

**OFFICE OF THE CHIEF ENGINEER/METERING  
C-3, SHAKTI VIHAR, PSPCL, PATIALA**

**EXPRESSION OF INTEREST**

Sealed offers are invited in duplicate for approval of firms for Private Sale of 11KV pilfer resistant metering panels as detailed under:-

Specification No:	<b>EOI/MQP-15/2010-11/PR</b>
Short Description	<b>Empanelment of firms for private sale of 11 KV Pilfer resistant metering panels (CT PT units) to prospective Open Access consumers of PSPCL with accuracy class of CTs as 0.2S and PT as 0.2</b>
Eligibility Criteria:	Contained in EOI specification
Last Date for Bid submission	<a href="#">20.12.2010 up to 11.30 hrs.</a>
Bid Opening	<a href="#">20.12.2010 at 12.00 hrs.</a>
Document Cost:	<a href="#">2000/-</a>
Payment Mode:	By Demand Draft
Payment in Favour of :	AO/CPC (M), PSPCL, Patiala.

Interested firms may download the detailed EOI and specification from the PSPCL website [www.pspcl.in](http://www.pspcl.in)

**The down loading of the documents can be done up to [17.12.2010](#), 11.30 Hrs.**

sd/-

**Dy. Chief Engineer/HCM  
PSPCL, Patiala**

**OFFICE OF THE CHIEF ENGINEER/METERING  
C-3, SHAKTI VIHAR, P.S.P.C.L, PATIALA  
Contact no. 0175-2218871, Fax: 0175-2200284, Mobile: 96461-18720**

**EXPRESSION OF INTEREST No. MQP-15 FOR SUPPLY OF 11KV PILFER RESISTANT METERING PANELS.**

The Punjab State Power Corporation Limited intends to approve the firms for Private Sale of 11KV pilfer resistant metering panels (CT PT units), with accuracy of CTs as 0.2S & PTs as 0.2, to prospective Open Access consumers of PSPCL. Interested Parties, who themselves manufacture CTs and PTs are requested to submit their offer along with latest type test reports from Govt./ NABL accredited lab. One sample of CT PT unit must be lying ready at the works of manufacturer on the last date of submission of offer. The sample shall be tested at the works of the firm to examine its acceptability as per specification.

Price bid for private sale of CT PT unit to prospective consumers of PSPCL with all applicable taxes/duties/levies/charges etc. must be submitted in a separate sealed cover along with other technical documents, which shall be opened only if the sample CT PT unit is found suitable as per specification.

The detailed technical specification of the CT PT units along with other instructions for quoting is available on PSPCL's website [www.pspcl.in](http://www.pspcl.in). A Demand draft of Rs. 2000/- (Two thousand only) in favour of AO/CPC(M), PSPCL, Patiala, as cost of tender specification, must be submitted along with offer in a separate envelope. It shall be clearly indicated on the envelope that DD of cost of tender specifications is enclosed there in.

Interested parties may obtain further information required, if any, during office time (09.00 to 17.00 Hrs.) on working days. Technical offer along with cost of tender specification and price bid must be delivered to the address given below by 20.12.2010.

**sd/-  
Chief Engineer/Metering  
PSPCL, Patiala**

## **TECHNICAL SPECIFICATION OF 11KV PILFER RESISTANT METERING PANEL WITH ACCURACY OF CTs AS 0.2S & PT AS 0.2.**

### **1. GENERAL**

This specification covers the design, manufacture, testing and supply of 11 KV Floor mounting metering panel, having 3 no. CTs and one no. PT but without meter. **CTs having accuracy class 0.2S shall have two metering cores, one core for connecting main ABT meter and second core for connecting check meter and TPT meter. PT shall be of accuracy class 0.2.** The offers from only such firms shall be accepted who themselves manufacture CTs and PTs of the relevant design conforming to IS: 2705 (Part-I & II) and IS: 3156 (Part-I & II) respectively and have obtained type test certificates from recognized test house for the CTs and PTs meeting PSPCL specifications.

