture will not attract GST.

8.0. The State Government, Public Sector Undertakings who are exempted from payment of EMD should also pay as penalty an amount equivalent to the amount fixed as Security Deposit in the event of non-fulfillment or non-observance of any of the conditions stipulated in the contract.

9.0. **The tenderers shall upload the audited copy of Profit and Loss account / Balance Sheet certified by a Chartered accountant along with the proof for exemption from payment of EMD in order to ensure the SSI status of the firm based on the Annual Turnover and the investment held in Plant and Machinery for extending exemption from paying EMD.** If the above documents are not uploaded along with the proof of exemption of EMD and Undertaking, the **tenders will not be evaluated.**

9.1. In case the investment held by the tenderer (Micro and Small Enterprises with Udayam registration) in Plant and Machinery and annual turnover exceeds the prescribed limit stipulated (cl.4.2) or the criteria specified for registration prior to 1.7.2020,the General Manager, District Industries Centre concerned will be requested to verify the SSI status of the firm. Till receipt of confirmation from General Manger/District Industries Centre concerned, the exemption from paying EMD for SSI units will not be extended.

9.2. The firm registered in Udyam Portal under **Medium Scale** is not eligible for exemption of EMD.

10.0. REFUND OF EMD :-

(i) The Earnest Money Deposit will be refunded automatically to the unsuccessful tenderers after intimation of the rejection / non-acceptance of their tender. i.e. after technical evaluation

(ii)

(iii) The Earnest Money Deposit will be refunded automatically to the eligible tenderer who have not receipt of the detailed Purchase order. i.e. after issue of Award Of Contract.

(iv) The Earnest Money Deposit will be settlement to TNPDCL account in the case of successful tenderer on receipt of detailed Purchase Order and will not carry any interest. The settlement Earnest Money Deposit will be adjusted in the Security cum Performance Guarantee or refunded on submission of SD cum Performance BG.

11.0. Documents to be uploaded for EMD:

The following should be uploaded by the Vendor during submission of Techno-commercial bid for payment of EMD failing which the offer will be **SUMMARILY REJECTED.**

Payment of EMD:

The online payment Gateway has been enabled for TNPDCL in TN Tenders portal (https://tntenders.gov.in). All the payments for the tenders like Earnest Money Deposit will be carried out by the Tenderer only through online payment mode. The Earnest Money Deposit amount should be the exact amount and no excess or less amount should be transferred through online payment gateway services of State Bank of India (SBI). If excess or short, the tender status will be shown as invalid. The Earnest Money Deposit payment to be made only single payment.

(i) Bank Guarantee in lieu of EMD amount with a validity for a period of **one year** as on the date of opening of tender**.**
Bank Guarantee in original as per **Annexure- I** shall be furnished **within 3 days from the date of tender opening.**

(ii) The proof for PEMD obtained from TNPDCL/TANGEDCO.

(iii) The proof of exemption of EMD with documents (i.e. UDYAM Registration certificate) and Tender Acceptance Letter & Undertaking in lieu of EMD as per Annexure.
Exemption from payment of EMD is applicable only for SSI Units located within Tamil Nadu against UDYAM Registration certificate.
The SSI Units located outside the State of Tamil Nadu are not eligible for exemption from payment of EMD in TNPDCL tenders against UDAYM Registration Certificate even though registered in UDYAM portal for tendered items.
Undertaking in lieu of EMD as per ANNEXURE-II shall be furnished for Exemption of EMD for Local SSI units with valid UDYAM Registration Certificate.
The tenderers shall upload the audited copy of Profit and Loss account / Balance Sheet certified by a Chartered accountant along with the proof for exemption from payment of EMD in order to ensure the SSI status of the firm based on the Annual Turnover and the investment held in Plant and Machinery for extending exemption from paying EMD. If the above documents are not furnished along with the proof of exemption of EMD and Undertaking, the tenders will not be evaluated.

(12) The Earnest Money Deposit (EMD) made by Tenderer will be forfeited after e-tender opening if :

(a) They withdraws his tender or backs out after acceptance.

(b) They withdraws his tender before the expiry of validity period stipulated in the Specification or fails to remit the Security Deposit cum performance Guarantee.

(c) They violates any of the provisions of these regulations contained herein.

(d) They revises any of the terms quoted during the validity period.

(e) The documents furnished with the offer is found to be bogus or the documents contain false particulars, the EMD paid by the tenderers will be forfeited in addition to blacklisting them for future tenders/contracts in TNPDCL.

(f) If it is found at later stage that the bidder has availed EMD exemption by hiding facts, it will be construed that such a bidder has not complied with the EMD requirements, as mentioned in Section I, and suitable action deemed fit will be taken including summarily rejection of offer, blacklisting / banning the firm from participating in future TNPDCL / TANTRANSCO tenders.

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SECTION – II

BID QUALIFICATION REQUIREMENTS (BQR)

The Bidders shall become eligible to bid on satisfying the following Bid Qualification Requirements and uploading of the required documentary evidences **duly attested by self or competent authority/notary public.**

1. The bidders should be **actual manufacturers** of **Single Phase smart meter (5-30A)** and having manufacturing units in India. The BIS license as per IS:16444(Part-I) should be valid on the date of tender opening. The copy of certificate should be furnished.
2. The bidders should have supplied a minimum quantity of **49,746 Nos.** of **Single Phase smart meter(5-30A)** confirming to IS:16444(Part-I) or higher rating put together during the preceding 10 Years as on the date of opening of tender to State Electricity Boards / Power Utilities shall quote.
   Documentary evidences showing PO copies and End User certificates for the satisfactory supply and performances from State Electricity Boards / Power Utilities for a period of minimum one year of service should be furnished and the date of certificate should be within 5 years as on the date of opening of tender.
3. The Annual Turnover of the bidder shall be more than **31.0 Crores** during any one of the last three years (i.e.2022-23, 2023-24 & 2024-25). In proof of the same, attested copy of audited Profit & Loss account, Balance sheet or attested copy of Audited Annual Turnover certificate, containing turnover details should be furnished.
   The bidder should furnish the Annual Turn Over of previous 3 years (i.e.2022-23, 2023-24 & 2024-25). The certified document issued by Chartered Accountant should be signed with their UDIN (Unique Document identification Number).
4. If the Bids are received through consortium, the same will not be considered and the bids will be rejected. Tenders received from Agents / Dealers will not be considered.
5. Copy of Type Test Certificates of **Single Phase smart meter(5-30A)** conforming to **IS:16444 (Part-I), IS:15959(Part-II) and CBIP-325** with latest amendment, obtained from any one of the NABL accredited standard laboratories (such as NPL / CPRI) and conducted within **Five (5) years** and valid on the date of tender opening shall be submitted along with the tender.

6.0 NEW ENTRANT CLAUSE :

6.1. A **tenderer** shall be declared as "New Entrant" who have no previous experience of supply for the tendered items or no satisfactory period of service or no financial Turnover but have infrastructure/ manufacturing facility as per the Inspection report of Third Party Inspection or TNPDCL Engineers.

The **tenderers** who have lesser quantity of supply experience or lesser satisfactory period of service or lesser financial turnover criteria than prescribed in the tender document may also be considered under New Entrant category.

6.2. The **tenderer** is eligible to be considered for placement of orders under New Entrant category if the bidder is the evaluated and negotiated L1 tenderer.

6.3. The **tenderer** who have been considered under New Entrant category shall satisfy all technical, commercial and BQR Conditions except BQR condition of quantity of previous experience of supply or satisfactory period of service or financial turnover criteria.

6.4. TNPDCL have right to place order on New Entrant bidder, who is evaluated L1, for the entire offered quantity, i.e. without any restriction of placing order for 60% of tendered quantity. In case, more than one L1 New Entrant exists having offered for the entire tendered quantity, the quantity allocation among them will be made equally. In other cases, the quantity allocation will be made in proportion to the offered quantity i.e (Total tendered quantity/Sum of offered quantities by more than one L1) x offered quantity of respective L1 New entrant.

- **Bidders should upload documentary evidences in support of the Bid Qualification Requirements duly attested by self or competent authority or notary public.**
- **Bidders who are previous supplier to TANGEDCO /TNPDCL will be considered for further evaluation, even though they have not enclosed copies of Purchase Orders or End User Certificate, etc., after ensuring with concerned Purchase Orders placing authorities.**
- **The Bidders not satisfying any of the above "Bid Qualification Requirements" will be summarily rejected.**
- **Bidders should upload all pages of type test reports otherwise the bids will be summarily rejected.**

Note:

All the above documents shall be duly attested by self or competent authority like Notary public, Gazetted officer etc. The offers submitted without attestation as mentioned above will be summarily rejected. If any clarification or need arises in the end user certificate it may be obtained separately by the tender inviting authority.

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SECTION – III

REJECTION OF TENDERS

I. Tenders will be **SUMMARILY** rejected if

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a. The EMD requirements are not complied with.

b. If the bids are received through Consortium or Joint venture, the same will not be considered and the bids will be rejected. Tenders received from Agents / Dealers will not be considered.

c. The Bid Qualification Requirements **(BQR)** as per **Section-II** of this Specification are not satisfied.

d. The offer of bidder who have quoted a quantity lesser than the minimum quantity prescribed in **clause 5.4 under section IV** of the specification.

e. If it is found that there is no adequate infrastructure facilities to carry out manufacturing activities of tendered material during the factory inspection carried out by TNPDCL, in case of new entrants.

f. On evaluation of techno-commercial bids, if the bids does not satisfy the BQR conditions as per section-II, even though the price bids of the bidders are opened (in case of single part tender), the offer of the bidder will be summarily rejected.

II Tender is **LIABLE** to be rejected, if it is:

a) If not covering the entire scope of supply of materials.

b) **If the declaration as specified in Schedule D is not signed and enclosed.**

c) With validity period less than that stipulated in this specification.

d) Not in conformity with TNPDCL's Commercial terms and Technical Specifications **(Section - V & VI).**

e) Received from a tenderer who is directly or indirectly connected with Government service or Board Service or services of local authority.

f) From any black listed Firm or Contractor.

g) Received by E-Mail.

h) From a tenderer whose past performance / Vendor rating is not satisfactory

i) Not containing all required particulars as per Schedule **A to L.**

j) Questionnaire as per **schedule-F Questionnaire-A & B** are not duly filled up and properly signed by the tenderer.

k) Documents furnished by the Tenderers along with their offer being found to be bogus or contain false particulars.

l) The offer of bidders who have not furnished the GSTIN Number in the offer

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SECTION – IV

INSTRUCTION TO TENDERERS.

1.1. The tender is in **two cover System** with Technical Bid with Commercial terms and Price Bid in accordance with Commercial terms. All the tenders shall be prepared and uploaded strictly in accordance with the instructions set forth herein.

1.2. The Tamil Nadu Transparency in Tender Act 1998 and the Tamil Nadu Transparency in Tender Rules 2000 and subsequent amendments thereof are applicable to this tender.

1.3 **THE TENDERERS WHO DO NOT FULLFILL THE "BID QUALIFICATION REQUIREMENT" AS PER SECTION-II NEED NOT PARTICIPATE IN THE TENDER. OFFERS NOT SATISFYING THIS "BID QUALIFICATION REQUIREMENTS" WILL NOT BE CONSIDERED AND WILL BE SUMMARILY REJECTED.**

2.0. SCOPE OF SUPPLY :

2.1. The Scope of supply (described in Schedule-A) includes design, manufacture, inspection, testing, packing, forwarding, and delivery of the materials detailed herein, at TNPDCL stores anywhere in Tamil Nadu.

2.2. The quantity indicated in schedule of requirement is approximate. The indent will be placed subsequently as and when there is requirement, upto the last date of validity of rate contract. The quantity finally ordered may vary to the extent of 25 % either way of the approximate quantity indicated in the Schedule of requirement. The purchaser reserves the right to issue any number of indents for supply of materials during the period of contract.

3.0. SUBMISSION OF TENDER OFFER:

3.1. The tenderer is expected to examine all instructions, Schedules and Annexures detailed in the Specification and submit the Schedule of Prices and other required particulars in the Schedules and Annexures called for in this Specification, only as per the formats prescribed herein.

4.0. QUESTIONNAIRE FILLING:

4.1. A Questionnaire is appended as Schedule-F -Questionnaire-A & B in this specification for Bid Qualification Requirements, Commercial and Technical details. It is obligatory on the part of the tenderer to furnish all details as per the "Questionnaire" . In case, this is not filled up and signed at the bottom of each page of the questionnaire and enclosed with the offer, the Bid will be liable for rejection.

5.0. SUBMISSION OF TENDERS : -

5.1 The Tender Offer consisting of **Schedules-A to L** should be filled up and signed by the Tenderer or any person holding Power of Attorney authorizing him to sign on behalf of the Tenderer before submission of the Tender. The date of signature should invariably be indicated. The tender shall contain the name, residence and place of business of person or persons submitting the tender.

5.2. In the event of tender being submitted by other than a firm, it must be signed by a partner (copy of partnership deed should be enclosed) and in the event of the absence of any Partner, it shall be signed on his behalf by a person holding a Power of Attorney authorising him to do so, Certified copies of which shall be enclosed.

5.3. Tender submitted on behalf of companies registered under the Indian Companies Act, shall be signed by person duly authorised to submit the tender on behalf of the company and shall be accompanied by certified true copies of the resolutions, extracts of the Articles of Association, special or general Power of Attorney etc. to show clearly the title, authority and designation of persons signing the tender on behalf of the company.

5.4. **The tenderer shall quote not less than 10% of the tendered quantity. The offer of the bidders who have quoted for lesser quantity than the minimum quantity prescribed above shall be summarily rejected.**

5.5. **The tenderer shall mention the offered quantity in the prescribed schedules in their tender offer. The offer of the bidder without mentioning the quantity offered will be summarily rejected.**

5.6. The tenderer should furnish the GSTIN numbers in the offer.

5.7. Bidders are not required to sign in each page of the tender specification. Instead bidders are required to sign a declaration document as specified in **Schedule- J** of the specification.

6.0. Modifications / Clarifications to Tender Documents:

6.1. At any time after the commencement of e-Tender and before the closing of the event, TNPDCL may make any changes, modifications or amendments to the tender documents and same will be intimated to the concerned Vendors through corrigendum which can be downloaded from the Vendor login .

6.2. In case any tenderer asks for a clarification to the tender documents before 48 hours of opening of tenders, the Chief Engineer /Material Management / TNPDCL/ Chennai-2 will clarify the same.

6.3. If any tenderer raises clarifications after the opening of the tender, the clarified reply issued by the Chief Engineer/Material Management, TNPDCL, Chennai- 600 002 on the clarifications will be final and binding on the Tender.

6.4. All tender offers shall be prepared by typing or printing in the formats enclosed with this specification.

6.5. **All information in the tender offer shall be in ENGLISH only**. It shall not contain interlineations, erasures or overwriting except as necessary to correct errors made by the tenderer. Such erasures or other changes in the tender documents shall be attested by the persons signing the tender offer.

7.0 QUOTATION OF RATES:

7.1 Rates should be quoted in the BOQ only (Price schedule in https://tntenders.gov.in/nicgep/app)

7.2 Offers giving lump sum price, without giving their breakup as per details required in the attached Price **Schedule-A** (BOQ) shall be liable for rejection.

8.0. PRINTED TERMS AND CONDITIONS IN TENDERS:

Supplier's printed terms and conditions will not be considered as forming part of the tender under any circumstances.

9.0. INCOMPLETE TENDERS:

Tender, which is incomplete, obscure or irregular is liable for rejection.

10.0. AMBIGUITIES IN CONDITIONS OF TENDERS:

10.1. In the case of ambiguous or contradictory terms / conditions mentioned in the bid, interpretation as may be advantageous to the purchaser may be taken without any reference to the Tenderer.

11.0 DISQUALIFICATION OF TENDERS:

11.1. The tender offer shall contain full information asked for in the accompanying schedules and elsewhere in the specification.

11.2. Tenderers shall bear all costs associated with the participation in the e-Tender and the **purchaser** will in no case be responsible or liable for these costs.

11.3. No offer shall be withdrawn by the Tenderer in the interval between the deadline for submission and the expiry of the period of validity specified / extended validity of the tender offer.

11.4. Attempt by any tenderer to bring to bear extraneous pressure on the Tender Accepting Authority shall be sufficient reason to disqualify the tender as per Rule 27 (3) of Tamil Nadu Transparency in Tenders Rules 2000.

11.5. **Only Manufacturers must quote.** If the bids are received through Consortium or Dealers/Agents, the same will not be considered and the bids will be rejected.

11.6 The Tenderers are requested to furnish the exact location of their factories with detailed postal address and pin code, contact person, Phone, Mobile ,email etc. in their tenders so as to arrange inspection by the TNPDCL, if considered necessary.

12.0. DESTINATIONS-WHERE MATERIALS ARE REQUIRED:

The prices quoted should be on FOR Destination basis for delivery anywhere in Tamil Nadu.

13.0. TENDER OPENING :-

13.1 OPENING OF COMMERCIAL & TECHNICAL BIDS WITHOUT PRICE (PART-I):

The Tender offers except price Bid will be **opened electronically on the date and time notified at the Office of the Superintending Engineer / Materials Management-II, 4th Floor, Eastern Wing, NPKRR Maaligai, 144, Anna Salai, Chennai-600 002, through https://tntenders.gov.in in the presence of tenderer's authorized representative who may wish to be present on the date of opening, for which the tenderers shall furnish authorization letter 24 hrs. before the opening of the tender.**

OPENING OF THE PRICE BIDS: (PART - II)

The date and time of opening of Price Bids shall be later notified through registered e-mail to the Bidders who fulfill the BQR criteria and whose bids are found to be commercially and technically acceptable.

13.2. If the last date set for submission of e-tender offers and opening date happens to be a holiday, the tenders will be received and opened on the succeeding working day without any changes in the timings indicated.

13.3. In all cases, the amount of bid security and validity of the bid shall be scrutinized. Thereafter, the bidder's names and such other details as the Tender Inviting Authority may consider appropriate, will be recorded as bid opening summary and the same will be uploaded on the e-procurement portal.

14.0. INFORMATION REQUIRED AND CLARIFICATIONS:

14.1. In the process of examination, evaluation and comparison of tender offers, the TNPDCL may at its discretion, ask the Tenderer for a clarification of his offers. All responses to requests for clarifications shall be in writing to the point only. No change in the price or substance of the offer shall be permitted.

13.2. The TNPDCL will examine the tender offers 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 offers are generally in order.

14.3. Prior to the detailed evaluation, the TNPDCL will determine the substantial responsiveness of each offer to the Bidding Documents.

14.4. The Tender offers shall be deemed to be under consideration immediately after they are opened and until such time official intimation of award / rejection is made by the Tender Accepting Authority to the tenderers. **The Tenderers shall not make attempts to establish unsolicited and unauthorized contact with the Tender Inviting Authority, Tender Accepting Authority or Tender Scrutiny Committee after the opening of the tender and prior to the notification of the award and any attempt by any tenderers to bring to bear extraneous pressures on the Tender Accepting Authority shall be sufficient reason to disqualify the tenderer.**

14.5. After acceptance of the tender by the Tender Accepting Authority, the details will be arranged to be published in the Tender Bulletin of Tamil Nadu Government.

14.6. Mere submission of any Tender offer connected with these documents and Specification shall not constitute any agreement. The tenderer shall have no cause of action or claim, against the TNPDCL for rejection of his offer, except as mentioned in **Clause-18.0 of Section-IV.** The TNPDCL shall always be at liberty to reject or accept any offer or offers at its sole discretion and any such action will not be called into question and the Tenderer shall have no claim in that regard against the TNPDCL.

15.0. EVALUATION AND COMPARISON OF THE TENDER OFFERS:

15.1 The tenders will be evaluated strictly as per the Tamil Nadu Transparency in Tenders Act, 1998 and the Tamil Nadu Transparency in Tender Rules, 2000 and its subsequent amendments till date.

15.2. The tender offers received will be examined to determine whether they are in complete shape, all required Data have been furnished, properly signed and generally in order and conforms to all the terms and conditions of the Specification without any deviation.

15.3. For the purpose of evaluation of tender offers, the following factors will be taken into account for arriving the evaluated price: The quoted price will be corrected for arithmetical errors.

a) In case of discrepancy between the price quoted in words and figures lowest of the two will be considered.

b) The rate of CGST, SGST and IGST as applicable both in percentage and amount shall be indicated in the offer along with HSN code.

c) The evaluated price shall be arrived in compliance with the provisions of GST on the Transaction value ie. (Ex works price + P&F +Fright and Insurance) + GST. In case of import of goods would be treated as interstate supplies and would be subject to IGST in addition to applicable Customs duty.

d) Since GST is enacted wherein all taxes & duties are subsumed price evaluation shall be inclusive of applicable GST in all cases , i.e. even if the bidders are only within the state or bidders are within the state and outside TN.

e) The bidders should have registered under GST Act and furnish GSTIN.

f) In the event of bidder is within TN, SGST & CGST shall apply and if the bidder is outside TN, IGST shall apply.'

15.4. Evaluation for the capacity of material / equipment will be done separately.

15.5. The rates quoted by the eligible lowest tenderer in the open tender shall be compared with the prevailing market rate and the rates of previous period and if the Tender Accepting Authority is of the view that the quoted rates are too high, the rates will be negotiated and the rate will be determined. All eligible bidders who accept the rate shall be enlisted.

In the event of L1 bidder offered a quantity less than the tendered quantity, the quantity allocation will be made as per the provisions specified in the Tamil Nadu Transparency in Tender rules 2000.

15.6. **Tie breaker:**

When more than one bidder have quoted same value during bid submission and accepted in Finance Evaluation, Evaluator is allowed to select any one combination of bidder value (i.e.the L1 bidder) to initiate for Financial bid resubmission for Tie break.

15.7. **Online negotiation:**

Provision to go for on line negotiation has been provided for the Tender Evaluator. The online negotiation process in the portal is similar to the process for negotiation under tie breaker process. However, financial rebid submission can be invited from only one bidder.

As per the provisions of Tamil Nadu Transparency in Tender Rules 2000, the bidder should not alter the quantity offered in the bid during price negotiation/ matching.

