

Bharat Heavy Electricals Ltd
Electronics Division
Mysore Road, Bangalore – 560 026

**Tender Document for AUTOMATIC CELL
TESTER CUM SORTER
RFQ REF: HBSSCPV100**

Technical Bid Opening Date: 20th July, 2012

This Tender Document Contains:

General Terms and Conditions, Technical Specification, Unpriced Bid Formats & Price
Bid Formats

**Note: Part – I: To be submitted in a separate sealed cover
along with EMD.**

Part – II: To be submitted in a separate sealed cover.

And Part-I & Part-II sealed covers should be put in outer envelope and super scribing the Name of work and Name & Address of the tenderer. Tender document along with EMD should be dropped in Tender drop box super scribed “**SC&PV-MM, Friday**” kept in

reception area of BHEL – EDN, Bangalore.

Contact Person at BHEL: Manager (SC&PV-MM)

Ph: 080-26988945,

Mob: 09449869655

Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division
PB No.2606, Mysore Road, Bangalore-560026, India

Enquiry - General Terms & Conditions for Supply of CAPITAL ITEMS (Two part bid)

RFO Ref: HBSSCPV100 Dt. 22.06.2012 for AUTOMATIC SOLAR CELL TESTER-CUM-SORTER as per Spec. PS- 439-078 Rev 02

I. Enquiry / Request for Quotation (RFQ):

- (a) Any Purchase Order resulting from this enquiry shall be governed by **these general terms and conditions listed below and special terms and conditions, if any, along with this enquiry** of Bharat Heavy Electricals Limited, Electronics Division, Bangalore-560026 (hereinafter referred to as BHEL EDN).
- (b) Any of the terms and conditions not acceptable to vendor, shall be explicitly mentioned in the quotation. Otherwise, it will be treated as that all terms and conditions of this enquiry are acceptable.
- (c) If counter terms and conditions are offered by vendor, BHEL EDN shall not be governed by such terms and conditions, unless it is agreed and incorporated in the Purchase Order of BHEL EDN.
- (d) Any deviation to the terms and conditions not mentioned in the quotation by vendor in response to this enquiry will not be considered, if put forth subsequently or after issue of order, unless clarification is sought for by BHEL EDN and agreed upon in the Purchase Order of BHEL EDN.
- (e) BHEL EDN reserves the right to adopt Reverse Auction for the enquiry sent, at its discretion.
- (f) BHEL EDN shall be at liberty to cancel the tender at any time, before ordering, without assigning any reason.

II. General Terms and conditions:

1. **TWO PART BID:** Quotation shall be submitted in two part bid i.e.

(a) **Techno-commercial i.e., Un-priced Bid (in one sealed envelope):**

Techno-commercial bid shall be submitted with complete description of the equipment, specification compliances to the enquired specification and all the commercial terms & conditions indicated in the **COMMERCIAL TERMS (ANNEXURE-A for Foreign Purchase and ANNEXURE-B for Indigenous Purchase)**. Any other enclosure, which the vendor wishes to submit like product catalogue, technical literature etc., may also be submitted in a sealed envelope super scribed clearly as **"TECHNO-COMMERCIAL BID" with RFQ No. and DUE DATE**. An un-priced copy of price bid (without price) as per **ANNEXURE A-1 for Foreign Purchase and ANNEXURE-A-2 for Indigenous Purchase** shall also be enclosed with the techno-commercial bid for evaluation of commercial terms. The vendor shall not give the price in the technical bid. **EMD Payment either by Pay Order or Demand Draft in favour of M/s Bharat Heavy Electricals Ltd, Electronics Division, Bangalore shall be enclosed along with the Technical Bid.**

Confirmation to BHEL specifications and Pre-qualifications shall be indicated by the vendor in the respective columns provided in the purchase specification wherever applicable. Deviations to the specification / item description, if any shall be brought out clearly indicating "DEVIATION TO BHEL SPECIFICATION" without fail as a part of technical offer.

Compliance to Pre-qualification criteria shall also be enclosed with the Techno-commercial bid.

Manufacturer's name, their trade mark and brand, part number, alternate material to the one asked in enquiry, if any, should be mentioned in quotation and illustrative leaflets giving technical particulars etc. are to be attached to facilitate consideration and technical evaluation of the quotation. BHEL EDN material code number (as in enquiry) shall be indicated.

(b) **Price Bid (in one sealed envelope):**

Price bid should contain basic unit prices, discount if any, applicable taxes & duties, packing & forwarding charges (if applicable), Freight & insurances (if applicable), FOB charge (if applicable) etc., in a sealed envelope super scribed clearly as **"PRICE BID" with RFQ No. HBSSCPV100 and DUE DATE 20.07.2012**. Erection & Commissioning, start-up and training charges (if any) shall also be indicated in the price bid.

It is preferred to indicate the rates in both figures and words. In such case, if there is a difference / discrepancy between the rates in figures and words, the **least of the two** rates will be considered. **Price bid shall be quoted as per ANNEXURE B-1 for Foreign Purchase and ANNEXURE-B-2 for Indigenous Purchase.**

(c) **Tender Offer (above two envelopes inside another sealed envelope):**

Both these sealed envelopes [(a) Techno-commercial i.e., un-priced Bid and (b) Price Bid] shall be kept in a single sealed envelope and super scribed clearly with **RFQ No. and DUE DATE**.

- The above sealed envelope (Tender) shall reach our office on or before the due date by **13:00 hrs**. Quotations are to be dropped in the tender box marked for the OPENING ON **FRIDAY (20.07.2012)** kept at BHEL-EDN's Reception area of our works with caption "CE, M&C, SC&PV, TSC, DEFENCE, TELECOM, CPD". **Quotations also can be dispatched by Couriers / Registered post to the Purchase Executive, Manager (SC&PV-MM) indicated in the RFQ at the risk of vendor / bidder.**

Offers to be sent well in advance to enable BHEL EDN purchase personnel to drop in the tender box before the scheduled opening date and time. **Vendor is fully responsible for lack of secrecy on information of such quotations.** Vendor shall confirm with the concerned purchase executive after sending the offer regarding such delivery mode to ensure participation. BHEL EDN is not responsible for any delay in receipt of quotation sent by vendor through post.
Late Tenders i.e., Tenders received after due date shall be rejected.

- The rate quoted shall be in units stated in the enquiry. Where quotation is in terms of unit other than that in enquiry, relationship between the two units must be furnished in the quotation.
- As far as possible, the quotations shall be free from corrections / overwriting. Corrections / overwriting, if any should be signed by authorized person with the company seal. Any typographical errors, totaling mistakes, currency mistakes, multiplication mistakes, summary mistakes observed in your priced bids, BHEL may consider whichever is beneficial to BHEL for evaluation. Vendor shall doubly ensure that the quote is correct and complete. The corrections / overwriting if any shall be signed with the seal.
- Quotations are to be duly signed. Unsigned bids/offers are liable for rejection.
- Tenders will be opened at **13:30 hrs** & the venue is New Engineering Building, 2nd floor, MM conference hall, BHEL EDN, Bangalore. All the tenderers or their authorized representatives (with authorization letter from their principals) may witness opening of techno-commercial bid on the due date.
- After evaluation of techno-commercial bids, price bids of only those which are technically & commercially accepted, will be opened on a subsequent date, which will be intimated to the concerned in advance for witnessing of price bid opening.

8. EARNEST MONEY DEPOSIT:

An EMD of Rs 2,00,000/- is applicable and the same shall be sent either by Pay Order or Demand Draft in favour of M/s Bharat Heavy Electricals Ltd, Electronics Division, Bangalore only. In case of Foreign bidders, e-payment shall be made via **EFT to BHEL Account No.0413201013263** indicating the RFQ Ref through mail to BHEL-EDN. **EMD shall be enclosed along with the Technical Bid.**

EMD by the Tenderer will be forfeited as per Tender Documents if, the successful bidder/vendor refuses to honour the Order after award of the same on him and/or withdraws his bid and /or unilaterally changes the offer and/or any of its terms & conditions within the validity period.

EMD of unsuccessful Tenderers shall be returned on acceptance of award / LOI/PO on successful Tenderer. The EMD of successful bidder shall be returned only after submission of Contract Execution Bank Guarantee (CEBG).

