



BHEL-SBD

**SOLAR BUSINESS DIVISION  
BENGALURU – 560012, INDIA  
Purchase Specification  
Group : Photovoltaic Module**

DOC. NO: SPV-4-02-00019

REV. 00 | JOB NO.- STD.

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3.8 Cell shall not have Micro Crack, Dark Area, Dark Spot & Dead cell.

**4.0 PACKING CONDITIONS:**

4.1 Cell shall be vacuum / air tight packed with heat shrinkable sleeve or polythene / polypropylene sachets of not more than 125 cells per sachet.

4.2 Sachets shall be packed in foam / thermocol boxes with soft pads on both ends or in polyethylene foam packing to absorb transit handling shocks.

4.3 Packing of sachets shall be in carton boxes with soft spacers & bubble wrap.

4.4 The final packing shall be with suitable pallet for mechanised handling.

4.5 Manufacturer name, Cell type, Lot number, Wattage/ efficiency, Quantity, date of manufacture to be identified on each sachet. Total quantity of cells in each carton to be displayed.

4.6 Each pallets shall have marking of BHEL PO No. and item description etc. for traceability.

**5.0 TEST CERTIFICATE / REPORTS / COC:**

5.1 Each lot must be accompanied with routine Test Certificate, for the parameters described in clause from 1.04 to 1.08 of section 1.0.

5.2 Certificate Of Compliance (COC) for each point mentioned under section 1.0, clause no. 1.02 to 1.03, 1.09 to 1.13, section 3.0 & section 4.0 shall be provided along with each lot.

**6.0 INSPECTION CRITERIA :**

6.1 Visual inspection, Dimensional & Electrical characteristics : Single Sampling Plan as per ISO: 2859-1 / IS: 10673-1983, General Inspection Level - 2, AQL 0.65

6.2 Solder peel strength : Single Sampling Plan as per ISO: 2859-1 / IS: 10673-1983, Special Inspection Level - I, AQL 1.5

**7.0 REMARKS**

7.1 Options mentioned against Clause nos. 1.02 , 1.04 , 1.07, and typical values of Clause 2.0, shall be specified as per Doc No. SPV-4-02-00020 in the individual enquiries. Bidders to clearly specify the acceptance for each options in their offer as below.

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**8.0 BIDDER'S CONFIRMATION**

SI No.	Description	Bidder Response
<b>8.1</b>	<b>Multi (Poly) crystalline solar cell</b>	
8.11	Dimension in mm: 156.75 ± 0.5 x 156.75 ± 0.5	Quoted/ Not Quoted
8.12	Dimension in mm: 158.75 ± 0.5 x 158.75 ± 0.5	Quoted/ Not Quoted
8.13	Cell Power Rating offered in Wp	
8.14	Offered solar cell efficiency	
<b>8.2</b>	<b>Mono PERC Crystalline Silicon solar cell</b>	
8.21	Dimension in mm: 156.75 ± 0.5 x 156.75 ± 0.5	Quoted/ Not Quoted
8.22	Dimension in mm: 158.75 ± 0.5 x 158.75 ± 0.5	Quoted/ Not Quoted
8.23	Cell Power Rating offered in Wp	
8.24	Offered solar cell efficiency	

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**SILICON SOLAR CELL****1.0 PHYSICAL CHARACTERISTICS**



SI No.	Description	BHEL Requirement
1.1	Crystalline Technology	
1.2	Dimension in mm:	
1.3	Required Cell Power Rating (Pmax)	

**2.0 ELECTRICAL CHARECTERISTICS**

SI No.	Parameter	Typical Values
2.1	Power Output (Pmax) in Watts	
2.2	Solar cell efficiency	
2.3	Voltage at maximum power point in V	
2.4	Current at maximum power point in A	
2.5	Open circuit voltage in V	
2.6	Short circuit current in A	
2.7	Fill factor	

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 	<b>SOLAR BUSINESS DIVISION</b>	<b><u>TECHNO COMMERCIAL MEMORANDUM OF UNDERSTANDING</u></b>	Solar Cells – Rev.00
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Ref.No: **SBD:TC:MOU:SPV:SOLAR CELLS/MOU**



BHEL /SOLAR BUSINESS DIVISION / BANGALORE

TECHNO COMMERCIAL MEMORANDUM OF UNDERSTANDING (EXCEPT PRICE) FOR  
SUPPLYING  
Solar cells for PV Modules

BETWEEN

M/s. BHEL /SOLAR BUSINESS DIVISION / BANGALORE - 560012

&


BHEL REGISTERED VENDORS

DOC REF: **SBD:TC:MOU:SPV:SOLAR CELLS**

PRODUCT: SOLAR CELLS FOR SPV MODULES

BIDDER'S SIGNATURE WITH SEAL

BHEL SBD

	<b>SOLAR BUSINESS DIVISION</b>	<b>TECHNO COMMERCIAL MEMORANDUM OF UNDERSTANDING</b>	<b>Solar Cells – Rev.00</b>
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Ref.No: **SBD:TC:MOU:SPV:SOLAR CELLS/MOU**