15.8. **The quantity allocation will be made as per the provisions specified in the Tamil Nadu Transparency in Tender rules 2000.**

15.9. **As per Clause 23.0 TNTITR 2000 "Changes and alterations not to be permitted after tender opening.- No changes, amendments which materially alter the tendered prices shall be permitted after the opening of the tender, except as per the procedure prescribed in sub-section (3) of section 10 of the Act."**

15.10. The TNPDCL also reserves the right to allocate the quantity is as per **CL. No. 31.4** of Tamil Nadu Transparency in Tender rules, 2000.

16.0. PURCHASE PREFERENCE:

16.1. Purchase preference may be extended to the Domestic enterprises, Government departments, Public Sector Undertakings, Statutory Boards and other similar institutions as per the provisions in 30-A & 30-B of Tamil Nadu Transparency in Tender Rules 2000.

16.2. PURCHASE PREFERENCE TO DOMESTIC ENTERPRISES :

In case of procurement of goods or services, where it is possible for the procuring entity to divide the award of tenders to more than one supplier or service provider, the tender document shall clearly indicate that up to twenty five percent of the total requirement in the procurement may be awarded to domestic enterprise, not being the lowest tender, in respect of only goods manufactured or produced or services provided or rendered by them, if the following conditions are satisfied-

(a) the lowest tender is not a domestic enterprise;

(b) the preferential award shall extend only to the lowest tender among the domestic enterprises who are substantially responsive and technically qualified; and

(c) Such domestic enterprise is willing to match the price of the lowest tender:

Provided that where the Tender Inviting Authority is of the view that in the interest of the participation of domestic enterprise in the tender to avail the above benefit, a less stringent set of technical qualification parameters are required, he shall specify a separate set of technical qualifications for domestic enterprises in the tender documents with the approval of the Government.

16.3 PURCHASE PREFERENCE TO GOVERNMENT DEPARTMENTS, PUBLIC SECTOR UNDERTAKINGS, STATUTORY BOARDS AND OTHER SIMILAR INSTITUTIONS:

In case of procurement of goods or services, where it is possible for the procuring entity to divide the award of tenders to more than one supplier or service provider, the tender document shall clearly indicate that up to forty percent of the total requirement in the procurement may be awarded to Government departments, Public Sector Undertakings, Statutory Boards and other similar institutions as may be notified by the Government, in respect of only of goods manufactured or produced or services provided or rendered by them, if such tenderer is willing to match the price of the lowest tender."

16.4 PURCHASE PREFERENCE TO ENTERPRISES OWNED BY SCHEDULED CASTES OR SCHEDULED TRIBES.

In case of procurement of goods or services, where it is possible for the procuring entity to divide the award tenders to more than one supplier or service provider, the tender document indicate that five percent of the total requirement in the procurement shall be awarded to enterprises owned by persons belonging to the Scheduled Castes or Scheduled Tribes in respect of only of the goods manufactured or service rendered by it, if the following conditions are satisfied namely:

(a) The lowest tender is not in enterprise owned by persons belonging to the Scheduled Castes or Scheduled Tribes and
(b)
(c) Such enterprises are willing to match the price of the lowest tenderer.
As per section 2 of Tamil Nadu Transparency in Tenders Act 1998 (amended and furnished in Tamil Nadu Government Gazette No. 576 dated 29 December 2022), "Domestic enterprise" means any enterprise located in the State, which manufactures or produces goods or provides or renders services within the State and which fulfils the criteria to qualify as a micro or small enterprise as may be notified by the Central Government under clause (1) of Section 7 of the Micro, Small and Medium Enterprises Development Act, 2006 (Central Act 27 of 2006)."

Further enterprises owned by Scheduled Castes or Scheduled Tribes (SC/ST) for claiming the purchase preference as per Tender Rule 30C are,

1. The enterprises means any domestic enterprises in Tamil Nadu owned by any person belonging to a SC/ST (or)

2. Any domestic enterprise, which is a firm or limited liability partnership, having its registered office and place of business in the State, where not less than three-fourths of the partners belong to the Scheduled Castes or Scheduled Tribes (or)

3. Any domestic enterprise, which is a company having its registered office and place of business in the state where,

(i) More than 50% of the ordinary shareholdings pertain to persons belonging to the Schedules Castes or Scheduled Tribes; and

(ii) The control of the company, as defined in section 2(27) of the Companies Act, 2013 (Central Act 18 of 2013) vests with persons belonging to the Scheduled Castes or Scheduled Tribes."

The online registration of SSI Units in Udyam Registration Portal is based on self declaration. Hence, in order to claim purchase preference for domestic enterprises belonging to Scheduled Castes or Scheduled Tribes, the supporting documents necessary to evidence the same in respect of each type of domestic enterprise owned by SC/ST are specified below:

In such case of domestic enterprise been a sole proprietary firm having registered in Udyam Portal located within Tamil Nadu, Udyam Registration Certificate contains the social category of enterprise. However, in order to ensure that no change in social category of enterprise has happened consequent of having registered in Udyam portal, an undertaking from the sole proprietor may be insisted.

In such case of domestic enterprise is partnership firm been registered in Udyam portal, social category of enterprise can be ascertained from the community certificate of not less than three-fourths of the partners belonging to Scheduled Castes or Scheduled Tribes along with copy of registered partnership deed. However, a certificate from chartered accountant may also be obtained certifying that no change in social category of enterprise has happened consequent of the said registered partnership deed.

In case domestic enterprise is a company having its registered office and place of business in the State, a certificate from practising company secretary may be obtained certifying that more than 50 percent of the ordinary shareholdings pertain to persons belonging to the Scheduled Castes or Scheduled Tribes and the control of the company, as defined in section of 2(27) of the Companies Act, 2013 (Central Act 18 of 2013) vests with persons belonging to Schedules Castes or Scheduled Tribes and the same is duly confirmed for the purpose of submission of bid against the tender specification No.

17.0. VALIDITY :

17.1. Tender offer shall be kept valid for acceptance for period of **180 days** from the date of opening of offers. The offers with lower validity period are liable for rejection.

17.2. Further, the tenderer shall agree to extend the validity of the Bids without altering the substance and prices of their Bid for further periods, if any, required by the TNPDCL.

18.0. RIGHTS OF THE TNPDCL :-

18.1. Rights to reject the tenders :-

18.1.1 After negotiation with the Tenderer and before passing the order accepting a tender, if the Tender Accepting Authority decides that the price quoted by such tenderer is higher by the percentage as may be prescribed over the schedule of rates or prevailing market rates, the tender shall be rejected.

18.1.2. The Tender Accepting Authority before passing the order accepting a tender, may also reject all the tenders for the reasons such as changes in the scope of procurement, lack of anticipated financial resources, court orders, accidents or calamities and other unforeseen circumstances.

18.2. Notwithstanding anything contained in this Specification, the TNPDCL reserves the rights :

(b) to split the Tendered Quantity and place orders on one or more than one firm as per the Tamil Nadu Transparency in Tender Rules 2000 since the tendered

material is so vital in nature and the failure in supply would affect the public interest.

(c) to recover losses , if any, sustained by TNPDCL, from the supplier who pleads his inability to supply and backs out of his obligation after award of contract. The security deposit paid shall, be forfeited.

(d) to cancel the orders for not keeping up the delivery schedule

(e) to vary the delivery period based on the requirement and contingencies at the time of placing the Rate contract.

(f) to accept the lowest eligible tender.

(g) to reject any or all the tenders or cancel without assigning any reasons therefor.

(h) to relax or waive or amend any of the conditions stipulated in the tender Specification wherever deemed necessary in the best interest of the TNPDCL.

18.3 To cancel the order along with the forfeiture of EMD if SD cum Performance guarantee is not furnished within 30 days from the date of receipt of PO. In that event, the award may be made to subsequent eligible tenderer. The belated payment of Security Deposit shall not be accepted hereafter.

18.4. The purchaser reserves the right to request for any additional information and also reserves the right to reject or accept the proposal of any tenderer, if in the opinion of the purchaser, the qualification data is incomplete or in the opinion of the TNPDCL the bidder is found not qualified to satisfactorily perform the contract.

19.0. DEVIATIONS:

19.1 The offers of the Tenderers with Deviations in Commercial terms and Technical Terms of the Tender Document are liable for rejection. Such deviations if any may be furnished in the **Schedule - G.**

19.2. No alternate offer will be accepted.

20.0. **BAR OF JURISDICTION:**

Save as otherwise provided in the Tamil Nadu Transparency in Tenders Act 1998, taken by any officer or authority under this Act shall be called in question in any court, and no injunction shall be granted by any court in respect of any action taken or to be taken by such officer or authority in pursuance of any power conferred by or under this Act.

21.0. **APPEAL:**

Any Tenderer aggrieved by the order passed by the Tender Accepting Authority under Section-10 of the Tamil Nadu Transparency in Tenders Act 1998 may appeal to the Government within 10 (Ten) days from the date of receipt of order.

22.0. **TENDER DOCUMENT :**

"All the intending e-tenderers are informed that in the event of the documents furnished with the offer being found to be bogus or the documents contain false particulars, the EMD paid by such tenderers will be forfeited in addition to blacklisting them for future tenders / contracts in TNPDCL" and also cancelling the award of contract issued to them."

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SECTION - V
COMMERCIAL

1.0. SCOPE :

The scope of supply of the materials includes design, manufacture, inspection, testing, packing, forwarding, insuring and delivery of the materials detailed herein, at TNPDCL Stores anywhere in Tamil Nadu.

2.0. PERIOD OF CONTRACT :

The period of contract is **One year** from the date of receipt of award of Purchase Order.

3.0. DETAILS OF CONSTITUTION OF FIRM :-

The tenderers shall furnish documentary evidence for the constitution of the firm such as Memorandum and Articles of Association, Partnership Deed etc. with details of Name, Address, Telephone, FAX Nos. E-Mail, Electricity Board Service Connection No., etc. of the manufacturing plants.

4.0. LEGAL STATUS OF THE FIRM :

The Tenderer should furnish necessary document evidencing their legal status of the firm along with their offer.

5.0. DETAILS OF PURCHASE ORDERS ALREADY EXECUTED :

The tenderers shall furnish documentary evidence with details of various Purchase Orders placed on them by other State Electricity Boards/ Power Utilities/ Central/State Public Sector and executed during the last **ten years** as on date of tender in the **Schedule :C**

6.0. PLACING OF ORDERS :

6.1. It is not binding on TNPDCL to accept the lowest or any tender. TNPDCL reserves the right to split and place orders for the items with different tenderers and for revising the quantities at the time of placing the orders. TNPDCL reserves the right to vary the quantity finally ordered to the extent of 25% either way of the requirement indicated in the tender documents.

6.2. The award of contract will be issued to the successful tenderer with all TNPDCL's terms and conditions, duly indicating the approved unit rates and the approximate quantity allotted to them. The approved rates will be FIRM and valid for entire contract period from the date of receipt of award of contract.

6.3. During the period of the contract, TNPDCL will send indent to the approved tenderers indicating the quantity to be supplied and the delivery schedule according to TNPDCL's requirement.

7.0. PRICE:

7.1. The Tenderers are requested to quote **FIRM** price only, valid for entire contract period from the date of award of contract.

7.2. The Tenderer's shall quote the Ex-works price, Packing & Forwarding charges and Freight & Insurance charges with applicable rate of GST separately for Delivery to TNPDCL Stores anywhere in Tamil Nadu. A format for price schedule is given **in Schedule 'A'. (Pl . Refer Bill of Quantity- BOQ in Excel format in the specification documents)**

7.2.1. The Freight and Insurance charges shall be applicable for delivery to any stores of TNPDCL in Tamil Nadu. Unloading the materials at destination stores should be done by the supplier at his own cost.

7.2.2. The above breakup details should be clearly indicated in the **Schedule-A,** in the absence of which the offer shall be liable for rejection.

7.3. It is the responsibility of the tenderer to make sure about the correct rates of duty / tax leviable on the materials at the time of tendering. If the rates assumed by the Tenderers are less than the current rates prevailing at the time of tendering, the TNPDCL Ltd will not be responsible for the mistake.

7.4. All Type Tests and other tests specified and required in the tender documents shall be conducted **at TENDERER'S COST.**

7.5.0. **INPUT TAX CREDIT :**

7.5.1. The tenderer should quote their rates taking into account the (Input Tax Credit) relief available to them on account of GST already paid.

7.5.2. **The benefit of Input Tax Credit (ITC) if any availed by the bidder shall be passed on to TNPDCL while quoting the price.** Necessary GST ITC undertaking towards ITC benefits as per **SCHEDULE-I** shall be submitted by the L1 tenderer after evaluation for compliance with section 171 of GST Act by the bidder.

7.5.3 In the event of eligible evaluated bidders submitting the declaration as NIL ITC benefit, a certificate from Chartered Accountant has to be submitted certifying the same since the bidder may be ignorant of provisions of GST Act.

7.6. **PERMANENT ACCOUNT NUMBER AND GSTIN NUMBER:**

The Tenderer shall indicate the Permanent Account No. in **Schedule 'F'** of the specification and should enclose the details of PAN issued by Government of India, Income Tax Department and **GSTIN number** of the firm with proof with the tender.

8.0. GOODS AND SERVICES TAX [GST]:

8.1.i. Goods and Services Tax [GST] as a modern law, has been brought after Article 366(12A) of the Constitution as amended by 101st Constitutional Amendment Act, 2016. GST is an indirect tax system, commonly used by both the Central Government and the State/UT to final consumption with credit of taxes paid at previous stages available as set off. In a nutshell, only value addition will be taxed and burden of tax Governments on goods and services. GST is a destination based tax on consumption of goods and services.

It is proposed to be levied at all stages right from manufacture up is to be borne by the final consumer. GST has been rolled out w.e.f. 01.07.2017, across India.

ii. The GST to be levied by the Centre on intra-State supply of goods and /or services would be called the Central GST (CGST) and that to be levied by the States/ Union territory would be called the State GST (SGST)/ UTGST. Similarly, Integrated GST (IGST) will be levied and administered by Centre on every inter-state supply of goods and services.

iii. Any supplier of goods and service Provider of services who makes a taxable supply with an aggregate turnover of over Rs.20 lakhs in a financial year is required to obtain GST registration. In special category states, the aggregate turnover criteria are set at Rs.10 lakhs. In simple words every business whose taxable supply of goods or services under GST (Goods and Service Tax) and whose turnover exceeds the threshold limit of Rs. 20 lakhs / 10 Lakhs as applicable will be required to register as a normal taxable person.

iv. **GST Registration Number:**

TNPDCL has migrated into GST regime on 15.06.2017 by duly uploading various mandatory data as required by the GST portal. The provisional ID issued to TNPDCL is 33AADCT4784E1ZC. The details are also posted in TNPDCL web portal.

v. GST Registration Number or GSTIN is 15 Digit identification number which is allotted to each applicant who applied for GST Registration. GST Number is completely based on the Pan Number and State code. First two digits represent the state code and another 10 digit represent the PAN number of the client, one digit represent the entity code (Like proprietorship or partnership etc), one digit is blank and last one is representing check digit.

vi. **Transaction Value:**The value of supply of goods or services or both shall be the transaction value, which is the price actually paid or payable for the said supply of goods or services or both where the supplier and the recipient of the supply are not related and the price is the sole consideration for the supply. Sec 15(1) states that value of supply of goods and service shall be the transaction value i.e. the price actually paid or payable.

The conditions for accepting the transaction value are –

a) Supplier and the recipient of the supply are not related.

b) Price is the sole consideration for the supply.

vii. **Composition Scheme:** Composition scheme specifies that registered person whose turnover in the preceding financial year is below certain specified limit (Currently RS.75 lakhs) may intimate the proper officer to pay in lieu of tax payable by him an amount calculated at such rate may be specified.

Eligibility for composition scheme : Sec.10(2) of the central Goods and Services Tax Act, 2017 states that the registered person shall be eligible to opt under sub- section (1), if-

- He is not engaged in the supply of services other than supplies referred to in clause (b) of paragraph 6 of Schedule II;
- He is not engaged in making any supply of goods which are not leviable to tax under this Act;
- He is not engaged in making any inter-State outward supplies of goods;
- He is not engaged in making any supply of goods through an electronic commerce operator who is required to collect tax at source under section 52; and
- He is not a manufacturer of such goods as may be notified by the Government on the recommendations of the Council.

viii. **SUPPLY OF SERVICE AND GOODS :** When there is a combined supply of many goods / services, it has to be determined whether it is a Composite supply or mixed supply of goods or services

(a) **COMPOSITE SUPPLY:** A composite supply is one where all the goods or services or a combination has to supplied together i.e., naturally bundled and there would be a Principal Supply that could be identified (Ex. Supply of Machinery with packaging, insurance and freight – the principal supply is machinery). In this case, the rate of principal supply will be applied on entire value.

(b) **MIXED SUPPLY:** A mixed supply is one where the goods or services or a combination thereof which could be individually supplied (like Pizza and Coke) but sold together at a single price. In this case, the highest rate to the good in that mix is applied on all the goods. The GST shall be applicable at appropriate prevailing rates as notified by GST Act. In the event of delay in execution of contract, the GST rate prevailing on the scheduled period or on the actual date of execution, whichever is less only will be admitted.

The bidders should have registered under GST Act and furnish GSTIN. In the event of Supplier/contractor is within TN, SGST & CGST shall apply and if the supplier/contractor is outside TN, IGST shall apply.

8.2. The Goods and Services Tax will be paid extra as applicable. The amount of CGST, SGST, and IGST as applicable shall be indicated in percentage payable and amount separately in the tender offer.

8.3. The TNPDCL has been registered as a dealer under GST Act 2017 (Registration No. 33AADCT4784E1ZC)In case of delayed delivery, the GST prevailing on the date of despatch or on the last day of the contractual delivery period whichever is LESS will be admitted. For both the cases, the supplier shall furnish documentary evidence while submitting the bills for payment. It is the responsibility of the tenderer to make sure about the correct rates of duty leviable on the material at the time of tendering. If the rates assumed by the Tenderer are less than the current rates prevailing at the time of tendering, the TNPDCL Ltd will not be responsible for the mistake. If the rates assumed by the tenderer are higher than the current rates prevailing at the time of tendering, the GST prevailing at the time of tendering will only be paid.

8.4. Any increase in GST consequent to the suppliers coming into different duty slab during the execution of the contract shall have to be taken into account and the all inclusive firm price shall be quoted accordingly by the Tenderers. Any Variation in GST due to statutory Variation within the contract delivery date shall be considered by the TNPDCL Ltd.

8.5. In case of delayed delivery, the GST prevailed on the date of actual delivery applicable on the date of contractual date of delivery whichever is less shall be admitted.

8.6. **GSTR-2A** of TNPDCL will be verified to ensure the remittance of GST to Govt., by the supplier in respect of this PO. If the GST remitted by the supplier is found lesser than that claimed from TNPDCL, the excess GST paid by TNPDCL will be recovered from the supplier, duly adhering regular procedures. The supplier is requested to file the GST returns promptly to avoid delay in processing/payment of invoices. In case of non-filing of GSTR1 by supplier, the SD, EMD and other payments, if any, due to the supplier may be withheld.

8.7 **TDS under GST as per Section 51 of the CGST Act, 2017: -**

The Central Government vide Notification No.50/2018 dated 13th September 2018 has notified 1st day of October, 2018 as the date from which the provisions of Tax Deducted at Source (TDS) under GST as per Section 51 of the CGST Act, 2017 shall come into force.

Accordingly, Tax at the rate of 2% (i.e. CGST 1% and SGST 1%) or (IGST 2%) will be deducted from the payment made or credited to the supplier (i.e deductee) of taxable goods or services or both from the invoices raised by the suppliers or service providers.

The Standard Operating Procedure (SOP) issued by CBIC is available in www.cbic.gov.in/resources//htdocs-cbec/gst/28092018 SOP_ON_TDS.pdf which can be referred to for further clarification.

8.8. **Provision of Section -194Q of IT Act :**

1. Any person, being a buyer, who is responsible for paying any sum to any resident for purchase of goods of value (or) aggregate value exceeding Rs.50 lakhs in any previous year, shall, at the time of credit of such sum to the account of the seller (or) at the time of payment, whichever is earlier, shall deduct an amount equal to 0.1% of such sum exceeding Rs.50 Lakhs as TDS under Section-194Q of IT Act.

The supplier of goods is required to furnish the PAN to TNPDCL for making the payment. In case the suppliers do not have PAN, TNPDCL is required to deduct tax at higher rate as per the provisions of section 206AA. In case of specified person i.e., Any person who has not filed Income Tax return for two previous years immediately before the previous year in which TDS is required to be deducted and the time limit for filing of income tax return u/s 139(1) of the Income Tax Act, 1961 has expired provided the total TDS & TCS in INR is Rs.50,000 (or) more in each of the two previous years the TDS rate u/s 194Q will apply at higher rate u/s.206AB.2. The provisions of this section shall not apply to the transactions on which tax is deductible under any other provisions of the Income Tax Act 1961 and also on the transactions in which Tax is collectible under the provisions of Section 206C.

3. On purchase of goods/materials, TNPDCL shall have the primary and foremost obligation to deduct Tax at source and no tax shall be collected on such transaction u/s.206C(1H). TDS u/s 194Q is also applicable on the Advance paid for purchase of goods.

4. The above provisions comes into effect from 01.07.2021 onwards and hence no TCS under Section 206C(1H) has to be paid by TNPDCL on purchase of Goods. Accordingly, TNPDCL will deduct TDS under section 194Q on all the purchase of goods exceeding the threshold limit i.e. aggregate credit (or) payment exceeds Rs.50 Lakhs. It is mandatory for vendor to submit the declaration format in **Schedule- H** to determine the applicability of TDS rate u/s 206 AB.

9.0. INSURANCE:

Contracting firms shall arrange insurance for the equipment and all its accessories being supplied by them, through any of the Nationalised Insurance Companies. It will be the responsibility of the supplier to replace the defective/damaged materials and make good the shortages and other losses in transit, free of cost, lodge and recover claim from insurance Under-writers/Carriers.