EMD will not carry any interest.

9. DUN & BRADSTREET REPORT (for Foreign purchase):

In case of foreign vendors, BHEL reserves the right to verify the Dun & Bradstreet report during techno-commercial scrutiny. Please mention DUN Number in **Sl. No 12 of ANNEXURE A**.

10. Payment of Agency Commission to Indian Agent (for Foreign purchase):

BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if the foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines - which require mandatory submission of an Agency Agreement.

It shall be incumbent on the Indian agent and the foreign principal to adhere to the relevant guidelines of Government of India, issued from time to time.

The Agency Agreement should specify the precise relationship between the foreign OEM / foreign principal and their Indian agent and their mutual interest in the business. All services to be rendered by agent/ associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/ Indian agent. Any payment, which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the Agreement and be made explicit in order to ensure compliance to laws of the country.

Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only.

Tax deduction at source is applicable to the agency commission paid to the Indian agent as per the prevailing rules.

In the absence of any agency agreement, BHEL shall not deal with any Indian agent (authorized representatives / associate / consultant, or by whatever name called) and shall deal directly with the foreign principal only for all correspondence and business purposes.

The “Guidelines for Indian Agents of Foreign Suppliers” shall apply in all such cases.

The supply and execution of the Purchase Order (including indigenous supplies/ service) shall be in the scope of the OEM/ foreign principal. The OEM/ foreign principal should submit their offer inclusive of all indigenous supplies/ services and evaluation will be based on ‘total cost to BHEL’. In case OEM/ foreign principal recommends placement of order(s) towards indigenous portion of supplies/ services on Indian supplier(s)/ agent on their behalf, the credentials/ capacity/ capability of the Indian supplier(s)/ agent to make the supplies/ services shall be checked by BHEL as per the extant guidelines of Supplier Evaluation, Approval & Review Procedure (SEARP), before opening of price bids. It will be the responsibility of the OEM/ foreign principal to get acquainted with the evaluation requirements of Indian supplier/ agent as per SEARP available on www.bhel.com.

The responsibility for successful execution of the contract (including indigenous supplies/ services) lies with the OEM/ foreign principal. All bank guarantees to this effect shall be in the scope of the OEM/ foreign principal.

11. **TOTAL COST TO BHEL:** Purchase order will be placed on the lowest quotation (L1) only among the technically & commercially accepted quotations. Lowest quotation (L1) is determined on the basis of the total cost to BHEL.

(a) FOR FOREIGN PURCHASE (DIRECT PURCHASE):

Total cost to BHEL = Total basic value +including Erection & Commissioning, Training, Spares etc. in foreign currency + FOB charges (if any) + Packing & Forwarding charges (if any) + Cost Insurance Freight (CIF) + Basic Custom Duty (BCD) + Counter Veiling Duty (CVD) + Educational Cess + Special Additional Duty (SAD) + Entry TAX + Service TAX (if applicable) + Loading factors for deviations to commercial terms & conditions.

Note: Exchange rate ruling on the date of Tender opening (Techno-commercial / un-priced Bid) will be considered for converting foreign currency to Indian currency. Exchange rates (TT selling rate of SBI) will be considered.

(b) FOR INDIGENOUS PURCHASE (DIRECT PURCHASE):

Total cost to BHEL = Total basic value +including Erection & Commissioning, Training, Spares etc.+ Packing & forwarding charges + Excise duty + Education Cess + sales Tax/VAT + Octroi+Exit/Entry tax+ Freight & Insurance + Service Tax (if applicable) + Loading factors for deviations to commercial terms & conditions.

12. FIRM PRICE:

Rates quoted should be firm from the date of offer, till completion of supply and installation. No enhancement in the rates and changes in the techno-commercial terms will be allowed once the quotation is accepted and order is placed.

13. TERMS OF PAYMENT:

A. : FOR FOREIGN PURCHASE

Payment will be made against “SIGHT DRAFT” on presentation of documents to our bankers . Payment through LC is also made subject to loading factors as per **Clause 29 (A)**. For LC payment bank charges within India and outside India will be to vendor’s account.

The payment terms are as follows:

SIGHT DRAFT PAYMENT (direct payment):

1. **For Supply:** 80% payment of Supply value shall be made with 45 days credit from the date of receipt of material at BHEL.
2. **For E&C:** Balance 20% of Supply value plus 100% of the E&C portion of PO value will be paid against E&C certificate issued by BHEL and submission of Performance Bank Guarantee (PBG) valid for 30 days beyond the warranty period by Supplier from any of the Consortium Banks of BHEL for 10% of total PO Value (Including E&C) in the prescribed Format. The PBG confirmation charges, if any, shall be borne by vendor.

(B) FOR INDIGENOUS PURCHASE (DIRECT PAYMENT):

- (i) 80% basic payment + 100% taxes & duties with 45 days credit from the date of receipt of material at BHEL, 20% basic after completion of Erection and Commissioning & against submission of PBG of 10% of PO Value.
- (ii) If PBG could not be submitted, vendors can also accept for the final 10% payment, payable after the warranty period + 6 months of claim period against supplementary invoice subject to the completion of commissioning (if applicable). In such cases loading for PBG is not applicable.

(C) ADVANCE PAYMENT: Quotations with "Advance payment" will not be accepted.

14. PENALTY:

Failure to supply within the delivery time as per purchase order will make the vendor liable to an unconditional **penalty as per Clause 29 (B)**.

Date of issue of pre-shipment inspection/ call letter with supporting documents like test reports/conformance to test carried by the vendor will be treated as date of dispatch for the purpose of penalty calculation wherever Pre-Inspection Call is carried out.

15. CONTRACT EXECUTION BANK GUARANTEE (CEBG):

The successful vendor shall have to furnish a Contract Execution Bank Guarantee (CEBG) for 10% of the Total PO value in the prescribed format within 30 days from the date of P.O.

CEBG shall be from one of the Consortium Banks of BHEL or from a reputed Bank and confirmed by any Consortium Bank of BHEL.

All bank charges on account of issuance and confirmation of CEBG whether incurred in India or outside India will have to be borne by the vendor.

CEBG shall be kept valid until 30 days after the date of E&C Certificate, which will be issued on completion of Erection & Commissioning of equipment which includes Erection, Commissioning, Job Proving, Performance Tests, Training to operators etc. as prescribed in PO.

If the Vendor fails to submit the CEBG even within 60 days from the date of PO, BHEL reserves the right to cancel PO & forfeit the EMD given by the supplier. In addition, in such case, action will be initiated in line with extant guidelines for suspension of business dealings with Suppliers. Format for the same will be provided later.

16. PBG:

Performance Bank Guarantee (PBG) to be submitted on non-judicial stamp paper as per the BHEL prescribed format given in **ANNEXURE-E for Foreign Purchase and Annexure-F for Indigenous Purchase** for 10% of the total PO value obtained from any BHEL member (consortium) banks indicated in **ANNEXURE-G**.

PBG shall be valid for 25 months from the date of commissioning plus 6 months claim period. PBG will be released after acceptance of PO for post warranty AMC contract for 2 years, if applicable.

The Bank Guarantee shall be submitted directly to the concerned Purchase Executive by the issuing Bank with their forwarding letter. BHEL will verify independently with the bank to establish the authenticity. Alternately, standby LC issued from approved banker will also be considered.

17. VALUE FOR ERECTION & COMMISSIONING AT BHEL:

Erection & Commissioning (E&C) value will include services to be rendered at BHEL like Erection, Commissioning, Job Proving, Performance Tests, Training to Operators etc.

The estimated percentage of E&C value is **10%**.

E&C value should be quoted separately. In case where quoted value is less than the 10 % or separate E&C values are not mentioned in the offer, value for E&C portion shall be deemed to be considered as 10% & accordingly supply value will be adjusted from that quoted value and balance will be released as E&C payment.

18. WARRANTY: On-site warranty for a period of two (2) years from the date of commissioning for trouble free operation shall be included in the scope of supply. For more details, kindly refer SI No.7 of Page 03 of 10 of Technical Specification No._PS-439-078 Rev 02.