## 1.0 GENERAL:

- 1.1 This Techno commercial MOU is signed for the supply of **SPV Solar cells (Multicrystalline/Mono Perc Cells)** as per the agreed specifications & commercial terms & conditions so that these details need not be discussed repeatedly for future supplies.
- 1.2 The various aspects covered in this MOU are as follows & it is agreed to follow the same without any deviation.
  - 1.2.1 Commercial Requirements as per GCC R0 & SCC R0.
  - 1.2.2 Technical Specification
- 1.3 The Bidder agrees to take no deviation while submitting the offer, other than deviations agreed by BHEL with %age of cost of withdrawal as agreed in TC-MOU.
- 1.4 Same cost of withdrawal will be loaded in quote at the time of evaluation of price in enquiry, however bidder can withdraw such deviation in offer at the time of enquiry.
- 1.5 If BHEL has any other requirement/deviation from the MOU for a particular enquiry, it shall be clearly given in the enquiry itself. Confirmation for that requirement/deviation alone is to be given by the bidder. All other terms & conditions shall be as per the MOU. Such deviations/requirements, if any, shall pertain to that enquiry alone and MOU shall be followed for all other enquiries unless otherwise specified
- 1.6 **In case of requirements for project/shop, BHEL shall invite offers for requirement of solar cells for project/shop for the option as accepted by the Supplier. Supplier shall submit their offer strictly as per the agreed terms and conditions of TC-MOU.**
- 1.7 If any deviation is taken in the technical, commercial & quality points in the offer submitted by Supplier, the **offer will not be accepted**. Any request for reevaluation will not be entertained.
- 1.8 This MOU shall be valid from \_\_\_\_\_.
- 1.9 The MOU shall stand valid for **One (01) years** from the date of finalization of the MOU. The MOU validity may be extended eve after the initial period of **One (01) years** if required by BHEL, with the consent of Bidder.

BIDDER'S SIGNATURE WITH SEAL

BHEL SBD



Item:

Tender Ref:

**NAME OF VENDOR:-**

SL NO	VOULME/ SECTION	PAGE NO.	CLAUSE NO.	TECHNICAL SPECIFICATION/ TENDER DOCUMENT	COMPLETE DESCRIPTION OF DEVIATION	% COST OF WITHDRAWAL OF DEVIATION	PORTION OF PRICE SCHEDULE ON WHICH COST OF WITHDRAWAL OF DEVIATION IS APPLICABLE	NATURE OF COST OF WITHDRAWAL OF DEVIATION (POSITIVE/ NEGATIVE)	REASON FOR QUOTING DEVIATION	REMARKS
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**TECHNICAL DEVIATIONS**


**COMMERCIAL DEVIATIONS**


**PARTICULARS OF BIDDERS/ AUTHORISED REPRESENTATIVE**

NAME	DESIGNATIONS	SIGN & DATE

**NOTES:**

- For self manufactured items of bidder, cost of withdrawal of deviation will be applicable on the basic price (i.e. excluding taxes, duties & freight) only.
- For directly dispatchable items, cost of withdrawal of deviation will be applicable on the FOR site price including taxes, duties & freight.
- All the bidders have to list out all their Technical & Commercial Deviations in detail in the above format only on cost basis (if any). Cost of withdrawal for the deviations, for which, the "Cost of withdrawal" is not specified, shall be taken as NIL.
- Any deviation not mentioned above and shown separately will not be taken cognizance of.
- Bidder shall submit duly filled unpriced copy of above format indicating "quoted" in "cost of withdrawal of deviation" column of the schedule above along with their Techno-commercial offer, wherever applicable.
- Bidder shall furnish price copy of above format along with price bid.
- The final decision of acceptance/ rejection of the deviations quoted by the bidder shall be at discretion of the Purchaser.
- Bidders to note that any deviation (technical/commercial) not listed in above and asked after Part-I opening shall not be considered.
- For deviations w.r.t. Payment terms, Liquidated damages, Firm prices and submission of E1/ E2 forms before claiming 10% payment, if a bidder chooses not to give any cost of withdrawal of deviation loading as per Annexure-VIII of GCC, Rev-06 will apply. For any other deviation mentioned in un-priced copy of this format submitted with Part-I bid but not mentioned in priced copy of this format submitted with Priced bid, the cost of withdrawal of deviation shall be taken as NIL.
- Any deviation mentioned in priced copy of this format, but not mentioned in the un-priced copy, shall not at all be accepted.
- All techno-commercial terms and conditions of NIT shall be deemed to have been accepted by the bidder, other than those listed in unpriced copy of this format.
- Cost of withdrawal is to be given separately for each deviation. In no event, bidder should club cost of withdrawal of more than one deviation else cost of withdrawal of each deviation which have been clubbed together shall be considered as NIL.
- In case nature of cost of withdrawal (positive/negative) is not specified, it shall be assumed as positive.
- In case of discrepancy in the nature of impact (positive/negative), positive will be considered for evaluation and negative for ordering.

**ENCLOSURE - 3**

(To be filled up by the Bidder)

Ref. No.:

Date :

M/s Bharat Heavy Electricals Ltd.,  
Solar Business Divison  
Prof. CNR Rao Circle  
Malleswaram  
Bangalore - 560012

Attention: Shri

Dear Sir,

1. Having examined the TC-MOU documents against your Tender REF No **SBD:TC:MOU:SPV:SOLAR CELLS** dated \_\_\_\_\_ and having understood the provisions of the said tender documents and having thoroughly studied the requirements of BHEL related to the TC-MOU for, in connection with SUPPLY OF Solar cells (name of work & project site), we hereby submit our offer for the proposed TC-MOU in accordance with terms and conditions mentioned in the tender documents.

The price will be quoted by us in your price schedule format and as per the indicated delivery schedule.

2. If the work or any part thereof is awarded to us, we undertake to submit security-cum-contract performance bank guarantee as per your requirement.

3. We have annexed to this tender the following documents:-

**Part-I (Techno Commercial Bid)** - in a properly sealed cover (uploaded in website in case of e-procurement).

- a) Complete Techno-Commercial Offer.
- b) Priced copy of deviation sheet (cost of withdrawal) – Enclosure-2
- c) Any other documents (please specify).

Thanking you,

Yours faithfully,

(Signature of the bidder with Name, Designation and Company's Seal)