9.1 PACKING AND FORWARDING:

The packing shall conform to relevant packing standards. The supplier/ contractor should however, ensure that the packing is such that the materials reach their destination without damage/loss during transit by Rail or Road and subsequent storage. The words "Handle with care" should be printed on the cartons.

The equipment/materials and all its accessories shall be securely packed and despatched, freight paid, duly insured, at supplier's risk and cost. The packing may be in accordance with the manufacturer's standard practice. The supplier is responsible for ascertaining the facilities that exist for Road Transport to site. Each package shall be clearly marked and contain detailed packing list, such as gross weight, net weight etc. The supplier is solely responsible for any loss or damage during transport. The despatch of materials shall be made only after the approval of routine test certificates by the Board.

The equipment/ Materials shall be unloaded at Destination Stores/Sites by the supplier at free of cost.

10.0. PAYMENT :

10.1. **Payment will be made to the suppliers by NEFT/RTGS / Bank transfer. The bank charges involved in making payment will be to the account of the tenderer/supplier.**

10.2. Payments will not be made for materials damaged during transit. All defective materials shall be replaced by the supplier free of charge.

The payment will be made directly to the supplier based on submission of claims to the accounts branch of EDCs / CDCs against passing of bills by concerned Superintending Engineer / EDCs / CDCs. After passing the bills by EDCs, the payment will be released from Central Payment/TNPDCL HQs.

10.3. **For the materials delivered within contractual delivery period:**

100% of the All-inclusive price (including GST) of the materials of each consignment shall be released to the vendors of SSI units and non-SSI units within a reasonable period without any interest for the delayed disbursement if any, against the submission of bills with required documents after deducting recoveries, if any.

The invoice in duplicate shall be sent to the office of the Superintending Engineer / EDCs / CDCs concerned, for passing the bills. After passing the bills by EDCs, the payment will be released from Central Payment/TNPDCL HQs.

10.4. For the materials delivered beyond the contractual delivery period if accepted by the purchaser :

100% payment of the all-inclusive price (including GST) of the materials of each consignment shall be released to the vendors of SSI units and non-SSI units within a reasonable period without any interest for the delayed disbursement if any, against the submission of bills with required documents after deducting L.D. and other recoveries, if any.

10.5. <u>In case of delay in supply, the materials will be accepted subject to the following conditions.</u>

(a) There should be no declining trend in prices.

(b) If there is any declination, payment will be released as per the latest purchase order rates or lowest rates obtained during the recent tenders opened subject to levy of liquidated damage for belated supplies.

(c) TNPDCL reserves the right to accept or reject the delayed supplies without assigning any reason therefor and take action as per the other terms and conditions of this specification.

10.6. 100% payments will be made only on receipt of the supplier's bills in duplicate and passing of bills by the Superintending Engineer / EDCs / CDCs concerned after **<u>approval / acceptance of the following :</u>**

10.6.1 **<u>Acceptance / Approval of PO issuing Authority (CE/MM)</u>**

<u>(a) Security Deposit cum Performance Guarantee for 5% value of the order</u>
(b) GST Registration Certificate.

(c) Undertaking towards jurisdiction for legal proceedings.

(d) Guarantee Certificate for the ordered quantity

(e) Undertaking towards Input tax credit benefit passed on to TNPDCL

(f) Approval of Test / Inspection reports after carrying out inspection for the offered / inspected quantity of material / Waiver of inspection and issue of Despatch Instructions.

10.6.2 **<u>Acceptance of Bill Passing Authority.: (SE / EDCs or CDCs)</u>**

(a) Invoices/Bills

(b) Guarantee Certificate for the supplied materials against DI issued by CE/MM

(c) e-way bill as per GST norms for the transport of material against DI issued by CE/MM

10.7. The supplier should despatch only after getting despatch instructions from the Superintending Engineer / Materials Management-II. If the supplier despatches the materials without the prior approval of the purchaser, then the purchaser shall not be responsible for any demurrage or wharfage or both and only the supplier should bear any expenditure arising out of such unapproved despatches.

11.0. <u>SECURITY DEPOSIT CUM PERFORMANCE GUARANTEE :-</u>

The successful tenderer will have to pay the Security Deposit cum Performance Guarantee as detailed below:

11.1 The successful tenderer/ Supplier will have to furnish **5% of the Purchase order value** (All incl . price) as Security Deposit cum Performance Guarantee in the form of Electronic Mode of Payment or DD / Banker's Cheque / Irrevocable Bank guarantee **within 30 days** from the date of receipt of Purchase order. If the successful tenderer / supplier fails to remit the amount / furnish the Security Deposit cum Performance Guarantee within the above stipulated time, the EMD paid by the tenderer / supplier shall be forfeited and Purchase Order will be cancelled without any further reference.

Irrevocable Bank Guarantee will be accepted towards payment of Security deposit cum Performance guarantee for the value of purchase order exceeding Rs.10 Lakhs. The above BG should be a single irrevocable Bank Guarantee of **5% of the purchase order value** and valid for a **continuous period of 66 months from the anticipated date of receipt of last consignment of goods / materials at site in good condition.** In case of delay in supply, the Guarantee should be extended suitably.

11.2. The Security Deposit cum Performance Guarantee will not carry any interest.

11.3. The Security Deposit Cum Performance Guarantee will be returned /refunded to the supplier after the expiry of the guarantee period ensuring that defects/ damages during the guarantee period are rectified /replaced. If the purchaser incurs any loss or damages on account of breach of any of the clauses or any other amount arising out of the contract becomes payable by the supplier to the purchaser, then the purchaser will in addition to such other dues that he shall have under law, appropriate the whole or part of the security deposit and such amount that is appropriated will not be refunded to the supplier.

11.4. If the performance period of the supplied material over and some quantity of within guarantee period defective materials are still pending for want of repair/replacement then fresh BG equal to the cost of such defective item is to be furnished by the vendor for releasing original SD cum PBG by TNPDCL (purchaser).

11.5. In case of the requirement arising for extension of the Bank Guarantee, the extended Bank Guarantee shall have to be submitted to TNPDCL within the date of expiry of the existing Bank Guarantee. The BG towards SD cum PBG should be got extended for its validity before its expiry. In case of failure to submit such extended Bank Guarantee within the due date (expiry date), TNPDCL shall invoke the Bank Guarantee by addressing the Bank directly and the proceeds will be credited to TNPDCL's account.

12.0. DELIVERY SCHEDULE :-

12.1. The following delivery schedule shall be adhered to :

(a) **"**The delivery of the materials shall commence after one month from the date of receipt of the Purchase order and shall be completed in **4 monthly** installments thereafter." i.e. **1+ 4 months.**

(b) Based on the requirements and contingencies, TNPDCL has the right to advance / postpone the delivery schedule at the time of placing Purchase order. The quantity due to be supplied in each month will be taken into consideration for the purpose of liquidated Damages clause.

(c) Board reserves the right to cancel the quantities not supplied as per delivery schedule. The unsupplied quantities that lapse in the schedule, may be placed on other firms who have ensured timely delivery of material.

(d) The inspection call should be given not less than 15 days advance with the details of date of readiness, and the quantity of materials that will be ready for inspection by TNPDCL's officers. The arrangement for inspection shall be made by suppliers in such a way that the delivery schedule is kept up. The materials shall not be despatched without instruction from TNPDCL.

It is the responsibility of the supplier to give advance information for inspection, despatch of materials and other obligations under the terms and conditions of this tender/contract in order to deliver the material within the contractual delivery period quoted /agreed.

12.2 Tenderers should agree for delivery of materials anywhere in Tamil Nadu State to be stipulated by the Board based on the schedule furnished. The delivery so specified shall be guaranteed by the tenderers under liquidated damages clause.

12.3. TNPDCL reserves the right to revise this delivery schedule depending on the actual requirement at the time of placing the purchase order.

12.4. TNPDCL also reserves the right to cancel the order if the delivery schedule is not kept up, without any further notice to the supplier.

12.5. To ensure sustained supply without any interruption, TNPDCL reserves the right to place orders among more than one tenderer.

12.6 The Board will be at liberty to cancel the Purchase order if the supply is not made as per the delivery schedule, notwithstanding its right to claim liquidated damages for the belated supplies and the quantity outstanding to be supplied as on the date of cancellation. The defaulting Suppliers/contractors will be liable to pay to the Board in addition to the liquidated damages for delay, the actual difference in price whenever the Board orders the delayed quantity to be supplied / executed by other agencies at higher rate.

12.7. The actual date of receipt of each material with all accessories will be reckoned as the date of delivery for the purpose of calculation of liquidated damages in respect of that material.

12.8. The delivery period will not normally be extended. Hence all efforts shall be taken to deliver the materials within the contractual delivery period.

12.9 **After the issue of Despatch Instruction, if any delay is caused by the supplier in arranging timely despatches, their poor performance will be taken note of while ordering in future.**

13.0. INSPECTION :-

13.1. Tenderers are requested to furnish in their tenders the exact location of their factory with detailed address, contact phone/cell no, e-mail id etc. to enable inspection by Board if considered necessary.

13.2. For New entrants factory inspection will be done by the Board's officers to assess the genuineness in manufacturing the tendered materials and to assess whether the firm have infrastructural facilities to manufacture the same.

13.3. The inspection call should be given not less than 15 days in advance with the details of date of readiness and the quantity of materials that will be ready for inspection by TNPDCL's officers. The arrangement for inspection shall be made by suppliers in such a way that the delivery schedule is kept up. The materials shall not be despatched without instruction from TNPDCL.

13.4. The quantity offered by the firm shall be manufactured and readily available at the time of inspection by TNPDCL officials. If the quantity offered are not available at the time of inspection, the available quantity will be inspected and the balance quantity will be inspected separately after submission of written confirmation by the supplier to the PO placing authority.

13.5. The authorized representatives of the purchaser shall have access to the supplier's works at any time during working hours, for the purpose of inspecting the manufacture of the materials and for testing the selected samples from the materials covered by this specification. The supplier or the sub-vendor shall provide facilities for the above.

13.6. The supplier shall provide all the documents which is necessary to complete the inspections. TNPDCL's representatives shall be allowed to inspect the Supplier's / Contractor's Quality assurance standards, procedures and records.

13.7. All expenditures including travel, boarding, lodging etc. of the Purchaser's representative to witness the Factory Acceptance Test and factory inspections shall be borne by the supplier/contractor.

13.8. The Purchaser's right to inspect, test and wherever necessary to reject the materials after the materials arrives at purchaser's store / site, shall no way limited or waived by the reason for having tested and passed already by the Purchaser's representative prior to materials despatch. If required, the CE/MM may issue waiver of inspection based on the stock and urgent requirement of materials.

14.0. TESTS :

(i) Acceptance and Routine Test as per relevant IS and its latest amendments shall be conducted by the manufacturer on finished materials in entire quantity of each consignment.

(ii) Acceptance and Routine Test results shall be submitted in duplicate to the concerned Superintending Engineer and also got approved before the despatch of each consignment.

15.0. DESPATCH INSTRUCTIONS :-

The details of allotment to consignee and TNPDCL destination stores will be furnished at the time of issue of Despatch Instructions. The supplier is solely responsible for any loss or damage during transport. The dispatch of materials shall be made only after the approval of test certificates by the TNPDCL. The equipment/Materials shall be unloaded at Destination Stores/Sites by the supplier.

16.0. TEST AT SITE: (Random Sample test)

16.1 If required random samples of materials supplied will be tested departmentally or through approved Govt. Laboratory at purchasers cost and for any non-conformity to relevant IS, full supplies will be rejected. If initial payment had already been made, the balance payment will be forfeited and any other losses or damages including testing charges will also be claimed. Future supplies in such cases will be accepted and paid for only after the results of the samples tested are satisfactory. In addition, the guarantee period will also be extended for subsequent supplies at the discretion of the purchaser.

16.2 The purchaser reserves the rights of having such tests or may decide up on being carried out at site at his own expenses to satisfy himself that the materials have not suffered any damage during transit.

16.3 If necessary, random samples of materials supplied will be tested (both, Routine & Type Tests and any other special test) departmentally or through approved Govt. Laboratory at purchasers cost and for any non-conformity to relevant IS and Board's specification, full lot will be rejected. If initial payment had already been made, the balance payment will be forfeited and any other losses or damages including testing charges will also be claimed. Future supplies in such cases will be accepted and paid for only after the results of the samples tested are satisfactory. In addition, the guarantee period will also be extended for subsequent supplies at the discretion of the purchaser.

16.4 If necessary, One meter from each and every lots of meters received at Purchaser's Stores will be randomly Chosen and the meter will be tested for compliance of the hardware requirements of the technical specifications, before acceptance. If any discrepancies found then the entire lot will be rejected, shall no way limited or waived by the reason for having tested, verified and passed already by the Purchaser's representative at supplier works prior to material's despatch. Also, the purchase order will be cancelled with suitable LD and other recovery and the supplier are not eligible for participating in any future tenders.

17.0. LIQUIDATED DAMAGES :

The delivery as specified should be guaranteed by the supplier under the Liquidated Damages Clauses given below:

17.1 If the supplier fails to deliver the materials within the time specified in the PO or any extension thereof, the purchaser shall recover from the supplier as liquidated damages, a sum of half a percent (0.5%) of the All-inclusive price of the undelivered Materials for each completed week of delay. The total liquidated damages shall not exceed ten percent (10%) of the All-inclusive price of the materials so delayed.

The actual date of delivery of materials with all its accessories at destination stores will be reckoned as date of delivery for this purpose. Liquidated damages will also be recovered for the quantity not supplied as is done for the belated supply. It is the responsibility of the suppliers to arrange for inspection, despatch etc. in time to keep up the delivery schedule.

17.2. If supplies to be rendered against the PO are made by the supplier beyond the period of delivery stipulated in the order and if they are accepted by the TNPDCL, such acceptance is without prejudice to the TNPDCL's rights to levy liquidated damages for the delay in supply.

17.3. The TNPDCL will also be at liberty to cancel the order if the supply is not made as per the delivery schedule specified in the P.O., notwithstanding its rights to claim liquidated damages for the belated supplies and quantity outstanding to be supplied as on the date of cancellation.

17.4. The suppliers are liable to pay the amount of loss sustained by the TNPDCL in the event of non-execution of orders, if any placed on them either in full or part to the satisfaction of the TNPDCL under the terms and conditions of contract and in the event of placing orders for such quantities on some others at a higher price.

17.5. Tenderers not giving clear and specific acceptance to the above clauses are liable for rejection.

17.6. If there is any downward trend in prices on account of belated supplies, the tenderers have to accept the same with the levy of liquidated damages, for belated supplies.

17.7. The defaulting contractors will be liable to pay to the TNPDCL in addition to Liquidated Damages for delay, the actual difference in price wherever TNPDCL orders the delayed quantity to be supplied by other agencies at a higher cost.

18.0. FORCE MAJEURE :-

18.1. The supplier shall not be liable for delay in performing his obligations resulting directly or from any force majeure conditions herein defined as:

(a) Any cause which is beyond the reasonable control of the supplier or purchaser as the case may be.

(b) Natural phenomena, such as floods, drought, earthquakes and epidemics.

(c) Act of any Govt. Authority, domestic or foreign, such as wars declared or undeclared quarantines, embargoes licensing control on production or distribution restriction.

(d) Accident and disruptions such as fire, explosion, increase in power cut with respect to date of tender opening, break down of essential machinery or equipments etc.

(e) Strikes, slow down, and lockouts

(f) Failure or delay in the supplier's source of supply due to force majeure causes enumerated at 'b' to 'e' above shall be considered, provided the supplier produces documentary evidence to show that there were no other alternative source of supply available to him or if available the lead time required was likely to be longer than the duration of the force majeure at the normal source of supply. All the provisions of this clause shall apply whether the disruption cause is total or partial in its effect upon the ability of the supplier to perform.

NOTE The cause of force majeure condition will be taken into consideration only if the supplier within 15 days from the occurrence of such delay notifies. The purchaser shall verify the facts and grant such extension as the facts justify. For extension due to force majeure conditions, the supplier shall submit his representation with documentary evidence for scrutiny by the purchaser and decision of the purchaser shall be binding on the firm.

18.2. Provided that if the performance in whole or part by the supplier on any obligation under this contract is prevented or delayed by reasons of any eventuality for a period exceeding 60 days, the Board may at its option terminate the contract by a notice in writing.

18.3. The Power cut shall not be considered under force majeure condition. The period of extension shall be decided only by the authority who placed the order, after verifying the evidence for the cause of delay.

19.0. GUARANTEE :-

19.1. The guarantee period is **66 months** from the date of receipt of materials. The meter shall have a design life of at least 10 years and supplier shall be made responsible to replace free of cost, with no transportation or insurance cost to the TNPDCL, up to the destination, the whole or any part of the material which in normal and proper use proves defective in quality or workmanship, subject to the condition that the defect is noticed within **66 months** from the date the material is received by the Consignee.

19.2. Any defects noticed during this period shall be rectified free of cost to the Board within **60 Days (Sixty Days)** from the date of intimation of defect/ failure. Irrespective of number of failures and repairs, the suppliers are responsible for replacement of defective materials till the completion of guarantee period.

19.3. A written guarantee guaranteeing the Board against defects in the materials supplied, either in materials or workmanship, should be furnished preferably along with the initial bill for 100% / 95% payment. The guarantee shall be operative for a period of 66 months from the date of receipt of materials at site in good condition.

19.4. Any defects or failure occurring within the guarantee period shall be replaced free of cost within **60 Days (Sixty Days)** on receipt of intimation from the purchaser on such defects of failures.

If they are not replaced within this period the Supplier / contractor shall pay the liquidated damages as per the liquidated damages clause in the contract for the delay from the date of receipt of intimation for the defects or failures. A guarantee certificate in the above form shall be submitted along with the 100/95% bills themselves. Any expenditure incurred in the transportation of meter for rectification or replacement will be to the suppliers account.

19.5 The packing shall conform to relevant packing standards. The contractor should however ensure that the packing is such that the materials reach their destination without damage / loss during transit by Rail or Road and subsequent storage. The words " Handle with care" should be printed on the cartons.The tenderers who quote from outside Tamil Nadu may indicate whether any service centers are available inside Tamil Nadu, so as to rectify/ repair the meters that are defective/failed within guarantee period without delay.

19.6. The incidental expenses, transport and freight charges for the replacement of defective materials within the guarantee period may also be borne by the supplier.

19.7. The tenderers shall guarantee among the other following things :

(i) Quality and Strength of materials used.

(ii) Safe electrical and mechanical stresses on all parts of the material under all specified conditions.

(iii) Performance figures given by the tenderers in the Schedule of Guaranteed technical particulars and technical requirements of the tender.

20.0. LOSS OR DAMAGE

20.1. External damages or shortages that are prima facie, the results of rough handling in transit or due to defective packing will be intimated within fortnight from the date of receipt of the materials at site. Internal defects, damages or shortages of integral parts which cannot ordinarily be detected on a superficial visual examination by bad handling in transit or defective packing, would be intimated within 2 months from the date of receipt of materials. In either case, the defective materials shall be replaced/rectified by the supplier, free of cost as per **clause 21.0.**

20.2 If during the period of supply, it is found that goods already supplied are defective in material or workmanship or do not conform to specification or unsuitable for the purpose for which they are purchased, then it will be open to the purchaser either to reject the goods or repudiate the entire contract and claim such loss that the purchaser may suffer on that account require the supplier to replace the defective goods, free of cost.

20.3. Similarly, if during the guarantee period any of the goods found to be defective in materials or workmanship or do not conform to specification or are unsuitable for the purpose for which they are purchased, it will be open to the purchaser either to repudiate the entire contract and claim damages or accept such parts of the goods that are satisfactory and require the supplier to replace the balance or to claim compensation for the entire loss sustained by the purchaser on that account.

21.0. REPLACEMENT OF DEFECTIVE / DAMAGED MATERIALS :

21.1 Notwithstanding anything contained in Liquidated Damages clause of this contract, where the whole or part of the materials supplied by the supplier are found to be defective or damaged or are not in conformity with the contract, such defects or damages in materials supplied shall be rectified either at the point of destination or at the supplier's works, at the cost of supplier, against proper security and acknowledgement. In the alternative, the meter found defective within guarantee shall be replaced/ repaired by the supplier free of cost, within one month from the date of intimation. For each defective meter replacement 15% cost of the meter will be collected as supervision charges for replacement of defective meter. If not replaced within one month as said above the recovery for the non-replacement defective meters will be levied as follows:

(i) If the defective meters are not replaced / repaired within the specified period as above, then the LD @ 0.5% per week will be levied to a max. of 10% in addition to the 15% supervision charges for replacement of defective meter from the date of intimation.

(ii) If the defective meter is not at all replaced even after 20 weeks (the max. L.D. Period), then the cost of the meter along with max. LD of 10% and supervision charges at the rate of 15% for replacement of each defective meter will be levied.

(iii) If the % of meter defects exceeds more than 3% of the quantity supplied to each consignee circle, then 50% of the meter cost will be recovered for each additional defective meter over and above 3%, along with the defective replacement in addition to the LD @ 0.5% per week to the max. of 10% for any delay in replacement and 15% supervision charges will be recovered. The concerned consignee circles will be responsible for the % calculation and to give proper notices to the company and to send report to headquarters for recovery.

(iv) **The % of defect should not exceed 1% per year till the guarantee period.** for the total supply. Any defaulting supplier on this clause will not be eligible for participating in any tender of TNPDCL or in any of its sister concerns for the next three years.

21.2 The defective intimation by the purchaser to the vendor shall be made either by email, post, fax, gram and over phone.

21.3 It shall be the responsibility of the bidder to intimate to all consignee circles, the particulars of persons to whom the correspondence to be made for defective intimation.

21.4 The vendor has to keep the track of defective % and reconcile with the consignee Superintending Engineer every month and a report furnished duly countersigned by the consignee Superintending Engineer to the P.O issuing authority on periodic basis to avoid discrepancies, when final figure on % failure arrived by the purchaser for imposing 50% recovery or ban.

21.5 An yearly report on % defective, circle wise with the counter signature of consignee Superintending Engineer should be furnished by the supplier to the PO issuing authority with a copy to all consignee circles. This report is mandatory to be furnished by the tenderer along with the future tender, unless otherwise the offer will be summarily rejected.