19. MODE OF TRANSPORT: By Air/Sea Freight for Foreign purchase and Road Freight for Indigenous Purchase.

20. TERMS OF DELIVERY:**(a) FOR IMPORTED PURCHASE:**

Price offered shall be for goods packed and delivered **F.O.B.**, International Airport/Seaport including packing, forwarding, Handling, Ancillary charges like processing of Sight Draft, negotiation charges of bank, Export declaration, Certificate of origin etc.

Packing shall be Air/Sea worthy, best suitable for trans-shipment and to take care of transit damages. If containerized, no. of containers & size of container shall be mentioned. Packing weight (gross & net) Packing dimensions shall be given prior to shipment to ascertain whether the consignment can be carried on standard cargo in contract or as ODC.

Wooden packing material for all the foreign consignments should be treated as per ISPM-15 & **Fumigation / Phytosanitary certificate** to be submitted to the freight forwarders/ BHEL along with the invoice, B/L, packing list etc.

Vendors shall indicate the name of International Airport/Seaport. Approved Airports are as per **Annexure-C**. The consignment shall be handed over to BHEL approved freight forwarder as mentioned in PO.

(b) FOR INDIGENOUS PURCHASE:

Equipment shall be delivered on EX-EDN/BHEL, Bangalore basis, inclusive of freight, packing, insurance & forwarding charges. Packing shall be Road / Rail / Air worthy, best suitable for transshipment and to take care of transit damages.

It is preferred to dispatch the consignments through EDN/BHEL approved transporters indicated in **ANNEXURE - D** on Door Delivery basis. Smaller consignments can be dispatched through Courier services/ RPP with the prior approval of the purchasing Executive.

In case of ex-works dispatches, transit insurance shall be arranged by BHEL. Vendor shall intimate the dispatch details to BHEL immediately after effecting shipment, to arrange transit insurance accordingly.

20. DELIVERY REQUIREMENT:

In the quotation, earliest delivery for supply (number of days or weeks) by which material will be dispatched from the date of Purchase order must be indicated separately and Erection & Commissioning Period shall be provided. It is recommended to avoid Quotations with delivery term such as 'ex-stock', 'subject to prior sale', or 'delivery at the earliest'. Date of BHEL PO is the reference for all purposes. **Refer Clause 29 (C) for non conformance to delivery requirement indicated in the RFQ.**

PENALTY: Pre Shipment Inspection will be carried out by BHEL/Customer for which test report shall be sent one week in advance. Pre Inspection Call Letter Date (Receipt of test report) will be treated as delivery for purpose of penalty for supply only. Penalty @ 0.5% per week at the basic price of the good for undelivered quantity of supply portion, subject to a maximum of 10%. Pre Inspection Call Letter Date (Receipt of test report) will be treated as delivery for purpose of penalty for supply only.

21. VALIDITY:

Quotation should remain valid for a period of **90 days** from the date of technical bid opening. Offer with Non-conformance is liable for rejection.

22. POST-ORDER REQUISITES:

- (a) Vendor shall give an Order Acknowledgement indicating the delivery date within one week of receipt of PO.
- (b) Pre-shipment inspection at vendor's works, if required, will be carried out by BHEL. Required assistance will have to be provided by the vendor at the time of pre-shipment inspection.
- (c) Test certificates, Calibration certificates and warranty certificates as stipulated at the time of ordering shall be furnished.
- (d) Items shall be dispatched by Air worthy /Sea worthy/ Road worthy packing. Any damage and later rejection, due to poor / improper packing shall be to vendor's account.
- (e) Any damage/rejection should be made good or replaced immediately without any extra cost to BHEL such as freight, duties, taxes etc. The liability is restricted to the value of the order.
- (f) Wherever commissioning is involved, it shall be carried out by the vendor's qualified engineers. Scope of work includes installation, commissioning and start-up trials till satisfactory performance level is reached as certified by BHEL.

(g) BHEL will not be responsible for any loss, damage or injuries to vendor's personnel sustained during installation / commissioning / start-up trials. Vendor shall ensure compliance with all statutory requisites as laid down by local bodies, state & Central Government. Vendor shall indemnify BHEL for all damages/ losses to various personnel during their presence in BHEL's premises for whatever purpose.

(h) Suitable markings & damage control indicating devices shall be provided where applicable.

23. Equipment shall comply with the standard requirements of ISO 14001 & OHSAS 18001.

24. RISK PURCHASE:

The purchaser at his discretion may also make purchase of the materials NOT supplied in time at the RISK & COST of the supplier. In this event, it will be obligatory on the part of the supplier who fails to supply the goods in time to make good to BHEL any loss due to such risk purchase

25. GENERAL TERMS AND CONDITIONS GOVERNING REVERSE AUCTION (RA):

(a) In case of RA, BHEL will communicate business rules governing the RA to the bidders through a service provider.

(b) BHEL EDN reserves the right to adopt Reverse Auction for the enquiry sent, at its discretion.

(c) Confirm acceptance for RA in ANNEXURE A/B.

26. **REGRET LETTER:** In case any vendor is unable to quote, vendor shall send a regret letter.

27. Any dispute arising out of this, shall be referred to the sole arbitration of Head of Dept. Materials Management of group concerned, BHEL EDN or any other officer nominated by him and his award shall be final and binding on the parties. The venue of the arbitration in all cases shall be Bangalore, India.

28. Any legal suit in respect of this enquiry lies in the court of Jurisdiction of Bangalore (India) only.

29. LOADING FACTORS:

Loading factors as detailed below will be added to the quoted price (basic) to evaluate the lowest quote for non compliance of BHEL standard commercial term.

A (i). For non compliance of standard Terms of payment (For Foreign Purchase Orders)

Sl. No.	BHEL standard term	If you quote	Loading factor in % for non-compliance
1	80% against "SIGHT DRAFT" + 20% after commissioning and against PBG(when both commissioning & PBG are applicable)	Payment through Letter of Credit (LC) with bank charges to respective accounts	Benchmark Prime Lending Rate (BPLR) of SBI as applicable on the scheduled date of tender opening + 2%, for the amount & period of relaxation sought by bidder

If the quote is through L/C, it shall be opened by BHEL as per following:

(i) Within 30 Days of receipt of acceptable CEBG, an irrevocable unconfirmed L/C will be opened for 30% of the payment towards supply, due on shipment i.e. 24% of the Supply value of PO (30% of 80%). Not earlier than 60 days before the shipment date, the value of this irrevocable unconfirmed L/C would be enhanced from 24 % to 80% of the Supply value of PO.

The above L/C can be negotiated after the Shipment against submission of B/L or AWB and such other documents as mentioned in the PO. The above L/C will be valid for a period extending 21 days beyond the shipment date for negotiation of documents.

(ii) 15 days prior to the scheduled & confirmed arrival of the technicians of supplier with their names, an irrevocable unconfirmed L/C will be opened for a value equal to 20% of the Supply value of PO plus 100% of the E&C value of PO. The validity of L/C would be sufficient to cover the period required for the completion of E&C plus 21 days as negotiation period.

This L/C can be negotiated after: (a) Completion of E&C of the equipment in BHEL and against E&C certificate issued by BHEL and

(b) Submission of Performance Bank Guarantee (PBG) by Supplier in the prescribed Format valid for 30 days beyond the

warranty period, from one of the Consortium Banks of BHEL or from a reputed Bank and confirmed by Consortium Bank of BHEL for 10% of total PO Value. The PBG confirmation charges shall be borne by vendor.
Under all circumstances, CEBG shall be kept valid till the PBG becomes operational.

Bank Guarantee and Loading against non-acceptance of BHEL’s Payment Terms:

If payment terms as mentioned by BHEL are not agreed by bidder, such bidder have to submit Bank Guarantee at the time of payment / opening of LC in the prescribed Format of the amount, exceeding 80% of the PO value, valid till issue of E&C Certificate for the equipment. However, in no case, payment against dispatch shall exceed 90% of the PO Value. Additionally, for any deviation sought including as mentioned above, in Payment Terms by bidder w.r.t. tender conditions, following loading shall be followed:

- (a) Benchmark Prime Lending Rate (BPLR) of SBI as applicable on the scheduled date of tender opening + 2%, for the amount & period of relaxation sought by bidder.
- (b) On account of payment through LC, if insisted by bidder, Bank charges shall also be loaded for the deviation in (i) opening of LC by BHEL and (ii) period and amount of LC w.r.t. NIT norms, as per the prevailing bank rates.

