

Bharat Heavy Electricals Ltd.,

(A Government of India undertaking)

Electronics Division

PB No.2606, Mysore Road, Bangalore-560026, India


Global Tender

Sealed quotations are invited under two part bid system for manufacturing and supply of Multi crystalline PV Module ≥ 330 Wp as per BHEL technical specification.

RFQ NO and date	SPKSCPV056 dated 16.09.2020
RFQ due date & time	30.09.2020 up to 13.00 hrs (IST)
Date, Time & Venue of Part-I Bid Opening	30.09.2020 after 13.30 hrs (IST) New Engineering Building 2nd Floor Bharat Heavy Electricals Limited PB NO 2606, Mysore road, Bangalore-560 026. INDIA
Date, Time & Venue of Price Bid opening	Will be intimated later for technically & commercially qualified bidders
Address for Communication & Contact Person in BHEL	Mr. S.Pankaj Kumar / Mr. Ponnugurupackiam, SC&PV MM Department, BHEL Electronics Division, PB NO 2606, Mysore road, Bangalore-560 026. INDIA Email: spankaj@bhel.in , ponnuguru@bhel.in Telephone number: +91 8126333426 (M) +91 80 26989667, +91 9449869617 (M) +91 80 26998669,

Any Deviations from or additions to the "General Conditions of Contract" or "Special Conditions of Contract" require BHEL's express written consent. The General Terms of Business or Sale of the Bidder shall not apply to this tender.

REQUEST FOR QUOTATION

	BHARAT HEAVY ELECTRICALS LIMITED Electronics Division PB No. 2606, Mysore Road Bangalore - 560026 INDIA	RFQ NUMBER: SPKSCPV056	Due Date : 30.09.2020 Time : 13:00 HRS VENUE : NEW ENGG. BLDG
MMI:PU:RF:003		RFQ DATE : 16.09.2020	

(address for communication) :	(for all correspondence) Purchase Executive : S. Pankaj Kumar Phone : 080-26989667 Fax : E-mail: spankaj@bhel.in
-------------------------------	------------------------------------------------------------------------------------------------------------------------------

Please submit your lowest quotation subject to our terms and conditions attached for the materials mentioned below. The quotation must be enclosed in a sealed envelope / Fax superscribed with RFQ no. and due date, should reach us on or before the due date by 13.00 hours IST and will be opened on the same day at 13.30 hours at the venue mentioned above. **PLEASE DROP THE OFFER IN THE BOX MARKED SPK PROVIDED AT RECEPTION.**

Sl No.	Description	Qty	Unit	Delivery qty	Delivery Date ⁴
4	PV0679040374 Multi Crystalline PV Module -SCCL * HSN/SAC : 8541 Doc No.- PS439401 Rev - 02	1,982	KW	37.950 861.650 666.600 415.800	30.12.2020 30.12.2020 30.12.2020
2	PV0679040706 Multi Crystalline PV Module- GSECL * HSN/SAC : 8541 Doc No.- PS439413 Rev - 03	43,888	KW	43,888	09.12.2020 ¹
1	PV0679040722 Multi Crystalline PV Module-NTPC SIM,KKM * HSN/SAC : 8541 Doc No.- PS439415 Rev - 01	67,525	KW	36,010 31,515	09.12.2020 29.12.2020
3	PV0679040731 Multi Crystalline PV Module -NTPC RG * HSN/SAC : 8541 Doc No.- PS439416 Rev - 02	46,068	KW	46,068	29.12.2020

Total Number of Items - 4

1.
2.

TWO PART BID - SUBMIT TECHNICAL AND PRICE BID IN SEPARATE SEALED COVERS

Please note the tender will be opened in the presence of the bidders or his authorised representatives (maximum two per organisation) who choose to be present with authorisation letters. Refer annexure for the terms and conditions.

Preference will be given to vendors who accepts our standard payment terms i.e. 100% payment within 30 days of receipt of material at our works.

Please specify Terms of delivery, Excise duty, sales tax, Ex-BHEL, Ex-works surcharge, Insurance, P&F, Freight and other taxes very clearly

For evaluation, exchange rate (TT selling rate of SBI) as on scheduled date of tender opening (Part-I bid in case of two part bid) shall be considered.

The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com


- i). This is only RFQ not an order.
- ii). In all correspondence quote RFQ No. & due date.
- iii). In Quotation BHEL material code / RFQ Sl. No. should be mentioned clearly.
- iv). Quotation Envelope / Fax not superscribed with RFQ No. and due date is liable for rejection.
- v). Quotation should remain valid for a minimum period of 90 days from due date.
- vi). In case of non-receipt of Quotation or regret letter for 3 consecutive RFQs you are liable to be removed from our vendors list.