21.6 In the event of supplies being received damaged or short at the destination stores, the cost of such materials will be paid only proportionate, to the value of the materials received in good condition unless the damaged goods or short supplies are made good free of cost to the Board by the supplier.

21.7 If during the period of supply, it is found that goods already supplied are defective in materials or workmanship or do not conform to the specification or are unsuitable for the purpose for which they are purchased then it will be open to the purchaser either to reject the goods and repudiate the entire contract and claim such loss that the purchaser may suffer on that account or require the contractor to replace the defective goods free of cost.

21.8 Similarly, if during the guarantee period stipulated under guarantee clause subsequent to the date of receipt of the goods, any of the good be found defective in materials or workmanship, or do not conform to the contract or are unsuitable will be open to the purchaser either to repudiate the entire contract and claim damages or accept such part of the goods that are satisfactory and required the Supplier/ contractor to replace the balance or pay compensation to the extent of the loss sustained by the purchaser on that account.

21.9 Notwithstanding any other remedies available, the purchaser shall be entertained to dispose off the defective / damaged materials in "as is where is condition" without further notice, if the Supplier / contractor fails to rectify the defect and / or replace the damaged materials and / or fails to remove defective/ damaged materials within one month period as per PO terms, from the date of receipt of intimation from the purchaser, Board reserves right to dispose of such materials. This is without prejudice to the imposition of Liquidated Damages, Ground rent, forfeiture of security deposit etc.,

22.0 RESPONSIBILITY:

The Tenderer is responsible for delivery of the materials at the destination station in good condition. The tenderer shall include and provide for securely protecting and packing the materials as per relevant packing standards to avoid damages or loss in transit. All risks connected with the supply of these materials should be borne by the supplier.

23.0. FAILURE TO EXECUTE THE PURCHASE ORDER /CONTRACT:

23.1. Suppliers failing to execute the order placed on them to the satisfaction of the TNPDCL under the terms and conditions set-forth therein, will be liable to make good the loss sustained by the Board, consequent to the placing of fresh orders elsewhere at higher rate, i.e. the difference between the price accepted in the contract already entered into and the price at which fresh orders have been placed. This is without prejudice to the imposition of penalty under the Liquidated Damages clause and forfeiture of security deposit etc.,

23.2 Wherever the supplier/supplier does not commence supply as agreed to, the E.M.D./ S.D. paid by the firm will also be forfeited in terms of P.O./ Contract and his name blacklisted after due notice. His poor performance will be recorded for reference in future ordering.

24.0. NON-ASSIGNMENT :-

The supplier shall not assign or transfer the contract or any part thereof without the prior approval of the Purchaser.

25.0. RECOVERY OF DUES :-

25.1. The TNPDCL is empowered:

(a) To recover any dues against this contract in any bills/ Security Deposit Cum Performance Guarantee/ Earnest Money Deposit / Permanent E.M.D. due to the suppliers either in this contract or any other contract with Board.

(b) To recover any dues against any other contracts of the suppliers with Board, with the available amount due to the supplier / Contractor against this contract.

26.0. RAW MATERIALS :-

It is the responsibility of the tenderer to make his own arrangement to procure the necessary raw materials required for the manufacture.

27.0. PATENT RIGHTS ETC. :

The supplier shall indemnify the purchaser against all claims, actions, suits and proceedings for the infringement or alleged infringement of any patent, design or copy right protected either in the country of origin or in India by the use of any equipment supplied by the supplier other than for the purpose indicated by or reasonably to be inferred from the specification.

28.0. EFFECTING OF RECOVERIES :-

Any loss, arising due to non-fulfillment of this contract or any other contract, will be recovered from the Security Deposit held and / or any other amount due to the supplier from the Board from this Contract as well as from other contracts.

29.0. GST REGISTRATION CERTIFICATE :-

The tenderer should upload the copy of the GST registration certificate in their offer.

30.0. ARBITRATION ACT NOT TO APPLY:

The Board will not accept any arbitration in case of disputes arising in any respect under this contract. Any dispute arising out of this contract shall not be subject to arbitration under the provisions of Arbitration and Conciliation Act 1996 in the event of any dispute between the parties.

31.0 PAST PERFORMANCE :-

31.1. The intending tenderers shall furnish the details of various supply orders / work contracts executed by them for the past ten years as on the date of Tendering in the proforma enclosed in the Tender Specification as per **Schedule-C** along with end user Certificate for satisfactory performance of the materials supplied.

31.2. The details furnished by the tenderers shall be in complete shape and if it is found that any information is found omitted, suppressed, incomplete or incorrect, the same will be taken note for, while dealing with the Tenders in future. Tenders furnished by the tenderers without these accompanying details of their past performance are liable for rejection.

32.0. JURISDICTION FOR LEGAL PROCEEDINGS (AFTER AWARD OF PURCHASE ORDER/CONTRACT) :

32.1. No suit or any proceedings in regard to any matter arising in respect of this contract shall be instituted in any court, save in the High Court, Chennai, City Civil Court at Chennai or at the Court of small causes at Chennai. It is agreed that no other court shall have jurisdiction to entertain any suit or proceedings even though, part of the cause of action might arise within their jurisdiction. In case any part of the cause of action might arise within the jurisdiction of any other Courts in Tamil Nadu and rest within the jurisdiction of courts outside the Tamil Nadu, then it is agreed to between the parties that such suits or proceedings shall be instituted in a Court within the State of Tamil Nadu and no other court outside the State of Tamil Nadu shall have jurisdiction even though any part of the cause of action might arise within the jurisdiction of such courts. The successful Tenderer shall furnish an UNDERTAKING as per **Schedule-E** in a non-judicial stamp paper of **Rs.500/-** agreeing to the above condition.

33.0. QUANTITIES :

The quantities mentioned in this specification are only tentative. The purchaser reserves the right to revise the quantities at the time of placing the orders, to the extend of 25% either way of the requirement indicated in the tender document as per the Tamil Nadu Transparency in Tenders Act 1998 and the Tamil Nadu Transparency in tender rules 2000 and subsequent amendments thereof as applicable to this Tender.

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SECTION- VI
TECHNICAL SPECIFICATION

Technical Specifications for Whole Current A.C. Single Phase Smart Energy Meter (5-30A)

1.0. Scope

These specifications cover the design, manufacturing, testing, supply and delivery of AC whole current, single phase, 2 wires, Smart Energy Meter with bidirectional communication facility & remote connect/disconnect switch. The meter shall communicate with Head End System (HES) on cellular communication technology mentioned in IS16444 Part 1, as per the requirement of the TNPDCL.

2.0. Basic Features

The Smart Meter would have the following minimum basic features-

- Measurement of electrical energy parameters
- Bidirectional Communication
- Integrated Load limiting /connect/disconnect switch
- Tamper event detection, recording and reporting
- Power event alarms as per IS 16444 Part 1
- Remote firmware upgrade
- Pre-paid features at MDM end (as per IS 15959 Part 2)
- TOD features
- Net Metering(kWh) features (optional as per requirement of TNPDCL)
- On demand reading.
- Plug in type communication module

3.0. General standards applicable for meters

S. No.	Standard No.	Title
1	IS 13779 with latest amendments	AC Static Watt-hour Meter class 1& 2
2	IS 15884 with latest amendments	Alternating Current Direct Connected Static Prepayment Meters for Active Energy (Class 1 and 2)- Specification
3	IS 16444 Part 1 with latest amendments	A.C. Static Direct Connected Watt Hour Smart Meter 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
5	CBIP 325	Guide on Static Energy meter Specification & Testing.

4.0. Communication

Meter shall have the ability to communicate with Head End System (HES) on any one of the communication technologies mentioned in IS16444 Part 1 (Cellular) in a secure manner. The meter shall accommodate SIM card/ e-SIM 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.COMMUNICATION CAPABILITY:-

The meters shall have a galvanically isolated optical communication port as per IEC1107 and other relevant IS/ANSI/IEC standards, provided on the front of the meter to facilitate downloading the billing and history data to a Common Meter Reading Instrument (CMRI) and Base Computer System (BCS). The communication port shall have proper sealing arrangement. The interface for communication between CMRI & BCS shall be supplied at free of cost. The CMRI communication cables supplied previously by the meter supplier is to be supported for this specification meter also. The CMRI communication cables should be provided by the supplier.

The protocol used in the meter is DLMS as per IS 15959:2011 up to latest amendments

i. It should be possible to read the meter through external via CMRI and BCS
ii. The data transfer shall be highly reliable and tamper proof
iii. It should not be possible to reset the energy reading in the meter or make any change in the data stored in the meters either current or Historical, with the CMRI without appropriate secured password.
iv. The compatibility of transferring data from the meter to CMRI and then to the base computer system (BCS) should be easily established; any change in language or any other reasons, the supplier shall modify it at his own cost within the guarantee period.
v. Data could only be downloaded from meter to CMRI / BCS, but no command regarding DATA ALTERATION IN THE METER SHOULD BE POSSIBLE IN ANY CASE.

a. The BCS software should have the following provisions:

Collection of data from CMRI and Meter

1. Dump Data (All Data).
2. Billing data.
3. Load Survey
4. Tamper.
5. Setting.
6. Name plate (Meter Sl.No, Meter type, Rating, Meter constant and Manufacturing month & year)
7. Clear CMRI.
8. Instant parameters.
9. Accuracy Test (on BCS/Laptop)
10. Uploaded File size display (bytes capacity).

b. The CMRI software should have the following provisions

1. Collection of all data.
2. Download to BCS.
3. Billing.
4. Load Survey.
5. Tamper.

6. Setting
7. Name plate (Meter Sl.No, Meter type, Rating, Meter constant and manufacturing month & year.)
8. Upload from BCS.
9. Clear CMRI (through CMRI&BCS).
10. Instant parameters.
11. Accuracy Test
12. Memory Check (to view available data capacity & balance space)
13. Battery status of the CMRI

5.0. Other Specifications:

Features	Minimum Requirement of Features
Applicable Standards	The meters shall comply with IS 16444 Part 1 for all requirements.
Reference Voltage	As per relevant IS (240 V)
Current Rating	5-30 A
Category	UC1 or better
Starting Current	As per IS 16444 Part 1
Accuracy	Class 1.0 as per IS 16444 Part 1
Limits of error	As per IS 16444 Part 1
Operating Temperature range	As per IS 13779
Humidity	As per IS 13779
Frequency	As per IS 16444 Part 1
Influence Quantities	As per IS 16444 Part 1
Power Consumption of meter	As per IS 16444 Part 1
Current and Voltage Circuit	As per IS 16444 Part 1
Running at No Load	As per IS 16444 Part 1
Test output device	As per IS 16444 Part 1
Meter Display	As per IS 16444 Part 1
Name Plate & marking Meter Display	As per IS 16444 Part 1
Parameters to be measured	As per IS 16444 Part 1 / 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 Part 1
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 part 1
Features	**Minimum Requirement of Features**
Alarm	As per IS 16444 Part 1/ 15959 Part 2
Load Control	As per IS 16444 Part 1

Connect/Disconnect switch	UC1 (As per IS 16444 part 1)
Status of load switch	As per IS 16444 Part 1
Programmability	As per IS 16444 Part 1
Communication	As per IS 16444 Part 1
Data Exchange Protocol	As per IS 16444 Part 1
Remote Firmware upgrade	As per IS 15959 Part 2
Real Time Clock (RTC)	As per IS 16444 Part 1/ IS 15959 Part1 & Part 2
Data Retention	As per IS 16444 Part 1
Battery Backup	Meter shall be supplied with separate battery backup for RTC.
First Breath (power on) and Last gasp (power off) condition detection and communication to HES	As per IS 16444 Part 1
Plug-in Communication Module	The Smart Meters shall have a dedicated sealable slot for accommodating plug-in type bi -directional communication module (Cellular) with the Smart Meters, leading to easy adaptability for network interfaces (WAN/NAN). The Plug-In module shall be field swappable/ replaceable.

6.0. Data display facility (auto/manual)

As per IS 16444.
The Data Display facility shall be provided in three modes-
1. Auto Scroll mode
2. Push Button mode
3. High Resolution Mode

6.1.DISPLAY PARAMETERS:

a) The meter shall have a minimum, 6 (six) digit bright and continuous Liquid Crystal Display (LCD) which shall be of STN (super twisted pneumatic) / FSTN type, construction suitable for temperature withstand of 80 degree centigrade(storage) and 65 degree for operation, with high contrast. **Dot-Matrix type LCD display is not acceptable**. The minimum character shall be 10 mm height and 5mm width (for alphabets it shall be 5 x 3 mm). The LCD display should have wide viewing angle of 45 degree to 60 degree cone up to 1m distance. The display size shall be sufficient to accommodate 6 digit of specified size with adequate inter digit gap of at least 1mm and side gap of 2mm on all four sides. The accuracy of display parameters on LCD display for all parameters shall be matching with the accuracy class of meters as per IS.

The type of display module with white backlit display shall be used in the meters and display parameters with typical screen shots for the parameters (as per Display parameters for all modes).

b) For a clear visibility of the display of the meter reading at a distance large viewing area with large display icons is preferred. The display should not be affected by electrical & mechanical disturbances.

c) When the meter is placed in a enclosure at a constant temperature of 65 degree 'C' for a period of 30 minutes the character of LCD should not deform and also when kept at a constant temp of 80 degree for a period of 30 minutes, the LCD should work satisfactorily when restored at normal temperature. The LCD shall have a minimum life period of 100K hours with operating temperature range of 30-80°C.

d) The LCD display of the meter should be continuous backlit.

e) **Display Resolution:**

i. Voltage = 0.01 V
ii. Current = 0.01 A
iii. Power Factor = 0.001
iv. Active Energy = 0.1 kWh
v. Apparent Energy = 0.1 kVAh
vi. Demand = 0.01 kW / kVA

a) The display for kWh **and kVAh** should have facility for high resolution display with minimum **4 (2+4 digit)** decimal digits to facilitate testing with desired accuracy with 30/15 minutes integration period.

The following display parameters are the requirement of TNPDCL:

	1P 5-30A Meter (UNI-DIRECTIONAL MODE)
S.No	Parameter name
A	MODE-I AUTO MODE DISPLAY
1	Date
2	Time
3	Cumulative ABS Active Energy
4	Present ABS MD in KW
B	MODE-II PUSH BUTTON DISPLAY
1	LCD Segment Check
2	Meter Serial Number
3	Date
4	Time
5	Last recharge Amount
6	Last recharge date and time
7	Current balance amount
8	Current balance date and time
9	Instantaneous RMS Voltage
10	Instantaneous Phase Current (RMS)
11	Instantaneous Neutral Current (RMS)
12	Instantaneous active load in ABS KW (Signed)
13	Instantaneous Power Factor

14	Cumulative ABS Active Energy
15	Cumulative ABS Active Energy-TOD-01
16	Cumulative ABS Active Energy-TOD-02
17	Cumulative ABS Active Energy-TOD-03
18	Cumulative Apparent ABS Energy in KVAH
19	Cumlative KVAH-TOD-01
20	Cumlative KVAH-TOD-02
21	Cumlative KVAH-TOD-03
22	Average PF for current period
23	Present MD in KW
24	Present MD in KW-TOD-01
25	Present MD in KW-TOD-02
26	Present MD in KW-TOD-03
27	MD in KW for last reset
28	MD in KW for last reset- TOD-01
29	MD in KW for last reset- TOD-02
30	MD in KW for last reset- TOD-03
31	BP Point ABS Kwh Cum reading at the time of last reset
32	BP Point ABS Kwh Cum reading at the time of last reset-TOD-01
33	BP Point ABS Kwh Cum reading at the time of last reset-TOD-02
34	BP Point ABS Kwh Cum reading at the time of last reset-TOD-03
35	BP Point ABS KVAh Cum reading at the time of last reset
36	BP Point ABS KVAh Cum reading at the time of last reset-TOD-01
37	BP Point ABS KVAh Cum reading at the time of last reset-TOD-02
38	BP Point ABS KVAh Cum reading at the time of last reset-TOD-03
39	BP Point Aversge PF
40	Power OFF hours since last reset billing period
41	Frequency
42	Magnetic interference indication
43	Cum MD ABS KW
44	Cumulative Power OFF hours
45	LBP-Cum ABS Kwh reading at the time of prior to last reset
46	LBP-Cum ABS Kwh reading at the time of prior to last reset-TOD-01
47	LBP-Cum ABS Kwh reading at the time of prior to last reset-TOD-02
48	LBP-Cum ABS Kwh reading at the time of prior to last reset-TOD-03
49	LBP-Cum ABS Kvah reading at the time of prior to last reset
50	LBP-Cum ABS Kvah reading at the time of prior to last reset-TOD-01
51	LBP-Cum ABS Kvah reading at the time of prior to last reset-TOD-02
52	LBP-Cum ABS Kvah reading at the time of prior to last reset-TOD-03
53	LBP Average PF at the time of prior to last reset
54	LBP MD in KW at the time of prior to last reset
55	LBP MD in KW at the time of prior to last reset-TOD-01
56	LBP MD in KW at the time of prior to last reset-TOD-02
57	LBP MD in KW at the time of prior to last reset-TOD-03
58	Power OFF hours for last billing period
59	Cumulative power ON hours
60	MD reset Count
61	Last MD reset DATE
62	Last MD reset TIME

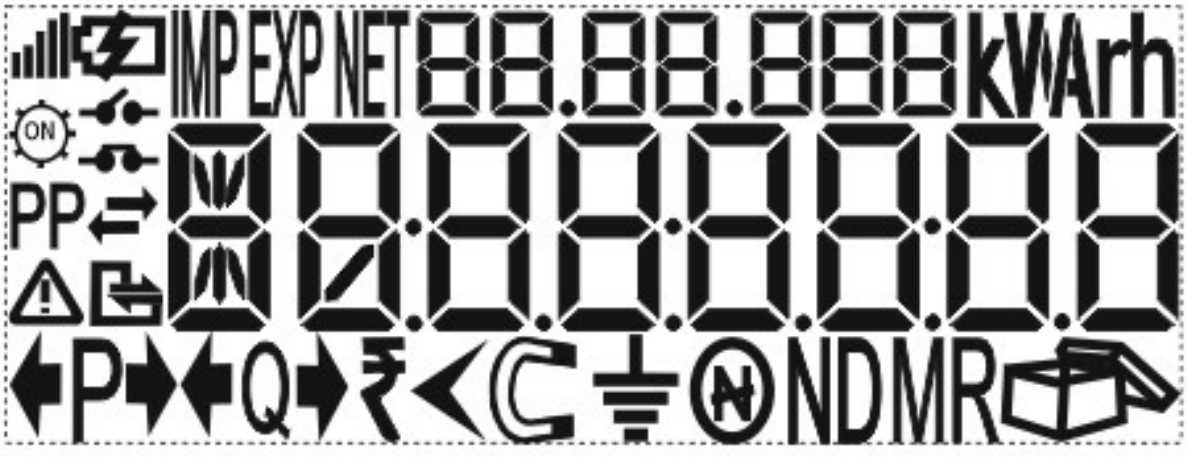
63	Nature of Present Tamper (Currently not restored tamper) with dt & ti
64	Last restored Tamper type with date & time
65	Tamper count
III	MODE-III HR MODE PARAMETERS
1	High resolution reading for calibration import KWH (2+4 digits)
2	High resolution reading for calibration import KVAH (2+4 digits)
3	High resolution reading for calibration Export KWH (2+4 digits)
4	High resolution reading for calibration Export KVAH (2+4 digits)
	1P 5-30A Meter (BI-DIRECTIONAL MODE)
S.No	Parameter name
A	MODE-I AUTO MODE DISPLAY
1	Date
2	Time
3	Cumulative ImportActive Energy
4	Cumulative ExportActive Energy
5	Present Import MD in KW
6	Present Export MD in KW
B	MODE-II PUSH BUTTON DISPLAY
1	LCD Segment Check
2	Meter Serial Number
3	Time
4	Date
5	Last recharge Amount
6	Last recharge date and time
7	Current balance amount
8	Current balance date and time
9	Instantaneous RMS Voltage
10	Instantaneous Phase Current (RMS)
11	Instantaneous Neutral Current (RMS)
12	Instantaneous active load in ABS KW (Signed)
13	Instantaneous Power Factor (With Lg/Ld)
14	Cumulative Import Active Energy
15	Cumulative Import Active Energy-TOD-01
16	Cumulative Import Active Energy-TOD-02
17	Cumulative Import Active Energy-TOD-03
18	Cumulative Export Active Energy
19	Cumulative Export Active Energy-TOD-01
20	Cumulative Export Active Energy-TOD-02
21	Cumulative Export Active Energy-TOD-03
22	Cum Net Active energy
23	Cumulative Apparent Import Energy in KVAH
24	Cumulative Apparent Import Energy in KVAH-TOD-01
25	Cumulative Apparent Import Energy in KVAH-TOD-02
26	Cumulative Apparent Import Energy in KVAH-TOD-03
27	Cumulative Apparent Export Energy in KVAH

