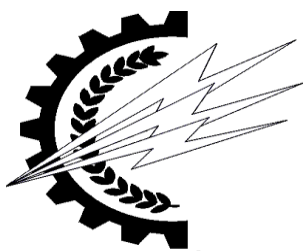


M.P.MADHYA KSHETRA VIDYUT VITARAN CO.LTD.

(A Wholly Owned Govt. of M.P. Undertaking)

BHOPAL



प्रकाश एवं विकास

TENDER SPECIFICATION

NO.CMD/MK/04/225

(DUE FOR OPENING ON 05.10.2011)

FOR SUPPLY OF

**3 PHASE 4 WIRE 10-40 AMP ACCURACY CLASS 1.0 ELECTRONIC ENERGY
METERS WITH LCD DISPLAY AND COMMUNICATION FACILITY FOR AMR
ALONGWITH POLYCARBONATE METER BOXES**

**CHIEF ENGINEER (PURCHASE),
OFFICE OF THE CHAIRMAN AND MANAGING DIRECTOR,
M.P. MADHYA KSHETRA VIDYUT VITARAN Co. LTD.,
NISHTHA PARISAR, BIJLINAGAR, GOVINDPURA, BHOPAL-
462023**

PHONE NO.(0755)-2678325, 2602033 to 2602036

FAX NO. (0755)- 2589821

Website – www.madhyavitaran.nic.in

TENDER SPECIFICATION NO. CMD/MK/04/225

ITEM: 3 PHASE 4 WIRE 10-40 AMP ACCURACY CLASS 1.0 ELECTRONIC ENERGY METERS WITH LCD DISPLAY AND COMMUNICATION FACILITY FOR AMR ALONGWITH POLYCARBONATE METER BOXES DUE FOR OPENING ON 05.10.2011

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**OFFICE OF THE CHAIRMAN & MANAGING DIRECTOR
M.P.MADHYA KSHETRA VIDYUT VITARAN CO. LTD.**

(A Wholly Owned Govt. of M.P.Undertaking)

NISHTHA PARISAR, BIJLINAGAR, GOVINDPURA, BHOPAL-462023

Phone: 2602033-36, 2678325, 2678280, Fax No.2589821 Email – sepurchase@mpmkvvc.com

TENDER – NOTICE

Online tenders are invited for supply of following items from the manufacturers only. The Bid Seals (Hashes) will be received online on the portal <http://mpmkvvc.mpeprocurement.gov.in> up to date & time indicated below. The Tenders will be opened in the office of the undersigned as mentioned in tender time schedule (key date). If desired, the bidder or their duly authorized representatives may remain present at the time of opening of tender.

TENDER SPECN. NUMBER	NAME OF ITEM	APPRO X. VALUE (Rs. in Lakhs)	TENDER FEE (in Rs.)	DATE OF OPENING OF TENDER
CMD/MK/04/225	Procurement of 3 Phase 4 Wire 10-40 Amp Accuracy Class 1.0 Electronic Energy Meters with LCD Display and Communication Facility for AMR along with Polycarbonate Meter Boxes.	1705.80	2000.00	05.10.11 (Pre-bid conference shall be held on 13.09.11)

1. Tender documents can be purchased only online from <http://mpmkvvc.mpeprocurement.gov.in> by making online payment for the Tender Document Fees.

2. The Bid Data should be filled in and the Bid Seals (Hashes) of all the envelopes and the documents which are to be uploaded by the Bidders should be submitted online upto as per time schedule (Key Dates).

3. The Bidders shall have to submit their Bids online (decrypt the bids and re-encrypt the bids) and upload the relevant documents forms as per time schedule (key Dates). **Original Earnest Money Deposit Instrument should reach the office of the undersigned by 05/10/2011 upto till 3 p.m.**

4. Since the online bidders are required to sign their bids online using Class III - Digital Certificates only, Contractors are advised to obtain the same at the earliest. For further information, Contractors are requested to contact NexTenders (India) Pvt. Ltd., A-6 Sahyog Parisar, E-8 Shahpura , Opp. Maakhan Lal University, Bhopal – 462 039, Tel. No.: 0755 – 4075010, Email Address: bhopal@nextenders.com

(Note: It may take upto 4 working days to issue Digital Certificates.)

5. Bidders intending to participate in the Tender are required to get themselves trained on the e-Procurement System. The Bidders are required to contact the Service Provider – Wipro – NexTenders to confirm their session in advance.

6. The EMD of Rs. 50,000/- in favour of Sr. A.O (HOAU), MPMKVV Co. Ltd. payable at Bhopal along with hard copy of tender & supporting documents duly filled up excluding Schedule I shall be dropped in the tender box of Purchase Section, O/o CMD, Bhopal on date **05/10/2011** till 3.00 p.m.

7. Other details can be seen in the tender documents.

Key Dates : Single Submission MultiOpening With Prequal

Seq No	MPMKVVC Stage	Contractor Stage	Start Date & Time	Expiry Date & Time
1	Tender Preparation And Release of NIT	-	29-08-2011 10:30	29-08-2011 17:30
2	-	Tender Purchase - Online	29-08-2011 17:31	29-09-2011 17:30
3	-	Tender Download	29-08-2011 17:31	29-09-2011 20:30
4	-	Submit Bid - Hash Online	29-08-2011 17:31	30-09-2011 17:30
5	Close for Bidding - Generation of Super Hash	-	30-09-2011 17:31	01-10-2011 17:30
6	-	Submit Bids Online - Re-encryption	01-10-2011 17:31	04-10-2011 17:30
7	Open EMD & Technical / PQ bid	-	05-10-2011 14:30	05-10-2011 17:30
8	Open Financial / Price-Bid	-	25-11-2011 15:00	25-11-2011 17:30

Note:- In case of any or above date is declared as holiday/ local holiday then the date will be get shifted to next working day.

- a) The Company reserves the right to reject any or all the tenders or accept any tender in full or part as considered advantageous to the Company, whether it is lowest or not, without assigning any reason whatsoever it may be.
- b) The tender notice and information shall also be available on our website www.madhyavitaran.nic.in.

(Sanjeev P. Puranik)
CHIEF GENERAL MANAGER (PUR),
O/O CMD, MPMKVV CO.LTD. BHOPAL

SAVE ELECTRICITY



**OFFICE OF THE CHAIRMAN & MANAGING DIRECTOR
M.P.MADHYA KSHETRA VIDYUT VITARAN CO. LTD.**

(A Wholly Owned Govt. of M.P.Undertaking)

NISHTHA PARISAR, BIJLINAGAR, GOVINDPURA, BHOPAL-462023

Phone: 2602033-36, 2678325, 2678280, Fax No.2589821 Email –ce_ purchase@mpmkvvc.com

Postal Order/Demand Draft

No.....
.....

Tender issued to M/s

.....

TENDER FORM

The undersigned hereby tender and offer (subject to the Company's conditions of tendering) the MP Madhya Kshetra Vidyut Vitaran Co. Ltd., Bhopal to supply the plant, machinery and materials and execute and do the several works and things which are described or referred to in the Details of Technical Particulars attached to tender document no. **CMD/MK/04/225**, its enclosure and in Schedules alongwith Details of Technical Particular copies of which are annexed here to and which under the terms thereof are to be supplied, executed and done by the contractor and to perform and observe the provisions and agreements or the part of the contract contained in or reasonable to be referred from the said tender documents for the sums and at the rates set out in Schedule-I annexed here to.

The questionnaire enclosed with this tender document has been fully answered and is enclosed herewith (if the questionnaire is not answered in full, the answer to various question may be taken so as to be advantageous to the Company unless contrary is mentioned in the body of the tender).

Date the Day 2011

TENDERER'S SIGNATURE
(With Seal)

ANNEXURE-III**IMPORTANT INSTRUCTIONS TO BIDDERS**

The Chief Engineer (Purchase) on behalf of the Madhya Pradesh Madhya Kshetra Vidyut Vitaran Co. Ltd. hereinafter referred to as “MPMKVVCL” invites online sealed tender for supply of material in accordance with the attached specification for supply to Area Stores Bhopal, Gwalior & Guna in Madhya Pradesh.

The bidder should read and note carefully the following terms and conditions of the tender before submitting his bid:-

1. ELIGIBILITY CRITERIA:-

- (a) The bidding is open for manufacturers of the equipment only.
- (b) The bidder must possess Bureau of Indian Standard Certification (ISI Mark) and valid ISO 9001:2000 and ISO 14001 certification for meter manufacturing. Relevant documents in support of the above must be furnished along with undertaking of the manufacturers.
- (c) The bidder should have a manufacturing unit in India and should have experience of at least two years of manufacturing and must have manufactured and supplied at least 25% of the specified quantities of electronic energy meters with LCD display counter inclusive of single phase and three phase meters to the Govt./Semi Govt. power utilities in India. In support, copies of orders received from SEBs/Power Utilities along with Material Receipt Certificate issued by SEBs/Power Utilities confirming meters actually supplied should be enclosed. Besides, detailed information of order & supplies shall be furnished as documentary evidence as per Schedule-V.
- (d) However, State SSI Units are exempted from the above supply criteria of 25% of the specified quantities of meters with LCD counter. They should have minimum two years experience in the field of design, manufacturing of the equipment offered and have supplied 25% of the tendered quantity (assorted rating) to any State Electricity Boards, Power Utilities. The order copy and Material Receipt Certificate is required to be enclosed with the offer as documentary evidence.
- (e) Financial Criteria:-

The purchaser will take account of the following financial criteria to verify the qualification of the bidder. These criteria shall be evaluated on a Pass–Fail basis only:-

- (i) The bidder/manufacturer should have a turnover of Rs.10 crores during any one of the last three financial years.
- (ii) Financial Situation:-The audited financial statements of accounts for the last three years submitted by bidder shall be evaluated and last year of audited accounts should show positive net worth.
- (iii) Availability of Financial Resources:- The documents submitted by the bidder, including the audited financial accounts must demonstrate that the bidder has adequate working capital available to undertake this contract, which will be equal to at least 10% of the tender value. If the bidder’s working capital is inadequate, the bidder should supplement this with a Banker’s letter confirming the availability of a

line of credit such that the bidder's available working capital plus line of credit are in total of at least 10% of the tender value.

- (f) Please ensure that at least 10% of tendered quantity of assorted rating is offered, failing which offer shall be liable for rejection.

2. **CONFLICTING INTEREST:-**

Bidder shall not have a conflict of interest with one or more parties. Participation by bidder(s) with a conflict of interest situation will result in the disqualification of all bids in which it is involved. Discom-CZ considers a conflict of interest to be a situation in which a party has interest that would improperly influence that party's performance of official duties or responsibilities, contractual obligations or compliance with applicable laws and regulations, and that such conflict of interest may contribute to or constitute a prohibited corrupt practice. A bidder may be considered to be in a conflict of interest with one or more parties if including but not limited to:-

- i) have controlling share holders as his/her family members viz spouse, son, daughter, father, mother or brother etc. in common or
- ii) have a relationship with each other, directly or through common third parties that puts them in a position to have access to information about or influence on the bid of another bidder.

The bidders shall be requested to furnish following documents in this regard:-

- i) Copy to latest Income Tax return/Permanent Account Numbers (PAN) of all the partners/Directors (in case of company) along with names, addresses and telephone Nos./ Mobile Nos. of each Partner/Director.
- ii) Latest partnership/ownership deed of the firm quoting the tender.
- iii) Copy of list of directors (in case of a company) with names, addresses and telephone Nos./Mobile Nos. of each director.
- iv) Power of Attorney to sign the tender documents and all correspondence before and after placement of order.
- v) Copy of Sales Tax clearance certificate

3. **Samples**

The bidders are required to submit **two sample meters (one with Meter box and one without meter box)** of each type & rating offered prior to due date and time for submission of bid. The sample meters should carry firm's name, serial number, rating etc. The offer shall not be considered for opening of its commercial & technical bids in case sample meters are not submitted within scheduled date & time and the offer shall stand rejected. The samples shall be evaluated in presence of firm's representative by the MPMKVVCL on their own or through CPRI as may be considered necessary during their evaluation for the purpose. The modifications/changes in the sample meter on account of any shortcoming if noticed during sample evaluation shall not be permitted.

4. **The tender should be submitted in three parts.**

- 4.1 Part-1 shall contain Earnest Money Deposit as per Annexure-I in cash/ DD unless otherwise exempted, which shall be got clarified well in advance prior to opening of Tender Bid.
- 4.2 Part-2 shall contain Commercial Bid and Technical Bid
- 4.3 Part-3 shall contain Price Bid Schedule-I for three phase be submitted **Online** only.
- 4.4 Part I & Part-II shall be submitted in two separate sealed envelopes and these envelopes shall be properly superscribed as Part-I "Earnest Money Deposit" and Part-2 "Commercial Bid & Technical Bid". Part-3 "Price Bid" shall be submitted **online only**.
- 4.5 The above two envelopes duly sealed are to be kept again in one envelope called Main Envelope and sealed. This envelope should be properly superscribed stating that the envelope

contains separate envelopes for Part-1 "Earnest Money Deposit" and Part-2 "Commercial and Technical Bid" .

- 5 After opening of 1st two parts i.e. Part-1 & Part-2 on due date and time, the price bid shall be opened only after ascertaining that bid is technically and commercially acceptable and the samples are found as per technical requirement. Date of opening of Price Bid shall be intimated to eligible bidders separately. Price bid of firm which does not fulfill following criteria, shall not be opened:
 - 5.1 Offers should be fully commercially acceptable i.e. bidder should agree to major commercial conditions.
 - 5.2 Offers should be fully technically acceptable i.e. the sample meters should meet all the constructional features and technical requirements as specified in the technical specifications in Schedule-II and GTP (Schedule-III) which shall be got tested through the Committee as above.
 - 5.3 The bidder should have valid **BIS licence for ISI certification mark** on the offered meters, on the date of opening of tender. **In absence of BIS licence for offered meter, the offer shall be out rightly rejected.**
 - 5.4 Complete set of latest type test certificates for all the tests prescribed in relevant ISS and CBIP 88 report with latest amendments in respect of the offered meters from any of the NABL accredited laboratories for particular equipment/test shall only be considered. For this, attested photocopies of the type test reports along with approved drawing of type tested meters should be enclosed with the offer. The type test reports shall not be more than 2 years old as on the date of bid opening. The type test report shall clearly indicate the S.No. of meter, Model No., type of Body, type of registering counter. In case the type test report does not indicate the type of display of meter, it will be treated as invalid and the offer shall be rejected. The type test report of static meter with mechanical counter shall not be considered. The type test reports of laboratories other than NABL accredited shall not be accepted.
 - 5.5 The quoted prices of meters should be "**FIRM**". The taxes and duties shall be payable at the rate prevailing at the time of supply within stipulated delivery period. No price variation except statutory change in taxes & duties shall be allowed.
 - 5.6 The bidder shall invariably furnish documentary evidence (client certificate) in support of the satisfactory performance of their similar type meters supplied in past.
 - 5.7 The terms and conditions, other than given in the tender document, will be acceptable. The offer with the terms and conditions other than stipulated in the tender documents shall be liable for rejection without any consideration whatsoever.
6. **DELIVERY:** The requirement of meters is indicated in the Schedule-VIII appended with the tender document. The bidders shall quote their most competitive rate only after considering their manufacturing capability and quantity that can be strictly supplied in the event of placing of order. The company reserves the right to differ the delivery schedule given according to necessity of the meters.
7. **PENALTY:** As per clause-12 of Annexure-II.
8. **Acceptance of material:**

On receipt of first lot in consignee Area Store, Three (3) sample meters shall be selected and sent for conducting selected Type Test at any NABL lab viz. CPRI / ERDA / ERTL etc. The type test charges shall be borne by the supplier. The detailed procedure is explained in schedule- II(C)

The random sample testing from subsequent lot of individual DI shall be subject to acceptance test at CPRI/ERDA/ERTL laboratory at the discretion of the Discom:CZ.

The payment of particular lot shall be made only after the meters clear the sample testing. In case of failure, payment of that lot shall not be released and the lot shall be rejected.

- 9. Payment Terms:** Subject to completion of all contractual formalities, 100% payment of supplies shall be released in 45 days from the date of receipt of meters in good condition at consignee store against MRC or in queue whichever is later subject to successful sample testing of the lot.
10. (a) The meters are to be guaranteed for 5½ years from the date of supply or 5 year from the date of installation, whichever is earlier.
(b) The security deposit for 10% value of the order for full guarantee period of five and half years from the date of execution of supply of last lot shall be submitted. Permanent security deposited shall also be accepted as per Company rules.
11. Bidders are advised to furnish following documents also:
a) Latest partnership deed/ ownership deed proof or memorandum of articles of the firm as applicable.
b) Power of Attorney to sign the tender documents and also all correspondence after placement of order.
12. The deviations if any in commercial/technical terms should be mentioned very clearly. In the event of contradictions in terms and conditions and to that of questionnaire, the bid shall be treated as incomplete and is liable for rejection.
13. The prices shall be indicated in figures and words separately & strictly in proforma prescribed. Any ambiguity in this regard shall be treated as incomplete bid & shall be rejected.
14. The MPMKVVCL reserves the right to accept/reject wholly or partly the tender without assigning any reason what-so-ever. No correspondence in this regard shall be entertained by the MPMKVVCL.
15. **UNSATISFACTORY PERFORMANCE**
Even on fulfilment of all the criteria, it may be noted that :-
(a) Offer of those bidders who have been debarred/ black listed for future business with our company/ MPSEB / Other Discom of M.P, shall be summarily rejected.
(b) In case of those bidders whose past performance has not been found to be satisfactory against previous tenders of MPSEB/ Companies formed on restructuring MPSEB, they may not be considered for order. Following shall attribute to poor performance of a bidder :-
- Non-execution of previous order(s)/ inordinate delay in supply of material.
- Failures of material in testing & non-replacement of the same by the supplier.
- Failure of material enmasse as reported by the field officers.
- The old firms whose average annual percentage failure of tendered item within guarantee period (WGP) for last 3 years, as per records available with the company, is higher than the average annual percentage WGP failure of last 3 years of Discom-CZ may not be considered for opening of their price bid.

16. **Debarring /Blacklisting of Firms** :- That in the event of violation of any of the terms and condition of this tender or the terms and conditions of the subsequent supply order / work contract so issued, either partly or completely, then in such event the MPMKVCL Co. reserves every right to take penal actions which may, inter alia, include termination of the contract and / or blacklisting and debarring the tenderer from participating in future tender/tenders upto 3 years along with the other penalties as stated in the tender document. Before debarring / blacklisting or contract termination, the concerned firm would be first served a notice to the effect, so that it gets an opportunity to represent its point of view.