### **2. CONSTRUCTION**

i) The metering panel shall be fabricated with 2mm MS plate and shall have external dimensions of 1600x750x700mm (height x width x depth). The panel shall be dust and vermin proof and totally enclosed. The panel shall have two separate compartments. The upper one shall house Trivector meter or Bivector meter or energy meter and check energy meter with associated wiring and shall be termed as "Meter Compartment". The other section i.e. lower compartment shall house the 11KV dry type current transformers (3 Nos.) and one number 3 phase dry type potential transformer and shall be termed as "HT CT/PT Compartment". A separate and independent vermin proof door shall be provided for each of the upper and lower compartments with provision of locking and sealing arrangement. The locking arrangement shall be like bank lockers operateable with two keys and having two sets of two keys. The locks for upper and lower compartment may be operateable with same set of keys. The metering panel shall be provided with 2 No. MS Channels of size 100 x 50mm of 750mm length on the front and rear sides duly welded at the bottom of the panel. These shall have 4 holes of 16mm for foundation bolts at both the ends of each channel. All the joints of the metering panel shall be welded to provide strong mechanical construction both for transportation as well as during its use. The metering panel shall have arrangement to connect it with earth at two independent points. One Earthing knob/bolt shall also be provided in the "Meter compartment" for connection to star point of wiring. All the three Earthing bolts shall be provided with nuts and washers.

The metering panel shall be cleaned suitably and its surface shall be made smooth. It shall then be applied coat of Red Oxide primer. It shall thereafter be painted with two coats of Light Admiralty Grey shade (IS-5:1993 Colour No. 697) on the external sides and inner side of HT CT/PT compartment. The inner side of the meter compartment shall be painted with two coats of white enamel paint. Base channels shall be painted with black enamel paint. **Height of panel is fixed but width & depth is minimum and may be increased suitably to accommodate CTs/PTs, if required. Thus, total height including base channel will be 1700mm.** The panel should be provided with 4 no. lifting hooks.

All the moving/mating edges shall be provided with synthetic/semi synthetic gasket firmly glued to surface, to make the metering panel dust & vermin proof. The metering panel shall be provided with two cable entries inside from bottom along with glands/gland plate for 11KV XLPE cable of various sizes corresponding to CTs ratio and short circuit current ratings without cable boxes. However, the provision for clamping of HT cable boxes

has to be provided. There should be suitable provision so that cables boxes along with cable can be taken out of the panel without damage.

A fixed type window of size 350(w)x300(H)mm approximately with 5mm thick toughened glass and wire mesh (painted) shall be suitably fixed on the front door of the meter compartment of the metering panel to enable the meter reader to note down the reading without opening the door of the panel. The hinges of the doors shall be concealed type.

**The meter compartment shall contain hanger arrangement of slotted angle for mounting main meter and check meter having flexibility for moving meters vertically or horizontally.** Clearances between all parts and components of panel should comply with relevant ISS standard, which shall be checked by PSPCL.

ii) **SEALING:**

The metering panel shall be completely lockable and sealable with at least one locking and two sealing arrangements of the door of each compartment. Apart from sealing arrangement of both compartments, mounting bolts of CTs and PT shall have the provisions for sealing arrangement so that removal of CTs & PTs from the installed positions in the panel (for tampering/ replacement) by the unauthorized person is not possible without breaking/ tampering the sealing arrangement. The hinge arrangement, sealing of CTs and sealing of PTs shall be as per drawings attached as **Annexures 1, 2 and 3** respectively. This sealing arrangement shall be checked by the officers at the time of checking/testing of sample.

iii) The epoxy casting of 11KV CTs & PTs coils is required to be carried out under vacuum to avoid any blow holes in the casted material. To establish this, Epoxy hardener and accelerator, if any is mixed in the Mixing Chamber under vacuum and poured into the dyes placed in the Casting Chamber which is also kept under vacuum. The temperature as specified by the Epoxy manufacturer is maintained with thermostatic control so that all the moisture is also drained out under vacuum.

Firms are requested to certify the availability of requisite equipment for above manufacturing technique in their offer and adoption of above said manufacturing process by the respective firms shall be checked by PSPCL officers during sample testing against this tender enquiry.

**3. ELECTRICAL COMPONENTS;**

i) **11KV METERING CURRENT TRANSFORMERS (3 Nos.)**

The metering CTs shall be suitable for 11KV, 50 Hz, effectively Earthed Neutral System. Each CT shall be suitable for single phase. The CT shall be **dual core**, single ratio, epoxy resin cast, copper wound primary type, with rated burden 15 VA and accuracy class **0.2S** or better and conforming to IS:2705 (Part-I & II) amended upto date. The ratio of CTs shall be as per schedule of requirement. The instrument security factor (ISF) shall be upto 5. The word 'PSPCL' shall be engraved/embossed on the body of the CTs along with CT ratio. The CTs shall be type tested for the relevant accuracy class and other technical particulars. The short time current rating of panel shall be as per **Para (vi)** below. The Secondary terminals of the CTs shall be robust design so as to provide effective and firm termination. The secondary winding resistance of CTs shall be as low as possible. Colour coding viz. Red/Yellow/Blue for main and black for load side shall be used. Further, the load side wires shall be provided with red/yellow/blue PVC tape rings at both ends for identification. IS1 and IS2 shall be used for identification of main and load wires and ferrules shall be used accordingly. No other symbols other than IS1 and IS2 shall be accepted. No

link/test terminals/terminals shall be provided in wire from CTs to meter terminals.