28	Cumulative Apparent Export Energy in KVAH-TOD-01
29	Cumulative Apparent Export Energy in KVAH-TOD-02
30	Cumulative Apparent Export Energy in KVAH-TOD-03
31	Average PF (Import)for current billing period
32	Average PF (Export)for current billing period
33	Present MD in KW(Import)
34	Present MD in KW (Import)-TOD-01
35	Present MD in KW (Import)-TOD-02
36	Present MD in KW-(Import)-TOD-03
37	Present MD in KW(Export)
38	Present MD in KW (Export)-TOD-01
39	Present MD in KW (Export)-TOD-02
40	Present MD in KW-(Export)-TOD-03
41	MD in KW (Import)for last reset
42	MD in KW (Import)for last reset- TOD-01
43	MD in KW(Import) for last reset- TOD-02
44	MD in KW (Import)for last reset- TOD-03
45	MD in KW (Export)for last reset
46	MD in KW (Export)for last reset- TOD-01
47	MD in KW(Export) for last reset- TOD-02
48	MD in KW (Export)for last reset- TOD-03
49	BP Point (Import) Kwh Cum reading at the time of last reset
50	BP Point (Import) Kwh Cum reading at the time of last reset-TOD-01
51	BP Point (Import) Kwh Cum reading at the time of last reset-TOD-02
52	BP Point (Import) Kwh Cum reading at the time of last reset-TOD-03
53	BP Point (Export) Kwh Cum reading at the time of last reset
54	BP Point (Export) Kwh Cum reading at the time of last reset-TOD-01
55	BP Point (Export) Kwh Cum reading at the time of last reset-TOD-02
56	BP Point (Export) Kwh Cum reading at the time of last reset-TOD-03
57	BP Point (Import) KVAh Cum reading at the time of last reset
58	BP Point (Import) KVAh Cum reading at the time of last reset-TOD-01
59	BP Point (Import) KVAh Cum reading at the time of last reset-TOD-02
60	BP Point (Import) KVAh Cum reading at the time of last reset-TOD-03
61	BP Point (Export) KVAh Cum reading at the time of last reset
62	BP Point (Export) KVAh Cum reading at the time of last reset-TOD-01
63	BP Point (Export) KVAh Cum reading at the time of last reset-TOD-02
64	BP Point (Export) KVAh Cum reading at the time of last reset-TOD-03
65	BP Point Aversge PF(Import)
66	BP Point Aversge PF(Export)
67	Power OFF hours since last reset billing period
68	Frequency
69	Magnetic interference indication
70	Cumulative MD in KW (Import)
71	Cumulative MD in KW (Export)
72	Cumulative Power OFF hours
73	LBP-Cum (Import) Kwh reading at the time of prior to last reset
74	LBP-Cum (Import) Kwh reading at the time of prior to last reset-TOD-01
75	LBP-Cum (Import) Kwh reading at the time of prior to last reset-TOD-02
76	LBP-Cum (Import) Kwh reading at the time of prior to last reset-TOD-03

77	LBP-Cum (Export) Kwh reading at the time of prior to last reset
78	LBP-Cum (Export) Kwh reading at the time of prior to last reset-TOD-01
79	LBP-Cum (Export) Kwh reading at the time of prior to last reset-TOD-02
80	LBP-Cum (Export) Kwh reading at the time of prior to last reset-TOD-03
81	LBP-Cum (Import) Kvah reading at the time of prior to last reset
82	LBP-Cum (Import) Kvah reading at the time of prior to last reset-TOD-01
83	LBP-Cum (Import) Kvah reading at the time of prior to last reset-TOD-02
84	LBP-Cum (Import) Kvah reading at the time of prior to last reset-TOD-03
85	LBP-Cum (Export) Kvah reading at the time of prior to last reset
86	LBP-Cum (Export) Kvah reading at the time of prior to last reset-TOD-01
87	LBP-Cum (Export) Kvah reading at the time of prior to last reset-TOD-02
88	LBP-Cum (Export) Kvah reading at the time of prior to last reset-TOD-03
89	LBP Average PF (Import)at the time of prior to last reset
90	LBP Average PF (Export)at the time of prior to last reset
91	LBP MD in KW (Import)at the time of prior to last reset
92	LBP MD in KW (Import)at the time of prior to last reset-TOD-01
93	LBP MD in KW(Import) at the time of prior to last reset-TOD-02
94	LBP MD in KW (Import)at the time of prior to last reset-TOD-03
95	LBP MD in KW (Export)at the time of prior to last reset
96	LBP MD in KW (Export)at the time of prior to last reset-TOD-01
97	LBP MD in KW(Export) at the time of prior to last reset-TOD-02
98	LBP MD in KW (Export)at the time of prior to last reset-TOD-03
99	Power OFF hours for last billing period
100	Cumulative power ON hours
101	MD reset Count
102	Last MD reset DATE
103	Last MD reset TIME
104	Nature of Present Tamper (Currently not restored tamper) with dt & ti
105	Last restored Tamper type with date & time
106	Tamper count
III	MODE-III HR MODE PARAMETERS
1	High resolution reading for calibration import KWH (2+4 digits)
2	High resolution reading for calibration import KVAH (2+4 digits)
3	High resolution reading for calibration Export KWH (2+4 digits)
4	High resolution reading for calibration Export KVAH (2+4 digits)

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 TNPDCL). Meter display should not go into sleep mode during Power-On condition.

LCD DISPLAY MODULE:



7.0. Anti-tamper features

The meter shall continue recording energy under tamper conditions as defined in IS 15959 Part 2 and would log the event and send alarm at Head End System after detection of the defined tamper features as per IS 15959 Part 2.

7.1.TAMPER AND FRAUD PROTECTION/MONITORING:

The meter should have all the tamper and fraud protection features as per the relevant clauses of CBIP Publication No.325 & IS 13779 and Annexure of this specification so as to continue to register active energy accurately under the following specific conditions as well. Tamper counting can be sort-out from reset to reset period.

(a)Current Reversal (CR): The meter should record energy consumption correctly in forward direction irrespective of the direction of current in current circuit.

(b)Earth Tamper (ET): On using earthing in place of neutral (i.e. when return path off the load is not terminated back of the meter and instead current is drawn partially or fully through a local earth) irrespective of phase and neutral connected correctly to the meter or reversed (the neutral current is more than phase current) the meter should register accurately.

(c)Meter Cover (CO): In the event the meter is forcibly opened, even by 2 to 4 mm variation of the meter cover, same should be recorded as tamper event with date & time stamping and the meter should continuously display as "**C-OPEN/CO- OPEN"** that the cover has been tampered. It is suggested that the manufacturer should develop their software such that there will be some time delay for activation of this tamper feature and during that period only the meter cover should be fitted. The delay in activation of software shall be for one instance only. After the meter cover is fitted, it shall get activated immediately without any delay on LCD display in blinking mode so that it is easily noticed by the meter reader. The above tamper shall detectable even in power off condition.

(d)Magnetic Tamper: The meter should record energy with in specified limit as per CBIP Publication 325 & IS: 13779 with latest amendments in presence of stray magnetic field and record the influence of abnormal magnetic field with date and time in the memory.

(e)Neutral Disturbance:

When the neutral from both incoming and outgoing side or any one of the neutral is disconnected and during the above condition **any one of the neutral is fed with distorted signals thro external circuits** & the load is taken through earth, the meter should record energy as per rated voltage, rated frequency & UPF in proportion to the current drawn with accuracy of meter within $\pm$3 %. The meter shall continue to record energy as per prevailing condition even if the neutral is accidentally or incidentally disconnected. Such neutral related disturbances shall be recorded and indicated in the form ICON ND segment.

During Neutral Disturbance, if the voltage (V) is greater than Vref., then the meter shall start recording energy as per measured voltage, actual current drawn & UPF and the voltage less than Vref., then meter shall start recording energy at Vref, UPF and Actual current. But meter will display instantaneous readings actual Voltage, actual Current, actual PF reading & calculated instant ant Power reading. During spurious signal applied thro 'only passive component (like RLC) in the Neutral circuit then duration of 15 minutes may be taken for calculating ND condition.

(f)Neutral Missing:-

Single Wire tamper (Neutral Missing): When neutral is disconnected from both load side and supply side, the meter should record energy as per rated parameters (Vref). However, meter shall start registering energy

At a current of >2A under tamper condition of neutral missing (where battery is used for voltage reference). Meter will perform the fraud energy registration above 2A assuming Vref (from battery) and Unity power factor. The meter shall be immune magnetic interference as per CBIP Publication No.325 clause 5.6.2. The limits of variation in % of error shall be as per CBIP Publication No.325 clause 5.6.2

(g) Necessary magnetic shielding as per CBIP Publication No.325 shall be provided.

(h) The meter shall be immune of any abnormal frequency signal or meter shall log and display as tamper in the event abnormal external frequency signal i.e., less than 47.5 Hz or more than 52.5 Hz is supplied to the meter.

(i) Meter shall record energy accurately under the effect of signals emitted by mobile phone or any other such devices. In conformity of this, the meter shall be checked under such influence (10 minutes) for the following conditions: 10% I_b and UPF, 50% I_b and UPF, I_b and 0.8 PF, 120% I_b and UPF.

(j) Even if 440 V is applied between the phase & neutral of the meter for 5 minutes, the meter should not get damaged and continue to record correctly with in Class 1 accuracy after restoration of normal supply.

(k) The accuracy of the meter should not be affected with the application of abnormal voltage/frequency generating device such as spark discharge of approximately of 35kV.The meter shall be tested by feeding the output after exposing it to the following conditions for 10 minutes:

- On any one of the phase or neutral terminals
- On any connecting wires of the meter
- Voltage discharge with 0-10mm spark gap
- at any place in load circuit
- at proximity of the meter(within 5 cm)

(l) No. of Blocks / tamper informations / events are to be provided as per IS 15959/2011 with latest amendments.

(m) Number of Tamper informations / events are to be provided as per IS 15959/2011 with latest amendments.
(n) The OBIS code of "Phase R CT- Reverse- Occurrence and "Phase R CT-Reverse-Restoration" as per Table – 33 – Indian Event Reference Table – Current Related of IS15959 : 2011 is to be used for current reversal tamper.
(o)200 tamper information (FIFO basis) shall be available in the memory for retrieval from the meter at any time. The above tamper in each information is of First In First Out basis.
(p) Tamper storage is to be stored in Block as per DLMS. However any continue tamper is to be available in that block till it restored. The FIFO is to be followed for restored tamper in that block.

Special Note:
The disturbances to be considered for the tests are
i. Harmonics.
ii. Voltage dips and short interruptions.
iii. Conducted transients.
iv. D.C. and A.C. magnetic fields.
v. Electro Magnetic fields.
vi. Electro static discharge.
vii. Radio frequency interference suppression.
Especially, special care should have been taken such that DC & AC magnetic field in proximity of the meter do not damage or influence the meter performance. Besides, an internal magnetic shield has to be provided in the meters in this regard.

7.2.TAMPER INFORMATION:
a) After occurrence of any tamper, the tamper display should appear in the display as follows and the tamper data should remain in memory so that the occurrence of latest tamper can be retrieved and also seen in the display at any time.
i) Nature of Current Tamper
ii) Date and time of occurrence of Current Tamper
ii) Cumulative Tamper Count
b) Provisions should not be there to clear the tamper information through CMRI or any other means. Provisions should be made such that first occurrence of tamper should exist as long as tamper exist in the circuit.
c) In BCS the snap shot feature is to be provided for every meter tamper data with cumulative IMPORT &EXPORT kWh, kVAh, V, I(Phase &neutral),P.F & Date & time at the time of the tamper occurrence & tamper restoration. A summary report on tamper events along with its total duration for each type of the events occurred from the date of manufacturing or installation is to be made available.
d) All the Tamper logics adopted in the meter as per the specification requirement have to be demonstrated by all the bidders during Acceptance Test at their works.

7.3.Tamper test during Bi-Directional Mode

TNPDCL existing single phase energy meter are tested for about 34 tampers criteria under unidirectional mode. If meter convert to Bidirectional mode the above tampers will satisfy with following conditions.

1) Other than 4 wire operations, the meter will run as unidirectional meter with import only (Criteria 05-08,21-32,34.1,34.2)

2) If both neutral & phase channel currents are not same magnitude ie., partial load is connected to earth. Then the meter will record, highest current value in Phase & Neutral during import mode & lowest current value during Export condition. (Criteria 09-12 & 33)

3) The meter current in the Phase & Neutral channel is in same direction, then meter will record as Uni-directional mode (Criteria 13-20).

8.0.SELF DIAGNOSTIC FEATURE:

The meter shall have indications for unsatisfactory / nonf unctioning of the following:

i. Time and Calendar.
ii. Real Time Clock (RTC) Battery.
iii. All display segments.
iv. Nonvolatile Memory.
v. Internal Backup battery Status

9.0.TOD TIMINGS:

1.There shall be provision for at least 8 (eight) TOD time zones for energy and demand. The number and timings of these TOD time Zones shall be programmable.
2.It shall be possible to change the different time zones through optical/ RS 232 port even after installation of meter with special software and password protection.
3.Five different register for storing TOD consumptions & MD should be available in Push button Display as shown below and should be downloaded in BCS through CMRI.
4.By default Meters supplied as unidirectional, MD Manual reset, TOD Timings in Meters Slot as follows
Slot Timings:

Slot	**Timings**
1	06.00 Hrs-10.00Hrs 18.00Hrs-22.00Hrs
2	22.00Hrs-05.00Hrs
3	05.00Hrs-06.00Hrs 10.00Hrs-18.00Hrs

10.0 MAXIMUM DEMAND (MD) & DEMAND INTEGRATION PERIOD (DIP):

a) **DIP shall be set at 30 minutes duration**. DIP shall commence at the fixed time intervals of real time.
b) MD recording of Block method is to be used.
c) No manual reset push button shall be provided
d) Necessary software is to be provided for changing DIP to 15minutes.
The rising value of current demand with rising time should be held in the memory in the event of interruption (or) switching off power supply and it should not fall to zero on such instances.

e) Meter shall continuously monitor and calculate the average maximum demand for each demand integration period of 30 minutes and the maximum of these shall be stored along with date and time, when it occurred.

The meter should have reprogrammable thro' AMR / CMRI automatic /manual resetting facilities of M.D. The meter to be supplied for this tender shall be set as per IS15959 Table.31 as below:

Mode of MD Reset : AUTO

Date of MD Reset : **1st** day of every billing cycle (Odd / even month) as per month available in the name plate.

Time of MD Reset : 00:00 Hrs.

Reset date & time changing, Auto (bi-monthly to monthly & vice versa) and manual reset un block software is also to be provided.

F) Necessary CMRI software is to be supplied by the meter manufacturers. There should be feasibility to reset the meter through CMRI by authorized person. During reset, main energy registers should not get affected during next reset, the billing parameter should be stored in the memory and should be available in display (for last two resets) while pressing push button.

11.0. LOAD SURVEY CAPABILITY:

The meter shall be capable of recording load profile of 45 days 30 min IP for ON days only for following parameters.

- Voltage
- Phase Current
- Neutral Current
- PF
- KWH(IMPORT&EXPORT)
- KVAH(IMPORT&EXPORT)
- KVARH

a).i. The meter should be capable of storing the following parameters with **30 minutes (**DIP shall be user programmable) integration period for a period of **90 days in its memory:**i. Cumulative Import &Export kWh Consumption at 00.00 hrs on daily basis. It is derived parameter from Daily energy readings & required at BCS end only.

ii. Daily Import &Export kWh with 48 integrated values (if DIP is 30 minutes).

iii. "No-supply period" and "no-load period" on daily basis in Hrs. & minutes.

b) The meter should be capable of storing the above parameters in the memory at 00.00 hrs everyday for a period of 90 days; it shall have provision such that daily readings are available at the end of the each day for the 90 days. The above readings are to be retrieved through CMRI &BCS and viewed in BCS. Provisions should be made such that printout of graph (each parameter in a separate colour) and data on these parameters can be obtained easily each page shall have minimum of following details.

i. Consumer code.
ii. Meter make, type and Sl.No.
iii. Voltage and Current rating of the meter
iv. File creation time
v. Meter reading time
vi. CMRI or Server time

c) The load survey data, billing parameters and tamper data shall not be updated when the meter is in power off condition. Whenever the meter is released from service condition either for safe custody or due to billing dispute ,the above said data shall be retained for the period of actual use of meter and shall retrievable as when required.
d) In the load survey graph, no-supply period and no-load period are to be distinguished with cumulative values for each day for the above events.

12.0.MEASURING PARAMETERS & ACCURACY:

a) Class of accuracy of the Static meter mentioned in this specification shall be 1.0. The accuracy should not drift with the time and all sort of environmental changes. The percentage error limits shall comply to class 1.0 for all data as per IS.13779.

b) The reading of meter shall be without any multiplication factor (MF). Meters supplied with MF will not be accepted and the same will be rejected.

c) The internal least count of energy recording shall not be inferior than 0.01 kWh hence every 0.01 kWh consumption will be internally stored. Also there shall be no loss of energy registration on account high start up time of the meter. To verify this, the meter will be switched off/on 40 times at rated parameters and energy recording on display with decimal digit should be within 0.4 kWh of the energy, it should register, as per its accuracy at that load. This will be verified during testing of sample meters and at works during inspection.

d) The meter reading and accuracy should not be disturbed during sudden switching of heavy loads or transient voltage spikes.

e) The meter shall comply all the requirement of limits of error as per IS 13779/99 on all the points mentioned in table no.15 of IS 13779 / 99 including special test at 0.25 lag & 0.5 lead of TNPDCL requirement. % error at 0.25 lag and 0.5 lead is ± 3.5% and ± 2.5% respectively for range from 0.1 I_b to I_{max}. Same tests are to be carried out on neutral circuit also with the procedure and limits as per phase circuits. This shall be ensured during acceptance test as well.

f) The limits of error for +20 to -40% Vref variations shall be [i] 0.7% for I_b@ UPF, [ii] 1.0% for I_b @ 0.5 lag and [iii] 0.6% @UPF for 0.6 I_b&I_{max} with 10% of 3rd harmonic current in circuit.

g) The bidder shall state the necessary number of pulse counts to ensure measurement accuracy of at least 1/10th of class of the meter at different test points.

h) The **instantaneous parameters** to be measured and displayed in BCS shall be (i) Signed kW (ii) Instantaneous kVA (iii) Signed Instantaneous PF (iv) RMS Voltage (v) RMS Current

i) The **billing parameters** to be measured and recorded shall be (i)Import &Export Cumulative kWh (ii) Import &Export Cumulative kVAh (iii) Import &Export MD in kW / kVA (iv) Average PF (v) Reset date & time (iv) MD Reset Count.

j) All the billing parameters like kWh, M.D. in kW and the resetting date & Reset Count for previous 12 resets for unidirectional & Bidirectional should be available in the memory and on display for two consecutive billing periods.(i.e., for last two resets)

k) The meter should measure the total energy consisting of 50 Hz energy and harmonic energy.

l) The accuracy of the meter should not be affected with the application of abnormal voltage / frequency generating device such as spark discharge of approximately 35 kV

i. At the phase and neutral terminal.
ii. On any connecting wires of the meter(Voltage discharge with 0-10 mm spark gap)
iii. At any place in load circuit

The accuracy of meter shall be checked before and after the application of above test voltage.

m) Even during the service, in case any drift is noticed in the accuracy of the meters beyond the permissible limits, the concerned meter shall be withdrawn from service and the manufacturer shall supply a new meter without any extra cost as a replacement (with-in one month of receipt from TNPDCL) during the guarantee period.

N) For unidirectional mode of operation, the recording of the meter will be import energy = (Import + Export) energy with DLMS code.In high Prescison mode import energy = (Import + Export) energy.Export energy =Export energy only.

o) During bi-directional operation, the existing import energy parameters with same DLMS code are to be recorded for only import energy (ie,import energy = import energy only) and export energy=Export energy parameters.

p) DLMS OBIS codes should follow TNPDCL obis codes mention in specification.

13.0 ELECTRICAL PERFORMANCE :

13.1 Power Consumption:

a) **Voltage circuit:** The active & apparent power consumption of voltage circuit including power supply of meter at reference voltage, reference temperature & frequency shall not exceed 5.0 Watt & 15.0 VA.

b) **Current circuit:** The apparent power taken by current circuit at basic current, reference frequency & reference temperature shall not exceed 4.0 VA.

The apparent and active power consumption of each circuit of a meter at reference voltage / current mentioned above is for reference frequency and reference temperature.

13.2. Maximum Withstanding Current:

The maximum withstanding current of the meter shall be 600% I_b.

13.3. Starting Current:

The meter shall start and continue to register energy at (0.2) % of basic current (I_b) at UPF.

13.4 Running With No Load :

When 115 % of marked (rated) voltage is applied to the voltage circuit, with no current flowing in the current circuit, the test output of meter shall not produce more than ONE pulse/count. The minimum test period shall be 20 times of the nominal run period of starting current. The maximum period shall be limited to 100 minutes. The applicable standard is CBIP Publication No.325 clauses 4.6.6.2 & 5.6.4.

13.5. Short Time Current Rating:

The meter shall be able to carry a short time over current of 30 I_{max} with relative tolerance of +0% to -10% for one half cycle at rated frequency. The limits of variation in % error for class 1 meter shall be as per as per IS 13779 clause : 9.2.3/ CBIP Publication No.325, Clause 5.4.3 & 4.4.3

13.6 Initial Start Of The Meter:

The meter shall be fully functional within 5 sec. after the rated voltage is applied to meter terminals as per IS 13779 clause:11.4.1/ CBIP Publication 325, clause 4.6.6.1

14.0 INTERNAL BATTERY FOR OFF-LINE TASK

The facility for reading the meter in absence of power supply shall be provided. This facility shall be powering from a separate internal battery. The internal battery intended for off-line display, data downloading task etc. should fulfill the following conditions.

a) The display should be powered up through push button only when power failure occurs.
b) Should have adequate capacity to perform off-line tasks like reading the display parameters, CMRI downloading / uploading etc.
c) Service life shall be "not less than 15 years" ie) service life of the meter.
d) Shelf life shall be "not less than 2 years"
e) Internal battery shall not damage the meter even during the prolonged idle storage of the meter.
f) The battery shall preferably be located in a separate internal chamber, i.e. separate battery for standby power supply in addition to battery provided for Real Time Clock (RTC).

g) The internal batteries shall be from any of the reputed manufacturers as listed in the BOUGHT-OUT ITEMS

h) Guarantee period shall be " not less than 10 years "

i) In any case, RTC battery power shall not be used for display under power off condition. Battery used for the meter display during power off condition shall be separate from the battery used for the RTC.

j) During power-off condition, meter shall display push-button mode parameters with the help of internal battery activated by pressing the push-button and parameter shall scroll one after another using press of push-button, if push button left unattended, then the display shall switch-off after 20 seconds

k) If the Push Button is pressed continuously for more than 1 minutes **during power off condition** then battery should become disabled till next push button operation, to increase the battery life.

