







SOLAR BUSINESS DIVISION (SBD)	SPECIAL CONDITIONS OF CONTRACT (SCC)	Item Description: : SPV Solar cells
	Rev. No. 00	TENDER REF. : SBD:TC:MOU:SPV:SOLAR CELLS



		<p>form part of contract quantities for this purpose. Substitute/ extra items which have been executed but rates have not been approved, would also form part of contract quantities for this purpose and rates of such items shall be determined in line with contractual provisions.</p> <p>However, increase in quantities on account of additional scope in new tender shall not be considered for this purpose.</p> <p>NOTE: Incase portion of work is being withdrawn, contract quantities pertaining to portion of work withdrawn shall be considered as 'Balance scope of work/supply' for calculating Risk & Cost amount.</p> <p>LD against delay in executed work/supply in case of Termination of Contract</p> <p>LD against delay in executed work/supply shall be calculated in line with LD clause of the contract for the delay attributable to contractor/supplier. For this purpose, contract value shall be taken as Executed Value of 30work/supply for the purpose of limiting maximum LD value. Method for calculation of "LD against delay in executed work/supply" is given below.</p> <ol style="list-style-type: none"> 1. Let the time period from scheduled date of start of work till termination of contract excluding the period of Hold (if any) not attributable to contractor/ supplier= T1 2. Let the value of executed work/supply till the time of termination of contract= X 3. Let the Total Executable Value of work/supply for which inputs/fronts were made available to contractor/ supplier and were planned for execution till termination of contract = Y 4. Delay in executed work/supply attributable to contractor/supplier i.e. $T2=(1-X/Y) \times T1$ 5. LD shall be calculated in line with LD clause of the Contract for the delay attributable to contractor/ supplier taking "X" as Contract Value and "T2" as delay attributable to contractor/ supplier. <p>Note: Incase portion of work/supply is withdrawn; no LD shall be applicable for portion of work/supply withdrawn.</p>
35.	NOTE	<p>Delivery Challans & Invoices /Service Entry Sheet in the format as specified under GST laws mentioning your GSTIN No, item HSN/SAC No should accompany supply.</p> <ol style="list-style-type: none"> 1. GST portion of invoice shall be released only upon vendor declaring such invoice in his GSTR-1 return and receipt of goods/services and tax and confirmation of payment of GST thereon by vendor on GSTN Portal. 2. Bank Guarantee of appropriate value may be obtained from vendor which shall be valid at least one month after the confirmation of payment date by vendor on GST portal and receipt of Tax invoice and receipt of goods, whichever is later. [if (a) above could not be complied]. 3. In case GST credit is delayed/denied to BHEL due to non/delayed receipt of goods and/or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount shall be recoverable from vendor along with interest levied/BG of appropriate value may be obtained from vendor alternatively payment covering GST portion including interest thereon shall be release to vendor only upon completion of these requirements. 4.

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		<p>5. In case vendor delays declaring such invoice in his return & GST credit by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST Law shall be recoverable from vendor/contractor along with interest levied/leviable. be obtained from vendor alternatively payment covering GST portion including interest thereon shall be released to vendor only upon completion of these requirements.</p>
36.	Conciliation Clause	<p>The Conciliation Scheme 2018 attached as <u>Annexure-A</u> shall be applicable. The Signed & Stamped copy of the same to be attached along with the offer as a mark of acceptance.</p>
37.	Provisions for MSE vendors	<p>PROVISIONS APPLICABLE FOR MSE VENDORS (MICRO AND SMALL ENTERPRISES) Benefits/facilities as applicable for Micro and Small Enterprises (MSEs) shall be available to MSE vendors registered with Government Designated Authorities as per the Purchase & Price Preference Policy of the Government subject to them becoming eligible otherwise. Vendors who qualify as MSE vendors are requested to submit applicable certificates (as specified by the Ministry of Micro, Small and Medium Enterprises) at the time of vendor registration.</p> <p>Vendors have to submit the Udyog Aadhaar Memorandum (UAM)/UDYAM Registration Certificate along with attested copy of a CA certificate [Annexure-2(A) / Annexure-2(B)] applicable for the relevant financial year (latest audited) along with the tender documents in the Part-I Bid to avail the applicable benefits. Date to be reckoned for determining the deemed validity will be the date of bid opening (Part-I in case of two-part bid and three-part bid). Documents have to be notarized/attested by a Gazetted officer and must be valid as on the date of Part-I Bid opening for the vendors to be eligible for the benefits applicable for MSE vendors. Please note that no benefit shall be applicable if any deficiency in the above required documents are not submitted before the Price Bid Opening / Reverse Auction. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Bidders to however note the documents that shall be furnished in order to establish credentials as MSE vendor should be as per the extant statutory requirements specified by the Ministry of Micro, Small and Medium Enterprises (MSME).</p> <p>PURCHASE PREFERENCE FOR MSE VENDORS: (For Items which are divisible in nature) MSE vendors quoting within a price band of L1 + 15% shall be allowed to supply up to 25% of the requirement against this tender provided:</p> <ol style="list-style-type: none"> 1. The MSE vendor matches the L1 price. 2. L1 price is from a non MSE vendor. 3. L1 price will be offered to the vendor nearest to L1 in terms of price ranking (L2 – nearest to L1). In case of non-acceptance by the MSE vendor (L2), next ranking MSE vendor will be offered who is within the L1 + 15% band (if L3 is also within 15% band).