**ii) 11 KV POTENTIAL TRANSFORMERS**

The PT shall be indoor dry type Epoxy Resin Cast, Copper wound, suitable for 3-phase, 11KV, 50Hz, effectively earthed Neutral system. The PT shall be connected in star to have ratio  $11KV/\sqrt{3} \times 63.5V$  phase to phase with rated burden 50VA per phase and accuracy class **0.2** or better and conforming to IS:3156(Part-I&II) amended upto date. The words 'PSPCL' shall be engraved/embossed on the body of the PTs. Colour coding viz Red/yellow/Blue shall be used for identification of phases and black for neutral. The PT shall be type tested in accordance with IS: 3156(Part-I & II) with latest amendments.

The PTs shall be of uniform insulation and withstand separate source 28 KV Pf. for one minute as per Clause 9.3.1.1 of IS-3156(Part-I).

**iii) CTs Bus Bar:** 40x6mm copper strip.

**iv) PTs Bus Bar:** Copper wire 8 SWG or flexible copper flat strip to connect PT to CT.

**v) WIRING FOR CTs/PTs SECONDARY CIRCUITS:**

There should not be any joint/termination between CT/PT Secondary terminals to meter terminals.

Wiring of CTs and PTs should be done with 2.5 Sq. mm stranded copper insulated conductor, CT wiring and PT wiring should run in independent rigid steel conduit pipes of appropriate size from HT compartment to meter compartment. The conduit pipes shall be clamped with the inner wall of the panel. The conduit shall be so laid that no naked wire is visible. From steel conduit pipes up to the meter in the meter chamber, all wiring should be open and visible.

The termination of the secondary leads of PT on the terminal block shall be covered with epoxy and further concealed with proper insulating adhesive tape or epoxy and mounted away from 11KV cable opening inside the bottom of metering panel.

**vi) SHORT CIRCUIT RATING OF 11 KV CTs.**

CT Ratio	Short time current rating
5/5A	3.00 KA for 0.5 seconds.
10/5A	3.00 KA for 0.5 seconds.
20/5A	7.88 KA for 0.5 seconds.
30/5A	7.88 KA for 0.5 seconds.
50/5A	13.1 KA for 1.0 seconds.
100/5A	13.1 KA for 1.0 seconds.
200/5A to 400 /5A	13.1 KA for 1.0 seconds.

**4. SAMPLES**

One sample CT PT unit should be ready at the firm's works at the time of submission of technical & commercial offers in this office. The firm shall indicate the sample readiness in their offer. The sample shall be checked for its suitability and conformity with this specification. The drawing of sample must be attached with offer showing all views of equipment installed inside the Metering panel along with the sketch of sealing arrangement as mentioned in Para-2(ii) above. In case firm is approved for private sale of these CT PT units, material shall be supplied as per the approved sample and specification. However, approval of the sample shall not absolve the supplier of his responsibility to supply the material as per specifications.

## 5. NAME PLATE

- I) Following information should be painted on Front Door of HT CTPT compartment:-
- i) PSPCL Property.
  - ii) Supplier's name.
  - ii) P.O.No. & Date.
  - iii) Sr.No. of panel.
  - iv) Panel CT ratio /Accuracy class.
  - v) Panel PT ratio/Accuracy class.
  - vi) Meter CT ratio-----
  - vii) Meter PT ratio\_\_\_\_\_
  - viii) Consumer account no.-----
  - ix) Over all CT:PT multiplying factor-----
  - x) Sanctioned load-----
  - xi) Date of release of connection-----
- II) The name plate having complete data as per Clause 5(I) shall be provided outside as well as inside the CT/PT chamber at a suitable place where it can be easily read. These name plates shall be metallic and shall be affixed on a MS Plate which shall be welded to the body of CT: PT chamber so that there is no passage hole when the name plate is removed.

## 6. TESTING

- a) CTs/PT shall be tested individually for all routine tests in accordance with IS: 2705(Part-I&II) & IS: 3156 (Part-I&II) respectively before mounting them in metering panels. The metering panels along with its installed equipment, wiring etc. shall be inspected & tested by PSPCL as per Specification/ISS. The CTs shall be tested for routine tests as per IS: 2705 (Part-I&II) and the PTs shall be tested for routine tests as per IS: 3156 (Part-I&II).
- b) Latest Type Test Certificates of CTs/PTs, issued by NABL Accredited LAB, should be submitted along with the offer. Type test certificates should not be older than 5 years as on last date of receipt of offers.
- c) Apart from the routine /acceptance tests, following type tests shall be carried out as acceptance tests during sample testing at the works of manufacturer:
- i) ISF test on CTs- On all three CTs of one unit
  - ii) Temp. Rise test- On one complete unit.