15.0 REAL TIME CLOCK AND BATTERY:

a) The meter should have internal Real Time Clock with the backup of a Lithium maintenance free primary battery (non-rechargeable) of having minimum life of fifteen (15) years for operation of the time clock. The Real Time Clock shall be based on Quartz crystal timer so as to make it independent of line frequency variations.

b) The RTC shall be pre-programmed for 15 years day / date without any necessity for correction.

c) The non-chargeable lithium battery (primary battery) used for RTC shall be of adequate storage energy with 10 years guarantee period should be provided. If the battery fails within meter warranty period the meter should be replaced by the supplier within 15 days from the date of intimation failing which the entire cost of the meter will be recovered from the balance payment due to the supplier.

d) The MD integration cycle shall be on the function of RTC of the meter. The maximum drift in real time clock of the meter shall not exceed $\pm$ 3 minutes per year and crystal should be temperature compensated for temperature range of 0 to 50°C when powered by internal battery or supply. **This shall be verified during sample testing and inspection**.

e) The Synchronization of Meter RTC Time/day shall be possible through password / key code enabled command from external system (such as CMRI / BCS etc.) in a reliable manner.

f) Facility for correcting the drift in Real Time clock through CMRI has to be provided with proper security. Whenever RTC is corrected, all the registers and other parameters shall be updated. The date and time should be user programmable. The meter should be capable of storing in the memory the readings of a specified date and time in a month / two months for the purpose of retrieving the same at a later date without change in the specified timing while correcting the drift. The data stored in the memory shall not be lost or updated when the meter is in power off condition, so that same are retrievable even after lapse of several months. (This is to enable utility to defend their cases legally in case of disputed meters/billing revision.

g) The RTC clock and its allied components shall be from any of the reputed manufacturers as listed in the BOUGHT-OUT ITEMS.

16.0 NON VOLATILE MEMORY (NVM)

a) The meter should have non volatile memory, so that the registered parameters will not be affected by loss of power. The non volatile memory should have a minimum retention time of **15 years**. It is the responsibility of the meter manufacturer to retrieve the data from this memory, in the event of display failure and other defects except for completely burnt meter as and when requested by the purchaser with in a period of 30 days from the date of intimation. The transportation cost for the same should be borne by the supplier.

b) NVM shall not be affected by external parameters like sparking, high voltage spikes or electrostatic discharges. There shall be proper security isolation between metering circuit, communication circuit and power circuit.

c) The NVM shall be from any of the reputed manufacturers as listed in the BOUGHT-OUT ITEMS.

17.0.Type Tests & Test Certificates:

Smart Meter shall be type tested for all the tests as per relevant parts of IS 16444 (latest versions) and certified by Indian Standard wise list of BIS recognized labs as available at https://bis.gov.in/index.php/laboratorys/list-of-bis-recognized-lab/. The number of sampling for testing of meters and criteria for conformity would be as per IS 16444 (as amended up to date). Necessary copies of test certificates shall be submitted as per agreement with the TNPDCL.

a) The offered meter shall be fully type tested as per IS IS 16444 (latest versions) & 15959/2011 (amended up to date) and Manual on Standardization of AC Static Electrical Energy Meters, Pub. No. 325, CBIP, January 2015.

b) All the Type Tests shall have been carried out from any one of the Laboratories such as CPRI, ERDA, ERTL(East) or equally reputed and accredited by the National Board of Testing and Calibration Laboratories (NABL) of Govt. of India to prove that the offered type of meters meet the requirements of the specification.

c) Type Test conducted in manufacturers own laboratory and certified by testing institute shall not be acceptable.

d) Type test certificates rather than type test reports are preferred.

e) Type test certificate/ reports submitted, shall be conducted not earlier than 5 years and valid on the date of opening tender. If the type test certificates are not valid as required, the offer shall be rejected.

18.0.Routine & Acceptance Tests

The Factory Acceptance and Routine tests shall be carried out as per IS 16444 Part 1.

19.0.General & Constructional requirements

Meter shall be BIS marked as per IS 16444 Part 1. General & construction requirement shall be as per IS 16444/IS 15959/ IS 13779.

Meter base & cover shall be as per IS 16444 Part1 / 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.

The meter Base & cover shall be ultrasonically welded / Chemically welded or other suitable bonding technology and it will not be possible to remove the cover from the base without evidence of damage

Terminal block & cover - As per IS 16444 Part 1/IS 13779.

The offered Meter shall be designed and constructed in such a way that it does not cause any danger during in service / under normal conditions. The meters shall be designed with application specific integrated circuit and shall be manufactured using SMT (Surface Mount Technology) components. Power supply and voltage divider circuits alone may be of PTH technology. The meter shall conform to the degree of protection IP 51 of IS:12063/IEC:529 for protection against ingress of dust, moisture and vermin.

19.1 Meter base, Meter cover & Terminal Cover – Material quality

a) The construction of the meter shall be suitable for its purpose in all respects and shall be given reasonable assurance of continuous performance in all mechanical, electrical and magnetic adjustments. The meter construction should be free from any audible noise while in service.

b) The meter cover & terminal cover shall be of injection moulded in transparent UV stabilized polycarbonate in a natural transparent colour.

c) The meter base, cover and extended terminal block cover (ETBC) shall be injection moulded and made of unbreakable high grade flame retardant polycarbonate having good dielectric and mechanical strength to ensure high reliability and long life. The construction of the meter shall be suitable for its purpose in all respects.

d) The meter shall be compact & reliable in design & shall be immune to vibration & shock involved during transportation/handling. The entire design and construction shall be capable of withstanding the severe stresses likely to occur in actual service.

e) Polycarbonate material of any one of the make as mentioned in the BOUGHT-OUT ITEMS shall be used.

f) The meter manufacturer has to submit test certificate for polycarbonate from reputed Lab/original Manufacturers's lab for every lot offered for inspection along with the copies of
invoices of polycarbonate and all the other major bought out components mentioned in the specn.

- The thickness of casing, base & terminal cover shall be 2.0 ± 0.2mm.

h) Sufficient clearance shall be provided between the terminals and the supporting webs between the two terminals of the terminal block should also be sufficiently high, in such a way that the two neighboring terminals do not get bridged by dust or not to have flash-over between adjacent terminals of terminal block.

i) The terminals shall be of suitable rating to carry 150% of Imax and made of electroplated (or tinned) brass. For verification the test will be conducted at Vref, 150% Imax, UPF for two hours. After the test, no physical damage should occur & % error should not exceed accuracy class of the meter at I_b, UPF.

j) All connection screws (head - star with minus) and washers should be tinned /nickel plated brass. The terminal screws shall not have pointed end at the bottom. All terminals will have two screws. The terminals shall be properly bound in the insulation. Sufficient clearance can be provided between terminals to avoid possible flash over.

k) The meter base shall be manufactured from high quality industrial grade material viz. Polycarbonate with 10 % glass filled which shall meet following properties to ensure higher reliability and longer life of the meter case. Meter base, cover & terminal cover shall conform to the following:

Sl. No.	Test	Meter base & terminal block	Meter cover & Terminal cover (Transparent)
1	Thickness	2.0 mm · 0.2 mm	2.0 mm · 0.2 mm
2	UV ageing for 200 Hrs. as per ASTM :G53(CL.No.9.3	4 Hrs. UV at 60° C, 4 Hrs. condensation at 50°C	4 Hrs. UV at 60° C, 4 Hrs. condensation at 50°C
3	Boiling water test (10 min.)	No softening & whitening & No change in colour, shape, size & dimensions	No softening & whitening & No change in colour, shape, size & dimensions
4.	Flammability Test (a) As per UL 94 or (b) As per IS 11731(Part-2) 1986	V0 FV0	V0 FV0
5.	Drop Test from 2 meters height-only for casing i.e. base + cover + terminal block + terminal cover, (without inside assembly)	Shall not crack or break	Shall not crack or break
6.	Glow wire test IS:13779	960° C $\pm$ 15° C (For terminal block)	650° C $\pm$10° C (For Meter Base, Meter Cover & Terminal Cover)
7.	Heat Deflection Test (HDT) as per ISO 75/ ASTM D-648	132° C	125° C
8.	Ball pressure test as per IEC-60695-10-2	125°C · 2°C	125°C · 2° C

(l) Bi-metallic crimping pins (lugs) of suitable size shall be supplied by the manufactures along with the Meters for proper termination of the cable ends. These crimping pins shall be packed in a polythene cover and tagged to each meter (for termination incoming & outgoing leads).
m) The shunt of the meter shall be directly terminated on terminal block without using lug. Alternatively, the termination of current wires, if used inside the meter (shunt) on the terminal block should be through lugs and washers of proper size. The loop length of the primary current circuit should be kept minimum.
n) The embossing/ laser engraving of and manufacturer's logo/ trade name shall be provided on meter base, meter cover and terminal cover.

19.2. Fixing arrangement for Meter Cover:

For proper fixing of meter cover, at least two unidirectional sealing screws of Nickel plated steel / Nickel plated Brass shall be provided. However better alternate arrangement other than unidirectional sealing screws for sealing arrangement shall also be accepted after the approval of TNPDCL. Each sealing screw shall have two sets of independent sealing holes. One set hole should be provided in the head and another set in the bottom portion, so that two separate seals can be provided (one for manufacturer and another for TNPDCL). The diameter of the hole shall be 2.0 mm and 1.5 mm for the head and bottom portion respectively. The length of the sealing screw shall be long enough to flush with the ground.

19.3. Fixing Arrangement of Meter

a) The meter shall have minimum three fixing holes, one at the top for mounting and two at the bottom, inside the terminal cover. The top hole shall be
key-hole type on the back of the meter base so that hanging screw is not accessible after fixing meter and it shall be not possible to remove the meter from the hanging screw without removing the terminal cover and screws behind
the terminal block cover. The bottom fixing holes shall be provided under ETBC. All the fixing holes shall be such designed that once meter is mounted; the screw heads shall not be accessible.
b) The vendor shall provide the appropriate fixing screws along with the meters.

19.4. Requirements for Terminal Cover :-

a) The terminal cover shall be extended and transparent such that when it is placed in position it is not possible to approach the connections or connecting wires. The extended terminal cover shall be of transparent one and of rectangular shape and should have a minimum length of 50 mm from terminal base. The terminal cover should have one no. security sealing provisions. The seal wire hole should be suitable for wire size of 18SWG.Provision for seal should be made in front side of the meter terminal cover.
b) The terminal cover shall be embossed with the logo of manufacturer.

19.5. Terminal Block – Material specification:

The terminal block shall be of POLYCARBONATE of FR & glass filled quality and shall fulfill following requirements:

a) It shall have the glow temperature of 960 deg. C when tested as per IEC 60695-2-12

b) It shall pass Ball pressure test as per IEC – 60695-10-2
c) It shall pass Heat deflection test (HDT) as per ISO 75/ ASTM D-648
d) It shall confirm to flame retardant (FR) rating of VO as per UL 94 rating.

19.6. Terminals and Terminal screws – Construction & Material specification:

a) All electrically live screws shall be of heavily tinned / nickel plated brass. All other screws shall be electroplated.
b) The length of terminal in the terminal block shall be adequate to have a proper grip of the conductor with the help of the screw.
c) The internal diameter of terminal holes should be not less than 5.5 mm to hold the service connection wires comfortably. The materials of the terminals shall be of appropriately tinned / nickel plated brass.

d) The terminals shall be suitable to carry rated continuous maximum current and short time overload current
e) The terminal screws (head - star with minus)shall have a thread sizes of not less than M.4 and having diameter of not less than 4-6 mm. The screws shall not have pointed end of threads.
f) The minimum centre to centre clearance between the adjacent terminals shall be 13 mm or better.

19.7. Meter Sealing:

The meter cover shall be permanently ultrasonically welded to the meter base. It shall not be possible to open the meter cover without permanently damaging the meter cover or base, easily visible from the front. The ultrasonic welding/gluing should be continuous in nature such that no part of the periphery shall be left without bonding. This is to ensure that in case of any attempt to open the cover from the base, there should be visible evidence of opening/tampering.

Upon delivery of meters to the stores, if it is found that meters are without this provision (welding/gluing) then the payment for the entire lot will not be paid and the vendor will not be able to participate in the future tenders of the purchaser for 3 years.

The construction of the meters shall be such as to permit sealing of meters cover in only two locations ie. Right and left or top and bottom part apart from terminal cover.

19.8. Internal CT / PT – Requirement

a) The meter shall operate on combination of CT and shunt. One CT in neutral circuit and one shunt in phase circuit shall be provided inside the meter. The current whichever is measured as higher either by CT or shunt shall be used for processing. The shunt should be manganin based and e-beam welded for the construction purpose.

b) One more CT is to be providedfor meter recording during neutral disturbance and neutral missing tamper.

c) The current circuit shall be appropriately insulated and designed to withstand the temperature rise of 50°C over the ambient at maximum current. Specific confirmation to be submitted by the vendor that the accuracy of measurement will not suffer due to utilization of shunt on account of thermal variation and temperature coefficient up to an operational temperature of 80°C and shall comply with IS:13779 (cl.9.4). The CTs shall have proper magnetic shield and shall be mounted firmly without any movement.

d) Unlike a CT whose primary is isolated from the metering circuit, for shunt elements which are connected along with line side and metering side, high resonance is possible making the system more vulnerable under external influence of Electrostatic and magnetic field. Hence the vendors should submit the details of the shunt and how they are protected against external influences & temperature variations for the approval of TNPDCL.

e) The shunt should preferably be directly soldered to the meter PCB, i.e. no wires should be soldered from the shunt to the PCB to have better accuracy.

f) The difference in measurement error between shunt and CT element shall be with-in the permissible limit.

g) PT less design is highly preferred i.e. for power supply to PCB, in place of conventional electromagnetic VTs.

20.0. Design :

Voltage circuit, sealing arrangement, terminal block, terminal cover, and nameplate etc. shall be in accordance with IS-16444 Part 1(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.

21.0.Name plate and marking of Meter:

The name plate on the meter should be clearly visible, effectively secured against removal and indelibly/distinctly marked in accordance with relevant IS. In addition, "Name of the TNPDCL", purchase order no. & year/month of manufacturing shall be provided on the name plate. The rating plate information shall be as per relevant IS.

Connection diagram: As per IS 16444 Part 1.

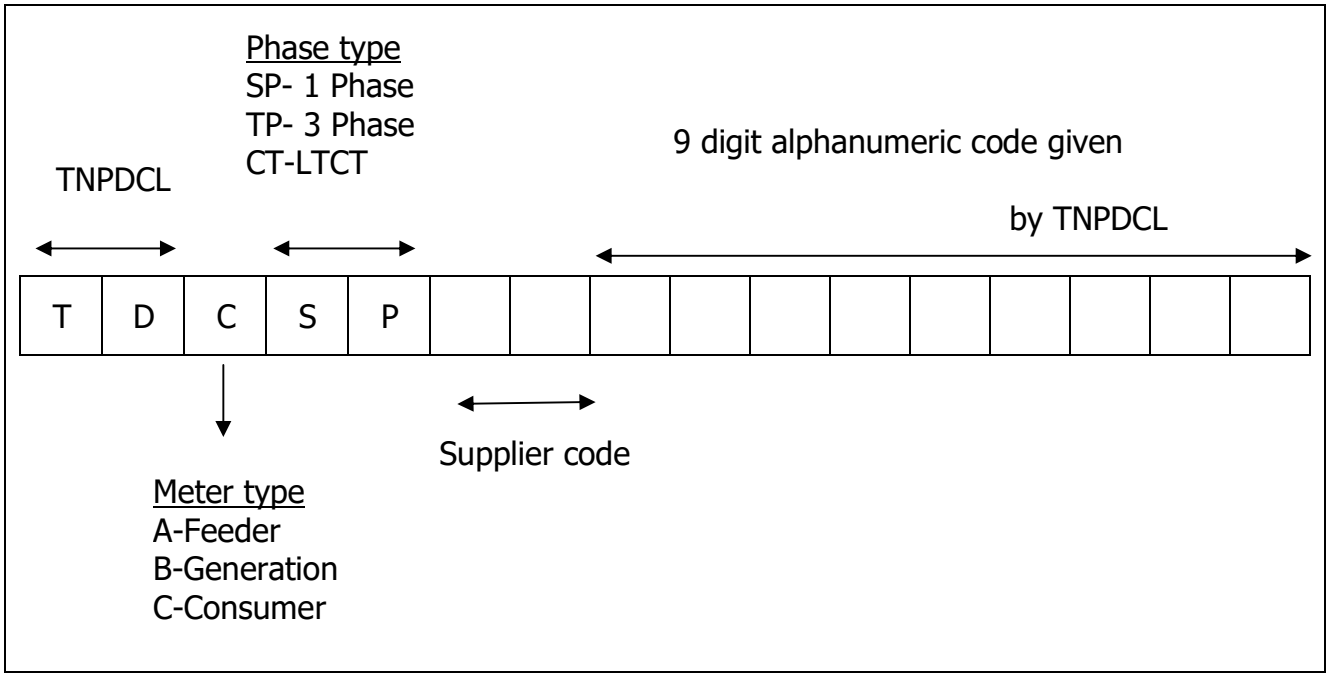
Every meter shall have name plate beneath the meter cover window portion such that name plate cannot be accessed without opening the cover. The marking and name plate of the meter shall duly comply with clause of CBIP Publication 325 and clause 7.1 of IS 13779, as detailed below.

1. Manufacturer's name or trade mark and place of manufacture.
2. Number of phases and number of wires for which the meters is suitable.
3. **Smart Meter for uni-directional and bi-directional application**
4. Serial No., year & month of manufacture.
5. Principal units of measurements (kWh)
6. Reference voltage.
7. Current Rating (Ib & Imax)

8. Reference frequency in Hz
9. Meter constant (Imp / kWh)
10. Accuracy Class.
11. DLMS Category
12. Guarantee period.
13. Reference temperature
14. PO. No. and Date.
15. Property of "TNPDCL"
16. Ultrasonic Welded (U/W)
17. 'BIS' Mark
18. Firmware version of meter
19. Connection diagram
20. Symbol of load switch.
21. Communication technology
22. Bar code/QR code (i) The make, (ii) Sr no and (iii) Model/type

23. Unique identification number given by TNPDCL:

TNPDCL proposes to assign unique Asset ID, often equipped with QR or Barcode, to Meter. This unique ID will greatly assists field Engineers and staff in quickly and efficiently accessing asset details and its historical data, also it enhance asset management and tracking. The numbering format of meter contains meter category, phase type, supplier code and a 9 digit alpha numeric running number to identify a meter uniquely. The specific range of running numbers for meter will be defined by Material Management wing and included in each Purchase Order issued to the manufacturer for imprinting the number while supplying. This unique ID will be captured in ERP system and its utilization in the field will be tagged while mapping the same in the Geographic Information System (GIS). This will ensure tracking of materials drawn from store and ensure its effective utilisation.



24. This unique identification number shall be provided on name plate in addition to the serial number provided by the meter manufacturers, which is for identification of asset to TNPDCL. Bar code/QR code shall be provided.

25. The name plate should not get damaged due to atmospheric conditions and the marking shall be indelible, distinct and readable from outside the meter. The nameplate marking should not fade or otherwise be adversely affected by UV exposure with lapse of time. Also the connection diagram of the meter as per clause 4.2.2.11 of CBIP Publication 325 shall be furnished.

26. Sticker type, paper type and computer printed type name plates are strictly not acceptable.

27. The name plate shall be got approved before bulk supplies.

15.0.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.

16.0.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 TNPDCL.

16.1.SEALING OF NEW AND DEFECTIVE METERS :-

The polycarbonate seals supplied by the purchaser shall be used for sealing the new meters as per the requirement of tender specifications. The existing procedure of the presence of inspection for sealing the meters is dispensed and the supplier has to seal the meters after FAT. The procedure and method of sealing will be demonstrated by the inspection officials at FAT and the meters shall be sealed as per direction of the inspecting officer.

The supplier shall furnish a soft copy of the sealing report alongwith details of utilized quantity,defective and balance in excel format to CE/MM (By email) and respective Electricity Distribution circles before despatch of the meters.

One set of sealing report Hard and soft copy shall also be provided to the consignee EDC stores and MRT for the meters delivered. The meters will be accounted only on receipt of the reports to Stores and MRT.

If any discrepancies found, the supplier has to reseal the meters at the purchaser's stores and necessary seals will be provided by the purchaser & the cost of the seals shall borne by the supplier.

The Optical port shall be sealed with manufacturers polycarbonate seals & the seal details is to be submitted in the sealing report.

The serial number followed by letter"R" in the name plate of defective replacement meter. The sealing of meters for defective replacement shall be done by the supplier after FAT or Routine test by the manufacturer itself and shall be randomly verified by respective MRT at stores. The required seals will be provided by TNPDCL on request and the sealing report alongwith details of utilized quantity, defective and balance seals shall be returned to the concerned EDC stores with a copy to CE/MM before despatch.

17.0.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. The packing shall indicate marking details like Manufacturer's name, S. No. of meters, quantity etc.

18.0.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 AMISP shall be responsible for any damage during transit due to inadequate or improper packing.
-

19.0.Testing and Manufacturing Facilities at Manufacturer's Place

The manufacturer shall have facilities of conducting Acceptance Testing as per IS 16444 Part 1.

20.0 MANUFACTURING AND TESTING FACILITIES:

a) Manufacturing Process :

i. The supplier shall have own facilities or have assured access through hire, lease or sub contractor of SMT pick & place machine
& re-flow solder process. However, the party should have their own proper quality control system for electronics components provided in PCB Assy. if PCB get done with outside prominent agency.

ii. Quality shall be ensured at the following stages:

- At PCB manufacturing stage, each board shall be subjected to computerize testing bare board testing.
- At insertion stage, all components shall undergo computerized testing for conforming to design parameters and orientation.
- Complete assembled and soldered PCB shall undergo functional testing using Automatic Test Equipments (ATES).
- Supplier has to see that prior to final testing and calibration, all meters shall be subjected to ageing test (i.e. Meters will be kept in ovens for 72 hours at 55 deg C temperature and atmospheric humidity condition. After 72 hours meters shall work accurately) to eliminate infant mortality.
- Assembly & testing of meters shall be carried out in dust proof
& air conditioned environment.

b) Testing facilities :-

i. The supplier shall have the following testing facilities for carrying the various tests specified (as above) for lot inspections to ensure accurate calibration as per IS:13779(1999).

ii. Manufacturer should have fully automatic computerized meter test bench with printer & static source for carrying out lot testing during inspection. The firm shall have dust proof & air conditioned assembly & testing hall. Also all the equipment shall be calibrated from Govt. approved/NABL accredited laboratory.

iii. The testing and calibrating equipment should be automatic and all test equipment shall have their valid calibration certificates.

iv. Should have duly calibrated Electronic reference standard meter of class 0.1 **or** better accuracy.

v. The testing rooms shall be temperature and humidity controlled as per relevant Standards.

vi. Power supplies used in testing equipment shall be distortion free with sinusoidal waveforms and maintaining constant voltage current and frequency as per the relevant Standards.

vii. Should have fully automatic Test Bench having in-built constant voltage, current and frequency source with facility to select various loads automatically and print the errors directly without human intervention.

viii. Manufacturer should have sufficient number of standard reference meters & test benches so as to do the quality testing in proportion to their production capacity.

ix. The manufacturer should have Glow Wire Testing facility

x. The list of testing equipment available in manufacturer's premise shall be intimated at the time of bidding.