(Sanjeev P. Puranik)
**CHIEF GENERAL MANAGER (PUR),
O/O CMD, MPMKV CO.LTD. BHOPAL**

SCHEDULE-II (A)**TECHNICAL SPECIFICATIONS FOR THREE PHASE LT STATIC WHOLE CURRENT SOLID STATE ELECTRONIC ENERGY METERS WITH BACKLIT LCD DISPLAY****1 SCOPE:-**

- 1.1 This specification covers design, engineering, manufacture, stage-inspection, testing and supply of A.C. Three Phase 4 Wire current rating 10-40 Amperes solid state (static) whole current electronic LT Trivector energy meters of accuracy class 1.0 with backlit LCD display. These LT meters should be provided with one optical communication port and one additional RS 232 port **as per Indian Companion Specification Document BIS ETD 13 (6211)** which should be suitable for establishing local communication with CMRI and remote communication to base computer through purchaser's modem. **The meter should be compatible to DLMS Protocol.** These LT meters should also have single phase 240 volt AC power supply port extended from the outgoing load end terminals of the meter for extending power supply to purchaser's modem. The optical port and power supply port both should be extended on the side cover of push fit type meter box for connecting either CMRI or purchaser's MODEM for remote meter reading. These meters shall be supplied in a push fit type meter box made of transparent engineering plastic, which shall be weather proof having flame retardant properties conforming to relevant specification. The optical port & power supply port both shall have pilferage/tamper proof sealing arrangement specified in the specification. The meter and push fit type meter box shall be supplied in suitable packing so as to withstand transit shocks during road transport.
- 1.2 The 3-phase LT meter should be suitable for three phase four wire system of three elements type, capable to record and display monthly average p.f., energy in KWH, and demand in "KW" in three phase meter including other electrical quantities consumed by balanced and unbalanced AC loads of the consumers who opt for demand based tariff. The meters shall be capable to record over full power factor range of Zero Lag-Unity- Zero Lead, as per requirement given in this specification. These LT Meters should record total energy at basic frequency & harmonics. In addition the three phase LT meters shall have provision for recording and displaying time of day (TOD) energy parameters.
- 1.3 It is not the intent to specify completely herein all the details of the design and construction material. However, the material shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation in a manner acceptable to the Purchaser, who will interpret the meanings of drawings and specification and shall have the right to reject any work or material which in his judgment is not in accordance therewith. The offered materials shall be complete with all components, accessories and required software necessary for their effective and trouble free operation in the System for measurement of electricity supplied to the consumers. Such components shall be deemed to be within the scope of Bidder's supply irrespective of whether those are specifically brought out in this specification and/ or the commercial order or not.
- 1.4 **It is compulsory that the offered LT meters shall bear BIS certification i.e. the meters shall be ISI marked and the bidder shall have to furnish valid ISI license**

along with the offer, which, if considered necessary, may be verified by the Purchaser.

2 STANDARDS:

These LT meters and the associated accessories shall conform in all respects to the following relevant Standard Specifications with latest amendment there to:-

Indian Standard No.	Title	International & Internationally recognized standard
IS:13779-1999 read with latest ammendments	Specification for AC static watt hour meter for class 1 & 2	IEC 62052-11 & IEC 62053-21
CBIP Technical report No.88 (with latest amendments)	Specification for AC static Electrical Energy Meters	
IS:5133-1969 (Part II)	Specification for boxes for the enclosure of electrical accessories	
IS:9000	Basic environmental and other Testing for Electronic & Electrical items.	
IS:11731	Specification for engineering plastic	
IS: 11000	Resistance to heat & fire	
CEA Regulation	On installation of meters of. 17/03/06	

3 SERVICE CONDITIONS (CLIMATIC CONDITIONS):

- (i) The LT meters to be supplied against this specification should be capable of performing and maintaining required accuracy under extreme hot, cold, tropical and dusty climate and solar radiation typically existing in State of M.P. The LT meter shall be required to operate satisfactorily and continuously under the following tropical climatic conditions:

(a)	Maximum ambient air temperature	55°C
(b)	Maximum ambient air temperature in shade	45°C
(c)	Maximum temperature attainable by the meter exposed to sun	60°C
(d)	Minimum ambient temperature	(-) 5°C
(e)	Average daily ambient air temperature	40°C
(f)	Maximum relative humidity	95%
(g)	Number of months of tropical monsoon condition	4 months
(h)	Maximum altitude above mean sea level	1000 meters
(i)	Average annual rain fall	150 cms
(j)	Maximum wind pressure	200 kg/sq.m
(k)	Isokeraunic level (days per year)	40
(l)	Seismic level (horizontal accn.)	0.30 g
(m)	Permitted noise level	45db

All the parts & surface, which are subject to corrosion shall either be made of such material or shall be provided with such protective covering and finish, which ensures total protection from any injurious effect of humidity.

4 PRINCIPAL PARAMETERS:

These LT meters shall conform to the following specific parameters:

Sl. No.	Item	Specification
1.	Type of installation	Indoor/Outdoor
2.	System voltage (phase to neutral)	3X240 V + 20% to - 40%; three phase having neutral solidly grounded.
3.	System frequency	50 Hz \pm 5%
4.	No. of phases	3 Phase 4 wire (three phase + neutral)
5.	System earthing	Solidly grounded
6.	Resistance to surge voltage of 1.2/50 Micro sec.	As per relevant IS
7.	Test voltage at 50 Hz	4 KV RMS for 1 minute including latest amendments in relevant IS.

5 CONSTRUCTIONAL REQUIREMENTS:

The three phase whole current LT meters including meter case and push fit type meter box shall be fully transparent designed and constructed in a manner to avoid any danger during use under normal working condition including personal safety against electric shock. The meter case and push fit type box should comply following parameters:-

5.1 Material Used for Meter case and Push Fit type Meter Box:

- 5.1.1 The three phase LT meters shall have a cage which shall be ultrasonically welded to the meter base so that access to the internal parts should not be possible without breaking the meter case. The material of meter body (base and cover) shall be made of Engineering plastic.
- 5.1.2 The three phase LT meters shall have only one optical port extended from the meter which should be provided on the side cover of push fit type meter box for connecting either CMRI for local communication or "purchaser" modem for remote communication with the base computer for remote meter reading for futuristic use. It is clarified that the extension of optical port on front side of push fit type meter box for connecting either CMRI for local communication or "purchaser" modem for remote communication with the base computer for remote meter reading for futuristic use will also be acceptable. In addition AC 240 V power supply for connecting purchaser's modem should be tapped from the meter outgoing load end terminals which shall be extended on the side wall of push fit type meter box. The optical port and power supply port both should be provided side by side with adequate spacing to maintain electrical clearances in between and should have pilferage/tamper proof sealing arrangement under both conditions with and without connecting external lead of CMRI and power supply cord. The power supply port shall be initially provided with breakable plastic cover which shall be broken by the purchaser for connecting purchaser's modem in future for remote meter reading. However, optical port shall be ready for use for the purchaser with provision of polycarbonate seals having tracking facility.
- 5.1.3 The meter casing material should be glass reinforced, flame retardant, unbreakable engineering plastic material to ensure high reliability, long trouble free life, safety

against electric shock, spread of fire and effects of excessive temperature. The material should be corrosion resistant, inert to chemicals, oxidizing agents, petro-chemical products, acids, salts and ultraviolet radiation. The meter chamber shall be dust proof and moisture proof. The supplier should indicate hardness, melting temperature and tensile yield strength of the material and necessary test certificate of the same shall be furnished. The meter base and cover should be sturdy enough to prevent damage during transportation and installation.

- i. The power supply port extended from meter on the side wall of push fit type meter box to connect power supply to modem in LT three phase meters should be covered initially with breakable plastic cover for connecting purchaser's modem in future after breaking plastic seal. This port should also have pilferage/tamper proof sealing arrangement.
- 5.1.4 The engineering plastic used shall conform to IS:11731 besides meeting the test requirement of heat deflection test and as per IS 11000(Part2 sec1) for resistance to heat and fire as per glow wire test specified in the relevant standard.
- 5.1.5 All electrically live screws shall be of heavily tinned brass/nickel plated steel. All other screws shall be electro plated.
- 5.1.6 The terminal inserts shall be of heavily tinned brass / Zinc plated MS.
- i. The three phase LT meter shall conform to the degree of protection IP51 of IS: 12063 for protection against ingress of dust, moisture and vermin.
 - ii. The three phase LT meter should be immune against jump during sudden switching of heavy loads or transient voltage spikes.

6 RATINGS:

The LT meters as specified in scope of this tender shall be rated as follows:

	Particulars	Three Ph.
(a)	Voltage	3x240 V
(b)	Current	
(i)	Basic current (I _b)	10 A
(ii)	Rated max. continuous current (I _{max})	40A
(c)	Frequency	50Hz
(d)	Accuracy	Class 1.0

7 POWER SUPPLY VARIATION:

The extreme power supply variations which the LT meter should withstand without damage and without degradation of its metering characteristics, as it operates under its normal operating conditions would be as under:

Voltage	+20% to – 40% of rated voltage
Current	120% of I _{max} .
Frequency	± 5% of rated frequency
PF range	Zero (lag) – unity – Zero (lead)

The three phase LT meter shall work over wide PF range and the limits of errors with the variation of PF shall be as per CBIP 88 (latest amendments)/IS: 13779

8 POWER CONSUMPTION:

- 8.1 **Voltage Circuit:** The active and apparent power consumption in each voltage circuit (per phase) including power supply of LT meter at reference voltage, reference

temperature and reference frequency shall not exceed 1.0 Watts and 4 VA respectively as per IS:13779.

8.2 **Current Circuit:** The apparent power taken by each current circuit (per phase) at basic current, reference frequency and reference temperature shall not exceed 2 VA as per IS:13779.

8.3 **Auxiliary Power:** The LT meter shall draw power for working of electronic circuit from phase & neutral.

9 **STARTING CURRENT:**

The LT meter should start registering energy at 0.2 % of basic current at UPF as per IS: 13779 / CBIP 88 with latest amendments.

10 **RUNNING WITH NO LOAD:**

When 115% of rated voltage is applied with no current flowing in current circuit, the test output of the LT meter shall not produce more than one output pulse count as per IS: 13779.

11 **INFLUENCE QUANTITIES:**

The three phase LT meter shall work satisfactory with guaranteed accuracy as per limit prescribed in IS:13779 under presence of the following quantities:-

- (i) External magnetic field
- (ii) Electromagnetic field
- (iii) Radio frequency interference
- (iv) Vibration
- (v) Harmonic wave form
- (vi) Voltage fluctuation
- (vii) Electromagnetic high frequency field

12 **TEMPERATURE RISE:**

12.1 Under normal conditions of use at I_{max} current, winding and insulation shall not reach a temperature, which might adversely affect the operation of these LT meters.

12.2 With each current circuit of the meter carrying rated maximum current and with each voltage circuit (and those auxiliary voltage circuits which are energized for periods of longer duration than their thermal time constant) carrying 1.20 times the rated voltage, the temperature rise of the external surface shall not exceed by more than 20°C, with the ambient temperature between 25°C to 45°C.

13 **LIMITS OF ERRORS:**

When the LT meter is under reference conditions, the percentage errors shall not exceed the limits as specified in IS:13779.

14 **DISPLAY:**

14.1 The LT meters shall have bright LCD Electronic display with backlit & with minimum 6 digits to read up to one tenth of KWh with another digit for legend. The decimal digits shall be clearly distinguished from integer digits. The backlit should not glow during power off condition. The LCD shall be of TN (Twist Nematic) type designed suitably to withstand temperature of 80°C (storage) & 65°C (operation).

- i. When the LT meter remains at a constant temperature of 65°C for a period of 30 minutes, the character of LCD should not deform.

- ii. After keeping the LT meter at a constant temperature of 80°C for a period of 30 minutes and when restores at normal temperature, LCD display should work as in normal conditions.

The LCD display should have a wide viewing angle of 120° up to one-meter distance, for clear visibility of the display of the meter reading. Large viewing area with large display icons is desired. However, the display size area should not be less than 60x20 mm (1200 sq.mm.). The registered parameters shall not be affected by loss of power. The display shall not be affected by electrical and magnetic disturbances. The meter shall make use of non-volatile memory capable of storing and retaining all the data required to be stored, without the help of any power source or battery back up and shall have a minimum retention time of 10 years under un-powered condition. The minimum character height X width shall be 8.5 X 5 mm. **Dot-Matrix type LCD display is not acceptable.** The accuracy of display for all parameters shall be matching with the accuracy class of meter as per IS.

The display of various parameters shall be scrolling one after another. The display shall have ON time of at least 10 seconds for each measured value.

- 14.2 The three phase LT meter shall be capable to measure and display continuously “Active Energy KWh” at all loads and in full power factor range of zero lag- unity-zero lead. The LT meter should also have provision for automatic recording and storing of cumulative KWh and KW by default and also programmable to KVA for 3-phase LT meter at 24.00 Hrs on the last day of the month for each calendar month and the same should go to memory.

15 DISPLAY SEQUENCE:

- 15.1 The Liquid Crystal Display register for three phase LT meter should display the measured value(s). The height of the display character should be minimum 8.5 mm. In addition display of the required parameters should be in two different modes as stated hereunder:-

15.2 Auto scroll Display Mode:

The LT meters shall have following parameters in auto scroll display

- i) Date: DD:MM:YY Real Time: HH:MM:SS
- ii) Cumulative Active Energy KWH
- iii) Instantaneous Demand in KW in 3-phase meter.
- iv) Maximum demand of month : In KW & KVA up to two decimal points

15.3 Display parameter (Push Button) Mode:

- 15.3.1 The display of the following parameters shall be scrolling one after the other through push button in three phase LT meters. The display shall have ‘ON’ time of minimum 10 seconds of each measured value. Display parameters shall move forward if button is pressed prior to the programmed time for display of each parameter.

- 1.LCD segment check
- 2.Real date and time (Date DD-MM-YY, Time HH-MM:SS)
- 3.Cumulative active energy (KWH) register.
4. Maximum demand of the month in KW & KVA both by default upto two decimal (since last auto reset) with date & time, with 15 minutes integration by block interval method.
- 5.Cumulative active energy KWH for each calendar month for previous six months.
- 6.Maximum Demand in KW & KVA by default upto two decimal points, each calendar month for previous six months

7. Average P.F. for each calendar month and for previous six months.
 8. Tamper information- This shall be displayed when tampered with following.
 - (a) Date of last tamper occurrence.
 - (b) Time of last tamper occurrence.
 - (c) Number of time meter tampered.
 9. Instantaneous phase voltage
 10. Instantaneous phase current
 11. Instantaneous p.f. (With sign of lead/lag)
 - (a) Instantaneous demand in kilo Watt by default (programmable to kVA) for three phase LT meters
- 15.4 Since these three phase LT meters are required duly fitted with push fit type meter box, hence for reading purpose, an arrangement should be made on top cover of push fit type meter box with its mechanical connection to the meter's body as described in the Specification of meter box to activate the display push button of meter.
- 15.5 The display with push button shall be auto off type after completion of the display cycle it should revert back to normal auto scroll mode approximately after 10 seconds. Fresh button press will be required after resumption of auto scroll cycle to display the above parameters again.
- 15.6 **Push button feature** Unit consumption recording by the meter should not be get effected during "Power On" in any condition or via push button by keeping it constantly in pressed mode since power outage period till some time after "Power On"
- 16 Meter Reading during Power Outage:**
- 16.1 The meter shall have provision to read the meter in no-power condition. The same push button shall be used for display of KWh & KW reading only i.e. auto scroll mode during power outage. In any case, RTC Battery Power shall not be used for display under no-power condition.
- 17 LCD Least Count:**
- 17.1 The display shall be with one decimal digit in push button mode and in auto scroll mode. The internal least count of the energy recording shall not be more than 0.01 KWh and every 0.01 KWh consumption shall be internally stored.
- 18 COMMUNICATION CAPABILITY**
- 18.1 The three phase LT meter shall have galvanically isolated optical port which shall be suitable for both local and remote communication. The optical port in these LT meters shall be extended on the surface of side wall of push fit type meter box with sealing arrangement such that it can be easily connected either to hand held common meter reading instrument for local communication or to purchaser's modem for remote meter reading.
- 18.2 The optical port and power supply port extended from the meter on the side wall of the push fit type meter box both should have pilferage/tamper proof sealing arrangement. The power supply port on three phase meter shall be initially provided with breakable plastic cover and the purchaser shall be able to connect power supply to his modem subsequently for automatic remote meter reading. The meter shall have facility for communicating with a hand held unit (HHU) i.e. Common Meter Reading Instrument (CMRI) through optical communication port to facilitate reading and downloading the data for billing and historical data to base computer. Arrangement shall be made to download of such readings even at the time of power failure. The

interface for communication between CMRI & Base computer shall be supplied free of cost. Necessary software required for CMRI and Base Computer System with required security provisions shall also be supplied free of cost which shall have at least the following features.

- 18.3 It should be possible to read the meter through external CMRI via optical port using suitable interface data cable for downloading of billing and all historical data
- 18.4 It should be possible to connect portable laptop or base computer to the optical port directly for downloading billing data and to generate energy bill at site. For this purpose necessary lead for connecting Laptop/ desktop shall be supplied with each CMRI duly marked for use with computer.
- 18.5 It should not be possible with the CMRI to reset the energy and billing parameter reading in the meter or make any change in the data stored in the meter either current or historical.
- 18.6 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.
- 18.7 For the purpose of data security, the data transfer from the meter to CMRI and further to Base computer should be fully secured and any unauthorized attempt/change in data should be indicated on computer system. There should be multi level password on the base computer system and in the meter to prevent any unauthorized change of billing parameters, resetting of demand and tamper information.

19 BILLING POINT REQUIREMENTS:

- 19.1 The predefined date and time for registering the billing parameters of energy, PF and MD as well as Tamper Count and Power-On hours readings shall be at 00.00 hours of the first day of each calendar (billing) month and all the billing parameters shall be transferred to billing registers.
- 19.2 The above billing data, TOD register's data, tamper information and instantaneous parameters data shall all be retrievable through the meter's optical communication port through a common meter reading instrument (CMRI) and shall be transferred (downloaded) to a PC with Windows based software to get complete details in numerical and/or graphic form. The necessary base computer software (BCS) for this purpose shall be provided by the supplier with complete details.