The manufacturers must have requisite testing facility for above type tests and all routine /acceptance tests and should clearly indicate the test wise detail of equipments available with him at his works for the tests to be carried out during testing. Detail of testing facilities must be submitted as per **Annexure-I**.

- d) To ensure the proper use of epoxy material, the following chemical analysis tests shall be got carried out from any NABL Accredited Laboratory during sample testing at the cost of the manufacturer: -
- i) Thermo Gravimetric Analysis (TGA) for determining the total resin content and total filler content.
  - ii) Infra-red analysis for determining the type of resin i.e. whether it is epoxy, PU or any other type.

In case the material fails during the above tests, the offered sample shall be rejected.

- e) In case of empanelment, firm shall have to enclose the reports of all the routine tests with each CT PT unit to be supplied to prospective consumers of PSPCL.

**7. ACCURACY & ROUTINE TESTS**

The metering panels shall also be tested for following tests as per IS: 3427 by the representative of PSPCL during testing of the sample:

- i) Power Frequency Voltage dry test.
- ii) Voltage test on auxiliary circuits.
- iii) Verification of wiring.

The 28 KV P.f withstand voltage for one minute will be carried on the offered sample CT PT unit as per relevant ISS.

**NOTE:** Guaranteed Technical Particulars of 11KV CT PT Units must be submitted along with the offer as per **Schedule-A** attached.

sd/-  
**Dy. Chief Engineer/HCM**  
**PSPCL, Patiala.**

**SPECIAL INSTRUCTIONS: EOI MQP-15/2010-11/PR****1. Pre-Qualification Criteria:**

- i) The firms, which are PSEB's defaulter for 25% or more quantity for more than 9 months or any quantity for more than 15 months in making supplies against earlier purchase orders placed on them or with whom business has been suspended, black listed firms, debarred firms shall not be considered during the evaluation and the price bids of the firms shall not be opened.
- ii) Part-III (price bid) of tenders of the firm(s) shall only be opened if sample at the firm's works is ready as per sample clause of the Technical Specification. The firm shall indicate the same in technical bid i.e. Part-II of their tender.
- iii) The price bid (part-III) of only such firms shall be opened.
  - a) Who themselves manufacture CTs and PTs of the relevant design conforming to IS: 2705 (Part-I & II) and IS: 3156 (Part-I & II) respectively and have obtained type test certificates for the same from recognized test house. In case type test certificates are not enclosed with offers, or are not found to comply with specification requirement, the offers of such firms shall be rejected and price bids will not be opened.
  - b) Whose sample is found as per specification.
- iv) Only those firms, who have VAT / TIN registration Nos. allotted by Excise and Taxation department shall be considered for empanelment. Copy of same must be submitted along with offer.

**2. BREAK UP OF PRICES:**

The break up of FOR Destination prices as quoted should be given along with the offer in the attached **Schedule-'B'**. The prices given in the Schedule-'B' shall be final as such; any discount for any term related to price shall be specified in the schedule.

Particulars of Material required shall be as mentioned under **Schedule-'C'**. The offer will be submitted as per Specification complete in all respects and deviations from specification shall be clearly brought out by the bidder in **Schedule-'D'** attached. No post tender development shall be allowed regarding any change in terms or price or technical specification.

**3. MANUFACTURER'S NAME:**

The name of manufacturer and place of manufacture shall be indicated in the offer.