21.0.Inspection

- The meters shall be sealed as per the mutual agreement of the supplier and the purchaser
- The TNPDCL/ purchaser may inspect the meter randomly as per sampling plan for acceptance test as per IS 16444 Part 1. The meters shall be tested for acceptance test as per IS 16444 Part 1.

S.No	Description	Units	As Furnished by Bidder
1	Type of meter		
2	Accuracy Class of the meter		
3	Ib & Imax	A	
4	1. Operating Voltage for meter 2. Operating Voltage with communication unit functionality	V	
5	Operating Frequency	Hz	
6	Power Consumption and Burden		
7	Starting Current	mA	
8	Short time over current	A	
9	Influence of heating		
10	Rated impulse withstand voltage	KV	

11	AC withstand Voltage for 1 min	KV	
12	Insulation resistance 1. Between frame &Current, voltage circuits connected together: 2. Between each current (or voltage circuit) & each and every other circuit.	M ohm	
13	Mechanical requirement as per IS 13779		
14	Resistance to heat and fire (As per specification)		
15	Degree of protection		
16	Resistance against climatic influence (as per IS 13779) - Storage temperature - 25 to 70 Deg as per IS 13779, 2020 (-Operating temperate -10 to 55 Deg as per IS 13779, 2000 (out door) Meter OEM to produce data sheet of components, if so required during detailed engineering, from component manufacturers indicating temperature range.		
17	Electromagnetic Compatibility (EMC)		
18	Accuracy requirements (As per IS 13779		
19	Power factor range		
20	Energy measurement		
21	Connection Diagram for system on terminal cover	Yes/No	
22	Self-diagnostic feature		
23	Initial startup of meter (meter shall be fully functional within 5 sec after reference voltage is applied to the meter terminals)		
24	Terminal block		
	a)Depth of the Terminal holes	mm	
	b) Internal diameter of terminal holes	mm	
	c) Clearance between adjacent terminals	mm	
25	Communication capabilities as per clause 1.4.36		
26	Immunity against abnormal Magnetic influence, as defined in Clause 1.4.37		
27	Immunity against ESD as defined in clause 1.4.37		
28	DC Immunity as defined in clause 1.4.38		
29	Abnormal and tamper Conditions as per Table 4 - Tamper Event Details for Single Phase Smart Meters	Yes/No	

30	Grade of material for 1. Meter base 2. Meter cover 3. Terminal block 4. Terminal cover		
31	Tamper counts		
32	Recording forward energy in all conditions as per Annexure - 1 (including current/potential reversal)	Yes/No	
33	Makes of all components used in the meter to be provided	Yes/No	
34	Non-Volatile memory (Retention period)		
35	Measuring elements used in the meter		
36	Power supply to circuit in case of supply failure		
37	Display of measured values	Yes/No	
38	LCD display (Type and viewing angle)		
39	Pulse rate	Imp/ kWh,	
40	Name plate marking	Yes/No	
41	Routine test certificates	Yes/No	
42	Acceptance test certificates	Yes/No	
43	Type test certificates	Yes/No	
44	Guarantee certificates	Yes/No	
45	Output Device (LEDs) As per clause Error! Reference source	Yes/No	
46	Make of Disconnector switch		
47	Disconnector Technical particular as per Specification clause 1.4.35	Yes/No	
48	Terminal Screw dia.		
49	Allen Screw head size (Terminal Screw)		
50	Fire retardant category of the material 1. Meter body 2. Terminal block		

22.0.BOUGHT-OUT ITEMS:

1.0 All the materials and electronic power components used in the manufacture of the meter shall be of highest quality and reputed makes given as under so as to ensure higher reliability and sustained accuracy.

2.0 CURRENT TRANSFORMERS :

2.1. The Meters should be with the current transformers as measuring elements. The current transformer should withstand for the clauses under 5 & 9 of IS- 13779/ 1999. The current transformer should withstand for the clauses under 5 & 9 of IS-13779 /1999.

3.0 MEASUREMENT OR COMPUTING CHIPS :

3.1. The measurement or computing chips used in the Meter should be with the Surface mount type along with the ASICs.

USA	:	Teridian, Anolog Devices, Cyrus Logic, Atmel, Philips Dallas, ST, Texas Instruments, Renesas, Free scale & Maxim
Germany	:	Siemens
Japan	:	NEC

4.0 MEMORY CHIPS :

4.1. The memory chips should not be affected by external parameters like sparking, high voltage spikes or electrostatic discharges. Meter shall have non volatile memory (NVM). No other type of memory shall be used for data recording and programming. (The life of the NVM is highest) There shall be security isolation between metering circuit, communication circuit, and power circuit.

USA	:	Teridian, Atmel, National Semiconductors, Texas Instruments, Philips, ST, Renesas, Microchip
Japan	:	Hitachi , ROHM
Germany	:	Siemens

5.0 DISPLAY MODULES :

(a) The display modules should be well protected from the external UV radiations.
(b) The display visibility should be sufficient to read the Meter mounted at height of 0.5 meter as well as at the height of 2 meters (refer 3.2 d for Viewing angle).
(c) The construction of the modules should be such that the displayed quantity should not disturbed with the life of display.
(d) It should be transreflective HTN or STN type industrial grade with extended temperature range.

Hongkong	:	Genda
Singapore	:	Bonafied Technologies, Holtek, Haijing.
Korea	:	Advantek

Japan	:	Hitachi, Sony.
China	:	Tinama, Yeboo

6.0. COMMUNICATION MODULES :-

6.1. Communication modules should be compatible for the two ports (one for optical port for communication with meter reading instruments & the other for the hardwired RS-232 port to communicate with various modems for AMR).

USA	:	National Semiconductors HP, Optonica, Agillant, Texas Instruments, Maxim & Renesas
Holland / Korea	:	Phillips
Japan	:	Hitachi
Taiwan	:	Ligitek

7.0. OPTICAL PORT :

7.1. Optical port should be used to transfer the meter data to meter reading instrument.

7.2. The mechanical construction of the port should be such to facilitate the data transfer easily.

USA	:	National Semiconductors HP, TI.
Japan	:	Hitachi
Taiwan	:	Ligitek, Everlight
Germany	:	Osram, Siemens

8.0. POWER SUPPLY :

8.1. The power supply should be with the Capabilities as per the relevant standards. The power supply unit of the meter should not be affected in case the maximum voltage of the system appears to the terminals due to faults or due to wrong connections. It should not also be affected by magnet -SMPS Type.

9.0 ELECTRONIC COMPONENTS :

The active & passive components should be of the surface mount type are to be handled & soldered by the state of art assembly processes.

USA	:	National Semiconductors, Atmel, Philips, Texas Instruments, BC Component, Fairchild & ST
Japan	:	Hitachi, Taiyo Yuden, Oki, Toshiba, AVZ or Ricon
Japan	:	Panasonic, Toshiba, Fairchild, PEC, CTR
Germany	:	Vishay, Epcos & NSC,Yageo
Netharlands	:	NXP
India	:	PEC., Mann, Cipsa

10.0 MECHANICAL PARTS :-

(a) The internal electrical components should be of electrolytic copper & should be protected from corrosion, rust etc.

(b) The other mechanical components should be protected from rust, corrosion etc. by suitable plating/painting methods.

11.0 Battery:

11.1. Maintenance free Lithium battery of long life of 10 years. Only non rechargeable battery should be used for RTC as well as display in absence of Power. Only industrial type will be accepted.

USA	:	Maxell, Varta, Tediran, Tekcell, Sanyo, EEMB or National
Japan	:	Panasonic, Sony, Mitsubishi, Sanyo
France	:	Saft , Eternacell
Germany	:	Varta
Korea	:	Techcell

12.0 RTC & MICRO-CONTROLLER :-

12.1. The accuracy of RTC shall be as per relevant IEC / IS standards.

USA	:	ST, Teridian, Philips, Dallas, Atmel, Motorola, Microchip, Texas Instruments, Holtek, IDT, Renesas, Freescale & Maxim
Japan	:	NEC or Oki, Epson
Malaysia	:	Intersil.

13.0. P.C.B. :-

Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm if 2 layer and 1.2 mm if 4 layer or more.

14.0. Polycarbonate material :

Polycarbonate material of following types and manufacturers shall only be used: Cover : LEXAN 943A

Terminal Cover : LEXAN 943A Base : LEXAN 503R

Manufactures: GE plastics (or) BAYER (or) DOW Chemicals (or) MITSUBISHI (or) TEJIN

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Pluggable GPRS Communication Module:

1. The Pluggable GPRS Communication 4G Module with intelligent features shall be suitable for communication. The commands received from HES (Head End System) server should be conveyed to meter and data
2. from meter should be conveyed to HES server. The required meter data should be acquired at HES at pre-configured times or intervals.
3. The communication module shall be compatible with 4G service providers in Tamil Nadu and with fall back option to 3G (UMTS/HSPA) / 2G (EDGE/GPRS) depending upon the network availability. Inbuilt rechargeable battery / Super Capacitor should be provided to capture events and communicate with the server in case of power failure and maintain RTC.
4. The communication module should have the following features:
   - Capable of continuous and reliable 24/7 operation
   - Automatic latching to network with connection monitoring i.e.auto-reconnect on any disconnections.
   - Automatic AT- interfacing and GPRS enabling
   - Capable of communicating the health status, signal strength, location (Latitude and longitude) etc.
   - Sufficient Flash for storage and application for Push operations.
5. Alerts may be generated for the following:
   - Meter power failure and restoration

The above Outage detection should be accessed from remote end so as to achieve faster restoration. Events to be notified via alerts to the server-end applications.

There should be continuous polling of tamper events. In the event of an outage, the outage event with date and time of occurrence/restoration shall be notified in the application.

6. The communication module should be capable of firmware upgrade from the server remotely using Firmware Over the Air(FOTA).The communication Module RTC (Real Time Clock) should synchronize Time with Server or Network at predefined intervals.
7. The communication module through HES shall support the following;
   - Short Messaging Services (SMS)
   - Point to Point transmission as well as cell broadcast features Communication module RTC:

-The communication module shall have a Real time clock & calendar with a Battery.

-Communication module time & Smart Meter time variation should be extended as alerts.

8. SIM Card

For placing the SIM Card, a SIM card holder shall be accessible only by opening/slidingthecover.Interlockingfacilityshallbeprovidedunderthe devicecover.SIMcardslot/covershallbesealedtoavoidaccesstounauthorized person.

9. The HES must capture Real-time GPS co-ordinates (i.e, Latitude/ Longitude) derived from Mobile Network Operator (MNO) Base Transreceiver Station via Smart prepaid Meter Communication module.
10. Smart prepaid meters shall be capable of communicating with any sort HES software application.
11. SupportforIPv6protocols
12. Must support Push and Pull communication modes and end to end encryption of communication.
13. Add on facility reset option in communication module is preferable.
14. During factory production, a default destination address shall be incorporated in the meter in discussion with the utility IT department.

Meter:

1. In MR(MeterReading) mode, a single association shall be used where all parameters, including Import/Export energy across all TODs, must be available.

2. All configuration features shall be accessible under a single association in US (Utility Software) mode.
3. A dedicated mode shall be available to report the status of the NIC (Network Interface Card), with information including signal strength, network type, SIM address, and error code.
4. The Load Survey profile shall include the CSQ (signal quality) value under a utility-specified OBIS code.
5. The Instantaneous profile shall include the CSQ (signal quality) value under a utility-specified OBIS code, SIM IP address and SIM Latched Network status (4G/2G).
6. Push mode may be enabled for billing profile also.

- The Smart prepaid Meter supplier shall coordinate with HES solution provider for ease of data acquisition by providing necessary credentials (Data Model with Keys to Connect HES).

- The Bidirectional data communication like Push and Pull operations of Instantaneous Profiles, Billing Profiles, Daily Energy Profiles, Load Survey Profiles, Tampers and Alerts, Power Outage Alerts from Smart Meter to HES using above credentials to be verified and certified during the Smart Prepaid Meter inspection.

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GUARANTEED TECHNICAL PARTICULARS:

Sl. No	GTP PARAMETERS	BIDDER's CONFIRMATION
1	1. MAKE 2. TYPE 3. Model	
2	APPLICABLE STANDARD IS 15959 & 16444 & CBIP:325 (AMENDED UP TO DATE) (YES/NO)	
3	ACCURACY CLASS 1.0 (YES/NO)	
4	RATED VOLTAGE = 240 V (+20% TO -40%)(YES/NO)	
5	BASIC CURRENT (Ib) 5Amps (YES/NO)	
6	MAXIMUM CONTINUOUS CURRENT (Imax) 600% Ib (YES/NO)	
7	STARTING CURRENT 0.4 % OF Ib (YES/NO)	
8	SHORT TIME OVER CURRENT 30 Imax(YES/NO)	
9	DISPLAY PROVIDED WITH CONTINUOUS BACKELIT LCD TYPE (YES/NO)	
10	SIX NUMBER OF DIGITS (YES/NO)	
11	SIZE OF DIGITS 10X5 MM MINIMUM	
12	POWER CONSUMPTION OF VOLTAGE CIRCUIT shall be as per IS: 16444 part-1 (YES/NO)	
13	POWER CONSUMPTION OF CURRENT CIRCUIT shall be as per IS: 16444 part-1 (YES/NO)	
14	KW MD PROVIDED (YES/NO)	
15	INTEGRATION PERIOD OF MD 30MIN. (YES/NO)	
16	TYPE OF COMMUNICATION PORT	
17	MATERIAL OF BASE AND COVER POLYCARBONATE (YES/NO)	
18	ALL ANTI-TAMPER FEATURES AS PER TENDER SPEC ARE PROVIDED (YES/NO)	
19	TYPE OF BACKUP POWER PROVIDED	
20	FOR INTERNAL BATTERY ACTIVATION PUSH BUTTON IS PROVIDED. (YES/ NO)	
21	PROVISION OF MD RESET (AUTO) WITH EVEN/ODD MONTH RESET DATE AND TIME (YES/NO)	

22	EXTENDED TRANSPARENT TERMINAL BLOCK COVER (50MM) IS PROVIDED WITH LOGO & SEALING ARRANGEMENT (YES/NO)	
23	GUARANTEE PERIOD OF 66 MONTHS FROM THE SUCCESSFUL COMPLETION OF IMPLEMENTATION PERIOD IS COMPLIED (YES/NO)	
24	INTERNAL DIAMETER OF TERMINAL HOLES (mm)	
25	IN-HOUSE TESTING FACILITIES FOR CONDUCTING ACCEPTANCE TESTS AS PER IEC AND THIS SPECIFICATION (YES/NO)	
26	AVAILABILITY OF CALIBRATED RSS METER OF CLASS 0.05-0.1 ACCURACY WITH VALID CALIBRATION CERTIFICATE (YES/NO)	
27	DATA RETENTION FOR A LONG PERIOD UNDER POWER OFF CONDITION. (YES/NO	
28	FOUR DECIMAL RESOLUTION IN CALIBRATION MODE. (YES/NO)	
29	LED/ICON FOR CURRNT REVERSAL.(YES/NO)	
30	FIXING ARRANGEMENT OF METERS AS PER SPEC.(Y/N)	
31	FURNISH PRINCIPLE OF OPERATION OF METER OUTLINING THE METHODS AND STAGES OF COMPUTATIONS OF VARIOUS PARAMETERS STARTING FROM INPUT VOLTAGE AND CURRENT SIGNALS INCLUDING SAMPLING RATE IF APPLICABLE. (AS A DOCUMENT HARD&SOFT COPY) (Y/N)	
32	MANUFACTURING ACTIVITIES AS PER SPECIFICATION SUBMITTED (YES/NO)	
34	TYPE TEST REPORT NO.	
35	WHETHER QAP SUBMITTED (YES/NO)	
36	RTC TEMPERATURE COMPENSATED 0-50°C (Y/N)	
37	FACILITY FOR CORRECTING RTC DRIFT THRO CMRI/REMOTE(Y/N)	
38	RTC MAKE & ACCURACY (MINUTES/YEAR)	

39	PCB IS MANUFACTURED BY SMT AND WITHOUT ANY WIRE LOOPS AND JOINTS (YES/NO)	
40	INTERNAL BATTERY GUARANTEE / UNDERTAKING IS SUBMITTED (YES/NO)	
41	WHETHER VOLTAGE & CURRENT CIRCUIT ARE SOLIDLY CONNECTED INSIDE THE METER BODY WITHOUT ANY LINKS (Yes/No)	
42	WHETHER TYPE TEST REPORTS, MANUAL ALONG WITH COPY OF THE SAME IN CD'S IS SUBMITTED (YES/ NO)	
43	AS PER TECHNICAL SPECIFICATION SPARK DISCHARGE TEST AT 35 KV IS CARRIED OUT & TEST REPORTS FURNISHED (YES/ NO)	
44	AS PER TECHNICAL SPECIFICATION LEAST COUNT TEST IS CARRIED OUT (YES/NO)	
45	DETAILS OF CT/SHUNT PROVIDED (YES/NO)	
46	NUMBER OF PULSES/KWHR&KVAHR COUNT.(P.U)	
47	TIME TAKEN TO FUNCTION UPON POWERING UP OF METER	
48	DETAILS OF TERMINAL BLOCKS PROVIDED (YES/NO) a.) GLOW WIRE TEST OF POLYCARBONATE IS CARRIED OUT (YES/NO)	
49	MEMORY CAPACITY IN MB.	
50	NON VOLATILE RETENTION TIME IN ABSENCE OF POWER.	
51	OVER ALL DIMENSIONS & WEIGHT	
52	SEALING PROVISION FOR COVER, TERMINAL COVER, COMMUNICATION PORT (YES/NO)	
53	PROTECTION FROM LIGHTNING & HV SURGE (YES/NO)	
54	RANGE FOR SAFE OPERATION.	
55	TOTAL NUMBER OF TAMPER EVENTS AVAILABLE.	
56	CMRI/BCS SOFTWARE AS PER SPECIFICATION (YES/NO)	
57	AVAILABILITY OF SELF DIAGONSITIC FEATURES (YES/NO)	
58	VALUE UPTO WHICH METER CAN WITHSTAND DIRECT CURRENT IN AC CIRCUITS WITH OUT GETTING CT SATURATED RESULTING IN MEASUREMENT ERROR OF MORE THAN PERMISBLE LIMIT	

59	MAGNETIC IMMUNITY LEVEL FOR AC/DC	
60	COMPLIANCE TO PROTECTION FROM TAMPER & FRAUD (YES/NO)	
61	WHETHER THE METER CAN RECORD ENERGY AS PER VOLTAGE MEASURED BETWEEN INCOMING PHASE & NEUTRAL TERMINAL WHEN DC SIGNAL IS INJECTED ON NEUTRAL TERMINAL THROUGH A DIODE-(YES/NO)	
62	AVAILABILITY OF SMT MANUFACTURING AT THE WORKS (YES/NO)	
63	AVAILABILITY OF IN-HOUSE DESIGN, DEVELOPMENT AND MANUFACTURING FACILITIES (YES/NO)	
64	PCB MATERIAL GLASS FR-4 GRADE (YES/NO), IF NO FURNISH DETAILS.	
65	SHORT TIME OVER CURRENT WITHSTANDS CAPACITY FOR ONE HALF CYCLES AT REFERENCE FREQUENCY- (IN TERMS OF I-MAX.)	
66	DISPLAY SEQUENCE AS PER SPECIFICATION (YES/NO)	
67	READING PROVIDED IN THE METER IS DIRECT (YES/NO)	
68	CONFIRMATION TO THE EFFECT THAT METER DOES NOT GET DAMAGED EVEN IF 440V (AC) IS APPLIED FOR 5 MINUTES BETWEEN PHASE AND NEUTRAL AND CONITNUE TO RECORD CORRECTLY AFTER RESTORATION OF NORMAL SUPPLY.(YES/NO)	
69	CAN METER PERFORM WITHIN CLASS 1.0 ACCURACY UPTO 600% Ib FOR PF RANGE 0.5 LAG, 0.8LEAD & UNITY (YES/NO)	
70	WHETHER METER CAN RECORD ENERGY IF VOLTAGE FALLS UPTO 50% OF RATED VOLTAGE AT Ib TO Imax. (YES/NO)	
71	POWER CONSUMED FOR DISPLAY DURING POWER OFF CONDITION(W)	
72	DEGREE OF PROTECTION IP-51 (Y/N)	

73	LOAD CONTROL SWITCH TEST CERTIFICATE	
74	DATA TRANSFER TIME	
	a. METER TO CMRI (MIN).	
	b. CMRI TO BCS (MIN).	

****

SCHEDULE – A
PRICE SCHEDULE

Description	Quantity offered		Unit Price in Rupees			
		Ex-Works price	Freight & Insurance charges	GST Value in %	HSN Code	All inclusive Unit Price (3+4+ 5)
	(Nos.)	Rs.P.	Rs.P.	Rs.P.		Rs.P.
1	2	3	4	5		6
LT SINGLE PHASE TWO WIRE 5-30 AMPS SMART ENERGY METER (As per the technical specification of this tender specification)		(TO BE QUOTED ON LINE)				
Total						

NOTE 1 :		Rates quoted shall be both in Words & Figures
NOTE 2 :		In case of discrepancy between prices quoted in words and in figures, low of the two will be taken for evaluation.