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		<p>4. 3% of the 25% will be earmarked for women owned MSE's.</p> <p>5. 25% of the 25% (i.e., 6.25% of the total enquired quantity) will be earmarked for SC/ST owned MSE firms provided conditions as mentioned in (1) & (2) are fulfilled.</p> <p>6. In case where no SC/ST category firms are meeting the conditions mentioned in (1) and (2) or have not participated in the tender, the 6.25% of earmarked quantity for SC/ST owned MSE firms will be distributed among the other eligible MSE vendors who have participated in the tender.</p> <p>(For Items which are not divisible in nature) MSE vendors quoting within a price band of L1 + 15% shall be allowed to supply up to 100% of the requirement against this tender provided:</p> <ol style="list-style-type: none"> 1. The MSE vendor matches the L1 price. 2. L1 price is from a non MSE vendor. 3. L1 price will be offered to the vendor nearest to L1 in terms of price ranking (L2 – nearest to L1). In case of non-acceptance by the MSE vendor (L2), next ranking MSE vendor will be offered who is within the L1 + 15% band (if L3 is also within 15% band). 4. No distribution shall be done specifically to women owned MSEs or SC/ST owned MSEs in such cases. <p>Documents to be submitted for claiming MSE status and intended benefits: Option 1 (valid till 31.03.2021): Submission of Udyog Aadhar Memorandum along with CA certificate as per Annexure-2(A). Option 2: Submission of Udyam Registration Certificate along with CA certificate as per Annexure-2(B).</p>
38.	Compliance to order No. 25-111612018-PG, Dated 02.07.2020 of Ministry of Power, GOI	Compliance to order No. 25-111612018-PG, Dated 02.07.2020 of Ministry of Power, GOI to be submitted in the bidder's letter head as per attached Annexure-4 Note: Non-compliance of MoP Order and its subsequent amendment(s), (if any), by vendor shall lead to rejection of their offer or cancellation of contract, which is awarded by BHEL.

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39.	Tax Deducted at Source (TCS)	<p>This has reference to the newly inserted Section 194Q under Income Tax Act 1961 (applicable w.e.f. 01.07.2021) for deduction of tax at source by a buyer of goods at the time of amount paid or credited for purchase of goods exceeding Rs. 50 lacs.</p> <p>The gist of the provisions of Section 194Q are as follows:</p> <p>Tax is required to be deducted at source by a purchaser of goods whose turnover for previous FY has exceeded Rs. 10 Crs. The seller should be a resident of India.</p> <p>TDS @ 0.1% shall be applicable on the amount paid /credited in case purchases from a seller exceeds Rs. 50 Lacs during a financial year. In case PAN of seller is not available or seller is a Specified person (Non-filer), TDS shall be deducted @ 5%.</p> <p>This provision shall not be applicable where tax is deductible under any other provision of I.T Act, 1961. Also, in case a particular transaction qualifies for deduction of TDS u/s 194-Q and the purchaser has deducted the TDS then the same transaction shall not attract TCS u/s 206C(1H).</p> <p>W.e.f. 01.07.2021, as per the above-stated provisions of I. Tax Act, 1961, BHEL HAVING PAN : AAACB4146P IS LIABLE TO DEDUCT TAX AT SOURCE UNDER SECTION 194Q OF THE INCOME TAX ACT AND ACCORDINGLY TDS AT APPLICABLE RATE ON THE PRESCRIBED VALUE UNDER SECTION 194Q WOULD BE DEDUCTED UNDER TAN : BLRB04342C BEFORE MAKING PAYMENT FOR PURCHASE OF GOODS.</p> <p>Thus, all the BHEL Partners are requested not to levy TCS w.e.f. 01.07.2021</p>
40.	e-Invoicing under GST	<p>E-Invoicing under GST is being implemented w.e.f. 1st October 2020 for all the taxable person having turnover more than ₹100 Crore. It has been specified by the Government of India that it is mandatory to mention a valid unique invoice reference number (IRN) and QR code as generated from Government portal on a Tax Invoice. Based on such information, GST ITC as claimed by BHEL in GST returns shall be matched with the corresponding details uploaded by the supplier in e-Invoicing system.</p> <p>In case the vendor delays or fails to provide all the documents as per the Purchase Order at the time of submitting Tax invoice to BHEL, any subsequent financial loss to BHEL attributable to vendor shall be on Vendor's account. BHEL has further right to take necessary steps to protect its interest at the time of release of payment.</p>



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

DOC. NO: SPV-4-02-00021

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PRE-QUALIFICATION REQUIREMENTS