20 TOD TARIFF/DEMAND

- 20.1 The meter should be capable of registering the time-of-day energy (TOD) or the time of use (TOU) and maximum demand. The time zones shall be programmable by the purchaser. The meter should have in-built capacity to define up to six time zones. The change of the TOD time-period(s) or defining TOD zones should be possible through CMRI with special authenticated command from the BCS so that only authorized person(s) can make such changes. The main control of this system along with proper security password/code should be available on one or more computers located at the authorized location(s) as per the directions to be given by the Purchaser.
- 20.2 Provision should be made for automatic reset of maximum demand at the end of pre-defined period (e.g. end of the month). The billing parameter at the time of automatic reset of the maximum demand shall be programmable. In addition reset of maximum demand shall be possible through a hand held CMRI capable of communicating with the meter through its optical port. The main control of this system along with proper

security password/code should be made available on one or more identified computers located at the authorized location(s) as per the directions to be given by the Purchaser

20.3 In all cases the design shall include provision of updating of cumulative demand register with updating of reset counter.

20.4 Necessary compatible meter application software for various programmable features as discussed above in the meter and also necessary software for the IBM compatible computer to obtain various details as discussed above shall be provided by the supplier. No separate cost will be borne by the purchaser on this account.

21 TEST OUTPUT DEVICE:

21.1 The LT meters shall have a test out put device in the form of calibrating LED of red colour having minimum intensity 10 M (Milli-candela) accessible from the meter front and shall be capable of being monitored conveniently with suitable testing equipment while operating at site. The location of the calibrating LED should be such that the calibrating pulses can be sensed easily through sensor for site testing of the LT meter's accuracy.

21.2 The LT meters shall also give high-resolution energy values on the display The resolution will be sufficient to enable conduction of the starting current and accuracy test in less time.

22 BASE COMPUTER APPLICATION SOFTWARE

22.1 For efficient and speedy recovery of data read through CMRI/HHU, Base computer software shall be supplied having the following specifications stated as under:

22.2 The BCS software shall be user friendly Windows based. The Base Computer software shall give all details adequate for analysis. The software shall have the facility to convert all the consolidated information / data of selectable parameters into ASCII format. It should be possible for the Purchaser to generate its own DBF (data base files) to down load all the required information into it.

22.3 **Platform:** The BCS shall be executable on all WINDOWS system. The BCS shall be suitable to run on IBM compatible PC hardware platform.

22.3.1 **Meter reading through dialup network:** The software shall be capable to read the meter directly using PC to meter interface cord and also through AMR(automatic meter reading) wizard using PSTN/ GSM dialup networks. The software shall have enough flexibility to read the meter in different modes like- manual and automatic, one by one or selecting a group(s) of consumers on specified time and time interval like daily/weekly/monthly etc.

22.4 **Meter Data Display:** The software shall show electrical condition existing at the time of reading the meter in tabular forms as well as graphical format (Phase diagram)

22.5 All the information about energy, maximum demand and their respective TOD register reading, billing register readings shall be shown in a manner which user can easily understand.

22.6 The software shall be capable of preparing CMRI to read the meter information or time setting of the meter.

- 22.7 **Support Display:** There shall be "user friendly" approach for viewing meter data for the reading collected now or for the reading collected in the past. All information about a particular consumer will be sorted out and available at one place so that locating any consumer's past data is easy. It shall be possible to retrieve/locate data on the basis of either one of the following particulars:
1. Consumer's ID/Numbers.
 2. Meter Sr. No.
 3. Date of meter reading.
 4. Location.
 5. The Data Transfer : It shall be possible to transfer data to and fro from CMRI through serial interface.
- 22.8 **Configurability:** It shall be possible to have selective printing of all available data of the meter. Print out shall not include anything and everything available with the BCS. The software shall support "print wizard" whereby user can decide what to print out. The use of the software need not revert back to the supplier of the software for modifying the software just to print what he desires.
- 22.9 BCS shall have facility to export data to ASCII or spreadsheet format for integrating with the purchaser's billing system. Here again an "Export wizard" or similar utility shall be available whereby user can select file format, what data to export, the field width selection etc.
- 22.10 Security: The BCS shall have multilevel password for data protection and security. The first level shall allow the user to enter the system. The different software features shall be protecting by different passwords. The configurable of passwords shall be user definable. The software installed on one PC shall not be copy able on another PC.
- 22.11 **Help:** The exhaustive online help shall be available with the software so that user can use all the features of the software by just reading the help contents.

23 Common Meter Reading Instrument (CMRI)

The Bidder should carefully note that

- a. CMRI shall be supplied in the ratio of one for each lot of 1000 meters free of cost along with battery charger.
- b. The CMRI shall have facility to store minimum 100 nos. of meter's data. Further there should be a facility in CMRI to provide transfer of meter data to computer through RS 232 or USB port.
- c. The CMRI shall be capable for down loading readings of other make of meters. The bidder shall give an undertaking to this effect.
- d. The CMRI shall also have a feature to read multiple meters without pre-programming the meter serial numbers in advance.

It shall be responsibility of the meter manufacturer to provide the required software and all the facilities and support required by the purchaser, to use the CMRI for reading and retrieving the data from the meter and to download the data to Base Computer on free of cost basis till the expiry of guarantee period.

24 Readings to be downloaded with CMRI:

- 24.1 The CMRI should support in down loading all important data stored in meter whether specified or not required essentially for deriving billing parameters including MD parameters which shall be by default in KW programmable to KVA respectively for three phase LT meters. The following minimum parameters should be downloaded by CMRI.
1. Sr. No. of meter
 2. Date & Time
 3. Instantaneous current
 4. Instantaneous voltage
 5. Cumulative Active energy (KWh)
 6. MD during the month
 - i. Instantaneous demand in KW of three phase LT meter
 7. Instantaneous Power factor (sign of lag or lead)
 8. Cumulative active energy in KWh for the last 6 months
 9. Maximum demand in KW for the last 6 months upto two decimal (It shall support MD in KVA if programmed)
 10. Average PF of the last 6 months
 11. TOD 1,2,---,6 Cum. KWh (Programmable)
 12. TOD 1,2,---,6 MD. in KW by default (programmable to KVA) upto two decimal
 13. TOD 1,2,---,6 Billing MD registers
 14. Main Billing KWh register
 15. TOD 1,2,---,6 Billing KWh registers
 16. Tamper information
 17. Time of Day or Time of use (TOU) information.
 - ii. Other parameters not specified above shall also be included.
- 24.2 Any other information whether specified or not, which is in the opinion of manufacturer is necessary for satisfactory performance of the meter, the manufacturer shall indicate such features in their offer without demanding additional cost.
- 24.3 The LT meter shall possess a suitable fast and reliable optical communication port for automatic transfer of data from Meter to CMRI. Arrangement in the meter should be such that, in case of failure of power supply, it should be possible to download the data.
- 24.4 The CMRI shall possess easily replaceable battery and shall be capable of storing data for at least 100 nos. meters at one time. The data transfer rate (from meter to CMRI) should be more than 9.6 kbps. However, the total downloading time (from meter to CMRI) shall be approx. 2 to 3 min. for billing parameter and 5 min. for complete data.
- 24.5 The CMRI shall possess a specific serial number, which cannot be changed/altered.
- 24.6 The downloaded data along with date and time stamp of such reading shall remain on CMRI with suitable encryption and it should not be possible to pre-program or manipulate the recorded data on the CMRI before downloading the same with the serial number of CMRI on computer. The CMRI shall also download the serial number of meter. The Supplier shall supply Software (compatible with Windows 98 system and/or higher) and training, free of cost for the use of software at multiple data collection and billing premises of the utility. After successful downloading of meter data to CMRI, an indication on MRI or meter or both for confirmation of successful data transfer shall be provided. During this period the energy recording should not be affected.

24.7 Necessary upgrades shall be possible in CMRI software and shall be supplied free of cost for downloading simultaneously the existing parameters and any parameters added in future specifications of meters. A copy of operation manual shall be supplied along with each CMRI.

24.8 The Supplier shall provide meter-reading protocols free of cost, which shall not be complicated and shall be easily understandable by utility officials to ensure compatibility between meters and CMRIs of different makes.

25 MAXIMUM DEMAND REGISTRATION AND MD RESETS:

25.1 The three phase LT Meter shall continuously monitor and calculate the maximum demand at the point of supply, during any consecutive 15 minutes during the calendar month as per block interval method with sub integration period not greater than 5 minutes. It shall store the maximum demand with date and time, when it occurred. The maximum demand shall automatically reset at 24.00 Hrs of the last date of each calendar month for which minimum 30 years calendar shall be programmed by the manufacturer.

25.2 Maximum demand of the month shall be in KW by default & up to two decimal digits. The MD shall be programmable from KW to KVA.

26 REAL TIME CLOCK AND BATTERY:

26.1 The MD integration cycle shall be on the basis of Real time clock of the meter. The maximum drift in real time clock of the meter shall not exceed ± 3 minutes per year and crystal should be temperature compensated for temperature range of 0°C to 50°C. A lithium battery of adequate storage energy shall be used for energy supply to real time clock during no voltage or power off condition. The metering data stated above including integration etc shall be independent of battery. The minimum life of battery should be ten years.

27 CALIBRATION:

27.1 The meters should be software based factory calibrated and there shall not be any mechanical adjustment in calibration after freezing the parameters at works. This is to ensure that the meter cannot be calibrated at site.

28 CONSTRUCTION:

28.1 Meter shall be designed and constructed to be capable of withstanding all severe stresses and vibration and dust environments likely to be encountered in actual field conditions. All parts that are likely to develop corrosion shall be effectively protected against corrosion by providing suitable protective coating.

29 TERMINALS AND TERMINAL BLOCK:

29.1 The terminals may be grouped in a terminal block having adequate insulating properties and mechanical strength. The terminal block should be made from best quality non-hygroscopic, flame retardant material (capable of passing the flammability tests given in IS:11731) with nickel plated brass / Zinc Plated MS for connecting terminals. It shall be an integral part of the meter base.

29.2 Terminal holes shall be of minimum 9.0 mm for three phase LT meter to accommodate the insulation of conductor and shall be of adequate length in order to have proper grip of conductor/crimping pins with the help of two screws such that there is no risk of loosening or undue heating. Electrical connection shall be so designed that contact pressure is not transmitted through insulating material. Required number of pins with three phase meter along with one additional pair shall be supplied with each meter.

- 29.3 Sufficient clearance shall be allowed between terminals. Further, the supporting webs between the two terminals of the terminal block should be sufficiently high to ensure that the two neighbouring terminals do not get bridged by dust or it is not possible to have flashed over between adjacent terminals of terminal block.
- 29.4 The terminals shall be of suitable rating to carry 200% of I_{max} and shall be made of electro-plated (or tinned / Zinc) brass / MS .
- 29.5 All connection screws and washers should be tinned/ nickel/ Zinc -plated brass / MS. The terminal screws shall not have pointed end at the bottom. All terminals shall have two screws. The terminals shall be properly bound in the insulating material of terminal block.
- 29.6 The terminal block shall have provision with single/two screws for fixing to the meter board. It shall not be possible to remove the meter from the hanging screw without removing the screws from the terminal block.
- 29.7 The voltage circuit and current circuit shall be solidly connected inside the meter body without any link. A firm connection shall be established within the meter case to energize the voltage/current circuit. The connections shall be as per the recommended methods given in IS-13779.

30 CURRENT AND VOLTAGE CIRCUITS:

- 30.1 The current and voltage circuits shall be made of appropriate material such as enamelled copper wire of EC grade. The current circuit shall be appropriately insulated and potential circuit shall be appropriately encapsulated. The cross section of current circuit shall be designed to withstand the temperature rise of 50°C over the ambient temperature at maximum current. PT less design shall be used for power supply to PCB. The meter design shall be based on CT or CT and shunt combination or shunts. It is necessary to ensure accurate recording by the meters during the condition when DC component exists in the load, EM CT/Shunt currents should be compared and higher of the two should be used for measurement. Specific confirmation shall be submitted by the bidders that 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.
- 30.2 **CT/Shunt Fixing arrangement:-** The CTs/Shunts & other measurement devices when provided in the meter shall be mounted through proper fixing arrangement so that it should have a firm support and should not move from its position in any case.

31 METER FIXING ARRANGEMENT:

- 31.1 Every meter shall have at least three fixing holes one at the top and two at the bottom. The top hole shall be provided with a special clip at the back of the meter so that holding screw is not accessible after the fixing of the meters. The lower fixing screws shall be provided under the terminal block. The requisite fixing screws shall be supplied with each meter.

32 CONNECTION DIAGRAM & TERMINAL MARKINGS:

- 32.1 The connection diagram of the meter shall be clearly shown on the Terminal cover of meter and shall be of permanent nature. The meter terminals shall also be marked and this marking should appear in the above diagram.

33 TERMINAL ARRANGEMENT:

- 33.1 Connecting terminals for three phase LT meter shall be in the following sequence:
Three phase LT meter- R(in) R(out), Y(in) Y(out), B(in) B(out), N(in) N(out),

34 NON FLAMMABILITY:

- 34.1 The terminal block, and the meter case shall be such as to ensure reasonable safety against spread of fire. It shall not be ignited by thermic over load of live parts in contact with them. To comply with this requirement, all the parts shall fulfil the conditions of the glow wire test as per relevant standard.

35 SEALING ARRANGEMENT:

- 35.1 The meters should be software calibrated at factory and sealed suitably before dispatch.

- 35.2 The meter shall be provided with 2 nos. polycarbonate tamper evident seals which shall be marked with "MPCZ", company logo and shall be additionally laser marked with serial no. matching with that of meter. The serial number of meter is to be laser-etched on the base as well as the cover of the meter box, and can be easily viewed to check duplication attempts for the purpose of keeping track of meter seals. All the seals should be provided on front side only. Access to the working part should not be possible without breaking the seals. Provision shall also be made to seal the extended optical port on the side of the meter box.

36 TRACKING SOFTWARE FOR SEALS:

- 36.1 It is mandatory to provide Tracking and recording software for all new seals so as to track total movement of seals starting from manufacturing, procurement, storage, record keeping, installation, series of inspections, removal and disposal etc.

37 TAMPER AND FRAUD PROTECTION:

- 37.1 Logics for design of various tampers, the value of voltage, current, time etc. to be selected for design of tamper shall be done in consultation with the purchaser. It may be noted that the approved logics used in designing tampers are explained to our field officers, and based on their input the bidder have to modify logic if necessary (The last tamper event must appear in the DISPLAY and rest of the details in VIEW PARAMETERS).

- 37.2 The three phase LT meter shall record and store last 200 events of each tamper (occurrence + restoration) along with date and time of occurrence and restoration of each and every event. The event recording shall be roll over type i.e. it shall always maintain record of last 200 events occurred of each tamper selected for logging.

- 37.3 The following tamper information shall be available along with date & time of occurrence and restoration of the event and phase indication on which tamper was attempted.

- 37.3.1 The three -phase meter should have tamper & fraud protection features and shall record tamper information with time stamp and historical data which shall be downloaded by the MRI. The meter shall to continue to register active energy accurately even under following conditions:

- 37.3.2 The meter should register energy consumption correctly in forward direction irrespective of the direction of current in the current circuit.

37.3.3 Load Earthing:

The meter shall record correctly when earth is used as a return path for load fully or partially.

37.3.4 Cover opening:

If attempt is made to open the meter body, the meter shall detect /log with date and time of meter body opening tamper, even in absence of supply. This tamper shall also be displayed on the meter LCD with tamper information.

37.3.5 Current Imbalance (CT shorting/by-passing) :

In case of CT open or shorting, which may result in the current imbalance between the phases, the tamper indication should appear by means of measuring neutral current. Meter shall store the date & time of occurrence and restoration in the non-volatile memory.

37.3.6 DC Immunity:

The meter should not saturate on passing of direct current which can cause the meter either to stop recording or record inaccurately as per IS: 13779 (latest version).

37.3.7 External Magnetic Influence:

The meter shall not get influenced by any external magnetic fields (AC Electro Magnet or DC Magnet) in accordance with the test procedures specified in IS: 13779 with its latest amendment for AC Magnetic Field. However, the meter alone should comply up to 0.27 Tesla DC.

The meter accuracy or accuracy in display under normal conditions shall not be affected by placement of a permanent magnet of not less than 0.5 Tesla anywhere on the surface of meter without meter box. The errors may be within +/- 4% in this condition.

Meter shall have provision to record the tamper of abnormal magnetic induction with date and time of occurrence and restoration.

For three phase LT meters, on application of external DC magnetic field of higher intensity against which meter is not immune, the meter should log the events of abnormal magnetic induction with date and time. The positive error may be beyond the limit of 4% but not exceeding power value equivalent to the product of rated voltage and maximum current.

37.3.8 Application of abnormal voltage /frequency:

The accuracy of the meter, Real time clock disturb, Memory data corruption, meter functioning hang up etc. should not occur with the application of abnormal voltage/frequency such as spark discharge of approximately 35KV with 0.01-10 mm spark gap in any of the following manner when applied for 10 minutes:

- a) On any of the phases or neutral terminals
- b) On any connecting wires of the meter
- c) At any place in load circuit
- d) Spark on meter body.

37.3.9 Meter should be immune for tamper by application of remote loop induction device (jammer) of abnormal high voltage and abnormal frequency.

It is desired that when meter is subjected to 35 KV high frequency and voltage burst in the manner stated above from a) to d) and 38.3.9 it should not hang.

37.4 EMC/EMI Test:

The meter shall also pass all EMC/EMI tests as per IS:13779 with latest amendments.

Further the bidder shall carefully note and confirm that:

1. The measurement of meter shall not be influenced by injection of AC voltages/ chopped signal/DC signal and harmonics on the outgoing leads of the meter.
2. The meter shall not get affected by any remote device.
3. The bidder should furnish detailed explanation as to how the meter is able to detect/Protect recording the above tamper and fraud features with sketches and phaser Diagram. Additional features, if any, in the meter may also be clearly indicated.

The meter shall have the following provisions and also of storing the specifically indicated items of commonly occurring tampers with date and time stamp of occurrence and restoration in rollover mode which should be retrievable with the help of MRI.

37.5 Power ON Time: The meter shall have provision to record the power ON time in YY:MM:DDD:HH:MM in a calendar month for last 6 months

37.6 The meter should record energy as per IS for balanced and unbalanced load.

37.7 Meter should continue to record in unbalance load condition when neutral is removed. In this condition maximum limit of the error allowed is $\pm 3\%$ from the reference condition.

37.8 The meter should record energy accurately irrespective of the phase sequence of supply.

37.9 The meter should continue to record energy even when

- (a) Any two phases are disconnected i.e. in presence of any one phase and neutral. Under this condition the meter should record correctly.
- (b) One phase and neutral are disconnected i.e. in presence of any two phases and the load is drawn through local earth. Under this condition, the maximum limit of error allowed is $\pm 3\%$ from the reference condition.

37.10 The three phase LT meter should continue to function when DC signals through Diodes from any or all three phases are injected on the neutral of the meter.