COMPANY SEAL :

SIGNATURE :
NAME :
DESIGNATION :
COMPANY :
DATE :

SCHEDULE-B
SCHEDULE OF MATERIALS AND DELIVERY PERIOD

(To be filled in by the Tenderer.)

TENDERED QUANTITY = ... Nos

Sl.NO	Description of material	Quantity Offered per month in Nos	Total quantity offered
1.			

COMPANY SEAL :

SIGNATURE :
NAME :
DESIGNATION :
COMPANY :
DATE :

SCHEDULE – C

DURING THE PAST TEN YEARS AS ON THE DATE OF TENDER STATEMENT OF SUPPLY ORDERS EXECUTED / UNDER EXECUTION IN RESPECT OF TENDERED ITEM

Sl. no.	Name & Address of the Organization incl. other SEBs	Name of the material	P.O. No. & Date	Quantity	Value of order in Rs. Lakhs FOR(D) Price	Scheduled date of completion of order	Actual date of completion of order	Whether PO Copy is furnished (Yes/ No)	Whether End User Certificate Copy is Enclosed (Yes/ No)
1	2	3	4	5	6	7	8	9	10

NOTE :

Copies of orders and end user certificate shall be furnished in the bids.

COMPANY SEAL :

SIGNATURE :
NAME :
DESIGNATION :
COMPANY :
DATE :

SCHEDULE – D

DECLARATION FORM

To

The Chief Engineer / Material Management,
Tamil Nadu Generation and Distribution Corporation Ltd.,,
4th Floor / Western Wing,
NPKRR Maaligai, Electricity Avenue,
144, Anna Salai,
Chennai 600002.

Dear Sir,

Having examined the above specification no. M.230/2025-26 together with the accompanying schedules etc., we hereby offer to manufacture and supply the materials covered in this specification at the rates entered in the attached schedule of prices.

1 We hereby guarantee the particulars entered in the schedules and Annexure attached to the specification.

2 In accordance with security deposit cum performance Guarantee clause, Section–V of the specification we agree to furnish D.D. / Bankers cheque / irrevocable B.G. of 5% of the total accepted value of the contract.

3 Our company is not a potentially Sick Industrial Company or a Sick Industrial Company in terms of Section-23 or Section-15 of the Sick Industrial Companies (Special Provisions) Act, 1985.

Yours faithfully,

COMPANY SEAL :

SIGNATURE :
NAME :
DESIGNATION :
COMPANY :
DATE :

SCHEDULE - E

UNDERTAKING TOWARDS JURISDICTION OF LEGAL PROCEEDINGS

(In Non Judicial Stamp paper of value not less than Rs.500/-)

This undertaking executed at …… on this …… (Date)……(Month) two thousand and twenty five by M/s. …… Registered under Companies Act, 1956 having its registered office at ……hereinafter called the contractor (which expression shall where the context so admits mean and include its successors in office and assigns) with the Tamil Nadu Generation and Distribution Corporation Limited a statutory authority , a body corporate constituted as per provision of G.O.MS.No.100, dt.9.10.2010, having its registered Office at No.144 Anna Salai, NPKRR Maaligai, Chennai – 600002 herein after called the purchaser (Which expression shall where the context so admits means and includes its successors in Office and assigns.)

WHEREAS the contract is for the supply of …… of terms of the Purchase Order No…… dated ……

AND WHEREAS in accordance with Clause …… of the above said P.O. certain terms were stipulated for the above supply.

AND WHEREAS in accordance with Clause……ofthe above mentioned Purchase Order the contractor has to furnish an undertaking that no suit or any proceedings in regard to any matter arising in any respect under this contract shall be instituted in any court other than in the High Court, Chennai City Civil Court of Chennai or other Court of small causes at Chennai, as the case may be.

IN CONSIDERATION of the Board having agreed to accept the undertaking the Contractor hereby undertakes that no suit or any proceedings in regard to any matter arising in respect of this contract shall be instituted in any Court, save in the High Court, Chennai City Civil Court at Chennai or at the Court of small causes at Chennai. It is agreed that no other court shall have jurisdiction to entertain any suit or proceedings, even though, part of the cause of action might arise within the jurisdiction of any of the Courts in Tamil Nadu and rest within the jurisdiction of Courts outside the Tamil Nadu, then it is agreed to between the parties that such suits on proceedings shall be instituted in a Court within the State of Tamil Nadu and no other Court outside the State of Tamil Nadu shall have jurisdiction even though any part of the cause of action might arise within the jurisdiction of such Courts.

IN WITNESS WHEREOF of Thiru……of M/s…… hereby put his hand and seal for due observance of the Undertaking in the presence of the following witnesses.

COMPANY SEAL :

SIGNATURE :
NAME :
DESIGNATION :
COMPANY :
DATE :

WITNESS :

1.

2.

SCHEDULE – F
QUESTIONNAIRE – A
BID QUALIFICATION REQUIREMENT & COMMERCIAL CONDITIONS
INSTRUCTIONS :

(a) Strike off, whichever is not applicable.
(b) Separate sheets should be used, wherever necessary.

Sl. no.	PARTICULARS	BIDDER'S RESPONSE
1	Name & Address of the Firm / Company	
a	Registered Office.	
b	Factory / Work's Address	
c	FAX No. & Telephone No.	
d	E-Mail ID. & Cell No.	
e	Permanent Account Number(PAN)	
f	GST registration No.	
g	GSTIN No.	
h	HSN code of the tendered material	
2	**Name, Designation & Address of the person signing the tender. (Phone number & Email id is mandatory)**	
3.a	Whether the Company is Small Scale / Medium Scale / Large Scale Unit**. (Specify correctly)**	
b	If so, write Registration No.	
c	If SSI Unit registered with Udayam, period of category / validity to be mentioned.	Mention the category
d	Legal Status of the company. (Partnership / sole property / Registered under companies Act)	
4	Confirm whether tenderer is a manufacturer ----------	YES / NO
4.1.	Whether Manufactured and supplied satisfactorily a minimum of ten percent of tendered quantity put together during the preceding ten years as on the date of tender opening to State Electricity Boards /Power Utilities/Central / State public Sector undertaking.	YES / NO
4.2	Whether the copies of purchase orders of the material covered under Sl.No.4.1 executed during the last Ten years and end user's certificates are enclosed in the tender, as required in Clause-2 under Section-II of this Specification.	YES / NO

5.0	The Annual Turn Over for the years specified	2022-23- ----- 2023-24- ------ 2024-25- ------
5.1	Whether documentary evidence for the Annual Turn Over enclosed.	YES / NO
6.0	Whether the currently valid BIS License furnished (if applicable)	YES / NO
7.0	Details required as per Schedule – C are also uploaded.	YES / NO
8.0	**EARNEST MONEY DEPOSIT :** Amount : Rs.....(Rupees ..... only)	
8.1	**Testing Charges for Sample Meters:** Amount : Rs.....(Rupees ..... only)	
8.2	Mode of Payment : Whether Payment has been made "online"	NEFT / RTGS / Bank Account transfer to same branch.
	Whether scanned copy of the e-receipt duly reflecting the UTR Number/copy of the bank scroll has been uploaded.	**YES / NO**
8.3	a) If exempted for paying EMD, state whether the bidder has uploaded the documentary evidence showing their Micro / SSI status. i.e "Udayam" Registration certificate as required under Section-I of the tender specification. i) Whether Permanent EMD is available with TNPDCL (Documentary evidence about acceptance of PEMD is enclosed). ii) The bidder is deemed to accept to pay the amount equivalent to EMD amount as stipulated under section- I of the tender specification together with cost if any in the event of non-fulfillment of the conditions stipulated in the tender specification i.e. in all case where EMD paid will be forfeited. iii) Whether self declaration furnished as per Cl. No.9..3. under Section-II	**Mention the category of Registration** **----------** **YES/NO** **YES / NO**
	NOTE: If item (8.2) or (8.3)) is not up loaded for payment of EMD/ exemption during submission of the Techno commercial bid, the Techno-Commercial Bids will not be opened .	

SIGNATURE OF THE TENDERER

10	**VALIDITY :**	
	Whether your offer is valid for a period of **180 days** from the date of opening of Commercial / Technical Bids . [Offers with validity period of less than **180 days** are liable to be rejected].	YES / NO
11	**PRICE :**	
a	Whether the price quoted is FIRM for a period of one year from the date of receipt of award of contract.	YES / NO
b	Whether the following breakups for the quoted Unit Price (All inclusive Price excluding GST) have been mentioned in Schedule-A (BOQ) of this specification.	YES / NO
c	Unit Ex-works Price	YES / NO
d	Freight & Insurance charges.	YES / NO
e	Whether GST Applicable (Percentage & Amount) has been mentioned separately.	YES / NO
f	Confirm that any additional amount of GST due to upward revision on account of increase in Turnover during the contractual period shall be borne by you.	YES / NO
g	Confirm that quoted price is after accounting for GST input credit and necessary undertaking as per Annexure-I furnished	YES / NO
h	Whether you are agreeable, in case of delayed delivery, the GST prevailing on the date of actual delivery or GST applicable on the date of contractual date of delivery whichever is less shall only be payable.	YES / NO
i	Confirm that packing & Forwarding, Freight & Insurance charges quoted are applicable for delivery to any of the TNPDCL stores in Tamil Nadu.	YES / NO
	If the breakup details are not furnished, offer will be liable for rejection.	

SIGNATURE OF THE TENDERER

12	**IT-PAN & GSTIN**	
a.	Whether PAN No. issued by IT dept. furnished and copy of IT return filed is enclosed	YES / NO
b.	Whether GSTIN is enclosed with the offer.	YES / NO
13	Whether you are agreeable for the following clauses specified under Section – V of the Specification.	
a	Payment Terms (Clause – 10).	YES / NO
b	SD Cum Performance Guarantee (Clause – 11).	YES / NO
c	Delivery (Clause – 12).	YES / NO
d	Liquidated Damages (Clause – 17).	YES / NO
e	Guarantee (Clause – 19).	YES / NO
f	Jurisdiction for Legal Proceedings (Clause – 31).	YES / NO
14	1. Quantity tendered – ------- 2. Quantity offered by the bidder : (The tenderer shall quote not less than 10% of the tendered quantity as per clause 5.4 under section IV of the specification)	-------
15	Whether copy containing all pages of Section – V Commercial & Section – VI Technical with dated signature of the Tenderer in all pages has been uploaded enclosed with the offer.	YES / NO

UNDERTAKING

I, , sole proprietor / Partner of M/s. …… ……. Give undertaking that ……. Details given in the above **QUESTIONNAIRE – A** are correct to the best of my knowledge …….. and I agree to abide by all your Tender / Order terms & conditions.

COMPANY SEAL :

SIGNATURE :
NAME :
DESIGNATION :
COMPANY :
DATE :

SCHEDULE – F

QUESTIONNAIRE – B
TECHNICAL TERMS

INSTRUCTIONS :

a) Strike off, whichever is not applicable.
b) Separate sheets should be used, wherever necessary.

Sl. no.	PARTICULARS	BIDDER'S RESPONSE
1	Whether materials offered is exactly as per Technical Specification in Section – VI. (Tender offers with Deviations in Technical Terms are liable to be rejected).	YES / NO
2	If not, give details of Technical Deviation in the **Shedule -G**	
3	Whether all testing facilities for conducting routine tests as per relevant IS are available in your factory or not.	YES / NO

COMPANY SEAL :	SIGNATURE	:
	NAME	:
	DESIGNATION	:
	COMPANY	:
	DATE	:

UNDERTAKING

I, , Sole proprietor / Partner of M/s. …… ……. Give undertaking that ……. Details given in the above **QUESTIONNAIRE – B** are correct to the best of my knowledge …….. and I agree to abide by all you Tender / Order terms & conditions.

COMPANY SEAL SIGNATURE :
NAME :
DESIGNATION :
COMPANY :
DATE :

SCHEDULE – G

SCHEDULE FOR COMMERCIAL AND TECHNICAL DEVIATION

1. **Technical Deviation**

SL.NO	Clause No.	Description of clause	Description of Deviation

2. **Commercial Deviation :**

SL.NO	Clause No.	Description of clause	Description of Deviation

Note : It may be noted that Technical and commercial deviation against the tender specification are liable for rejection.

COMPANY SEAL SIGNATURE :
NAME :
DESIGNATION :
COMPANY :
DATE :

SCHEDULE – H

Declaration pursuant to Section 206AB

(To be obtained from applicable Suppliers)

This is to declare that …….(Name of the supplier) have filed the Return of Income (ROI) under the relevant provisions of the Income Tax Act, 1961 for the Assessment Year 2021-22 and 2022-23 and we shall file the ROI for Assessment Year 2023-24 within the due date as per the provisions of the said Act.

Permanent Account No. (PAN) of our Company/Firm/Individual is …….. The details of Return of Income filed are as below:

S. No	Assessment Year	Acknowledgement No	Date of Filing
1	2021-22	_____	_____
2	2022-23	_____	_____

Place :
Date :

(Authorized Signatory)
Signature & Seal

SCHEDULE – I

UNDERTAKING TOWARDS INPUT TAX CREDIT

(Declaration to be submitted by the bidders in Non Judicial Stamp paper of value not less than Rs.500/-)

To
The Chief Engineer ,
Materials Management ,
TNPDCL.
Chennai – 2.

We hereby declare and confirm that we are registered vendor under GST Act having GSTIN----------in State of ----------. Our applicable GST% for the above reference job is under code ---------.

We hereby declare and confirm that we are registered vendor under composite scheme having GSTIN.

We are aware that as per sec 171 of CGST Act, any reduction in rate of tax on any supply of goods or services or the benefit of input tax credit should be passed on to TNPDCL by way of commensurate reduction in prices and as such we hereby declare that we are extending Rs. ----/- of -----% as rebate in my awarded price against input tax credit benefit.

We hereby declare that we do not have any input tax credit benefit on account of GST applicable against this job. If it is established that we have availed input tax credit benefit against this job, the differential tax benefit will be returned to TNPDCL failing which TNPDCL may take appropriate action.

SIGNATURE :

COMPANY SEAL :

NAME :
DESIGNATION :
COMPANY :
DATE :

WITNESS :

1.
2.

Note: Bidder may strike out the para which not applicable

SCHEDULE –J

DECLARATION FORM
To be signed with company seal on letter head and uploaded in the technical Bid

TENDER ACCEPTANCE LETTER
(To be given on Company Letter Head) Date:

To,

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No:---------- Name of Tender/Work

Dear Sir,

1. I/We have downloaded / obtained the tender document(s) for the above mentioned 'Tender/Work' from the web site (s) namely: ---------- as per your advertisement, given in the above mentioned website (s).

2. I/We hereby certify that I/We have read the entire terms and conditions of the tender documents of all pages (including all documents like annexure (s), schedule(s), etc.,) which form part of the contract agreement and I /We shall abide hereby the terms / conditions / clauses contained therein.
3. The corrigendum (s) issued from time to time by your department/ organization too has also been taken into consideration, while submitting this acceptance letter.
4. I/We hereby unconditionally accept the tender conditions of above mentioned tender document(s) corrigendum(s) in its totality / entirety.
5. In case any provisions of this tender are found violated, then your department/organization shall without prejudice to any other right or remedy be at liberty to reject this tender/bid including the forfeiture of the full said earnest money deposit absolutely.

Yours Faithfully,

(Signature of the bidder, with official Seal)

SCHEDULE –K

STATEMENT OF TYPE TEST PARTICULARS

(TO BE FILLED IN BY THE TENDERER)

SL. NO.	NAME OF THE TEST	NAME OF THE LAB	DATE OF TEST
1	2	3	4
	IS:16444, IS:15959 & CBIP 325 tests		

- **NOTE : The above Type Tests should have been conducted in a Government / Government recognised laboratory with in 5 (Five) years on the date of submission.**

SCHEDULE –L

SAMPLE METERS TEST BY TNPDCL

SAMPLES :-

1.0. The bidder should submit **2 (two) Nos**. sample meters as per specification to the following address before **01.04.2026 @17.00 Hrs**. failing which their offer will not be considered.

"The Stores Officer, Central Stores, TNPDCL/CHENNAI WEST EDC, No.12, South Phase and Ambattur Industrial Estate, Chennai-58" (Mobile No.9445850375)

2.0. **The sample meters of 2 nos. which one with ultrasonic welding and another without ultrasonic welding** shall also be securely packed and furnished separately for testing of software and hardware requirements of the tender by TNPDCL.
The serial nos. of the meters shall be superscribed on both the packings and it is the responsibility of the bidders for compliance of the same.
A label with following details shall be tagged on the sample sent.

1. TNPDCL Specification Number.
2. Name or trade mark of the manufacturer.
3. Name of the tender with full address.

Sample received after the due date and time will not be accepted. The tenders received without samples will be summarily rejected.

If the samples are not furnished within the stipulated time, EMD will be forfeited.

The sample once furnished is final. However, the TNPDCL has the right to call for fresh sample, if necessary.

3.0. The software for CMRI & BCS and memory mapping including optical probe & snap shot of Display parameter should be submitted along with offer for testing the sample meter.

4.0. **The sample meter shall comply with all tests in all respect to this specification. In case sample meters are found not conforming to the requirements both in hardware and soft ware, the price bid of the offer shall not be opened and offer will be rejected**.

5.0. It is the responsibility of the bidder to ensure that the samples are arranged to be delivered to the **Chief stores officer/Central Stores/Chennai/ West EDC** before the date of opening when dispatched from outside station by Road/Rail/Air. The TNPDCL will not arrange for the clearance of the consignment of samples dispatched by Rail/Road/Air and the responsibility will lie with the bidder only.

****

ANNEXURE- I

BANK GUARANTEE FOR EMD

(B.G for EMD shall be executed on Non judicial stamp paper of Rs. 500/-)

(The BG towards EMD should be submitted in original before tender opening)

Beneficiary:The Chief Engineer/Materials Management

Date:----------

Bid Guarantee No:_____

We have been informed that (insert name of bidder) (herein after called „"the bidder"") has submitted to you its bid dated (insert date) (herein after called „"the bid"") for the Tender Spec.No. _____of TNPDCL for the year 2025-26".

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

At the request of the bidder, we (name of the Bank) hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of (amount in figures)_____(amount in words) _____ upon receipt by us of your first demand in writing accompanied by a written statement stating that the bidder is in breach of its obligation(s) under the bid conditions ,because the Bidder:

a) has withdrawn its bid during the period of bid validity specified by the Bidder in the Form of Bid; (or)

b) having been notified of the acceptance of its Bid by the Employer during the period of validity (i) fails or refuses to execute the Contract Form, if required, or ii) fails or refuses to furnish the Security Deposit, in accordance with the Instructions to Bidders.

This guarantee will expire:(a) if the bidder is the successful Bidder, upon our receipt of copies of the contract signed by the Bidder and the Security Deposit issued to upon the instruction of the Bidder and (b) if the bidder is not successful Bidder, upon the earlier of (i) our receipt of copy of your notification to the Bidder of the name of the successful Bidder; or (ii) twenty eight days after the expiration of the Bidder's Bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC publication No 758.

Signature

With seal of the Bank

(Name in block letter)

In the presence of witness:

1 . (Name in capital and address)

2 . (Name in capital and address)

****

ANNEXURE-II

UNDERTAKING IN LIEU OF PAYMENT OF E.M.D.

THIS DEED OF UNDERTAKING EXECUTED AT …….. ON THIS THE …….. DAY OF …… TWO THOUSAND TWENTY FIVE BY M/s. ……, Company registered under Companies Act, 1956, having its Registered office at …….. herein after called "Tenderer" (which expression shall where the context so admits mean and include their Agents, Representatives, Successors-in-office and Assigns).

TO AND IN FAVOUR OF …… THE TAMIL NADU GENERATION AND DISTRIBUTION CORPORATION LIMITED, a Board Corporate constituted under the Electricity (Supply) Act, 1948 (Central Act LIV of 1948) having its office at NPKRR Maaligai, Electricity Avenue, 144 Anna Salai, Chennai 600002, herein after called the "BOARD" (which expression shall where the context so admits mean and include its successors in office and Assigns).

WHEREAS the contract is for the supply / erection / construction etc. …… in terms of the ……Tender Specification No. …….. date…….

AND WHEREAS in accordance with Clause …… of the above said tender specification the tenderer has to furnish E.M.D. of Rs. …….. (Rupees …….. ……. only).

AND WHEREAS the tenderer has requested the Board to accept an undertaking in lieu of payment in cash of the Earnest Money Deposit.

AND WHEREAS the Board has accepted the request of the tenderer subject to his executing an undertaking to pay to the Board not exceeding Rs. …… (Rupees …….. only) representing the Earnest Money Deposit together with costs in cash, in the event of non fulfillment of the conditions stipulated in the Tender specification or the conditions stipulated in the contract by the tenderer.

IN CONSIDERATION of the Board having agreed to accept an undertaking from the tenderer in lieu of payment of Earnest Money Deposit in cash, the tenderer undertake to pay the sum of Rs. …….. (Rupees ……... only) immediately when a demand is raised by the Board against the tenderer without any demur in the event of the following :

i) If he withdraws his tender or backs out after acceptance of the tender or fails to remit the Security Deposit.
ii) If he revises any of the terms quoted during the validity period.
iii) If he violates any of the conditions of the Tender Specification No…… Dated …….

NOW THE CONDITION OF THE ABOVE WRITTEN UNDERTAKING in such that if the tenderer shall duly and faithfully observe and perform the terms and conditions specified as above, then the above written undertaking shall be void, otherwise the same shall remain in full force.

The tenderer undertakes not to revoke this guarantee till the contract is completed under the terms of /contract.

The expression, 'tenderer' and the 'Board' herein before used shall include their respective successors and assigns in office.

IN WITNESS WHERE OF THIRU. …….. for and on behalf of the tenderer has signed this undertaking on the day, the month and year first above written.

In the presence of witnesses :

SIGNATURE

1. Signature
Name and Address

NAME IN BLOCK LETTERS

2. Signature
Name and Address

SEAL OF THE COMPANY.

********END********