* The HSN/SAC no mentioned against the line items in the RFQ are indicative only.

For and On behalf of BHEL.

S. Pankaj Kumar
Semiconductors & Pho

1 OF 1


 <p>बि एच ई लि A4-11</p>	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-415
		Rev. No	01
		Page 1 of 9	

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest to the company

TECHNICAL SPECIFICATION FOR SUPPLY OF MULTI CRYSTALLINE SILICON PV MODULES – NTPC SIM, KKM

REVISION DETAILS: (01) 1. PQC is removed from the technical specification and provenness criteria added instead 2. Insurance/ bank guarantee for power output warranty is added	PREPARED CMH 	DATE 10.09.2020
	APPROVED SR 	

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-415
		Rev. No	01
		Page 2 of 9	

1. Provenness Criteria :

Sl. No	Particulars	Bidder's confirmation
1.	The bidder should have manufactured and supplied the Solar PV Modules of cumulative installed capacity of 20 MWp or above using any rating of modules and any source of indigenous or imported PV cells in any one financial year to Solar Plants.	Yes / No Enclose client certificate/and/or copy of Letter of Award in respect of above
2.	The bidder should have manufactured and supplied Solar PV Module built up using indigenous and/ or imported PV Cells of power rating 285 Wp or above to Solar Plants, which should have completed atleast six months of successful operation as on 01.07.2019.	Yes / No Enclose client certificate/and/or Letter from Transco/Discom (Transmission / Distribution Company) In respect of above

Note A :


- i. Please fill enclosed "PROVENNESS CRITERIA FOR SOLAR PV MODULES"
- ii. The works referred to clause (1) & (2) can be in same or different projects.

2. TECHNICAL REQUIRMENTS:

Sl. No	Item	Remarks
1	PV Module Configuration	Multi crystalline photovoltaic module with 72 nos of cells in 12X6 series configuration. The module construction and bill of material shall be as per vendor's approved IEC certification. Please enclose: i. Module overall assembly drawing with mounting holes ii. Data sheet with typical electrical characteristics, I-V curves, temperature coefficients etc.
2	Power Output	330 Watts and above, in 5 Watt band only. No negative power tolerance will be accepted.
3	System Voltage	Modules shall be suitable for 1500V DC System Voltage application.

COPYRIGHT AND CONFIDENTIAL


The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-415
		Rev. No	01
		Page 3 of 9	

4	Efficiency	15% (min)
5	Fill Factor	0.70 (min)
6	Temp coefficient of Power	-0.45% or better
7	Operating Conditions	SPV module shall perform satisfactorily with ambient temperatures between - 10° C & +60° C and shall withstand gust up to 150 Km/h on the surface of the panel.
8	IEC Certifications	<p>The PV modules supplied shall be with valid IEC certifications as below.</p> <ol style="list-style-type: none"> 1. IEC 61215-1:2016 (Design Qualification and Type Approval-Part 1) 2. IEC 61215-1-1:2016 (Design Qualification and Type Approval-Part 1-1) 3. IEC 61215-2:2016 (Design Qualification and Type Approval-Part 2) 4. IEC 61730-1:2016 (Safety Qualification – Part 1) 5. IEC 61730-2:2016 (Safety Qualification – Part 2) 6. IEC 61701:2011 (Salt Mist Corrosion testing) 7. IEC 62716:2013 (Ammonia Corrosion testing) 8. IEC 62804-1:2015- (Test methods for the detection of PID - Part 1) <p>Vendors shall use Bill of materials for manufacture of PV modules as per subset of approved CDF of IEC Certificates.</p> <p>All IEC Certificates to be submitted with tender.</p>
9	Module Safety Class	Safety Class - II
10	BIS Registration	<p>As per the Solar Photovoltaics, Systems, Devices and Components Goods (Requirements for Compulsory Registration) Order, 2017, Government of India, PV Modules used in the grid connected solar power projects in India shall be registered with BIS and bear the Standard Mark as notified by the Bureau of Indian Standards.</p> <p>Enclose copy of BIS Registration for PV modules</p>
11	BILL OF MATERIALS	
11.1	Solar cells	<p>Type : Multi-crystalline solar cells Pl. indicate Cell Source : Size of Cells : Cell efficiency : No. of busbars Enclose a copy of Solar cell data sheet with electrical parameters.</p>

COPYRIGHT AND CONFIDENTIAL


The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

 <p>A4-11</p>	<p>PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS</p>	Spec. No	PS-439-415
		Rev. No	01
		Page 4 of 9	