37.11 Along with the tamper information, the meter shall also record the phase wise instantaneous values of voltages, currents and phase power factors to simulate and elaborate the existing condition during all type of tamper events.

37.12 LED INDICATIONS :

The following LED /LCD indications must be provided :

- (i) KWh indicator for Meter calibration - Red (Calibration LED-Imp/KWh)

- (ii) Input and output reversal - Yellow LED indicator or ICON on LCD Indication / current reversal
- (iii) Power supply ON and Phase indication - ICON on LCD line1, 2 & 3 for 3-phase meter.

All the LEDs /LCD shall be of low power consumption and distinctly visible from distance. Except KWh indicator, all the other indications may be provided as Icon on backlit LCD.

38 SALIENT FEATURES:

38.1 The meter shall have the following additional features.

38.1.1 The meter shall be compact in design. The entire design and construction shall be capable of withstanding stresses likely to occur in actual service and rough handling during transportation/loading/unloading etc. The meter shall be convenient to transport and immune to shock and vibration during transportation and handling.

38.1.2 The short time over current rating shall be 30 I_{max} for one half cycle at rated frequency as per clause No.9.2.3 of IS:13779.

38.1.3 Even if phase to phase voltage (i.e. 440 Volts) is applied for 5 minutes between phase and neutral of the meter, the meter should not get damaged and continue to record correctly within class 1.0 accuracy after restoration of normal supply.

38.1.4 The meter shall also withstand impulse Voltage without any damage in accordance with the clause 12.7.6.2 of IS: 13779:1999.

38.1.5 The meter shall make use of Non Volatile Memory capable of storing & retaining all the data required to be stored, without the help of any power source or battery back up.

38.1.6 Computation of demand shall be on the basis of Real Time Clock of the meter itself.

38.1.7 Provision shall be there to do the billing operation automatically at a predefined date by programming the meter.

38.1.8 Meters covered under this specification shall be fully static type with non-volatile memory to register various billing parameters and complete with other features as detailed out in this specification. Any other design meeting technical specification or features/accuracy etc., better than this specification and manufactured as per relevant IEC/IS/CBIP report shall also be acceptable.

38.1.9 Meter shall be suitable for accurate measurement and display of energy and other billing parameters within the specified limits of errors under balance and unbalanced load conditions in a poly phase network.

38.1.10 Indication shall be provided on display to show the healthiness of phase voltage.

38.1.11 The meter shall be fully programmable by the user for TOD timing and billing dates etc. For security reasons the meter operating software should have at least "two level write protection" against any modification/editing of the parameters, data, settings etc. except those required for billing data, TOD metering.

- 38.1.12 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's.
- 38.1.13 The meter base & meter cover shall be made of high grade, fire-resistant, non-inflammable high-grade and good quality engineering plastic.
- 38.1.14 The entire design and construction shall be capable of withstanding stresses likely to occur in actual service and rough handling transportation. The meter shall be convenient to transport and immune to shock and vibrations during transportation and handling.
- 38.1.15 The voltage circuit and current circuit shall be solidly connected inside the meter body without any link. A firm connection shall be established within the meter case to energize the voltage/current circuit. The connections shall be as per the recommended methods given in IS-13779

39 SELF DIAGNOSTIC FEATURE

- 39.1 The meter shall be capable of performing complete self-diagnostic check and continuously monitor all the circuits for any malfunctioning and ensure integrity of data memory location at all time. The meter shall have display indication for unsatisfactory/non-functioning/malfunctioning of the following:

- a) Time and date on meter display
- b) All display segments on meter display
- c) Real Time Clock (RTC) status in meter reading print out at BCS end
- d) Non-volatile Memory (NVM) status in meter reading prints out at BCS end.

40 ELECTROMAGNETIC COMPATIBILITY AND INTERFERENCE REQUIREMENT :

- 40.1 The meter shall meet EMI/EMC requirements as specified in the relevant standards and shall also be protected against radiated interference from either magnetic or radio frequency sources.
- 40.2 The offered whole current meter shall also withstand DC Immunity test for main circuit at $I_{ref} = I_{max} / \sqrt{2}$ as per IS:13779 so as to ensure that the meter current circuits do not saturate on passing of direct current.
- 40.3 The meter shall be designed in such a way that the conducted or radiated electromagnetic disturbances as well as electrostatic discharge do not damage or influence the meter.

The disturbance(s) to be considered are:

1. Harmonics
2. Voltage dips and short interruptions
3. Fast transient burst test
4. External D.C. and A.C. magnetic fields
5. Electromagnetic H.F. fields
6. Electrostatic discharges
7. Radio frequency interference suppression.

41 GUARANTEED TECHNICAL PARTICULARS:

The bidder shall furnish all the necessary information as desired in the Schedule of Guaranteed Technical Particulars and data, appended with this specification. If the

bidder desires to furnish any other information(s) in addition to the details as asked for, the same may be furnished against the last item of that Annexure.

42 NAME PLATE AND MARKING:

Every meter shall have a name plate clearly visible and indelible and distinctly marked in accordance with IS:13779 (latest version). The following information should appear on the name plate affixed on to the meter:-

- 1.Manufacturer's name or trade-mark and place of manufacture.
- 2.Designation of type
- 3.Number of phases and number of wires for which the meter is suitable.
- 4.Guarantee period – 5 years from the date of commissioning or 5-1/2 years from the date of supply , whichever occurs first.
- 5.Purchase Order No. & Date.
- 6.Property of MPMKVVCL.
- 7.Sign of Insulation Class
- 8.Serial number, year and month of manufacture
- 9.Principal unit in which the meter records Reference voltage
10. Basic current and rated maximum current
11. Reference frequency in Hz
12. Meter constant (Imp/KWh)
13. Accuracy class
14. Reference temperature
15. ISI mark and license number

43 TESTS:

(A) Type Test:

The type test certificate for all tests as indicated in IS:13779-1999 (with latest amendments) shall be furnished along with the bid. Type test certificates from any one of the standard laboratories NABL accredited for particular equipment/test shall only be considered. Type test report, amongst other details, should contain the following information clearly:

1. Type of meter and display
2. Class of Accuracy.

Type test certificate from educational institute(s) will not be accepted. The type test certificate shall not be more than 24 months old as on the date of opening of bid.

(B) Additional Type Test:

In addition to the tests mentioned at (A) above, bidder shall have to furnish the type test reports of compliance of anti-tamper features as per tender specification.

(C) Acceptance tests:

All Acceptance tests as laid down in this tender specification shall be carried out.

(D) Verification during Inspection:

Inspecting officer shall verify that no DC supply/ signal is given to reference meter during the DC injection test. The accuracy of display parameters shall be verified at the time of inspection in line with class of accuracy of meter.

- 1.Voltage variation test
- 2.Accuracy tests under all anti tamper conditions.
- 3.Permanent magnet test
4. The accuracy of the meter, Real time clock disturb, Memory data corruption, meter functioning hang up etc. should not occur with the application of abnormal voltage/frequency such as spark discharge of approximately 35KV with 0.01-10 mm spark gap in any of the following manner when applied for 10 minutes:
 - a) On any of the phases or neutral terminals
 - b) On any connecting wires of the meter
 - c) At any place in load circuit
 - d) Spark on meter body.
5. Meter should be immune for tamper by application of remote loop induction device (jammer) of abnormal high voltage and abnormal frequency.

The accuracy and above indicated parameters of meter shall be checked before and after the application of above device(s) with site conditions. It is desired that when meter is subjected to 35 KV high frequency and voltage burst in the manner stated above from a) to d) & in 5 it should not hang.

(E) Routine Tests:

All the routine tests as stipulated in IS:13779 and in addition tamper and fraud protection tests as per TS shall be carried out and test certificates shall be furnished for approval of the Purchaser.

44 TEST FACILITIES AVAILABLE WITH THE MANUFACTURER:

The tests shall be carried out as per relevant Standards and test certificates shall be furnished for approval. The Supplier shall indicate the details of the equipment available with him for carrying out the various tests as per relevant Standards. The bidder shall indicate the sources of all materials.

Bidders should carefully note that the standard meters used for conducting tests shall be calibrated periodically at NABL Accredited Test Laboratories and test certificates shall be available at Works for verification by Purchaser's representative.

The Supplier/Manufacturer shall have at least the following testing facilities to ensure accurate calibration:

- 1.Insulation resistance measurement
- 2.Running at no load
- 3.Starting current test
- 4.Limits of error
- 5.Power loss in voltage and current circuit
- 6.Repeatability of error
- 7.Transportation test
- 8.Low load run test
- 9.Heating test

45 INSPECTION:

- 45.1 The Purchaser's authorized representative may carry out the inspection at any stage of manufacture. The Supplier/Manufacturer shall grant free access to the Purchaser's representative at a reasonable time when the work is in progress. Inspection and acceptance of any equipment under this specification by the Purchaser shall not absolve the Supplier of his obligation of furnishing the equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective.
- 45.2 All acceptance tests and inspection shall be made at the place of Supplier/Manufacturer. The Supplier shall provide all reasonable facilities without demanding any charge to the inspector representing the Purchaser to satisfy him that the equipment is being furnished in accordance with this specification.
- 45.3 The Supplier/Manufacturer shall keep the Purchaser informed in advance, about the manufacturing/readiness activities so that arrangement can be made for inspection.
- 45.4 The Purchaser reserves the right to insist for witnessing the acceptance/routine testing of the bought out items. The Supplier shall give 15 days advance intimation to enable the Purchaser to depute his representative for witnessing the acceptance and routine tests.
- 45.5 The Purchaser reserves the right to get type tests done in respect of any meter, or Box from any of the lots received at any Destination Stores at Supplier's expenses.

46 SAMPLE:**Sample before Commencement of supplies:**

The Supplier shall submit sample of offered meter along with the meter box having all the features conforming to the prescribed specification for our approval before commencement of supply.

47 RANDOM SAMPLE TESTING AFTER RECEIPT OF METERS AT STORES:

The consignment of meters received at Area Store shall be accepted only after testing of sample meters at CPRI as stated in the Schedule-II(D). The sample meters shall be selected randomly from the lot and will be sent to CPRI for acceptance test as per relevant ISS and as per procedure prescribed in schedule-II(D). If the sample fails in the above tests, the entire lot will be rejected and testing charges shall be recovered from the supplier. Purchaser may select meters at random from a lot of meters supplied and sent to CPRI/ERDA/ERTL/any NABL accredited testing **laboratory for acceptance test as per relevant ISS. If the sample fails in the above tests, the entire** lot will be rejected and testing charges shall be recovered from the Supplier.

48 QUALITY ASSURANCE PLAN:

The designed life of the meter shall be minimum of 20 years and to prove the designed life, the firm shall have to follow at least the following Quality Assurance Plan:-

- 48.1 The factory shall be completely dust proof.
- 48.2 The testing rooms shall be temperature and humidity controlled as per relevant standards.
- 48.3 The testing and calibrating equipments should be automatic and all test equipment shall have their valid calibration certificates.

- 48.4 Power supplies used in testing equipment shall be distortion free with sinusoidal, wave forms and maintaining constant voltage, current and frequency as per the relevant standards.
- 48.5 During the manufacturing of the meters the following checks shall be carried out.
- 48.5.1 Meter frame dimensions.
- 48.5.2 The assembly of parts shall be done with the help of jigs and fixtures so that human errors are eliminated.
- 48.5.3 The meters shall be batch tested on automatic, computerized test bench and the results shall be printed directly without any possibility of human errors.
- 48.6 The Supplier/Manufacturer shall furnish the following information. Information shall be separately given for individual type of meters offered.
- 48.6.1 Statement giving list of important raw materials, names of sub-suppliers for the raw materials, list of standards according to which the raw materials are tested, list of tests normally carried out on raw material in presence of Supplier's representative and copies of test certificates.
- 48.6.2 Information and copies of test certificates as in (i) above in respect of bought out accessories.
- 48.6.3 List of manufacturing facilities available.
- 48.6.4 Level of automation achieved and list of areas where manual processing exists.
- 48.6.5 List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections.
- 48.6.6 List of testing equipments available with the Supplier for final testing of equipment specified and test-plant limitations, if any, vis-à-vis type, special acceptance and routine tests specified in the relevant standards and this specification. These limitations shall be very clearly brought out in schedule of deviations.

The Supplier/Manufacturer's laboratory must be well equipped for testing of the meters. They must have computerized standard power source and standard equipment calibrated not later than a year (or as per standard practice). The details of testing facilities available for conducting (a) The routine tests and (b) Acceptance tests shall be furnished in Schedule annexed with tender document.

49 MANUFACTURING ACTIVITIES:

- 49.1 All the materials, electronics and electrical components, ICs used in the manufacture of the meter shall be of highest quality and reputed make to ensure higher reliability, longer life and sustained accuracy.
- 49.2 The Manufacturer should use Application Specific Integrated Circuit ASIC or Micro controller for metering functions.
- 49.3 The electronic components shall be mounted on the printed circuit board using latest Surface Mounted Technology (SMT) except power components by deploying automatic SMT pick and place machine and re-flow solder process. The electronic components used in the meter shall be of high quality. Further, the Supplier should own or have assured access (through hire, lease or sub-contract) of the above mentioned facilities. The PCB material should be of glass epoxy FR-4 grade conforming to relevant standards.
- 49.4 All insulating materials used in the construction of meters shall be non-hygroscopic, non-aging and of tested quality. All parts that are likely to develop corrosion shall be effectively protected against corrosion by providing suitable protective coating.
- 49.5 Quality should be ensured at the following stages :
- (a) At PCB manufacturing stage, each board shall be subjected to bare board testing.

- (b) At insertion stage, all components should undergo testing for conforming to design parameters and orientation.
 - (c) Complete assembled and soldered PCB should undergo functional testing using test equipments (testing zig).
 - (d) Prior to final testing and calibration, all meters shall be subjected to accelerated ageing test to eliminate infant mortality.
- 49.6 The calibration of meters shall be done in-house.
- 49.7 The Supplier/Manufacturer should submit the list of all components used in the meter along with the offer.
- 49.8 A detailed list of bought-out items which are used in the manufacture of the meter should be furnished indicating the name of firms from whom these items are procured. The Supplier shall also give the details of quality assurance procedures followed by him in respect of the bought-out items.
- 49.9 The details of testing facilities available for conducting the routine and acceptance tests and other special tests on the meter shall be furnished with the bid. The facility available if any for conducting type test may also be furnished.

50 DOCUMENTATION:

- 50.1 All drawings shall conform to International Standards Organization (ISO "A" series of drawing sheet/India Standards Specifications IS: 656. All drawings shall be in ink and suitable for micro filming. All dimensions and data shall be in S.I. Units.
- 50.2 List of drawings and documents:
The Supplier/Manufacturer shall furnish the following:
- (i) Two sets of drawing clearly indicating the general arrangements, fitting details, electrical connections etc.
 - (ii) Technical leaflets (user's manual) giving operating instructions.
 - (iii) Three copies of dimensional drawings of the quoted item.
- 50.3 The manufacturing of the equipment shall be strictly in accordance with the approved drawings and no deviation shall be permitted without the written approval of the Purchaser. All manufacturing and fabrication works in connection with the equipment prior to the approval of the drawing shall be at the Supplier's risk.
- 50.4 Approval of drawings by Purchaser shall not absolve the Supplier of his responsibility and liability for ensuring correctness and correct interpretation of the drawings for meeting the requirements of the latest revision of application standards, rules and codes of practices. The equipment shall conform in all respect to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of ordering and Purchaser shall have the power to reject the materials which, in his judgment, is not fully in accordance therewith.
- 50.5 The successful Supplier shall, within 2 weeks of notification of award of contract, submit three sets of final versions of all the drawings as stipulated in the contract for Purchaser's approval. The Purchaser shall communicate his comments/ approval on the drawings to the Supplier within two weeks. The Supplier shall, if necessary, modify the drawings and resubmit three copies of the modified drawings for approval. The Supplier shall within two weeks, submit 10 prints and two good quality report copies of the approved drawings for Purchaser's use.

50.6 Sets of operating manuals/technical leaflets per 100 meters shall be supplied to each consignee in the first instance of supply. Additional copies of sets of operating manuals/technical leaflets in the numbers as may be desired by the purchaser shall have to be supplied to the consignee or field officers or soft copies of the manuals to be provided per 100 meters.

50.7 One set of routine test certificates shall accompany each dispatched consignment.

50.8 The acceptance test certificates in case of pre-despatch inspection or routine test certificates in cases where inspection is waived shall be got approved by the Purchaser

51 GUARANTEE:

51.1 The meters shall be guaranteed for a period of 5 years from the date of commissioning or 5-1/2 years from the date of supply, whichever occurs first.

51.2 The meter found defective within the above guarantee period shall be replaced by the supplier free of cost within one month of the receipt of intimation. If the defective meters are not replaced within the above specified period, the same shall be treated as breach of performance of the contract and shall be liable for consequential penal action.

52 PACKING & FORWARDING:

52.1 The equipment shall be packed in crates suitable for vertical/horizontal transport as the case may be, and suitable to withstand handling during transport and outdoor storage during transit. The Supplier shall be responsible for any damage to the equipment during transit, due to improper and inadequate packing. The easily damageable material shall be carefully packed and marked with the appropriate caution symbol. Wherever necessary, proper arrangement for lifting, such as lifting hooks etc., shall be provided. Any material found short inside the packing cases shall be supplied immediately by Supplier without any extra cost.

52.2 Each consignment shall be accompanied with a detailed list containing the following information.

- 52.2.1 Name of the consignee
- 52.2.2 Details of consignment
- 52.2.3 Destination
- 52.2.4 Total Weight of Consignment
- 52.2.5 Handling and packing instruction
- 52.2.6 Bill of material indicating contents of each package

52.3 The packing shall be done as per the Manufacturer's standard practice. However, he should ensure the packing is such that the material should not get damaged during transit by Rail/Road.

53 CONFORMING SUITABILITY OF THREE PHASE LT METER FOR AUTOMATIC REMOTE METER READING (ARMR) FOR FUTURISTIC USE:

53.1 The optical port provided for connecting CMRI extended on the side wall of push fit type meter box shall also support purchaser's GSM modem for automatic meter reading. The purchaser in future shall arrange suitable GSM modem at his end for automatic remote meter reading of these LT meters. The power supply port shall be provided with breakable plastic cover on the push fit type meter box which shall be

broken and used for connecting purchaser modem All above relevant details should be furnished for approval of the purchaser. Confirmation to this effect is mandatory for the bidder.