A(ii).For non compliance of standard Terms of payment (For Indigenous Purchase Orders)

Sl. No.	BHEL standard term	If you quote	Loading factor in % for non-compliance
1	80% basic payment + 100% taxes & duties with 45 days credit + 20% after commissioning & against PBG	Payment through bank Payment against proforma invoice 100% with 45 days credit after commissioning & submission of PBG	Benchmark Prime Lending Rate (BPLR) of SBI as applicable on the scheduled date of tender opening + 2%, for the amount & period of relaxation sought by bidder.

B. For non compliance of Penalty clause for delayed delivery for Supply :

Sl. No.	BHEL standard term	If you quote	Loading factor for non-compliance
1	Penalty of 0.5% per week subject to max. of 10% on the basic value of the items not supplied /delayed	Not agreed. 5% max., agreed. Other than the above.	Benchmark Prime Lending Rate (BPLR) of SBI as applicable on the scheduled date of tender opening + 2%, for the amount & period of relaxation sought by bidder.

C. For non conformance to delivery requirement indicated in the RFQ for E&C:

Sl. No.	BHEL standard term	If you quote	Loading factor for non-compliance
1	Delivery requirement as indicated in the RFQ in number of weeks from the date of issue of PO	Not agreed for the stipulated delivery in the RFQ	Benchmark Prime Lending Rate (BPLR) of SBI as applicable on the scheduled date of tender opening + 2%, for the amount & period of relaxation sought by bidder

Penalty of Erection & Commissioning will be applicable subject to site/location clearance/facility availability from BHEL. E&C shall be completed within ___ weeks from the date of above, failing which penalty will be applicable as tabulated.

COMMERCIAL TERMS (to be enclosed with TECHNO-COMMERCIAL BID (for Foreign Purchase))

Sl. No.	Particulars	Bidder's confirmation
1	Terms of Supply : Total basic value +including, Erection & Commissioning, Training, Spares etc. in foreign currency + FOB charges (if any) + Packing & Forwarding charges (if any) + Cost Insurance Freight (CIF) + Basic Custom Duty (BCD) + Counter Veiling Duty (CVD) + Educational Cess + Special Additional Duty (SAD) + Entry TAX + Service TAX (if applicable) +Loading factors for deviations to commercial terms & conditions. Erection & Commissioning:	Acceptable / Not acceptable
2	Confirmation of acceptance of AMC, if required, after Post warranty period. (Refer Clause no.8 of Tech Spec. No.PS-439-078)	Agreed/Not Agreed
3	Price basis: Firm i.e., from the date of PO to completion of supply [Price Variation Clause (PVC) not acceptable]	Acceptable / Not acceptable
4.	Earnest Money Deposit of Rs 2,00,000/-: Pay Order/DD/EFT	Submitted/Not Submitted
5.	Erection & Commissioning Percentage: % quoted <input type="checkbox"/>	Quoted/Not Quoted
6.	Terms of Payment: For Supply: Against "SIGHT DRAFT" on presentation of documents to our bankers. (a) 80% is payable on negotiation of complete set of original documents, 20% after Erection and commissioning & against submission of PBG of 10% of total PO value. (b)Deviation if any please specify Note: Refer clause 13 (A) & 29(A) of "General Terms & Conditions" For E&C: On completion of work & certification	Supply: Acceptable/ Not acceptable E&C: Acceptable/ Not acceptable
7.	BHEL's penalty clause for Supply: Pre Inspection Call Letter Date (Receipt of test report) will be treated as delivery for purpose of penalty for supply only. (a) Delay in delivery as per PO delivery date will result in penalty of 0.5 % per week subject to maximum of 10% on the value of the item not vendor/delayed. Refer clause 29 (B) of "General Terms & Conditions" (b)Deviation if any Please specify E&C:- Refer clause 29 (C) of "General Terms & Conditions" (c) Deviation if any Please specify	Supply: (a) Acceptable/ Not acceptable (b) E&C: (c) Acceptable/ Not acceptable (d)
8.	Performance Bank guarantee: (a) PBG for 10% of total PO value shall be furnished in the BHEL prescribed format as per Clause 17. (b) Deviation if any Please specify (c) Contract Execution Bank Guarantee (CEBG) will be provided by successful bidder (d) EMD furnished	(a) Yes / No (b) (c)Yes / No (d) Yes / No
10.	Terms of delivery: F.O.B international Airport/Seaport as per clause 21 (Indicate name of International Airport/Seaport)	Acceptable / Not acceptable Airport/Seaport:
11.	Warranty: On-site warranty for a period of two (2) years from the date of commissioning for trouble free operation.(Refer Sl No. 7 of Tech Spec. PS-439-078)	Acceptable / Not acceptable
12.	Delivery period: BHEL required delivery is 16 weeks from the date of P.O. Indicate delivery in number of weeks from the date of issue of Purchase order. Refer clause 29 (C) of "General Terms & Conditions" Erection & Commissioning Period: Please indicate in Weeks after declaration of readiness of site from BHEL.	Supply: _____Weeks E&C : _____Weeks
13.	Validity: Quotation should remain valid for a period of 90 days from the due date	Acceptable / Not acceptable
14.	Please mention Dun & Bradstreet No.(DUN No.)	DUN No.:
15.	Acceptance of Reverse Auction	Acceptable / Not acceptable
16.	Bank charges(If applicable): Bank charges within India and outside India is to Vendor's account	Acceptable/Not acceptable
17.	Weight and Dimension of consignment with packing	Furnished / To be furnished
18.	Currency Quoted (US Dollars, Euro, etc.)	Currency :

Signature of tenderer / with seal

COMMERCIAL TERMS (to be enclosed with TECHNO-COMMERCIAL BID)
(For Indigenous Purchase Orders)

Sl. No.	Particulars	Bidder's confirmation
1.	Terms of Supply : Vendor is required to quote and supply AUTOMATIC SOLAR CELL TESTER CUM-SORTER as per purchase specification PS-439-078 Rev 02. L1(Lowest bidder) shall be arrived at by considering: Total basic value +including Erection & Commissioning, Training, Spares etc. + Packing & forwarding charges + Excise duty + Education Cess + sales Tax/VAT + Octroi+ Exit/Entry tax+ Freight & Insurance + Service Tax (if applicable) + Loading factors for deviations to commercial terms & conditions. Erection & Commissioning:	Acceptable / Not acceptable
2.	Confirmation of acceptance of AMC, if required, after Post warranty period. (Refer Clause no.8 of Tech Spec. No.PS-439-078)	Agreed/Not Agreed
3	Price basis: Firm i.e., from the date of PO to completion of supply [Price Variation Clause (PVC) not acceptable]	Acceptable / Not acceptable
4	Excise duty: If applicable indicate %.	Applicable / Not applicable ED:_____%
5	Sales tax: If applicable indicate %	Applicable / Not applicable (a) VAT_____% (b) CST_____% against form C
6.	Earnest Money Deposit of Rs 2,00,000/-: Pay Order/DD/EFT	Submitted/Not Submitted
7.	Erection & Commissioning Percentage: % quoted <input type="text"/>	Quoted/Not Quoted
8.	Payment terms: For Supply: (a) 80 % basic payment + 100% taxes, duties & freight charges with 45 days credit, 20% after Erection & commissioning & against submission of PBG (b) Deviation if any please specify Refer clause 13 (b) & 29 (A) For E&C: On completion of work & certification	Supply: Acceptable/ Not acceptable E&C: Acceptable/ Not acceptable
9.	BHEL's penalty clause: For Supply:- Pre Inspection Call Letter Date (Receipt of test report) will be treated as delivery for purpose of penalty for supply only (a) Delay in delivery as per PO delivery date will result in penalty of 0.5 % per week subject to maximum of 10% on the basic value of the items not vendor/delayed. Refer clause 29(B) (b) Deviation if any Please specify For E&C:- Refer clause 29 (C) of "General Terms & Conditions" (c) Deviation if any Please specify	Supply: (a) Acceptable / Not acceptable (b) E&C: (c)Acceptable / Not acceptable (d)
10.	(a)Contract Execution Bank Guarantee(CEBG)will be provided by successful bidder (b) EMD: (c) PBG:	(a) Yes/No (b) Yes/No (c) Yes/No
11.	Performance Bank guarantee (PBG): (a)PBG for 10% of the total PO Value shall be furnished in the BHEL prescribed format as per clause 17. (b) Deviation if any Please specify	(a) Yes / No (b)
12.	Terms of delivery: (a) Ex EDN / BHEL, Bangalore (Free delivery to EDN/BHEL Bangalore including freight, packing & forwarding charges) (b) Deviation if any Please specify	(a) Acceptable / Not acceptable (b)
13.	Warranty: (a) On-site warranty for a period of two (2) years from the date of commissioning for trouble free operation. (b) Deviation if any Please specify (Refer SI No. 7 of Tech Spec. PS-439-078)	(a) Acceptable / Not acceptable (b)