**4. OTHER INSTRUCTIONS:**

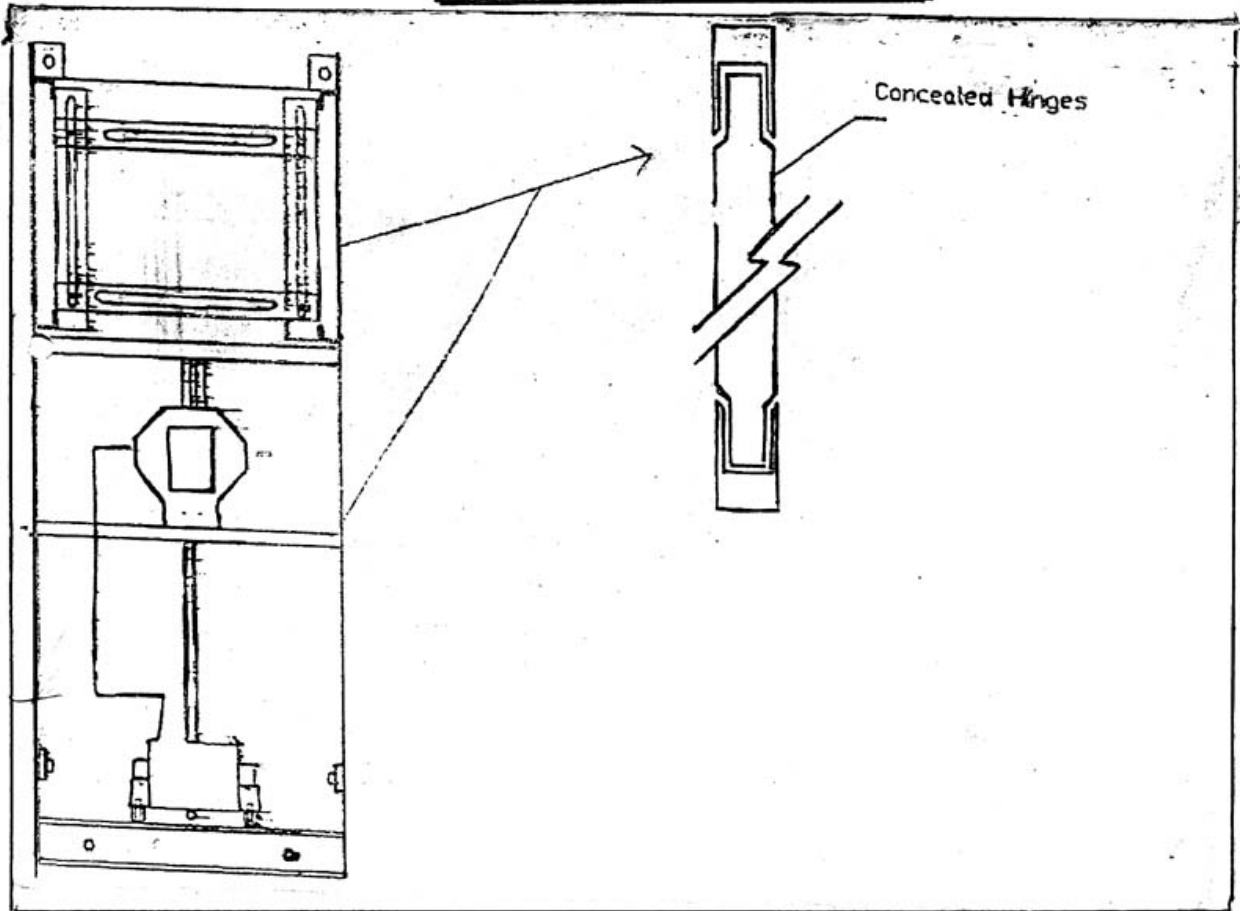
- i) Comments, if any, on the clauses contained in the specification (Technical as well as general) must be mentioned in **Schedule-'C'** and cognizance of deviation mentioned at any other place will not be taken in account.
- ii) Quoted price is required to be given both in words and figures without any cuttings. Offer should wholly be typed or printed.
- iii) The offers received after the due date will not be entertained at all, even if, they have been posted well before the due date.
- iv) If required, negotiation shall be held only with the lowest bidder (L-1) as per PSPCL's instructions.
- v) The quoted prices should only be 'FIRM', 'VARIABLE' prices shall not be acceptable. The approved price shall be applicable for at least 2 years from date of issue of letter of empanelment by this office. However, PSPCL reserves