54 GENERAL :

- 54.1 Principle of operation of the meter, outlining the methods and stages of computation of various parameters starting from input voltage and current signals including the sampling rate, if applicable, shall be furnished by the bidder.
- 54.2 The Supplier shall indicate the method adopted to transform the voltage and current to the desired low values with explanation on devices used such as CT, VT or potential divider as to how they can be considered superior in maintaining ratio and phase angle for variation of influencing quantities during its service period.
- 54.3 The Supplier shall furnish details of memory used in the meter.
- 54.4 The Technical Specification of Push Fit Type Meter Box Made Of Engineering plastic has been described in Schedule-II(B)
- 54.5 It is mandatory to conform compliance of guaranteed technical particular of ac three phase electronic KWH meter with LCD display as per Schedule-III(A).

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**CHIEF GENERAL MANAGER (PUR),
O/O CMD, MPMKVV CO.LTD. BHOPAL**

SCHEDULE-II (B)

TECHNICAL SPECIFICATION OF PUSH FIT TYPE METER BOX MADE OF ENGINEERING PLASTIC

1. The meter box shall be weather proof, tamper proof and made of transparent engineering plastic conforming to IS: 11731. Type test of material is required to be furnished along with the sample.
2. The meter box should be unbreakable un-deformable and should withstand the temperature up to 140 deg. cent.
3. Thickness of the base should be at least 2 mm and cover should be of not less than 0.8 mm.
4. Clearance of 30 mm shall be maintained from top and both sides of the meter. However, the clearance at bottom should be of 75 mm. from the meter and 45mm from the terminal block. Besides, there should be minimum clearance of 15 mm in the front from the face of meter.
5. The top cover of the meter box should be of push fit type having at least 4 self locks so that once the top cover of the box is fitted with the base it cannot be removed without breaking the top cover. The cover and base shall have groove all along with the fitting edge, so that after fixing the top cover, no wire or any device can be, temporary or permanently, inserted in the box. The top cover of the box, provided with self-lock, should have arrangement/barrier so that after getting locked, it cannot be detached from latches even by applying external pressure through any means.
6. Meter shall be fitted with the base of box through unidirectional type screw or by some other better means in such a way so that once the meter is fitted with the base; it cannot be removed from the base and become an integral part with base. The meters shall be supplied duly mounted on the base of meter box and the cover shall be placed separately in the cartoon.
7. Suitable circular holes with adjustable cable glands shall be provided at the bottom of the meter box for inlet and outlet of consumer's service cables.
8. The meter box cover or base shall have a barrier so positioned that any possibility of fiddling the meter terminal from outside of the meter box through cable entry holes is not possible. The barrier shall have reinforce/locked at both sides to restrict its movement up and down even by applying external pressure through any tools.
9. The top cover of meter Box should have spring loaded push button with spindle in moulded barrel perfectly in alignment to operate push button of the meter to read display parameter on push button mode.
10. The side wall of the push fit type meter box for LT meter should have a optical port extended from meter and also power supply port taken out from the out going load end terminals of the

meter for connecting GSM modem of purchaser for automatic remote meter reading in future. Initially power supply port shall be provided on the meter box with breakable plastic cover which will be broken by the purchaser subsequently to connect modem. **All the relevant details should be furnished for approval of the purchaser. Confirmation to this effect is mandatory for the bidder for data transfer and for connecting modem for Automatic Remote Meter Reading.**

12. The boxes shall be specific to the meter mounted in it. Thus, the Serial Number of the meter should be indelibly engraved /marked on the base of meter box as well as on the cover of meter box.
13. The box should have proper mounting arrangement so that it could be mounted on the wall or the pole, as the case may be.
14. The meter box comprises of base and cover shall pass the following tests;
 - i) **Unbreakability test**:- Shall not get damage or deform while dropping from a height of 10 ft. and hammered with 2 kg. hammer to test its unbreakability.
 - ii) **Boiling water test** :- It should pass the boiling water test as prescribed in IS:13010.
15. The overall dimensions of the meter box shall vary according to the different make of meters. However, it shall comply with the minimum requirements as described above.
16. The individual meter manufacturers shall submit the specific drawing and sample accordingly to accommodate their make meter only.

SCHEDULE-II (C)
VERIFICATION/TESTING OF MATERIAL SUPPLIED

- i) Three (3) sample meters shall be selected for conducting selected Type Test from the first lot of meters received in Area stores by a committee constituted by CE (W&P). The samples so selected shall be sealed by at least 3-4 seals/stickers by the committee members. The selected samples shall be sent with complete details for type test and additional test/special tests as per specification at CPRI, Bhopal / ERDA, Vadodara / any NABL accredited test house. The type test charges shall be borne by the supplier. The purchaser however in first instance may pay testing charges to the testing agency, which shall be recovered by Dy. Director (Bills) from the bill of the supplier.
- ii) In case of successful type test results, supplies shall be continued. However, in case the meter(s) do not meet the requirement as per ISS/CBIP/Specification in type test(s), three more samples shall be selected from the supplies already received to get them type tested at supplier's cost. In case of repeat failure in type test(s), the order of balance quantity including the quantity lying unused in the stores/ field shall be cancelled.
- iii) On receipt of consignment of subsequent lot in Area Stores, a set of 32 meters shall be selected randomly and sent to CPRI for conducting acceptance test as per the prescribed procedure

S.No	Particulars of tests	No. of samples to be tested
(i)	Starting Current test and No load test	32 Nos.
(ii)	AC high Voltage test, Insulation test, Limits of error, Test of meter constant, Power consumption test.	8 nos. out of above 32 Nos.
(iii)	Repeatability of error	3 nos. out of above 8 Nos.
(iv)	Voltage variation, Tamper & fraud protection, D.C. Immunity Test, Magnetic Immunity test (Permanent magnet test of 0.27 Tesla), Accuracy test after application of 440 Volts for 5 minutes, I _{max} for 30 minutes test, D.C. Injection test and 35 KV high frequency high voltage burst test.	3 nos. out of above 8 Nos.
(v)	Test of LCD display as per TS requirement	1 nos. out of above 8nos
(vi)	Fast transient burst test	1 nos. out of above 8nos.

Following procedure shall be adopted to clear the tested lot:

1. Failure of any 2 nos. tests shall be allowed out of 32 nos. of meters tested at sr. no. (i) of above table. Failure of more than 2 nos. tests, the further testing shall be suspended and lot shall be declared as fail.

2. Failure of any one test shall be allowed out of 8 nos. of meters tested at sr. no. (ii) of above table. In case of failure in more than one test, the further testing shall be suspended and lot shall be declared as fail.
 3. No failure shall be allowed out of 3 nos. of meters tested at sr. no. (iii) of above table. In case of failure of any meter, the further testing shall be suspended and lot shall be declared as fail.
 4. Failure of any one test shall be allowed out of 8 nos. of meters tested at sr. no. (iv) of above table. In case of failure in more than 1 no. test, the further testing shall be suspended and lot shall be declared as fail.
- iv) In case of failure of samples of lot/ sub-lot in the test(s) detailed above, the similar testing procedure as described shall be repeated on another lot and if the lot fails consecutive second time the entire quantity of respective lot/sub-lot shall be rejected and shall have to be replaced by the supplier at his own cost. Repeated failure/poor results in the testing may render cancellation of order.
- v) The supplies, at the option of purchaser, may be utilized in the field during the period of testing. In case of repeat failure in acceptance test(s), the order of balance quantity including the quantity lying unused in the stores/ field shall be cancelled. The guarantee period of quantity already supplied & used shall be doubled and payment for used meters shall be arranged after deducting 10% cost.
- vi) The purchaser also reserves the right to get additional samples for all or any of the selected tests at purchaser's cost at any independent test house at any stage of supply, if so considered necessary to ensure that the quality of meters being offered for inspection is same as already got type tested. In case of failure, the guarantee period of the quantity already supplied by the supplier shall be doubled and purchaser reserves the right to cancel the balance quantity.
- vii) However, purchaser may allow the supplier to re-offer the material after change/ modification in the design of meters. The balance material shall be accepted only after successful Type Testing. The Type Testing charges shall be borne by the supplier.
- viii) In case of successful test results, supplies shall be continued.

SCHEDULE-III**GUARANTEED TECHNICAL PARTICULAR OF AC THREE PHASE
ELECTRONIC KWH METER WITH LCD DISPLAY**

Sl. No.	Particular	Min. Requirement	As offered
1.	Name of manufacturer	To be mentioned	
2.	Type, name & number (model)	To be mentioned	
3.	Standard Applicable	IS:13779/1999, IEC:62052-11 and 62053-21 with its latest amendment as on date.	
4.	Rating		
(i)	Accuracy Class	1.0	
(ii)	Rated Voltage	3x240V (+ 20% -40%)	
(iii)	Rated current	Ib-10 Amp., I _{max} 40 Amp	
(iv)	Rated frequency	50 Hz ±5%	
(v)	Power factor	Zero lag - Unity -Zero lead	
(vii)	Shall work within accuracy up to max. loading	120% of I _{max}	
5. (i)	Continuous current rating	40 Amps.	
(ii)	Running with no load and 115 % of rated voltage	No creeping	
6.	Short time over current for one half cycle at rated frequency.	30 I _{max}	
7.	Starting current at which meter shall run & continue to run	0.2% of I _b at rated voltage and unity power factor	
8.	Power loss at rated frequency & reference temperature		
(a)	Current circuit at rated current	Less than 2VA per phase	
(b)	Voltage circuit at rated current	Less than 1W/4VA per phase	
9	Type of material used		
(a)	Base Material	High Impact strength, non-hygroscopic, flame retardant, UV stabilised poly carbonate of min.2 mm thick	
(b)	Meter cover material	---As above ---	
(c)	Terminal Block material	High Impact strength non hygroscopic, flame retardant material. Barrier of adequate size shall be provided between neighbouring terminals.	
(d)	Colour	The meter cover shall be fully transparent.	
(e)	Screw		
(i)	Material	Nickle Plated - Brass / Zinc Plated MS	
(ii)	Size	5-6 mm dia	
10.	Internal diameter of Terminal Hole	Min. 9.0 mm	
11.	Centre to Centre clearances between adjacent terminals	More than 13 mm	

12.	Transducers		
(i)	Input	CT or shunt or combination and potential divider (PT less)	
(ii)	Output	Digital	
13.	Type of display	LCD with backlit	
(i)	Operation suitability	LCD suitable for operation up to 80°C	
(ii)	No. of Digits	6 including decimal digit (5+1)	
(iii)	Size of Numerals	8.5 x 5 mm	
14.	Display Sequence (display should be self explanatory)		
14.1	Auto Scroll Mode		
	(i) Cumulative active energy	KWh	
	(ii) Maximum demand of month	By default KW (programmable KVA) up to two decimal points	
	(iii) Instantaneous demand	Same as above	
14.2	Whether Push button Mode operation is provided	Please confirm	
15	Type of push button arrangement	Spring loaded push button to be provided on top cover of meter box to activate the push button of meter to read parameters	
16.(i)	Reading in power off condition	Meter shall be able to display reading.	
(ii)	Type of arrangement made to display in power off condition	Please provide	
17.	(a)Whether optical port from meter has been extended on the side wall of push fit type meter box and is provided with sealing arrangement. (b) Whether single phase 240 Volt power supply for modem is taken out from meter load end terminal, is extended on a port provided on the side wall of push fit meter box and the port is provided with pilferage / tamper proof sealing arrangement and also it is covered with breakable plastic cover.	Please provide details	
18.	Battery of Real time clock	(i) It shall be long life having at least 10 years of life (ii) The drift in time shall not exceed +/- 3 minutes per year	
19.	Fixing/sealing arrangement		
(i)	Fixing of meter	Minimum 3 fixing holes (one at top & two at bottom under terminal block). The top fixing screw shall not be accessible after meter is fixed to meter box base.	

(ii)	Sealing of meter cover to Base	(a) At least 2 nos. polycarbonate irreplaceable tamper evident seals with serial no. matching with that of meter also marked with MPCZ and firm's logo. . The serial number of meter is to be laser – etched on the base as well as the cover of the meter box, and can be easily viewed to check duplication attempts for the purpose of keeping track of meter seals with serial no. matching with that of meter also marked with MPCZ and firm's logo	
		(b) Seal shall be provided on front side only.	
		(c) Meter cover shall be permanently / solidly welded with Base so that it could not be opened without breaking.	
20.	Performance of meter in tamper conditions		
(i)	(a) When any two phases are disconnected i.e. in presence of any one phase & neutral	Should record correctly	
	(b) When one phase and neutral both are disconnected i.e. in presence of any two phases and load is drawn through local earth.	Meter Should continue to record energy. The maximum limit of the error allowed is +/-3% from the reference condition.	
(ii)	Indication in tamper condition (LED or ICON)	Please provide details	
(iii)	If attempt is made to open the meter body,	the meter shall detect /log with date and time of meter body opening tamper, even in absence of supply. This tamper shall also be displayed on the meter LCD	
(iv)	Injection of abnormal frequency and voltage of the order of 35 KV with the help of external device	Should work normal and the accuracy should not be affected after removal of such device. The meter should not hang during any desired method of test.	
(v)	Meter should be immune for tamper by application of remote loop induction device (jammer) of abnormal high voltage and abnormal frequency.	Should work normal and the accuracy should not be affected after removal of such device. The meter should not hang during any desired method of test.	
(vi)	Current Imbalance between the phases and CT shorting /by-passing	Should log the event with date and time of occurrence and restoration	
(vii)	Power ON time	Provision to log in YY:DDD:HH:MM in calendar month for last 6 months.	
(viii)	(a) Balanced & unbalanced load even if the neutral is	Recording shall be as per IS.	

	removed.		
	(b)In the unbalanced load condition when neutral is removed	. Meter Should continue to record in this condition maximum limit of the error allowed is +/-3% from the reference condition.	
(ix)	Phase sequence reversal	Should record accurately irrespective of the phase sequence.	
(x)	DC signal through diode from any one phase or all three phases are injected on the neutral	Should continue to function	
(xi)	Along with tamper information the meter shall also record the phase wise instantaneous values of voltage, current and power factor at the time of occurrence and restoration.	Please provide.	
(xii)	No. of events	As per specification	
21.	Suitability of meter to sustain over voltage i.e. phase to phase voltage injected between phase & neutral	Should sustain	
22.	Size of calibration & other LEDs & colour	3mm or 5mm. calibration LED of Red colour is essential. Other indication like Power ON (phase wise), load earthed, reverse indication etc. may be LEDs or Icon on LCD.	
23.	Electromagnetic compatibility (EMI/ EME severity level)	Should withstand severity level 4	
24	Effect on accuracy of external electromagnetic interference of electrical discharge, external magnetic field & DC current in AC supply or in neutral	Should work within accuracy complying with standards with its latest amendment as on date. Further, the performance of meter should not get affected on application of DC magnet of not less than 0.27Tesla size at different locations of meter body and errors may be within +/- 4% <ul style="list-style-type: none"> • Under the influence of abnormal magnetic field (above 0.27T) the meter shall record energy not exceeding the product of rated voltage and maximum current (I_{max}). • Meter shall have provision to record the tamper of abnormal magnetic induction with date and time of occurrence and restoration. 	
25.	Effect of accuracy in tamper conditions	Should work within accuracy specified in IS: 13779/1999	

26.	Cut off voltage (at which meter stop working)	Please provide.	
27.	Ref. Temperature	27°C	
28.	Temperature range of operation	-10°C + 60°C	
29.	Drift in accuracy of measurement with time	No Drift in accuracy in measurement with time	
30	Fixing arrangement of name plate	Plastic /metallic name plate fixed through screw in side the meter.	
31.	Type of body	Projection type	
32.	Calibration	Meter shall be software calibrated at factory	
33.	CT/Shunt fixing arrangement	To be indicated	
34.	Manufacturing activity		
(i)	Mounting of components on PCB shall be SMT type	SMT type and ASIC technology	
(ii)	Compliance to quality assurance	Please confirm	
35.	Testing facility		
(i)	Fully automatic computerised meter bench with print out facility shall be available	Must be available	
(ii)	Make and S.No. of Test bench	To be indicated	
(iii)	Accuracy of ESS duly calibrated	---do---	
(iv)	Type of technology	Digital/Analog	
(v)	Following in house testing facility shall be available;		
a.	Insulation resistance	Must be available	
b.	Running on no load	--do--	
c.	Starting current	--do--	
d.	Limits of error	--do--	
f.	Power loss in voltage and current circuit.	--do--	
g.	Repeatability of error	--do--	
h.	Transportation test	--do--	
i.	Low load run test	--do--	
j.	Heating test	--do--	
36.(i)	Whether offered meter are Type Tested as per IS:13779 at NABL accredited Lab	YES/NO	
(ii)	Name of the Lab	Please provide	
37.	Guarantee period of meter printed on nameplate	5-1/2 years from the date of supply	
38.	BIS licence No. & dt. with its validity for ISI certification mark on offered meter	Please provide.	
39	Details of meter design for which above		

	BIS certification has been obtained :-		
(i)	Ratio of Ib to I _{max}	Please provide	
(ii)	Material of meter body	Please provide	
(iii)	Type of energy registering counter	Please provide	
(iv)	Type of technology (Digital/Analog)	Please provide	
(v)	Grade of printed circuit Board material	Please provide	
(vi)	Type of assembly of component used (SMT)	Please provide	
(vii)	Meter constant (Imp/KWh)	Please provide	
(viii)	Auxiliary power circuit (with PT or PT less)	Please provide	
(ix)	Current circuit (CT/Shunt combination or only shunt)	Please provide	
(x)	Accuracy class	Please provide	
40	ISO accreditation no. & dt. with its validity	Please provide	
41.	Past Experience:-		
(i)	Whether the details of orders of received and quantity supplied is indicated in the schedule of past experience.	YES/NO	
(ii)	Confirm whether copy of the orders along with technical specification is enclosed with the tender.	YES/NO	
42	Whether meter has six programmable time of use facility	YES/NO	
43.	Other parameters/features not covered in the above GTP.	Conform to specification of IS-13779/1999 (with its latest amendment).	

NOTE:-

(1) All the information/parameters indicated above shall exist in the meter offered & shall withstand all the tests specified above within the variation of current/voltage frequency and climatic conditions specified therein.

(2) Even though if any features or parameters are not specifically covered in this GTP, but are essential for the satisfactory performance of the meter as per the specification, are deemed to have been covered in the GTP.

Name and signature of bidder and seal

SCHEDULE - IV
SCHEDULE OF QUESTIONNAIRE
PART "A": GENERAL INFORMATION

(TO BE KEPT IN THE ENVELOPE PART-II, (COMMERCIAL/TECHICAL BID))

- (i) Strike off, whichever is not applicable.
(ii) Separate sheets should be used, wherever necessary.