14.	<p>Delivery period: BHEL required delivery is 16 weeks from the date of P.O. Indicate delivery in number of weeks from the date of issue of Purchase Order. Refer clause 29 (C) of "General Terms & Conditions" Erection & Commissioning Period: Please indicate in Weeks after declaration of readiness of site from BHEL.</p>	<p>Supply: _____Weeks</p> <p>E&C: _____Weeks</p>
15.	<p>Validity: (a) Quotation should remain valid for a period of 90 days from the due date (b) Deviation if any Please specify</p>	<p>(a) Acceptable / Not acceptable (b)</p>
16.	<p>Bank charges (If applicable): (a) All Bank charges to vendor's account (b) Deviation if any Please specify</p>	<p>(a) Acceptable / Not acceptable (b)</p>
17.	<p>Acceptance of Reverse Auction</p>	<p>Yes / No</p>
18.	<p>Weight and Dimension of consignment with packing</p>	<p>Furnished / To be furnished</p>

Signature of tenderer / with seal

ANNEXURE-C***LIST OF INTERNATIONAL AIRPORTS***

Sl. No	Country	Air Ports
1	Austria	Vienna, Linz, Graz
2	Australia	Sydney, Melbourne, Perth
3	Belgium	Antwerp, Brussels
4	Canada	Toronto, Montreal
5	China	Shanghai
6	Cyprus	Lamaca
7	Czech Republic	Prague (Via Frankfurt)
8	Denmark	Copenhagen
9	Egypt	Cairo
10	Finland	Helsinki
11	France	Paris (Rosy), Lyon
12	Germany	Darmstadt, Manheim, Nurnberg, Hamburg, Stuttgart, Munich, Koln, Dusseldorf & Hannover, Frankfurt, Berlin
13	Hong Kong	Hong Kong
14	Italy	Rome, Milan, Turin, Bologna, Florence
15	Ireland	Dublin
16	Israel	Telaviv
17	Japan	Tokyo, Osaka
18	Malaysia	Kuala lumpur, Penang
19	Netherlands	Amsterdam, Rotterdam
20	New Zealand	Auckland
21	Norway	Oslo
22	Oman	Muscat
23	Philippines	Manila
24	Romania	Bucharest
25	Russia	Moscow
26	Saudi Arabia	Riyad
27	Singapore	Singapore
28	Slovakia	Bartislowa
29	South Africa	Johannesburg, Durban
30	South Korea	Kimpo
31	Spain	Barcelona
32	Sweden	Stockholm, Gothenburg, Milano
33	Switzerland	Basle, Zurich, Geneva
34	Taiwan	Taipei
35	U.A.E.	Dubai
36	U.K.	Landon (Heathrow), Newcastle, Oxford, Cheltham, Bristol, Welling borough, Birmingham, East Midland, Manchester, Leeds, Glasgow.
37	U.S.A.	New York, Chicago, San Francisco, Los Angeles, Atlanta
38	Ukraine	Kiev

ANNEXURE-D**BHEL EDN APPROVED TRANSPORTERS FOR INLAND ROAD TRANSPORTATION**

1. M/s Awagaman Road Carriers Ltd., Bangalore. (AWG)
2. M/s BLR India Pvt. Ltd., Bangalore. (BLR)
3. M/s Delhi Assam Roadways corporation ltd., Bangalore. (DRL)
4. M/s Indo Arya Central transport ltd., Bangalore. (IACT)
5. M/s Prakash parcel Services, Bangalore. (PPS)
6. M/s Road Carrier of India, Bangalore. (RCI)
7. M/s Union Roadways Ltd., Bangalore. (URL)

ANNEXURE-E**PERFORMANCE BANK GUARANTEE**
(FOR FOREIGN PURCHASE ORDERS)
BANK NAME AND ADDRESS

Bharat Heavy Electricals Limited (BHEL),
Electronics Division,
PB No. 2606,
Mysore Road,
BANGALORE- 560 026
INDIA

Dear Sir,
Ref: CONTRACT PERFORMANCE GUARANTEE.

WHEREAS you have entered into a contract reference No PO NO. _____ with M/s _____ having its registered office at _____ for the supply of _____ as detailed in your purchase order No. _____ which is hereinafter referred to as "the said contract" and whereas M/s _____ has undertaken to produce a Bank Guarantee for 10% (Ten Percent) of _____ the contract price amounting to _____ (_____) to secure its obligations to Electronics Division, BHEL having its registered office at New Delhi for the performance of the contract including the warranty of the equipment supplied, We _____ Bank, _____ hereby expressly, irrevocably and unreservedly undertake and guarantee as principal obligors on behalf of M/s _____ that in the event Bharat Heavy Electricals Ltd. (B.H.E.L.) declares to us in writing that M/s _____ has not fulfilled any obligation according to the contractual obligation of the said contract, to pay you on demand and without demur to Bharat Heavy Electricals Ltd., Electronics Division , Mysore Road, P.B. No. 2606, Bangalore-560 026, India an amount of _____ (in words _____) subject to as may be determined below:

- 1) Notwithstanding any right M/s. _____ may have directly against you or any disputes raised by M/s _____, Your written demand shall be conclusive evidence to us that repayment is due under the terms of the said contract and shall be binding on us.
- 2) We shall not be discharged or released from this undertaking and Guarantee by any arrangements, variations made between you and M/s. _____ with or without our consent and Knowledge or by any alterations in the obligations of M/s. _____ by any forbearance whether as to payment, time, performance or otherwise.
- 3) This guarantee shall remain valid until the end of twenty four weeks after the close of the warranty period or until the same is reported by BHEL to us whichever is earlier.
- 4) We agree and undertake not to revoke this guarantee during its validity unless discharged in writing by you subject to the provision of clause (7) below.
- 5) This guarantee shall be a continuing guarantee subject to the foregoing and shall not be discharged by any change in the constitution of the Bank or M/s. _____.
- 6) This guarantee shall be governed by and constructed in accordance with the Laws of India.
- 7) At any time _____ Bank may render this guarantee null and void by paying to Bharat Heavy Electricals Ltd. the full amount being _____ (in words _____)

For and on behalf of Bank by
its Authorized Signatory

Note:

- (1) To be executed in Non-Judicial stamp paper by any authorized Indian Bank.
- (2) To be submitted directly by banker to concerned executive in purchase dept, Please give BHEL address to banker.
- (3) Do not enclose with Bank document.
- (4) Any Modification & omissions to this are not permitted

PERFORMANCE BANK GUARANTEE
(FOR INDIGENOUS PURCHASE ORDERS)

THIS DEED OF GUARANTEE made and executed on the _____ day of _____(year), by the _____ (Bank), registered under the Companies Act 1956/Nationalized Bank constituted under the Banking Companies (acquisition and transfer of undertakings) Act constituted under the State Bank of India Act / Subsidiary Banks Act, having its registered / head office at _____ represented herein by its Branch Manager / authorized representative Sri. _____ & Sri. _____(Hereinafter called 'guarantor' which term shall mean and include its successors and assigns)

IN FAVOUR OF BHARAT HEAVY ELECTRICALS LIMITED

_____ (Buyer's Name), a company registered under the companies Act, 1956 having its registered office at BHEL House at Siri Fort , New Delhi-100 049 and its Electronics Division at Mysore road, Bangalore-26 (hereinafter referred to as the 'Company' Which term shall include its successors and assigns):

Whereas the company has placed an order on _____ (State the name of the company / firm and its address) (hereinafter referred to as the 'Supplier' which term shall mean and include its liquidators, successors and assign) for the supply of system under order / Contract No _____Dt _____.