	Particulars	Bidder's Confirmation
1	The offer shall be submitted by the original manufacturers of crystalline silicon solar cell only. Offer can be routed through agents/ channel partners, etc. However, BHEL shall sign the MoU/ enter into the contract/ PO will be released to the original manufacturer only.	Name of solar cell manufacturer, complete address & contact details with email address, website to be provided. Datasheet of the offered model to be submitted.
2	Vendor should have a minimum of 200 MW/annum in-house Crystalline silicon solar cell manufacturing capacity.	Annual production capacity in MW: _____ (Documentary proof to be provided)
3	The bidder should have supplied at least 1 million numbers of crystalline silicon solar cells to Indian PV module manufacturers or PV module manufacturers of other than country of origin of the vendor during the two years preceding to date of TC MoU.	Supporting documents to be provided (PO copy/ contract copy/ client certificates/ shipping documents, etc)



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**SOLAR BUSINESS DIVISION
BENGALURU – 560012, INDIA**

Purchase Specification

Group : Photovoltaic Module

DOC. NO: SPV-4-02-00019

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SILICON SOLAR CELL – GENERAL SPECIFICATION

1.0 PHYSICAL CHARACTERISTICS

Sl No.	Description	Multi (Poly) crystalline solar cell	Mono PERC solar cell
1.01	Cell Model Number	_____ (vendor to indicate model no. of Solar cell being offered)	_____ (vendor to indicate model no. of Solar cell being offered)
1.02	Material	Multi (Poly) Crystalline Silicon	Mono Crystalline Silicon with PERC Technology
1.03	Busbar	Five (5) Bus bar	Five (5) Bus bar
1.04	Dimensions (mm)	156.75 ± 0.5 x 156.75 ± 0.5 / 158.75 ± 0.5 x 158.75 ± 0.5 mm	156.75 ± 0.5 x 156.75 ± 0.5 / 158.75 ± 0.5 x 158.75 ± 0.5 mm
1.05	Thickness (microns)	200 ± 20	200 ± 20
1.06	Diagonal	Diagonal variation shall not be more than 0.5 mm	Diagonal variation shall not be more than 0.5 mm
1.07	Cell Power Wattage (Wp)	≥ BHEL required wattage (Negative tolerance not allowed)	≥ BHEL required wattage (Negative tolerance not allowed)
1.08	Soldering peel strength (N/mm)	≥ 1.0 Front (Across each Busbar) ≥ 1.5 Back (Across each Busbar)	≥ 1.0 Front (Across each Busbar) ≥ 1.5 Back (Across each Busbar)
1.09	Cell bow (mm)	< 0.2	< 0.2
1.10	Shape	Square	Pseudo Square
1.11	Metallization	<ul style="list-style-type: none"> ▪ Front – Silver ▪ Back - Silver Bus bar with Aluminum BSF 	<ul style="list-style-type: none"> ▪ Front –Silver ▪ Back - Silver Bus bar with Aluminum BSF
1.12	PID Resistant	Cell shall be 100% PID Resistant.	Cell shall be 100% PID Resistant.
1.13	Anti-Reflection coating	PECVD - Silicon Nitride (Blue Colour)	PECVD - Silicon Nitride (Blue Colour)

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

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2.0 TYPICAL I-V CHARACTERISTICS

Sl No.	Parameter	Multi (Poly) Crystalline Silicon		Mono PERC Crystalline Silicon	
	Dimensions in mm	156.75 ± 0.5 x 156.75 ± 0.5 mm	158.75 ± 0.5 x 158.75 ± 0.5 mm	156.75± 0.5 x 156.75 ± 0.5 mm	158.75 ± 0.5 x 158.75 ± 0.5 mm
2.1	Power Output (Pmax) in Watts	4.67		5.37	
2.2	Solar cell efficiency	19%	18.5%	21.8%	21.3%
2.3	Voltage at maximum power point in V	0.548	0.549	0.568	0.568
2.4	Current at maximum power point in A	8.513	8.513	9.502	9.502
2.5	Open circuit voltage in V	0.645	0.646	0.662	0.663
2.6	Short circuit current in A	9.024	9.024	10.192	10.186
2.7	Fill factor	80%	80%	80%	80%

Note : Above I-V datas are typical values at irradiance 1000 W/m² with AM 1.5 spectrum, Cell temperature 25⁰ C, Test method according to IEC 60904-1.

3.0 MECHANICAL, VISUAL & ELECTROLUMINESCENCE (EL) CHARACTERISTICS:

- 3.1 The cells shall be of 'A' category without any Visual defects.
- 3.2 Cell should not have any edge chips or any visible crack or deep scratches.
- 3.3 Cell should not have any printing defects. Cells shall not have any misalignment (of bus-bars) on the either surface. Cells must have precise printing & superior silver contacts for ease of automatic soldering.
- 3.4 Cell should not have print shift, finger knots other printing defects of more than 0.5 mm on width and 3.0 mm on length.
- 3.5 Cell shall not have bus bar or grid line interruptions, finger print interruptions, finger breaks, stains or paste smudges on either surface etc.
- 3.6 Cells shall have homogenous Silicon Nitride coating. There shall not be any colour variations.
- 3.7 Bus line Silver shall not be tarnished or oxidized.

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