1.	Name & Address of the Bidder	
2.	Name & Address of the firm/ Company etc	
	(a) Registered office	
	(b) Factory/ works address	
	(c) Telegraphic address	
	(d) Telephone Nos.	
	(e) Fax Nos.	
3.	Confirm whether bidder is a Manufacturer	Yes/ No.
4.	Only Manufacturer to give following particulars	
	(a) Address of factory	
	(b) Year of starting manufacture	
	(c) Whether same/similar materials Manufactured/printed earlier, (if yes, give reference	
	(d) Yearly/monthly production Capacity	
	(e) Maximum yearly production achieved so far	
5.	Whether the firm is an MP SSI Unit	Yes/ No
	(a) If yes, write registration No.	
	(b) Whether documentary evidence regarding registration enclosed	
	(c) Items of registration	
	(d) Period of Registration	
	(e) Furnish latest copy of competency certificate	Yes/ No
6.	(a) Whether the bidder is old participant with MPSEB/Discoms	Yes/ No
	(b) If yes, whether document evidence enclosed.	
7.	Any other information that bidder If yes, whether document evidence enclosed.	If yes, give details may like to give in order to highlight his bid

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

SCHEDULE – IV**PART “B”: COMMERCIAL INFORMATION**

(TO BE KEPT IN THE ENVELOPE PART-II (COMMERCIAL/TECHNICAL BID)”

- (i) Strike off, whichever is not applicable.
(ii) Separate sheets should be used, wherever necessary.

1.	i	Earnest Money details	Bank draft/ Bankers cheque/ Cash with Sr. AO(HOAU), MPMKVV Co. Ltd., Bhopal
	ii	(a) Amount of EMD	Rs.
		(b) Particulars/details	
	iii	If exempted, state whether the bidder is	SSI Unit of M.P./ Small Scale unit registered with NSIC/ Fully owned State/ Central Govt. Unit.
iv	Whether reference of documentary evidence regarding exemption enclosed.	Yes/ No	
2.		Whether the offer is valid for 180 days from the date of opening of commercial / technical bid	Yes/ No (If no, state validity period).
3.		State whether the quoted prices are Firm/Variable	
4.		Mode of despatch	By Rail/By Road
5.		DISCOUNT:-	
	i	Whether any rebate/ discount is offered	Yes/No
	ii	If yes, whether the rebate is unconditional /conditional	
	iii	Rate/ amount of rebate/ discount	
iv	If conditional state condition		
6.		PAYMENT TERMS	
		Whether Discom's terms of payment is acceptable to the tenderer (If no state conditions)	Yes/ No
7.		DELIVERY PERIOD	
	a	Commencement of supplies from the date of order/approval of drawing.	
b	Completion and supply rate from of the date of LOI/order/approval of drawing.		
8.		PENALTY CLAUSE	
		Whether agreeable to Discom's penalty clause	
9.		GUARANTEE PERIOD	

		Indicate guarantee period of material offered by you.	
10.		SECURITY DEPOSIT	
	a	Whether agreeable to furnish Company's Security deposit @10% of value of order for satisfactory execution of the order and to cover guarantee period.	Yes/No
	b	If not, indicate deviation, specifically	
11.		Indicate State, Central Sales Tax Registration Number (Please note that in case of non-registration with Sales Tax Department Purchase	State
		Tax as admissible shall be deducted by the Purchaser from the bills of the supplier.	Central
12.		EXTENSION ORDER	Yes/ No
		Whether you are agreeable to accept extension order for 50% quantity on the same rates, terms & condition, if any extension order is placed within 6 months from the date of placement of detailed order.	
13.		Whether rates offered are applicable for part quantities also.	Yes/ No
14.		Have you noted that you have quoted prices in the desired format	
		Please furnish photocopy of the clearance from the Income Tax and Sales Tax Deptt. and profit and loss Account and Turn over for last 5 years up to the last financial year have been enclosed.	

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

SCHEDULE – IV
PART “C”: TECHNICAL INFORMATION
 (TO BE KEPT IN THE ENVELOPE PART-II, COMMERCIAL/TECHICAL BID)”

(i) Strike off, whichever is not applicable.

(ii) Separate sheets should be used, wherever necessary.

1.	i	Whether material offered is exactly as per the technical specification.	
	ii	If not, give details of technical deviation (Information may be given in deviation schedule given with documents for this purpose.	
2		Whether the list of orders received during last 5 years from other State Electricity Board/NTPC & from other organization for similar materials is furnished.	
2.		Whether the tender has furnished details of manufacturing equipments and short history of plant.	
3.		Whether pamphlets/technical details literature along with drawing etc. furnished with the offer	
4.		Whether the tender agrees to furnish material test certificates in respect of chemical composition and physical properties, wherever required, from Govt./Govt. approved Lab. With each bath of supplies.	
5.		Whether details of manufacturing process furnished with offer.	
6.	i.	Whether all testing facilities are available. If so, give details and in case of non-availability of facilities indicate approved lab. available in surrounding areas where tests are proposed to be conducted.	
	ii	Whether you agree for inspection by Discom's representative prior to despatch and bear the testing charges for all tests as per relevant standard.	Yes/No
7.		Please furnish/indicate the quality assurance programme/plan of your product being followed in your works.	

PLACE:

SIGNATURE OF TENDERER

DATE

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

UNDERTAKING

I,Sole proprietor/ partner/authorised signatory of
M/s. is giving undertaking that details given are correct to the best
of my knowledge and I agree to abide by all your tender/order terms and conditions.

PLACE:

SIGNATURE OF TENDERER

NAME IN FULL

DATE

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

SCHEDULE-V**PART "A"**
SCHEDULE OF PAST EXPERIENCE

Bidder's Name & Address:

To,

The Chief Engineer (Pur),
O/o CMD, MPMKVV Co. Ltd.,
Nishtha Parisar, Bijlinagar,
Govindpura,
BHOPAL-462023

Dear Sir,

Sub: - **Performance/ past experience.**

We furnish herewith the record of our performance and experience of quoted items as follows:-

Sl. No.	Purchaser's Name and Address	Order Number and Date	Ordered Quantity	Quantity supplied	Value of Order
1	2	3	4	5	6

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

Note: - Photocopy of the orders & performance reports received from other State Electricity Boards/ Govt. undertakings etc. should be enclosed.

SCHEDULE-V
PART "B"
SCHEDULE OF COMMERCIAL DEVIATIONS

Bidder's Name & Address:

To,

The Chief Engineer (Pur),
O/o CMD, MPMKVV Co. Ltd.,
Nishtha Parisar, Bijlinagar,
Govindpura,
BHOPAL-462023

Dear Sir,

Sub: - **Commercial Deviations.**

The commercial Deviations & variations to the specifications stipulated in the tender, for the item quoted are, as under:-

Sl. No.	Condition	Clause No. of tender document	Page No. of Tender document	Statement of deviations and variations
1	2	3	4	5

2. Except aforesaid deviations, the entire order, if placed, on us shall be executed in accordance with your specifications and any other conditions, variations/deviations etc. if found, elsewhere in our offer should not be given any considerations while finalizing the tender.

PLACE:

SIGNATURE OF TENDERER

NAME IN FULL

DATE

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

Note: - Continuation sheet of like size & format may be used as per bidder's requirements and shall be annexed to this schedule.

SCHEDULE-V
PART "C"
SCHEDULE OF TECHNICAL DEVIATIONS

Bidder's Name & Address:

To,

The Chief Engineer (Pur),
O/o CMD, MPMKVV Co. Ltd.,
Nishtha Parisar, Bijlinagar,
Govindpura,
BHOPAL-462023

Dear Sir,

Sub: - **Technical Deviations.**

The Technical Deviations & variations to the specifications stipulated in the tender, for the item quoted are, as under:-

Sl. No.	Condition	Clause No. of tender document	Page No. of Tender document	Statement of deviations and variations
1	2	3	4	5

2. Except aforesaid deviations, the entire order, if placed, on us shall be executed in accordance with your specifications and any other conditions, variations/deviations etc. if found, elsewhere in our offer should not be given any considerations while finalizing the tender.

PLACE:

SIGNATURE OF TENDERER

DATE

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

Note: - Continuation sheet of like size & format may be used as per bidder's requirements and shall be annexed to this.

SCHEDULE-VI**TECHNICAL QUESTIONNAIRE**

1. Name of firm :
2. Name of proprietor or partner (as the case may be) :
3. Telephone No./ (a) Office :
(b) Residence :
(c) Fax No. :
(d) Mobile no :
(e) email id :
4. Name & address of Local authorised representative (if any) alongwith Tel. No./ Fax No. :
5. Address of works where item to be manufactured with Tel. No./Fax No. :
6. Whether partnership deed or article of memorandum enclosed ? :
7. BIS licence No. :
 - i) Validity up to :
 - ii) Whether offered meter is covered :
8. Whether firm has ISO-9001 accredited. If so, copy enclosed :
9. Whether Income tax clearance certificate for last 2 years enclosed ? :
10. Whether MP Commercial tax/ Central Sales tax clearance certificate for last 2 years enclosed ? :
11. Whether all the type test certificates as per **IS:13779/1999** and CBIP report-88 with its latest amendment for : (if required, separate sheet may be attached)

specific particular type of meter offered is enclosed. Please specify clearly that the type test report indicate that meter is with LCD counter or with mechanical counter (stepper motor). As well Material of meter case i.e. poly carbonate or steel shall also be indicated. Details are given as below :

S.No.	Type of test	Name of issuing Authority	Type test report No. & Date	Page no. of offer Where report enclosed
(1)	(2)	(3)	(4)	(5)

12. **PAST ORDERS**

(A) **Meter with LCD counter**

Details of past orders: three phase electronic meters with LCD counter received in last 2 years. Copy of orders & material receipt certificate shall be enclosed separately and If so, indicate the page number of offer where copies of orders are available.

S.No.	Category of LCD counter electronic meter i.e. Single phase or Three phase	SEB/Power Utility order No./Dt.	Qty. in order	Qty. supplied Up to 31.07.11

13. Confirm whether performance report (clients certificate) for supply of similar meter in past enclosed. :

14. Rating of three phase meters & quantity for which quoted. :
Type of communication port available on above meters.

15. Type of meter body offered :

16. Indicate Model No. of Meter offered :

i) Three phase meter with LCD counterport :
Fill up type of port

17. Whether facilities for quality Assurance in manufacturing & testing of meters are available. : Schedule-VII to be filled

PLACE :

DATE :

SIGNATURE OF TENDERER
DESIGNATION
COMPANY SEAL

SCHEDULE-VII**(A) SOURCE OF MATERIAL AND PLACES OF MANUFACTURE, TESTING AND INSPECTION**

S.No.	Name of manufacture	Place of manufacture	Place of testing and inspection	Source of material

(B) QUALITY ADHERENCE DURING MANUFACTURING/ TESTING

S.No.	Quality Adherence during raw material procurement	Quality Adherence during manufacturing	Quality Adherence during testing

Note :- Specific details shall be given with the facilities available in all stages and how quality control is maintained.

DATE :
PLACE :

SEAL & SIGNATURE OF TENDERER
NAME :
DESIGNATION:

SCHEDULE – VIII**DELIVERY SCHEDULE FOR SUPPLY OF 3 PHASE 4 WIRE 10-40 AMP
ACCURACY CLASS 1.0 ELECTRONIC ENERGY METERS WITH LCD DISPLAY
AND COMMUNICATION FACILITY FOR AMR ALONGWITH
POLYCARBONATE METER BOXES.**

Name of the firm :

Quantity offered : Nos.

S. No.	Lot	Requirement (in nos.)	Qty. offered to be supplied by the bidder (nos.)	Remark
1.	First lot within 90 days from the date of receipt of order.	20000		
2.	2 nd lot bi-monthly	20000		
3.	3 rd lot bi-monthly	20000		
	Total	60000		

NOTE :

1. Bidder should quote the quantity of three phase meter, which they can supply per month.
2. Monthly committed delivery means receipt of meters at consignee stores in that particular month itself as specified in Annexure-II, Clause-9 and monthly delivery shall be quoted based on your production capacity and shall not be linked with ordered quantity.

SIGNATURE OF THE TENDERER

CHECK LIST

S. No.	Particular	Schedule No./ Section of offer	Mention whether enclosed or not	Page No. of offer
1	Tender Fee	DD enclosed in separate envelop if document is downloaded from website		
2	Tender Form			
3	Questionnaire			
	Part"A" - General Information	Schedule-IV		
	Part"B" - Commercial Information	Schedule-IV		
	Part"C" - Technical Information	Schedule-IV		
4	Guaranteed Technical Particular	Schedule-III		
5	Technical Questionnaire	Schedule-VI		
6	Schedule of past experience (Part"A")	Schedule-V		
7	Schedule of commercial deviation (Part"B")	Schedule-V		
8	Schedule of Tech. deviation (Part"C")	Schedule-V		
9	All the type test reports as per IS:13779/ 1993 Table 20			
10	Source of material & Quality adherence	Schedule-VII		
11	Copies of orders received from various Electricity Boards/ Power Utilities for static meters (LCD display) only.			
12	Copy of BIS licence for ISI certification/ ISO Accreditation enclosed			
13	Quality Assurance Plan as per Technical Specification Schedule-II enclosed.			
14	Other additional information like Income Tax/Sales Tax clearance/ Balance sheet/ Annual report etc.			
15	EMD	(in separate envelope)		
16	Delivery Schedule	Schedule-VIII		

Certified that complete offer is duly paged & divided in sections as per instruction given in the "Note" of Index at the top of this Tender specification.

SIGNATURE OF TENDERER

NOTE : Envelope for tender fee

- Envelope-1 - For EMD
- Envelope-2 - For Commercial & Technical bids
- Envelope-3 - For Price Schedule (Online)
- Envelope-4 - To keep envelope envelope 1 to 2
(Main) (all the envelopes should be duly sealed & signed separately).

Note :- Page nos. must be recorded for every schedules/enclosures of offer.

P A R T - II
A N N E X U R E - I

GENERAL INSTRUCTIONS TO BIDDERS

1. **GENERAL**

Chief Engineer (Purchase) on behalf of "The Madhya Pradesh Madhya Kshetra Vidyut Vitaran Co Ltd" herein after referred to as "MPMKVVCL" will receive tenders/ bids for supply of materials/equipments in accordance with the attached specifications for supply to Area Stores at **Bhopal, Gwalior and Guna** only in Madhya Pradesh.

2. **BASIC QUALIFICATION OF BIDDERS**

This bidding is open for Manufacturers only who provide satisfactory evidence:-

- (i) That they are qualified Manufacturer who regularly manufactures the ISI marked Energy Meters/equipments of the type specified and have adequate technical knowledge and practical experience.
- (ii) That they do not anticipate change in the ownership during the proposed period of contract (if such a change is anticipated, the scope and effect thereof shall be defined).
- (iii) That, they have adequate financial stability and status to meet the financial obligations pursuant to the scope of the assignments
- (iv) That, they have adequate plant and manufacturing capacity available to perform the assignment properly and expeditiously within the time period specified.

3. **EARNEST MONEY**

- (i) The bidder shall deposit the Earnest Money amount vis-à-vis the value of the materials offered as shown here under:-

Value of Material	Earnest Money
(a) Upto Rs. 50,000/-	Nil
(b) Above Rs. 50,000/- & upto Rs. 2.5 Lakhs	@ 1%
(c) Above Rs. 2.5 Lakh & upto Rs. 3.0 Lakhs	Rs. 2,500.00
(d) Above Rs. 3.0 Lakhs & upto Rs. 7.0 Lakhs	Rs. 5,000.00
(e) Above Rs. 7.0 Lakhs & upto Rs. 15.0 Lakhs	Rs. 7,000.00
(f) Above Rs. 15.0 Lakhs & upto Rs.25.0 Lakhs	Rs.10,000.00
(g) Above Rs. 25.0 Lakhs & upto Rs.35.0 Lakhs	Rs.15,000.00
(h) Above Rs. 35.0 Lakhs & upto Rs. 50.0 Lakhs	Rs.20,000.00
(i) Above Rs. 50.0 Lakhs & upto Rs.75.0 Lakhs	Rs.30,000.00
(j) Above Rs.75.0 Lakhs & upto Rs.100.0 Lakhs	Rs.40,000.00
(k) Above Rs. 100.0 Lakhs	Rs.50,000.00

- (ii) The bidders are permitted to quote for part quantities and pay earnest money only to the extent of the participation on the basis of slabs specified above

- (iii) The Earnest Money can be deposited by Bank Draft in favour of **Senior Accounts Officer (HOAU), MPMKVVCL**, payable at BHOPAL.

No offer will be accepted without valid Tender Fee & Earnest Money Deposit, unless exempted by the Board/Discom-CZ.

- (iv) The following are exempted from payment of Earnest Money Deposit :-
- S.S.I. Units of Madhya Pradesh Permanently registered with DIC/Ancillary Units of MPSEB. **The registration should be permanent and should be specifically for the items quoted in the tender and valid on the date of opening of tender.**
 - Small Scale Units registered with NSIC:-** The Small Scale Unit permanently registered with NSIC, whose registration certificate is valid for the item quoted on due date of opening of commercial and technical bid shall be entitled for exemption from EMD. (The renewal/ amendment of certificate should not be more than 3 years old from the due date of opening of tender) otherwise EMD has to be furnished by the bidder.
 - The Medium/Large Scale Manufacturing Units, located in Madhya Pradesh (other than SSI/ Ancillary Units to MPSEB and Govt. undertakings) are permitted to furnish the EMD @ 50% (Half) of the rates prescribed above. Here also permanent registration is a must in respect of specified item against this tender.
 - Fully owned State/Central Govt. manufacturing Units, if 100% shares are held by the respective Govt. for which documentary evidence must be furnished with the offer.
 - The photocopy of the NSIC/SSI Registration Certificate for the tendered items duly notarized/ attested by G.M./ Manager, DIC of the Area/ any officer of MPSEB/MPMKVVCL not below the rank of E.E. shall be furnished with the offer. In case of unattested/un-notarized copy, the original certificate should be produced at the time of tender opening for verification.
- (v) All the SSI/ NSIC units should quote/offer the material only to the extent they are registered for respective items with the SSI/NSIC organization.
- (vi) In case, the bidder withdraws his offer during the validity period, after placement of order, the EMD amount shall be forfeited.
- (vii) **RETURN OF EARNEST MONEY TO BIDDERS**
- EMD shall be returned to the un-successful bidders, as soon as possible, after the tender is decided. No interest shall be paid on EMD amounts.
 - EMD of bidders on whom the orders have been placed, shall be returned on acceptance of security deposit. No, interest shall be paid on EMD amount.