AND WHEREAS the supplier has agreed to supply the materials and carryout the works as detailed and in accordance with the terms set out in the said order/contract.

AND WHEREAS the company is not required to pay to the supplier a sum of Rupees _____being the 10% of the value of the goods supplied / Works performed / Services rendered under the said order / contract between the supplier and the company, till the company is satisfied with the mechanical Warranties and the performance standards stipulated in the said order / contract between the company and the supplier has been duly fulfilled, except against a Bank Guarantee for the said sum of Rs _____ in favour of the company by reputed Bank, in which case the company has agreed to make payment to the supplier of the said sum of Rupees _____ being (...%) of the value of the goods supplied / Works performed / Services rendered under the agreement between the supplier and the company and the Guarantor has at the request of the supplier, agreed to furnish this Guarantee subject to the terms and conditions stated below:

NOW THIS DEED WITNESSES THAT IN pursuance of the above said agreement, the guarantor hereby agrees and covenants With company is as follows :-

- 1) That during the period this contract of Guarantee remains effectual, the guarantor shall be liable in respect of the amount due and owing to the company in respect of the payments to the extent of Rs _____ (in words) _____ against any loss or damage caused to or suffered by the company by reasons of any breach of the terms of the said order / contract / Agreement by the supplier.
- 2) The Guarantor hereby undertakes to pay the amounts due and payable under this guarantee without any demur, merely on demand from the company intimating that the amount claimed is due by way of loss or damage caused to or suffered or would be caused or suffered by the supplier of any terms contained in the said order / contract. Any such demand made on the guarantor shall be conclusive as regards the amount due and payable by the Guarantor irrespective of the fact whether the Contractor / supplier admits or denies.
- 3) The Guarantor further agrees that the agreement herein contained shall remain in force and effect till all the supplies to be made / Works to be performed / Services to be rendered under the said order / contract / agreement are completed to the entire satisfaction of the company or till company certifies that the terms and conditions of the said order / contract / agreement have been fully and properly carried out by the said supplier and accordingly discharges the Guarantee. Unless a demand or claim under this guarantee is made on the guarantor in writing on or before the expiry of claim period indicated in clause 6 below, the guarantor shall be discharged from all the liability under this guarantee thereafter.

- 4) The guarantor further agrees with the company that the company shall have the fullest liberty without the consent of the guarantor and without effecting in any manner the obligations of the guarantor hereunder to vary any of the terms of the said order / contract / agreement or extend the time of performance by the said supplier or to forebear or omit to enforce any of the terms and conditions relating to the said order / contract / agreement, and the guarantor shall not be relieved of its liability in whole or in part , by reason of any act, commission or forbearance on the part of the company or by reason of any such variation, or extension being granted to the said supplier or by reason of any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving the guarantor.
- 5) The guarantor undertakes not to revoke this guarantee during its currency except with the previous consent of the company in writing.
- 6) Notwithstanding anything herein above contained, the liability of the guarantor under these presents is restricted to Rs_____. The guarantee shall be in force till its expiry on _____ unless a demand is made on the guarantor within SIX months from the date of expiry, all the liability of the guarantor under this guarantee shall stand fully discharged. The decision of the claimant in regard to breach of contract is final and binding on the Bank.

IN WITNESS whereof, the guarantor, acting through it authorized representative has executed this deed of Guarantee on the day, month and year first above written.

WITNESS

(Seal of the Bank to be affixed)

1.

2.

BHEL MEMBER BANKS (CONSORTIUM BANKS)

Annexure-G

PBG	SHALL	BE	ISSUED	FROM	THE FOLLOWING BANKS	OR THEIR	BRANCH	OFFICES
					<u>ONLY</u>			
1					STATE BANK OF INDIA			
2					PUNJAB NATIONAL BANK			
3					HDFC BANK			
4					SYNDICATE BANK			
5					CANARA BANK			
6					INDIAN BANK			
7					ST. BANK OF HYDERABAD			
8					ICICI BANK			
9					STANDARD CHARTERED BANK			
10					UCO BANK			
11					KOTAK MAHINDRA			
12					ORIENTAL BANK OF COMMERCE			
13					STATE BANK OF TRAVANCORE			
14					CENTRAL BANK			
15					IDBI BANK			
16					FEDERAL BANK			
17					HSBC LTD			
18					DEUTSCHE BANK			
19					CORPORATION BANK			
20					CITI BANK			
21					BANK OF BARODA			
22					ABN AMRO BANK			
23					UNITED BANK OF INDIA			
24					VIJAYA BANK			
25					UNION BANK OF INDIA			
26					PUNJAB & SIND BANK			
27					ANDHRA BANK			
28					BANK OF INDIA			
29					AXIS BANK			



PURCHASE SPECIFICATION

GROUP: PHOTOVOLTAICS

Spec. No PS-439-078

Rev. No 02

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ITEM: AUTOMATIC SOLAR CELL TESTER-CUM-SORTER

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 company

Sl. No.	SPECIFICATION	VENDOR'S CONFIRMATION
1.	SCOPE The scope shall include design, manufacture, supply of equipment, warranty with spares for 2-years, consumable items for 1-year, installation and commissioning and training for Automatic Solar Cell Tester-Cum-Sorter for testing of Crystalline Silicon Solar Cells under simulated sunlight & sorting them into pre-defined categories automatically and place them in appropriate cell stacks.	
2.	TECHNICAL SPECIFICATION: 2.1. Solar cell Sizes: 125*125 mm, 156*156 mm (Mono & Multi Crystalline) 2.2. Cell Geometry : Square / Pseudo Square 2.3 No of Bus bars: 2 & 3 2.4 Cell Thickness: ≥ 180 microns 2.5 Cell Breakage in the machine: ≤ 1 % 2.6 Equipment shall be suitable for continuous 3-Shift operation.	
2A.	GENERAL EQUIPMENT FEATURES: <ul style="list-style-type: none"> • Machine Throughput : ≥ 1000 Cells/hour • Sorting of tested Cells upto 10 pre-defined power categories according to their electrical performance • Loading of cells from coin- stack to the cell tester • Unloading of cells to appropriate stack after testing • Light Source: Pulsed Xenon Solar simulator as per AM1.5 Global spectrum (ASTM E927 Class A) • A standard Reference Cell calibrated to international standards shall be included in the equipment. • PC with Touch-screen monitor and keyboard user interface, a CD Writer, and other resources like Windows OS, Hard disk, memory, etc. sufficient for the operation of the system • A laser printer shall be provided for printing the I-V Curves & the reports generated by the system • Suitable user friendly software interface for operation, measurements, data storage, retrieval, analysis, report generation, printing etc. 	

REVISION (02)
 Specifications completely revised.