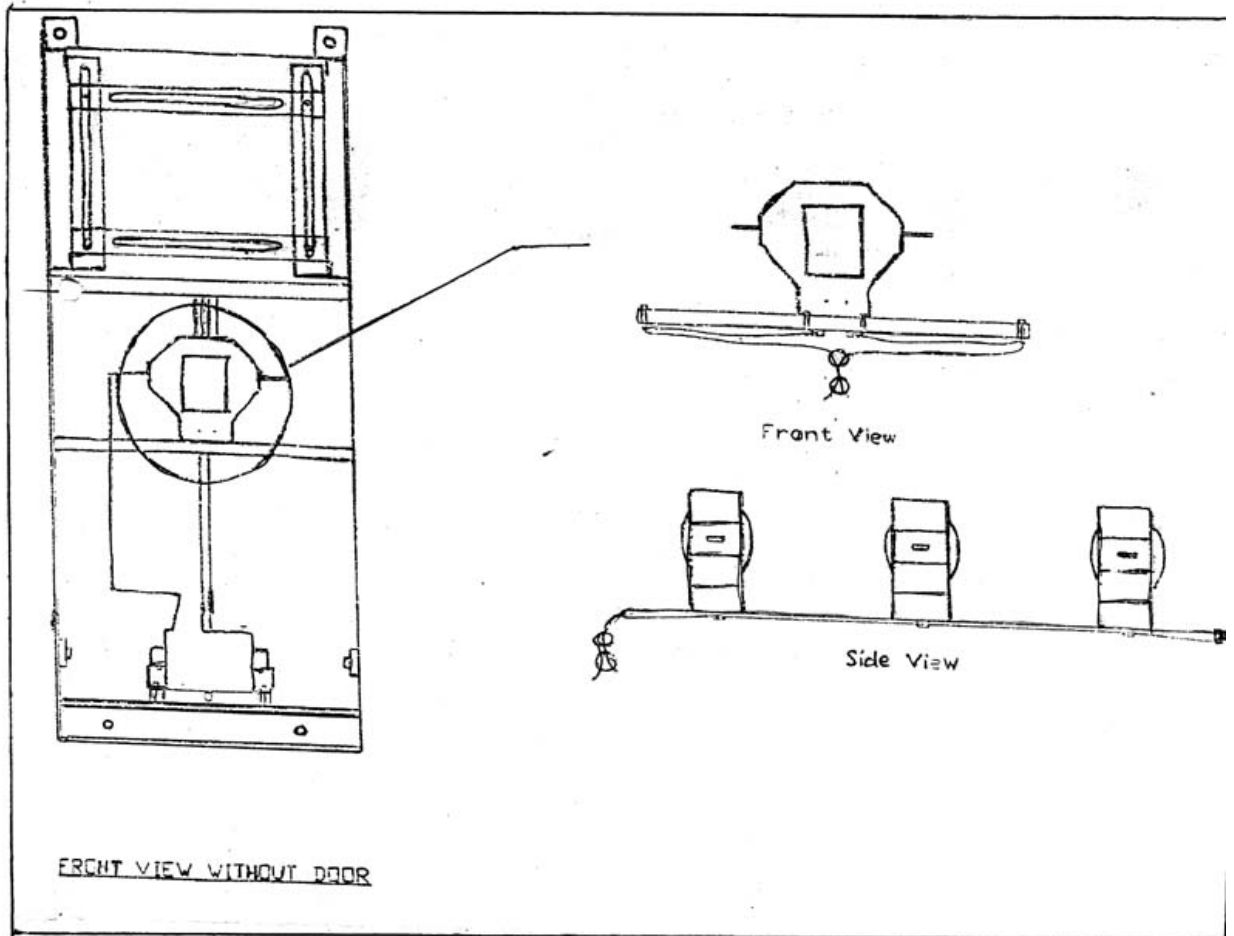
- the right to revise the empanelment list of firms/ prices at any time without assigning any reasons.
- v) Offers of the firms, which do not submit the demand draft towards cost of specification on due date shall not be accepted.