4. TAXES AND DUTIES

- a) All taxes and duties should be included in the prices quoted. Any kind of taxes and duties shall not be paid extra. However, the break up of taxes & duties must be indicated separately in the Schedule-IV, Part-B Commercial Information.
M.P. Madhya Kshetra Vidyut Vitaran Company Ltd., Bhopal is a Registered Dealer and TIN Number is 23263605361. Therefore necessary declaration form, wherever

applicable, shall be issued after receipt of material at destination, by the M.P. Madhya Kshetra Vidyut Vitaran Company Ltd., Bhopal. Any other applicable declaration form for concessional rate of Sales tax/Commercial tax as may be in force shall be given only after the legal position is verified at our end.

- b) Excise duty and Sales Tax/Commercial Tax are payable for the contractual delivery period only at the prevailing rates wherever applicable. No upward variation shall be payable beyond the contractual delivery period, where the supplier is responsible for the delays.
- c) Wherever applicable tenderers outside the State of M.P. should also quote the prevailing rate of Sales Tax/ Commercial Tax in the state of origin so that the concessional rate of CST payable against "C" form may be limited to the Sales Tax applicable for state of origin, from where the material move, in case, these are lower than the concessional rate of CST.

5. AMENDMENT IN SPECIFICATIONS

The Discom(CZ) may revise or amend the specification and drawing, prior to the date notified for opening of Price Bid of tender. Such revision/ amendment, if any, will be communicated to all those who have bought the tender documents as Amendment/ Addendum to the invitation of tender.

6. BIDS RECEIVED BY MESSENGER

When tenders are delivered by special messenger, the same should be dropped in the Tender Box, kept in the office of CMD MPMKVV Co. Ltd., Nistha Parisar Govindpura Bhopal (MP) - 462023, on all working days during working hours indicated in tender notice. **Nobody is authorized to receive or grant receipt for tender delivered by hand.**

7. BIDS IN OPEN FORM

Open bids through Telegram/Fax will not be considered under any circumstances.

8. DELAYED/ LATE BIDS

The Discom(CZ) shall not assume any responsibility for any postal delays either for the late receipt of documents by bidder or late receipt of bids by the Board/Company. No Extension in time shall be granted on such grounds.

9. ALTERNATIVE BIDS

Bid should be submitted as per intent of tender documents; any alternative offers are liable for rejection.

10. MISTAKES IN BIDS

Rates should be quoted in both; figures and words. In case of ambiguity between rates in figures and words, lower of the two/beneficial to the Discom(CZ) shall be considered. Such offers can also be rejected.

11. PRINTED TERMS AND CONDITIONS IN BIDS

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

12. ALTERATIONS/CORRECTIONS IN BIDS

Any alteration/correction in the tender document should be counter-signed. Further, no post tender alteration/correction shall be entertained.

13. INCOMPLETE BIDS

Tender which is incomplete or obscure is liable for rejection.

14. ACCEPTANCE OF PART/WHOLE BIDS-RIGHTS THEREOF

Board/Discom reserves the right to accept/ reject wholly or partly any tender without assigning any reason whatsoever. The Board/Discom in this regard shall not entertain any correspondence.

15. AMBIGUITIES IN CONDITIONS OF BIDS

In case of ambiguous or self-contradictory terms/ conditions mentioned in the bid, interpretation as may be advantageous to the Discom(CZ). shall be taken without any reference to the tender.

16. DISQUALIFICATION OF BIDS

A Bid which gets opened before the due date as a result of improper or no indication having been given on the cover to indicate that it is a tender, will be disqualified.

Bidders will not be permitted to change the substance of his tender on post interpretation/improper understanding grounds. This includes post tender price changes/modifications etc. after opening of Price Bid. In such events, otherwise, that is, when a bidder does not comply, tender will be rejected.

17. LANGUAGE OF BIDS

All tenders should be made either in English or in Hindi only.

18. INCOME TAX CERTIFICATE

During the processing of tender if asked for, the bidders shall be required to furnish Income Tax certificates from competent authority.

19. FILLING OF QUESTIONNAIRE/SCHEDULES

All the Questionnaire / Schedules along with specification are enclosed for technical/commercial terms & conditions. It is compulsory on the part of the bidder to furnish all details as sought in these. In case, these are not filled in and enclosed with the offer, the Bid will be rejected.

20. DEVIATIONS FROM TERMS & CONDITIONS

Offers with deviations in the terms of payment, liquidated damages, security deposit and performance guarantee are liable to be rejected out rightly.

21. PAST EXPERIENCE

Supplier having past experience in manufacture and supply of materials should furnish the list of supplies made during the last three years for the materials supplied by them, as per enclosed Schedule V Part "A" failing which the tender may not get any preference for his past experience.

22. SUBMISSION OF BIDS

(i) The tender shall be submitted in three (3) parts:-

Part-I shall contain **“EARNEST MONEY DEPOSIT / DOCUMENT WHICH ENTITLE FOR EXEMPTION FROM EMD”**.

Part-II shall contain **“COMMERCIAL BID AND THE TECHNICAL BID”**

Part-III **"PRICE BID (Submit Online Only)**

- (ii) Tender being Online submitted must be Class 3 Digital Certificate signed by a person holding a Power of Attorney authorizing him to do so, certified copies of which shall be enclosed.
- (iii) Online Tender submitted on behalf of companies registered with the Indian Companies Act, for the time being in force, shall be signed by persons duly authorized to submit the Tender on behalf of the Company and shall be accompanied by certified true copies of the resolutions, extracts of 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.
- (iv) Part-I & Part-II shall be submitted in two separate sealed envelopes and these envelopes shall be properly superscribed as Part-I "Earnest Money Deposit" and Part-2 "Commercial Bid & Technical Bid". Part-3 "Price Bid" shall be submitted **online only**.

Each envelope shall also be super scribed with name of item and T.S. No. for which the tender is submitted, the name of the said bidder and the date of opening, as advertised.

- (v) **The above two envelopes & Envelop containing tender fee, duly sealed are to be kept again in one envelope called main envelope and sealed.** This envelope should be properly super scribed stating that this envelope contains three separate envelopes for Part-I "EARNEST MONEY DEPOSIT" and Part-II "COMMERCIAL AND TECHNICAL BID", in addition to tender specification No., Name of Item & bidder. Details of Earnest Money Deposit and Due date of opening should be super scribed on this common envelope also. Beside this, it shall be certified on the main envelope itself that Discom(CZ)'s PAYMENT TERMS, PENALTY, SECURITY DEPOSIT and PERFORMANCE GUARANTEE & PRICE VARIATION (WHEREVER APPLICABLE) CLAUSES, as mentioned in tender specification, are acceptable to the bidder. This certification shall be in the following manner:-

**TENDER SPECIFICATION NO. _____ DUE FOR OPENING ON
_____ FOR PROCUREMENT OF**

THIS ENVELOPE CONTAINS 2 SEPARATE ENVELOPES FOR:-

- i) PART-I : "EARNEST MONEY DEPOSIT"
ii) PART-II : "COMMERCIAL AND TECHNICAL BID"
iii) PART-III : "PRICE BID" (**Online Only**)

TO,

**THE CHIEF ENGINEER (PUR)
M.P. MADHYA KSHETRA VIDYUT VITRAN CO. LTD.
NISHTHA PARISAR, BIJLINAGAR, GOVINDPURA
BHOPAL (MP) 462023**

**IT IS CERTIFIED THAT WE AGREE THE FOLLOWING CLAUSES OF
TENDER SPECIFICATION:-**

- | | | |
|-------|-----------------------|----------|
| (i) | PAYMENT TERMS | : AGREED |
| (ii) | SECURITY DEPOSIT | : AGREED |
| (iii) | PENALTY | : AGREED |
| (iv) | PERFORMANCE GUARANTEE | : AGREED |

SIGNATURE OF TENDERER
STATUS & COMPANY'S SEAL

- (vi) Even after certification on the body of the main envelope, if any ambiguity is found upon opening of the main envelope or after opening of the Price Bid, the offer shall be liable for rejection.

23. DATE AND TIME OF OPENING OF BIDS - CHANGES

Tender shall be opened on the due date and time as notified in the presence of the bidders or their authorized representatives who may be present. If the due date of opening/ submission of tender documents are declared a holiday by the Central/ State Government or Local Administration, it will automatically get shifted to the next working day, for which no prior intimation shall be given. The tender opening shall be continued on subsequent days, in case the opening of all the tenders is not completed on the day of opening.

It may please be noted that the due date/ time of opening can be altered, extended, if felt necessary by the purchaser, without assigning any reason thereof. However, due intimation shall be communicated in such a case.

24. OPENING OF E.M.D. & COMMERCIAL AND TECHNICAL BID

The first envelope of Earnest Money Deposit shall be opened on the due date and time, as notified in the Notice Inviting Tenders. The requirement for EMD shall be verified and thereafter, the second part, i.e. the Commercial & Technical Bid, shall be opened on the same date in respect of eligible bidders.

25. OPENING OF PRICE BID

Opening of price bid along with first two parts of the offer on the same date:-

The offers which are in conformity with important commercial terms and conditions including Payment terms, Penalty, Security deposit and Performance guarantee clause & Technical specifications of Tender specification shall be eligible for opening of their Price Bid.

OR

Opening of Price Bid on subsequent date:-

- (a) After opening of first two parts (i.e. Part-I and Part-II), the deviations from the Board/Company's terms & conditions, if any, proposed by the bidder in regard to Commercial and technical Bid, as per prescribed schedules, given along with the tender documents, shall be notified and clarifications, if required by Board/Discom, shall be submitted by the bidders, either at the time of scrutiny of tender or within the time prescribed
- (b) As a result of discussions and clarifications obtained in writing on Commercial & technical matter, the bidder shall be free to indicate the effect of such changes on their prices and submit a sealed "Supplementary Price Bid", within the specified time to take care of any deviations/alterations on account of changes in Commercial & Technical matters.
- (c) The bidder shall not be allowed to change their original price bids. In case deviations and clarification on Commercial and Technical matters are not submitted by the bidder within the time prescribed by the Board/Discom then the Board/Discom reserves the right to refuse to open the original price bids Part-III. Thus, the bidder should ensure that their tender is strictly in conformity with the specifications.
- (d) It is, therefore, necessary for the bidder, in his own interest to submit a "Supplementary Price Bid" in the sealed cover stating that in spite of clarifications, he does not want to revise his original Bid. This will avoid confusions/misinterpretations. Otherwise, failing which, MPMKVVCL's decision, shall stand as binding.
- (e) The date of opening of "Part-III i.e. PRICE BIDS" shall be notified to the bidders, whose bids are found to be commercially & technically acceptable.
- (f) The decision of the Discom(CZ) in this respect shall be final and acceptable to the bidder.

26. CANVASSING OF BIDS

Tenders shall be deemed to be under consideration, after opening of tender/ bid, till placement of order. During this period, the bidders or their authorized representatives or other interested parties are advised strongly, in their own interest, to refrain from contacting by any means any of the MPMKVVCL's personnel or Representative, on matters relating to tender under process.

27. VALIDITY OF BIDS

The offers shall be **valid for 180 days**. Validity of the offer shall be counted from the date of opening of bids. Those who do not agree for a validity of 180 days will do so at their own risk and their offers are liable to be rejected.

28. AUTHORISATION/LOCAL REPRESENTATIVE

Only authorized representative, possessing necessary authority letter from the bidder who have participated in the tender shall be allowed to attend the tender opening.

29. ACCEPTANCE OF TENDER

- i) The DISCOM(CZ) may reject any or all tenders or to accept any tender considering advantageous to DISCOM(CZ) whether it is the lowest offer or not.
- ii) The DISCOM(CZ) may split the quantities against the tender on more than one bidder for the same item. The DISCOM(CZ) shall assign no reasons for this and the same will be binding on the bidders.

30. CHANGE OF QUANTITY

The quantity indicated the Schedule-I is tentative and purchaser reserves the right to vary the quantities of any or all items as specified in the technical specification/schedules as may be necessary, based on Purchaser's judgment and vendor rating (wherever carried out). No correspondence shall be entered into, neither discussed regarding quantity variation, nor any reason will be assigned thereof.

31. POOL RATES

The bidders are advised to quote their own individual rates. It may please be noted that if more than one bidder quotes the same rate, suggestive of a cartel, then such offers may not be considered by the Board/Discom. It may also please be noted that the competitive rate quoted by each bidder may be one of the main criteria for quantity to be ordered on each successful bidders.

(Sanjeev. P. Puranik)
CHIEF GENERAL MANAGER (PUR)
O/o CMD, MPMKVV CO. LTD. BHOPAL

ANNEXURE - II

GENERAL TERMS AND CONDITIONS OF PURCHASE

1. PRICES AND STATUTORY LEVIES

1.1 ORDERS / RATE CONTRACT AWARDS

The prices for above category shall be FIRM :-

FIRM PRICES

Wherever asked for **FIRM** & on FOR destination basis, prices should be inclusive of all taxes and duties (Any where in Madhya- Kshetra) prices are quoted. However, break up of following elements may be indicated:-

- (a) Unit Ex-works/Ex-godown rate including packing and forwarding.
- (b) Excise Duty applicable on Ex-works price as on date of Bid.
- (c) Sales Tax : - C.S.T./ M.P. Commercial Tax/VAT
- (d) Freight charges
- (e) Any other levy/taxes.
- (f) In case of exemption from excise duty/or sales tax/VAT, documentary evidence shall be furnished with the offer.
- (g) The prices shall be quoted exactly as per the price schedule enclosed with the tender specification, indicating all elements clearly. In absence of this, the offer shall be liable for rejection.
- (h) No revision on any account shall be allowed during execution of the order.

2. TRANSIT RISK

- (a) Responsibility regarding covering of risks during transit of material shall entirely be on the supplier. The Board/Company shall, in any case, not bear the transit risks/ transit insurance charges.
- (b) Transit damages/ shortages/ losses shall be reported by the consignees within 30 days from the receipt of the consignments. Such damages/shortages/losses shall be repaired/ replaced by the suppliers, free of cost within one month from the date of intimation by the consignee without awaiting for his settlement from carrier or Insurance Board/Company etc. If the supplier fails to do so the consignee(s) shall be free to get the repair work done from other sources and they shall be free to recover the cost of such material/ expenses of repairs either from the supplier's balance bills or from the security deposit as deemed fit.
- (c) While the necessary assistance shall be rendered by the consignee in lodging and processing the claims with carriers and the supplier's insurance underwriters, the responsibility shall rest with the supplier to immediately make good the shortages/ losses/ damages, without any extra cost and without waiting for the settlement of the claim.

(d) **Replacement of goods lost/ broken or damaged including loss due to fire :-**

Notwithstanding anything here-in contained, the supplier shall undertake responsibility for the safe arrival of the material in good condition and without any loss or damage at the final destination and until the same is actually delivered to/ received by the DISCOM (CZ) at its stores or other places of final destination. For this purpose, material carried by Railway or Road transport or other carriers shall be deemed to be so carried at the risk of the suppliers. In the case of transport damages/ shortages, the payment shall be made only for the quantity received in good and working condition and consignee shall lodge claim with the suppliers/ carrier with all necessary documents for settlements of the same with the carriers at supplier's end.

3. PACKING AND FORWARDING

- (a) The supplier shall be responsible for the Stores being sufficiently and properly packed at his expense for transport by rail, road or sea, so as to ensure them being free from loss/damage due to handling and transport to the destination.
- (b) Each package shall be prominently and distinctly marked on at least two faces, indicating the full address of the consignee, destination station, name of material, purchaser's order number, weight and volume of the package etc.
- (c) Each package shall contain in a water proof cover, detailed description indicating the order reference and date and list of the contents. Each item contained in the package or box shall be described sufficiently to enable easy identification. The quantity, weight etc. shall also be given.
- (d) The packing shall conform to the specification, rules and regulations prescribed by the underwriters, railways, Transport Agencies. In case of any loss/damage to the consignment due to non-standard packing, the same shall be made good free of all charges to Purchaser by the supplier. All provisions of this clause shall apply whether the disrupting cause is total or partial in its effects upon the ability of supplier to perform.

4. MODE OF DISPATCH

The bidder should clearly indicate mode of dispatch for the material. In case of dispatch through rail, the material is to be booked for respective destination railway station. In case of dispatch through road transport, the material should be dispatched through bank approved road transporter on door delivery basis only.

5. SUBMISSION OF DRAWING AND LITERATURE

All the relevant drawings shall be submitted with the offer, however One set of drawings with necessary correction improvement if required, Descriptive Literature and instructions Manual for Installation, Commissioning and operation of the equipments ordered, shall be supplied to each consignee.

6. INSPECTION AND TEST CERTIFICATE

- i) Each lot of offered material shall be inspected by the DISCOM(CZ)'s inspecting officer before despatch. The supplier shall extend all reasonable and necessary testing help to the inspecting officer of the DISCOM(CZ) to carry out testing of material at his works.

- ii) An intimation about the date, by which material shall be ready for inspection, indicating quantity, be given to. Order Placing Authority, by the supplier, so as to reach him sufficiently in advance, failing which, the suppliers shall be responsible for delay in delivery on account of inspection. On receipt of such intimation, the material shall be inspected normally within 15 days.
- iii) The supplier shall not despatch the material unless specific despatch instructions are issued by the Purchase Section of DISCOM(CZ) or any other authorized officer of the DISCOM(CZ).
- iv) In case the inspector deputed for inspection does not find the offered lot ready, the DISCOM(CZ) reserves the right to recover from the supplier, such charges as may have been incurred towards arranging such inspection. These charges have been mentioned in clause 8 below.

7. RIGHT TO CARRYOUT THE INSPECTION DURING MANUFACTURING

- i) The DISCOM(CZ), at its option, will inspect the material on order during its process of manufacturing including the inspection of raw material and will request the supplier to carry out such tests as may be necessary to ensure proper quality check. Samples of components of the material shall be subjected to quality check by the inspecting officer during manufacturing. In the event of stage inspection, if any discrepancy is noticed, the supplier shall be given immediate notice to suspend further manufacturing until corrective measures are taken and the process cleared.
- ii) **FACTORY INSPECTION :-**
The factory inspection of the bidders who have not executed any order of MPSEB, may be carried out before placing detailed order or during pendency of the order, the factory inspection may be conducted by DISCOM(CZ)'s authorized officers as and when felt necessary for ensuring production of quality material.
- iii) The supplier shall extend all reasonable and necessary assistance to the inspecting officer of the Board/Company to carry-out testing of equipment/ material at his works.

8. FAKE INSPECTION CALL

All such firms, who after giving inspection call, do not offer materials to Inspecting Officer for inspection due to one or the other reasons, shall be required to remit a sum of Rs. 5,000/- per officer.