APPROVED BY

SR

PREPARED


ISSUED

DATE

PJ

Engg

05.05.2012

			PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-078					
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					<table border="1"> <thead> <tr> <th data-bbox="342 401 418 470">SI. No.</th> <th data-bbox="418 401 1240 470">DETAILED SPECIFICATION</th> <th data-bbox="1240 401 1468 470">VENDOR'S CONFIRMATION</th> </tr> </thead> <tbody> <tr> <td data-bbox="342 470 418 1881">2B.</td> <td data-bbox="418 470 1240 1881"> <p>Test Range Voltage: 0 to 1000 mV DC (Open circuit voltage - Voc) Current : 0-20 Amps DC (Short circuit current – Isc)</p> <p>Resolution Voltage: 1 mV (Full scale) or better Current: 5 mA (Full scale) or better</p> <p>Measures & displays: I-V curve; Open circuit voltage Voc; Short-circuit current Isc; Peak power Pmax; Current & Voltage at maximum power point Imp, Vmp; Cell efficiency η; Fill factor FF; Series resistance Rs; Shunt resistance Rsh; Cell temperature °C, V_{load}, I_{load}, Light Intensity</p> <p>Test Platen (Bottom contact) Temperature controlled Test jig. Monitor Cell (Reference Cell) to be equipped on the Test Block</p> <p>Light Source Pulsed Xenon Lamp</p> <ul style="list-style-type: none"> Filtration: AM 1.5 G, CLASS A (as per ASTM E927) Light Intensity: Variable from 70-110 mW/cm² Illumination Uniformity: $\pm 2\%$ over 156 mm x 156 mm area <p>Electronic Load A computer controlled electronic load for varying the cell load automatically and to plot the I-V Curve</p> <p>Contact probe (Top contact) Four-point measurement shall be used; Contact probe with spring shock absorber to be used.</p> <p>Temperature compensation The cell testing temperature is to be measured during testing to apply temperature compensation of the I-V curve at user selectable temperature.</p> <p>Option for varying Load voltage Option shall be provided for change of load voltage (V_{Load})</p> <p>Cell sorting Tested Cell transfer into appropriate sorting magazine through a robotic arm & pick-up arrangement User selectable criteria (eg: Iop) for sorting bin assignment</p> <p>Laser Printer A laser printer for printing IV curves & test reports</p> <p>Jigs & Fixtures, Baskets Two sets of all Tools & Jigs required for testing of 125 mm (2 bus bar) & 156 mm (2 & 3 bus bars) solar cells should be provided. Additional 2 nos. of coin-stack baskets (both for 125-mm and 156-mm size solar cells) for initial loading of solar cells for testing shall be provided.</p> </td> <td data-bbox="1240 470 1468 1881"></td> </tr> </tbody> </table>	SI. No.	DETAILED SPECIFICATION	VENDOR'S CONFIRMATION	2B.	<p>Test Range Voltage: 0 to 1000 mV DC (Open circuit voltage - Voc) Current : 0-20 Amps DC (Short circuit current – Isc)</p> <p>Resolution Voltage: 1 mV (Full scale) or better Current: 5 mA (Full scale) or better</p> <p>Measures & displays: I-V curve; Open circuit voltage Voc; Short-circuit current Isc; Peak power Pmax; Current & Voltage at maximum power point Imp, Vmp; Cell efficiency η; Fill factor FF; Series resistance Rs; Shunt resistance Rsh; Cell temperature °C, V_{load}, I_{load}, Light Intensity</p> <p>Test Platen (Bottom contact) Temperature controlled Test jig. Monitor Cell (Reference Cell) to be equipped on the Test Block</p> <p>Light Source Pulsed Xenon Lamp</p> <ul style="list-style-type: none"> Filtration: AM 1.5 G, CLASS A (as per ASTM E927) Light Intensity: Variable from 70-110 mW/cm² Illumination Uniformity: $\pm 2\%$ over 156 mm x 156 mm area <p>Electronic Load A computer controlled electronic load for varying the cell load automatically and to plot the I-V Curve</p> <p>Contact probe (Top contact) Four-point measurement shall be used; Contact probe with spring shock absorber to be used.</p> <p>Temperature compensation The cell testing temperature is to be measured during testing to apply temperature compensation of the I-V curve at user selectable temperature.</p> <p>Option for varying Load voltage Option shall be provided for change of load voltage (V_{Load})</p> <p>Cell sorting Tested Cell transfer into appropriate sorting magazine through a robotic arm & pick-up arrangement User selectable criteria (eg: Iop) for sorting bin assignment</p> <p>Laser Printer A laser printer for printing IV curves & test reports</p> <p>Jigs & Fixtures, Baskets Two sets of all Tools & Jigs required for testing of 125 mm (2 bus bar) & 156 mm (2 & 3 bus bars) solar cells should be provided. Additional 2 nos. of coin-stack baskets (both for 125-mm and 156-mm size solar cells) for initial loading of solar cells for testing shall be provided.</p>
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Sl. No	SPECIFICATION	VENDOR'S CONFIRMATION
3.	CONSUMABLES Adequate consumable items for 1-year trouble-free operation shall be supplied along with the equipment. Please fill up Format 1 (Page 08 of 10) for list of consumables that shall be supplied along with the equipment.	
4.	SPARES Adequate Spares for 2-year trouble-free operation shall be supplied along with the equipment. Please fill up Format 2 (Page 09 of 10) for list of spares that shall be supplied along with the equipment.	
5.	INSTALLATION, COMMISSIONING, START-UP & TRAINING Vendor shall include installation & commissioning at BHEL EDN, Bangalore; start-up & training (at Vendor's works & also at BHEL works at the time of commissioning) as part of the supply. The training shall include operation and maintenance of the equipment. Successful installation and commissioning would require continuous operation for 30 days at defined yield levels.	
6.	SERVICES All services required like electrical, air-conditioning, compressed air, chilled water, gases, exhaust and the ambient environmental conditions for the operation of the equipment shall be indicated as per the Format 3 (Page 10 of 10) enclosed.	
7.	ONSITE WARRANTY FOR 2 YEARS On-site warranty for a period of two (2) years from the date of commissioning for trouble free operation shall be included in the scope of supply. The warranty shall necessarily cover the following. a) Vendor shall provide four quarterly visits per year for preventive check-up apart from unlimited breakdown calls. b) BHEL will not bear travel, accommodation, boarding charges for vendor's personnel during their visit to BHEL during the course of these visits. c) Replacements for failed components shall be arranged by Vendor. d) As a special case/exigency, BHEL may allow for usage of BHEL stocked spares for immediate restoration of equipment. However, spares consumed from the BHEL stock shall be replenished by the vendor within a month without any extra cost including freight and duties. e) Vendor shall depute their personnel within 24 hours of call. f) Remote assistance via phone and internet shall be provided without additional cost. Connectivity for remote access shall be provided by BHEL.	

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				Rev. No	02																	
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<p><u>Note:</u></p> <p>1. Pre-qualification will be carried out based on the details furnished by the vendor / feedback from their customers / inspection of the company / product if required by BHEL and at its sole discretion.</p> <p>2. The Pre-qualification criteria are mandatory requirements and the technical bids will be considered only if all the above ten (10) Pre-Qualification Criteria are met.</p>																																						
Signature of Tenderer with stamp																																						

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GENERAL CONDITIONS

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Sl. No.	GENERAL CONDITIONS	VENDOR'S CONFIRMATION
01	Three sets of operation and maintenance manual for the equipment in English shall be supplied along with the turnkey supply. One soft copy in CD is also to be provided. The manual shall include circuit diagram, component layout, PCB art work, troubleshooting chart indicating symptoms, checks and preventive maintenance schedule to be carried out, suggested remedy for all items including the bought out items. This shall also include all mechanical /pneumatic /hydraulic diagrams for the components /systems used in the equipment.	
02	The equipment shall be designed taking into account all safety and OHSAS requirements. Hazards connected with operation & maintenance of the equipment shall be brought out explicitly and instructions for minimizing the hazards (environmental / safety) to be indicated.	
03	The equipment shall be aesthetically fabricated.	
04	List of spares, part numbers and address of original suppliers of spares/subsystems shall be provided.	
05	Service facilities required, Environmental requirements and their tolerance limits may be furnished as per the Format 3 enclosed.	
06	The offer shall include adequate training on operation & maintenance of the equipment to BHEL personnel and Inspection of the Equipment at Vendor's works. Offer shall also include satisfactory installation, commissioning and performance trials of the equipment at BHEL works by the Vendor.	
07	RFI filter /surge suppresser shall be provided at mains (incoming) stage as well as at the input stage of critical electronic instruments / systems used in the equipment.	



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GENERAL CONDITIONS (Continued...)

Sl. No.	GENERAL CONDITIONS	VENDOR'S CONFIRMATION
08	The Vendor shall submit test and guarantee certificates. Calibration certificates for all the instruments / gauges / indicators shall be provided. Calibration procedures are also to be indicated in detail. All equipment shall be guaranteed for trouble-free operation and against manufacturing defects for a minimum period of 2-years from date of commissioning.	
09	Equipment shall be rated for 415 V / 3 phase / 50 Hz / 5 wire or 230 V / 1 phase / 50 Hz / 3 wire system only.	
10	Service Engineers deputed by the Vendor for installation of the equipment at BHEL works shall comply with safety regulations and precautions, and have had adequate training in Environmental / Health / Safety hazards associated with the installation and operation of the equipment.	