sd/-  
**Dy. Chief Engineer/HCM**  
**PSPCL, Patiala**

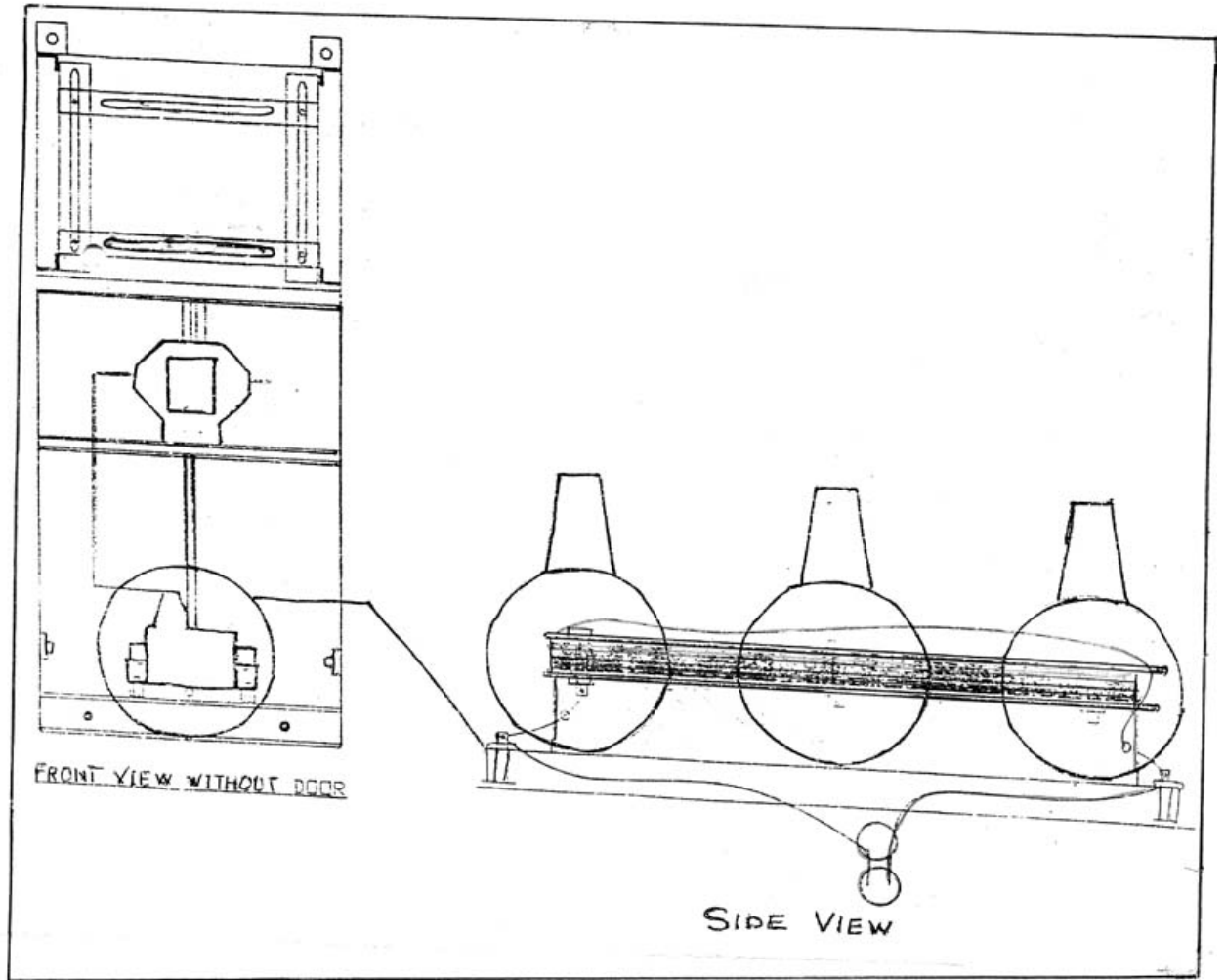
ANNEXURE-1  
HINGE ARRANGEMENT



ANNEXURE-2  
SEALING ARRANGEMENT OF CTS



ANNEXURE-3  
SEALING ARRANGEMENT OF PT



**PUNJAB STATE POWER CORPORATION LTD.****SCHEDULE OF TECHNICAL PARTICULARS (Schedule-A)****E.O.I No. MQP-15/2010-11/PR****GUARANTEED TECHNICAL PARTICULARS OF 11KV CT: PT UNIT.**

1	System Voltage	
2	Highest System Voltage	
3	Cubicle Size	
4	Thickness of the M.S. Sheet	
5	Provision for Locking	
6	Base Channel	
7	Foundation Hole	
8	Painting	
9	Lifting Arrangement	
10	Cable Entry	
11	Window for Meter Box	
12	Qty. of CT's	
13	Qty. of PT's	

**CT SPECIFICATIONS.**

1	System Voltage	
2	Highest system Voltage	
3	Current Ratio	
4	Insulation Level	
5	Short Time Current Rating	
6	Class of Accuracy & Burden	
7	Frequency	
8	CT Connecting Bus bar	
9	Winding of CT's	

**PT SPECIFICATIONS.**

1	System Voltage	
2	Highest system Voltage	
3	Voltage Ratio	
4	Insulation Level	
5	Class of Accuracy & Burden	
6	Frequency	
7	Connecting Bus bar	
8	Winding of PTs	

**Signature of Firm With stamp.**

**PUNJAB STATE POWER CORPORATION LTD.**  
**SCHEDULE 'B'**  
**PRICE SCHEDULE**

**EOI No. MQP-15/2010-11/PR(M)**

(THIS MUST ACCOMPANY THE OFFER).

Sr.No.	Basis of Price.	Rate Per Unit (Rs.)
1.	Quoted price ex-works (Per unit) inclusive of packing & forwarding charges forming part of the production cost.	
2.	Excise duty/Education Cess on ED @ _____ on item (1).	
3.	Central Sales Tax @ _____ on item (1 + 2)/VAT if, applicable.	
4.	Packing charges not forming part of production cost, handling, cartage, freight charges & transport risk insurance etc.	
5.	Any other Tax, if applicable	
6.	Rate of quoted price FOR Destination (1+2+3+4+5).	