9. DELIVERY

- (i) The supply shall be completed in three instalments from the date of receipt of order as indicated in Schedule-VIII appended with this tender document. Wherever the quantity is small, the delivery may be changed accordingly.
- (ii) The material should be delivered to the consignees within 15 days from the date of issuance of despatch instructions/clearance. Any delay in delivery beyond this period shall attract penalty even though offer for pre-delivery inspection is made timely within the terminal date of delivery.
- (iii) **Deferment of deliveries**

DISCOM(CZ) reserves the right to defer or reschedule the delivery. In case of Variable prices, the Price Variation and any other statutory levies will be payable as applicable, however, in case of FIRM prices, no variation in price and any other statutory levies will be payable.

10. FORCE MAJEURE

Force majeure condition is herein defined as:-

- (a) Natural phenomena, such as floods, draughts, earth-quakes and epidemics.
- (b) Act of any Government Authority, domestic or foreign, such as war, quarantines, embargoes, licensing control or production or distribution restrictions.
- (c) Accident and disruptions such as fires, explosions, increase in power cut with respect to date of tender opening, break-down of essential machinery or equipments etc.
- (d) Strikes, slow down, lockouts continuing for more than three (3) weeks.
- (e) Failure or delay in the supplier's source of supply due to force majeure causes enumerated at (a) to (d) above, provided the supplier produces documentary evidence to show that there were no other alternative sources 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.
- (f) Any cause which is beyond the reasonable control of the supplier or purchaser as the case may be.

All the provisions of this clause shall apply whether the disrupting 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 Board/Company shall verify the facts and grant such extension as the facts justify. For extension of delivery period on account of force majeure conditions, the supplier shall submit his representation with documentary evidence for scrutiny by the purchaser and decision of the Board/Discom. shall be binding on the firm.

11 TERMS OF PAYMENT

11.1 Subject to completion of all contractual formalities, 100% payment along with excise duty and taxes corresponding to the consignment would be made within 45 days from the date of receipt of material at Area Stores in good condition against MATERIAL RECEIPT CERTIFICATE (M.R.C.) issued by the consignee,.-The Board/Company shall not be liable for payment of any interest on delayed payment.

The supplier shall forward the original RR/MTR and Excise gate pass directly to consignee along with copies of following documents :-

- i) A copy of bill
- ii) Delivery Challan
- iii) Original copy of excise duty gate pass (wherever applicable) alongwith a photocopy

- iv) The inspection and/ or T.C. approval
 - v) Detailed packing list, if required.
- 11.2 The original bills should be forwarded to the paying authority and should be marked "**ORIGINAL**". The bill should indicate Sales Tax Registration Number and date allotted to him under Sales Tax Act.
- 11.3 The following documents will have to be forwarded to the paying authority along with bills in triplicate :-
- i) Bill/ Invoice.
 - ii) Xerox copy of despatch documents i.e. RR/ MTR etc.
 - iii) Dispatch clearance/instructions.
 - iv) Photo-copy of Excise Duty gate pass (wherever applicable).
- 11.4 For payment, the invoice in triplicate with relevant documents such as Material Receipt in good condition etc. should be submitted to the Director (Fin), O/o CMD, MPMKVCL, Bhopal for value more than Rs. 10 Lakh. The bills valued upto Rs. 10 Lakh, should be submitted to concerned Sr. AO/RAO at Bhopal, Gwalior & Guna.
- 11.5 The Material Receipt Certificate will be forwarded by the consignee to the paying authority for payment, as well as to the suppliers towards acknowledgement of receipt of material including part consignment to the extent it is received in good condition and is serviceable.

12. PENALTY

The time for and the date of delivery of the material stipulated in the order shall be deemed to be the essence of the contract. In case of delay in execution or non-execution of the order, the Board/Company at its option shall either recover from the supplier/ contractor as agreed towards liquidated damages a sum of ½ % of the FOR destination (landed cost) price of any stores not delivered per week or part there of subject to a maximum of 10%.

For this purpose, the date of offer of material in the office of Order Placing Authority shall be considered as the date of delivery, subject to the condition that offer has been made 15 days in advance of terminal date of scheduled delivery and material is delivered at stores within 15 days of clearance. For early inspections, offer may be sent telegraphically or by fax. Board/Discom will not be responsible for delays for ordinary/ registered post inspection offers. Please note, in case material is not received within 15 days from the date of issuance of despatch instructions, even though the delivery period exists, penalty shall be reckoned from the original delivery period and the period of 15 days allowed for dispatch shall not be permitted and shall be taken into account for calculation of penalty.

13. PERFORMANCE GUARANTEE

13.1 If during the course of 5 years 6 months subsequent to the date of receipt of consignment or 5 years from the date of commissioning whichever is earlier (wherever applicable) any of the energy meters found to be defective in materials or workmanship or develops defects during service, they will have to be replaced by the supplier, free of all charges before lifting the defective meters. The serial numbers of such replaced meters shall be fresh. All necessary

arrangements on these accounts will be made by the supplier. The Performance Guarantee Clause is further clarified as follows :

“If any energy meter is found defective, same shall be repaired or replaced by the supplier free of cost. Guarantee of such repaired or replaced meters will be required for the remaining warranty period of original meters supplied. For example if meters supplied is guaranteed for 60 months and it fails after 24 months of commencement, its remaining warranty will be of 36 months. Also, if material fails within last six months prior to expiry of guarantee period then its warranty may be extended upto 12 months”.

13.2 The defective/failed energy meters, shall be collected by the supplier/ firm from Area Stores/ work site at their own cost and at their own responsibility. These duly replaced and tested subsequently by the supplier to the destination indicated on “FREIGHT PAID BASIS” at their cost in a reasonable time of 30 days from the date of intimation. The guarantee period as stipulated in clause 13.1 above shall also be applicable for replaced material, which shall however be counted afresh from the date of its delivery in our stores/site.

13.3 Further, it is clarified that all the charges towards carrying out replacement including packing, forwarding, loading, unloading shall be borne by the supplier. The amount deposited under security deposit clause shall also cover the performance guarantee of the material.

13.4 The energy meters reported failed within the specified guarantee period may be replaced free of cost by the Manufacturer concerned.

13.5 Actual cost of dismantling and replacement of these equipments/ materials with the new ones may be charged to the supplier’s account.

13.6 To and fro transportation cost of such failed equipment may also be borne by the supplier/ contractor.

13.7 In the event of the supplier’s inability to adhere to the aforesaid provisions, suitable penal action will be taken against them, which may interalia include blacklisting of the firm for future business with the Board/Discom for a certain period.

14. SECURITY DEPOSIT

14.1 On acceptance of offer, the supplier will have to deposit an amount of 10% of the total value of the order in cash or Demand Draft or Bank Guarantee as Security Deposit.

14.2 Cash to be deposited with Senior Accounts Officer (HOAU), MPMKVVCL, Bhopal and original receipt produced to this office shall be returned after conveying the acceptance of Security Deposit.

14.3 Demand Draft to be drawn in favour of Sr. A.O., MPMKVVCL (HOAU), MPMKVVCL, Bhopal drawn on any nationalized/scheduled Bank and payable at Bhopal.

14.4 Bank Guarantee in lieu of cash deposit on any nationalized/ scheduled bank strictly as per Board/Company's/Board’s proforma (to be supplied along with the order) valid sufficiently to cover the guarantee period.

14.5 All SSI Units registered with Industries Department of MP shall be required to pay Security Deposit for only 5% (five percent) value of the order, subject to maximum of

Rs.20,000/- in cash or DD. This concession is for such SSI Units of M.P. who are doing business up to Rs.50 Lakh annually only.

- 14.6 The Security Deposit shall have to be deposited within 30 days of issue of order.
- 14.7 The DISCOM(CZ) shall forfeit the security deposit in the event of non-execution/ part execution of the orders/poor performance of supplier/contractor besides invoking the Penalty Clauses.
- 14.8 The Security deposit shall be returned to the successful bidder only after due and faithful performance of the order as per terms and conditions of the order and on expiry of guarantee period provided there are no claims outstanding to be recovered against the bidders/ suppliers.
- 14.9 No interest shall be paid by the DISCOM(CZ) on security deposit furnished by the suppliers.

15. COMPLETENESS OF EQUIPMENTS

The equipment/material shall be completed in every respect with all minor fittings and accessories, even though these may not be specifically mentioned in the purchaser's specifications or the tender's offer. The supplier shall not be eligible for any extra price in respect of such minor fitting and accessories which can be considered as an essential part of the basic equipment even though not specifically mentioned in the specification or in the offer.

16. EXTENSION ORDER

16.1 The Board/Discom reserves right to place an extension order for any additional quantity to the extent of 50% quantity of the original order on the same rates, terms and conditions within six months from the date of order.

17. DESIGN AND INTER-CHANGEABILITY

All similar material and removable parts of similar equipments shall be uniform and interchangeable with each other.

18. TESTING FACILITY & TESTS TO BE CONDUCTED

The bidder must give their production capacity, all about testing lab. and line testing facilities available with them in details for the tendered material. The bidder should also give the details of Tests proposed to be conducted in their labs in the event of order, with details of Indian Standard Specifications/codes.

19. MATERIAL TEST CERTIFICATE

Each item of the lot should be tested by the supplier and routine test certificate in duplicate giving the result of all tests prescribed in the relevant ISS (as mentioned in the Technical Specification Schedule) for ordered items shall be submitted to the office of the Order placing Authority for approval along with the letter/ offer for inspection of the material. Please note that each lot will be inspected at your works, which includes witnessing of all tests prescribed in ISS.

20. TYPE TEST CERTIFICATES

Wherever applicable or called for photocopies of type test certificates from the CPRI, NABL Accredited Test Laboratories in India or from Laboratories of International repute duly attested by "Competent Testing Authority" should be submitted.

Type test reports/ certificates for the tests conducted as per latest applicable ISS on the tendered item/ material shall not be older than 2 years on the date of opening of technical/commercial bid.

21. RECOVERIES FOR LIABILITIES AGAINST OTHER CONTRACTS

All amount recoverable from the successful bidders against earlier contracts including orders on sister concern with the Board/Discom will be adjusted from payment due against the contract that may be awarded under this specification.

22. ROYALTIES AND PATENTS

All royalties for patents or any charges for usage or infringement thereof that may be involved in the supply shall be included in the offered price and the supplier shall protect Purchaser against any claim thereof. Supplier is fully responsible for such contractual dealing and purchaser shall not be called upon to bear any such charges.

23. COMPLIANCE OF REGULATIONS

The supplier shall warranty that all Goods covered under procurement, shall have been produced, sold, despatched, delivered, tested, in strict compliance with all applicable Rules, Regulations including Industries (Development and Regulations) Act 1951 and any amendment there under, labour agreements, working conditions and technical codes and requirements, as applicable from time to time.

The supplier should execute and deliver such documents, as may be needed, by the purchaser in evidence of compliance. All laws, Rules and Regulations are required to be incorporated in this reference. Any liability arising out of contravention of any of the laws shall be the sole responsibility of the vendor and the purchaser shall not be responsible in any manner whatsoever.

24. CANCELLATION OF ORDER

24.1 The DISCOM(CZ)'s may upon written notice of default, terminate contract in the circumstances detailed hereunder:-

- a) If in the opinion of the DISCOM(CZ), the supplier fails to deliver the material within the time specified or during the period for which extension has been granted by the DISCOM(CZ)'s.
- b) If in the opinion of the DISCOM(CZ), the supplier fails to comply with any of the other provisions of this contract or material is found not in accordance with prescribed specifications and or the approved samples.
- c) If as a result of stage inspection, it is revealed that material and/ or, workmanship is substandard which is likely to affect the performance of the finished product, a notice would be served by the DISCOM(CZ) to the supplier to suspend further activities and to take urgent steps towards corrective measures, failing which the entire order would be cancelled.

24.2 In the event of such termination, the DISCOM(CZ) shall exercise its discretionary power as:-

- a) To recover from the supplier the agreed liquidated damages as approved in the Clause No.12 above.

OR

- b) To purchase from elsewhere after giving due notice to the supplier on account and at the risk of the contractor such stores/ material not so delivered or others of similar description in respect of consignment not yet delivered.

OR

- c) To cancel the contract reserving DISCOM(CZ)'s right to recover damages.

24.3 Notwithstanding that the powers under clause (24.2a, b & c) referred to above, are in addition to the rights and remedy available to the Board/ Discom under the general law of India relating to Contract.

24.4 In the event of risk purchase of stores of similar description, the opinion of the DISCOM(CZ)'s shall be final. In the event of action taken under clause 24.2(a) or (b) above, the supplier shall be liable to pay for any loss, which the DISCOM(CZ) may sustain on that account but the supplier shall not be entitled to any saving on such purchases made against the default.

24.5 The decision of the DISCOM(CZ) shall be final regarding the acceptability of the stores supplied by supplier and the Board/ Discom shall not be required to give any reason in writing or otherwise at any time for the rejection of the stores/ material.

24.6 In the event, DISCOM(CZ) does not terminate the order as provided in clause 24.1 & 24.2 above, the supplier shall continue execution of this order, in which case he shall be liable to the DISCOM(CZ) for liquidated damages for the delay as per clause 12 until supplies are accepted.

25. REDUCTION OF RATE DUE TO SUBSEQUENT TENDER

As a result of opening of the subsequent tender, if the rates received are found to be lower, then the pending supply against order shall be accepted at the lower rates.

26. ARBITRATION

If, at any time, any question, dispute or difference, whatsoever shall arise between the purchaser and the supplier, upon, or in relation to or in connection with the Contract, either party may forthwith give to the other, notice in writing of the existence of such question, dispute or difference, and the same shall be referred to the adjudication of two arbitrators, one to be nominated by the Purchaser and the other to be nominated by the Supplier or in the case of said arbitrators not agreeing, then to the adjudication of the Umpire to be appointed by the arbitrators, whose decision shall be final and binding on the parties and the provisions of the Indian Arbitrator Act 1940, and of the rules there under and any statutory modification thereof shall be deemed to apply. The arbitrators or the Umpire, as the case may be, are bound to give a detailed speaking award assigning reasons for the findings.

Supplies under the Contract shall be continued by the supplier during the arbitration proceedings, unless otherwise, directed in writing by the Purchaser or unless the matter is such that the work cannot possibly be continued until the decision of the arbitrators or of the Umpire, as the case may be, is issued.

27. JURISDICTION

Any dispute or difference, arising under, out of, or in connection with this tender/ contract order shall be subject to exclusive jurisdiction of competent court at Bhopal only.

28. RANDOM TESTING-

- 28.1** Inspection of material before despatch or waiver of inspection will not relieve the supplier from his responsibility to supply the material strictly in accordance with the specification. The DISCOM(CZ) shall have option to test the samples selected at random from the supplies affected and subject it to routine/ type test as per relevant ISS and Technical specifications.
- 28.2** In case, the samples fail to withstand the required test, the entire lot will be liable to be rejected (i.e. unused material so supplied) and the supplier will have to refund the amount paid, including all taxes and duties, as well as the test charges thereof, after inspection. Such quantities or rejected material as identified, shall be removed by the supplier and replaced in full at his own cost. DISCOM(CZ) will not be responsible for levy of taxes on such rejected material and deduction shall be in totality.
- 28.3** In case of random checking of the supplies, if any deviation is noticed, a notice shall be given to the supplier, who shall arrange to depute his representative within 15 days for joint inspection. If during joint inspection any deviation is observed and material supplied is found not conforming to standards laid down in the relevant ISS, the DISCOM(CZ) reserves the right to impose any appropriate penalty for full quantity of material supplied against the order. The decision of the DISCOM(CZ) in this respect shall be final and binding on the supplier.

29. VARIATION IN THE ORDERED QUANTITY

A tolerance in the ordered quantity will be allowed to the extent of $\pm 2\%$ (plus minus two percent) and not for each consignment. MRCs shall be issued for actual receipt of quantity only.

30. SUBMISSION OF DESPATCH DETAILS

On completion of supplies, a statement showing details of offer and supplies made shall be furnished to this office promptly i.e. in first week of following month in following proforma:-

Page 1

S.No.	Particulars	Qty. offered	Date of offer	Date of D.I.

Page 2

Qty. for which D.I. is given	Bill No. & Date	Qty. Supplied	Name of Consignee

Page 3

Liability intimated by consignee	Details of remittance of liability	Addl. information, if any	Remarks

Similar information for supplies made during each month shall be submitted by the first week of subsequent month.

31. CORRESPONDENCE:-

Copies of all important correspondence on subject should be sent to Director (Fin.), O/o CMD MPMKVCL Bhopal, the concerned consignee, Sr. Accounts Officer/Regional Accounts Officer and to this office. In addition to the above, one statement showing the details of despatches made should be submitted to this office after completion of order.

32. CLIMATIC CONDITIONS

The climatic conditions where equipment is intended for installation could be taken as under:-

(i)	Maximum temperature of air in shed	45°C
(ii)	Minimum temperature of air in shed	4°C
(iii)	Maximum relative humidity	95 % (The humidity some time approaches saturation point)
(iv)	Minimum relative humidity	10 %
(v)	Average number of dust-storm days per annum	40 days
(vi)	Average number of rainy days per annum	90 days
(vii)	Number of months of tropical monsoon conditions per annum	3 months
(viii)	Average annual rainfall	1250 mm
(ix)	Maximum wind pressure	150 Kg / Sq. mm
(x)	Altitude not exceeding	1000 metres
(The limit of ambient temperature shall be 45°C peak and 35°C average over a period of 24 hours)		

In view reform process, the designations of various authorities mentioned in this tender document at many places viz. Sr. AO (Bills), RAO etc. are subject to change. These shall be intimated as & when required.

(Sanjeev. P. Puranik)
CHIEF GENERAL MANAGER (PUR)
O/o CMD, MPMKVV CO. LTD. BHOPAL

ANNEXURE-III**LIST OF CONSIGNEE AREA STORES &
SENIOR / REGIONAL ACCOUNTS OFFICERS**(For the items other than General stationery/General printed stationery/Drawing Articles
etc.)

S.No.	Name of Consignee	Name of Station to which Materials are to be despatched, if by Railway.	Concerned Sr.AO / R.A.O. MPSEB
1	Addl.S.E./ E.E.(Stores) Area Store, MPMKVCL Bhopal	Bhopal (W-C.R.)	Bhopal
2	-do- Gwalior	Gwalior (W-C.R.)	Gwalior
3	-do- Guna	Guna (W-C.R.)	Guna

ANNEXURE-IV**LIST OF SCHEDULED BANKS**

S.No.	Name of R.A.O. / Sr.A.O	Name of Bank	
1	Bhopal	:	State Bank of India, Sultania Branch
2	Guna	:	State Bank of India, Guna
3	Gwalior	:	State Bank of India, Jiwaji Chowk, Gwalior