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FORMAT 1

LIST OF CONSUMABLES FOR AUTOMATIC SOLAR CELL TESTER-CUM-SORTER (1 YEAR)

(To be supplied along with the equipment)

Sl. No.	Consumables	Quantity

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FORMAT 2
LIST OF SPARES FOR AUTOMATIC SOLAR CELL TESTER-CUM-SORTER (2 YEARS)
(To be supplied along with the equipment for onsite warranty)

Sl. No.	Spares	Quantity

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**FORMAT 3
SERVICE FACILITIES**

Sl. No.	SERVICE	DETAILS (To be furnished by vendor for each equipment)
01	ELECTRICAL THREE PHASE KVA RATING NO. OF SERVICE POINTS SINGLE PHASE KVA RATING NO. OF SERVICE POINTS	
02	CHILLED WATER FLOW (LPM) PRESSURE (PSI) PORT SIZE (INCHES) NO. OF SERVICE POINTS TEMPERATURE (Deg C)	
03	RAW WATER FLOW (LPM) PRESSURE (PSI) PORT SIZE (INCHES) NO. OF SERVICE POINTS	
04	COMPRESSED AIR FLOW (LPM) PRESSURE (PSI) PORT SIZE (INCHES) NO. OF SERVICE POINTS	
05	DRAIN PORT SIZE (INCHES) NO. OF SERVICE POINTS	
06	DM WATER FLOW (LPM) PRESSURE (PSI) PORT SIZE (INCHES) NO. OF SERVICE POINTS RESISTIVITY (M. Ohms)	
07	EXHAUST FLOW (CFM) PORT SIZE (INCHES) NO. OF SERVICE POINTS	
08	CLASS OF CLEAN ROOM FOR PROCESS AREA	
09	OTHER SERVICES (Inclusive of Process Gases, if any)	
10	ENVIRONMENT TEMPERATURE (DEG C) HUMIDITY (%)	

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				ANNEXURE A-1
UNPRICED BID FORMAT (WITHOUT PRICES)-IMPORTED				
BHEL RFQ No. HBSSCPV100 Dated 22.06.2012				
Technical Bid Due Date: 20.07.2012				
Item : AUTOMATIC SOLAR CELL TESTER-CUM-SORTER				
Reference PS- 439- 078 Rev 02	ITEM DESCRIPTION	QTY	CURRENCY	DELIVERY IN WEEKS
1	Design, manufacture, supply of equipment, warranty with spares for 2-years, consumable items for 1-year, training for Automatic Solar Cell Tester-Cum-Sorter for testing of Solar Cells under simulated sunlight & sorting them into pre-defined categories automatically and place them in appropriate cell stacks.	1 SET		
2	Erection & Commissioning (To quote in % of Item No.1)	1 AU		
TOTAL OF 1+2				

Note:

* The above format is to be used for Unpriced bid. Reproducing on letter head is acceptable.

* Purchase order will be placed on the lowest quotation (L1) only among the technically & commercially accepted quotations. L1 = Total basic value (including, Erection & Commissioning, Training, Spares etc.) in foreign currency + FOB charges (if any) + Packing & Forwarding charges (if any) + Cost Insurance Freight (CIF) + Basic Custom Duty (BCD) + Counter Veiling Duty (CVD) + Educational Cess + Special Additional Duty (SAD) + Entry TAX + Service TAX (if applicable) +Loading factors for deviations to commercial terms & conditions.

Exchange rate ruling on the date of Tender opening (Techno-commercial / un-priced Bid) will be considered for converting foreign currency to Indian currency.

Exchange rates of banking TT selling will be considered.

Note: Kindly refer Clause No.18 Page 4 of 15 of SC&PV General Terms and Conditions for Erection & Commissioning.

For E&C: The Tax as applicable will be deducted during Payment release.

UNPRICED BID FORMAT (WITHOUT PRICES) for Indian Suppliers

BHEL RFQ No. HBSSCPV100 Dated 22.06.2012

Technical Bid Due Date: 20.07.2012

Item : AUTOMATIC SOLAR CELL TESTER-CUM-SORTER

Reference PS- 439- 078 Rev 02	ITEM DESCRIPTION	QTY	ED @	CST@	VAT@	Service Tax@	DELIVERY IN WEEKS	TAXES
1	Design, manufacture, supply of equipment, warranty with spares for 2-years, consumable items for 1-year, training for Automatic Solar Cell Tester-Cum-Sorter for testing of Solar Cells under simulated sunlight & sorting them into pre-defined categories automatically and place them in appropriate cell stacks.	1 SET						EXTRA/INCLUDED
2	Erection & Commissioning (To quote in % of Item No.1)	1 AU						EXTRA/INCLUDED
3	Freight Charges							EXTRA/INCLUDED
4	Service Tax on Freight @ 2.575%							EXTRA/INCLUDED

Note:

* The above format is to be used for Unpriced bid. Reproducing on letter head is acceptable.

* Purchase order will be placed on the lowest quotation (L1) only among the technically & commercially accepted quotations. L1 = Total basic value (including Erection & Commissioning, Training, Spares etc.) + Packing & forwarding charges + Excise duty + Education Cess + sales Tax/VAT + Octroi+ Exit/Entry tax+ Freight & Insurance + Service Tax (if applicable) + Loading factors for deviations to commercial terms & conditions.

Note: Kindly refer Clause No.18 Page 4 of 15 of SC&PV General Terms and Conditions for Erection & Commissioning.

Signature of tenderer / with seal

PRICE BID FORMAT FOR FOREIGN SUPPLIERS

BHEL RFQ No. HBSSCPV100 DATED 22.06.2012

Technical Bid Due Date: 20.07.2012

Item : AUTOMATIC SOLAR CELL TESTER-CUM-SORTER

Reference PS- 439- 078 Rev 02	ITEM DESCRIPTION	QTY	FOB VALUE (INTERNATIONAL AIRPORT/ SEAPORT)	CURRENCY
1	Design, manufacture, supply of equipment, warranty with spares for 2-years, consumable items for 1-year, training for Automatic Solar Cell Tester-Cum-Sorter for testing of Solar Cells under simulated sunlight & sorting them into pre-defined categories automatically and place them in appropriate cell stacks.	1 SET		
2	Erection & Commissioning (To quote in % of Item No.1)	1 AU		
TOTAL of all above (1+2)				
Note:				
* The above format is to be used for Unpriced bid. Reproducing on letter head is acceptable.				
* Purchase order will be placed on the lowest quotation (L1) only among the technically & commercially accepted quotations. L1 = Total basic value (including, Erection & Commissioning, Training, Spares etc.) in foreign currency + FOB charges (if any) + Packing & Forwarding charges (if any) + Cost Insurance Freight (CIF) + Basic Custom Duty (BCD) + Counter Veiling Duty (CVD) + Educational Cess + Special Additional Duty (SAD) + Entry TAX + Service TAX (if applicable) + Loading factors for deviations to commercial terms & conditions.				
Exchange rate ruling on the date of Tender opening (Techno-commercial / un-priced Bid) will be considered for converting foreign currency to Indian currency. Exchange rates of banking TT selling will be considered.				
Note: Kindly refer Clause No.18 Page 4 of 15 of SC&PV General Terms and Conditions for Erection & Commissioning.				

Signature of tenderer / with seal

PRICE BID FORMAT FOR INDIAN SUPPLIERS

BHEL RFQ No. HBSSCPV100 Dt. 22.06.2012

Technical Bid Due Date: 20.07.2012

Item : AUTOMATIC SOLAR CELL TESTER-CUM-SORTER

Reference PS- 439- 078 Rev 02	ITEM DESCRIPTION	QTY	Unit Price (Rs.)	Ex-Works Price(Rs.)	ED @	CST@	VAT@	Service Tax@	TAXES
1	Design, manufacture, supply of equipment, warranty with spares for 2-years, consumable items for 1-year, training for Automatic Solar Cell Tester-Cum-Sorter for testing of Solar Cells under simulated sunlight & sorting them into pre-defined categories automatically and place them in appropriate cell stacks.	1 SET							EXTRA/INCLUDED
2	Erection & Commissioning (To quote in % of Item No.1)	1 AU							EXTRA/INCLUDED
3	Freight Charges								EXTRA/INCLUDED
4	Service Tax on Freight @ 2.575%								EXTRA/INCLUDED
5	TOTAL OF ALL ABOVE								

Note:

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Note: Kindly refer Clause No.18 Page 4 of 15 of SC&PV General Terms and Conditions for Erection & Commissioning.

Signature of tenderer / with seal