Seal & Signature of the tenderer.

**IMPORTANT NOTE:**

1. Price Schedule shall be duly typed and hand written prices shall not be accepted.
2. No taxes and duties shall be paid on the element of cost quoted at Sr. No. 4 above.
3. The bidders are required to quote price per unit.

**Signature of Firm With stamp.**

**SCHEDULE 'C' (Particulars of Material required)****EOI No. MQP-15/2010-11/PR**

<b>Description of Material</b>
<p>11kv Pilfer resistant metering panel housed with 3 Nos. dry type 11KV CTs conforming to IS:2705 (Part-I &amp; II), one No. three phase Dry type PT conforming to IS:3156 (Part-I &amp; II) and having meter compartment for installation of trivector/ bivector meter along with check meter complete with wiring, cable glands etc. as per PSPCL, Specification <b>MQP-15/2010-11/PR</b></p> <p><b>Note:</b> - The tentative CT ratios are indicated as under: i) 50/5A, ii) 100/5A, iii) 150/5A, iv) 200/5A &amp; v) 400/5A.</p>

**NOTE:** The offers will be submitted in three parts i.e. Part-I, II & III. Each part will be enclosed in a separate envelope duly super scribed on the envelope as under:

- a) Part-I-Cost of specification  
The first part will consist of cost of specification in the form of demand draft in favour of AO/CPC(M), PSPCL, Patiala.
- b) Part-II-Technical/Commercial bids  
The second part will consist of technical details/GTPs and all other terms and conditions including discount, if any, ED, CST, VAT or any other applicable levies/charges etc. except the rates.
- c) Part-III-Price Bids.(Schedule-B).  
The third part will consist of the rates quoted for each item as well as other related terms like freight, insurance, ED, CST etc. and other incidentals relevant to the price.

All the three envelopes which will be individually sealed shall be further enclosed in a larger envelope duly sealed.

Firstly, the main envelope containing the bids will be opened in the presence of the bidder's representatives who choose to be present at the date and time, to be intimated later. After opening the main envelope, the envelope marked part-I (cost of tender) shall be opened first and if the same is found to be as per the requirement of the specifications, only then the envelope marked part-II shall be opened. The bids without cost of tender shall be out-rightly rejected.

After opening part-II of the offers these will be evaluated by PSPCL. The third part of the bids (Price bids) shall be opened in case of only those firms whose part-II of the offers after evaluation is found to be conforming to the specifications and their samples are found to be conforming to PSPCL specification / relevant standards. The date and time for opening part-III of the bids will be intimated to the qualifying firms. The price bids (Part-III) will be opened in the presence of the representatives of the qualifying bidders who choose to attend.

**Note:-** The particulars of the firm i.e. Names & addresses of Directors of the firm, their income tax permanent Account Number. Income tax return & turnover of the firm for the last three years and any other specific allied information on the following performa shall be supplied along with the offers: -

Name of the firm	Name of Directors/Partners	Income Tax PAN of firm	Turn over of the firm (Last three years)
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sd/-  
**Dy. Chief Engineer/HCM  
PSPCL, Patiala**



**EOI NO. MQP- 15/2010-11/PR****SCHEDULE-'D'****PUNJAB STATE POWER CORPORATION LTD.****SCHEDULE OF DEVIATION.**

Bidders shall carefully state below any and all points in this tender which are not in accordance with technical specifications and the general conditions.

Sr. No.	Para No. & Page.	Deviations, if any.
A) TECHNICAL		
1.		
2.		
3.		
B) GENERAL		
1.		
2.		
3.		

Bidder hereby certifies that the above mentioned are the only deviations from Purchaser's afore-mentioned specification and general conditions.

SIGNATURE:

NAME:

DESIGNATION:

DATE:

SEAL OF COMPANY.

EOI/ MQP-15/2010-11/PR

**ANNEXURE-'I'****DETAILS OF TESTING FACILITIES AVAILABLE AT MANUFACTURERS WORKS.**

<u>Name of the Test</u>	<u>Details of Testing facilities available.</u>	<u>Remarks.</u>
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## TEST OF RAW MATERIALS.

- i.
- ii.
- iii.
- iv. etc.

## ROUTINE TEST.

- i.
- ii.
- iii.
- iv. etc.

## ACCEPTANCE TEST.

- i.
- ii.
- iii.
- iv. etc.

## TYPE TEST.

- i.
- ii.
- iii.
- iv. etc.

**NOTE:-**In case, testing facilities are not available for certain tests, indicate in the remarks column from which testing house(s) Institution(s) these will be got carried out