11.2	EVA	Fast cure type, UV resistant, Gel content > 70 %.
11.3	Glass	High transmission (> 90 %), low iron, toughened glass with minimum thickness of 3.2 mm and bending less than 0.3%.
11.4	Back Sheet	The back sheet used in the crystalline silicon based modules shall be of 3 layered structure. The thickness of back sheet should be of minimum 300 microns with water vapour transmission rate less than 2.0 g/ m ² /day (38°C at 90% RH). The Back sheet can be fluoro polymer based or of any other well proven technology. The backsheet shall have globally benchmarked durability properties on Moisture barrier, Tensile Strength (Machine Direction & Transverse Direction), Elongation retention and UV stability and shall be able to withstand system voltage of 1500 V.
11.5	PV Module Frame	Corrosion resistant, anodized Aluminum. The anodizing thickness shall be 15 microns or better.
11.6	Junction box	IP67 grade with 3 nos. of bypass diodes, UV resistant & weather-proof Junction box shall have two 4 sq mm UV resistant cables of minimum 1.2 metre length and plug-in connectors (male and female). Cables shall be of solar grade and shall conform to specification EN 50618.
11.7	Adhesive for framing, junction-box fixing and potting	As per manufacturer's IEC test report
11.8	RFID	Each PV module deployed must use a Radio Frequency identification (RFID) tag for traceability. RFID shall either be placed inside the laminate or behind name plate sticker or behind bar code label pasted on the back glass of PV module and must be able to withstand harsh environmental conditions during the module lifetime. RFID tag shall contain the following information: <ul style="list-style-type: none"> a. Name of module manufacturer with country of origin b. Month & year of manufacture of modules c. Name of cell manufacturer with country of origin d. Month & year of manufacture of cells e. IV curve

COPYRIGHT AND CONFIDENTIAL


**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 <p>A4-11</p>	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-415
		Rev. No	01
		Page 5 of 9	

		<ul style="list-style-type: none"> f. Wattage, I_{max}, V_{max}, V_{oc}, I_{sc}, & fill factor g. Module model number h. Unique serial number i. Date of obtaining IEC qualification certificates j. Name of test lab issuing IEC certificates k. Other relevant information etc
11.9	Nameplate	<p>Each module shall be provided with a name plate label (sticker) containing the following information:</p> <ul style="list-style-type: none"> a. Name of module manufacturer b. Module model number and Serial number c. Overall Dimension (W x L x D) d. Weight in Kg e. P_{max}, V_{oc}, I_{sc}, I_{max} & V_{max} f. System Voltage g. Relevant standards and certifying lab name h. Warnings, if any i. Other relevant information, etc j. NTPC Logo on the top corner of each Module (design will be provided). <p>Nameplate shall be clearly visible and shall not be hidden by equipment wiring. It shall be durable for the entire life of panel.</p>
11.10	BOM as per CDF of IEC Certificate	<p>Solar cells and module materials shall be used as per approved CDF as per IEC Certificate.</p> <p>Enclose copy of approved CDF as per IEC Certificate.</p>
11.11	RFID Reader	<p>One number RFID reader (gun type) has to be supplied free of cost by the bidder which has to be compatible to read the module I-V data from the RFID Tag & download the data to Computer. All necessary associated Software, Cables and accessories are to be provided free of cost along with the RFID reader.</p>
11.12	.PAN File	<p>Third Party verified .PAN file for each module wattage offered shall be provided for carrying out PVSYS calculations at our end.</p>
11.13	Mounting hole Pitch	<p>Pl. provide mounting hole pitch details.</p> <p>Horizontal :</p> <p>Vertical :</p> <p>Mounting hole size :</p>
11.14	Earthing holes	<p>Earthing holes to be provided on both the shorter arms of PV module frames.</p>

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-415
		Rev. No	01
		Page 6 of 9	

11.15	I-V curves and temperature coefficients	The bidder shall provide the sample solar PV module electrical characteristics including current-voltage (I-V) performance curves and temperature coefficients of power, voltage and current. Enclose Sample I-V performance curve of 330 Wp PV module Temperature coefficient of Power (Pmax) : Temperature coefficient of Voltage (Voc) : Temperature coefficient of Current (Isc) :
-------	-----------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

3. QUALITY ASSURANCE

Module Quality Plan, Data Sheet and GTP shall be subject to customer's approval. Each lot of modules shall be subject to Pre Shipment Inspection (PSI) by BHEL and BHEL customer.

Quality plan will include the following:

- I. Incoming Quality Checks on bought out item
- II. In-process Quality Checks
- III. Sample tests on final product by the customer

Standard Quality Plan (SQP) from our customer (NTPC) is enclosed herewith. Required documents to be submitted to our customer at the time PSI. Sample tests (Visual, Electrical, etc.) will be carried out as per SQP.

4. WARRANTY

Product Warranty shall be for 10 years and Performance Warranty shall be for 25 years.


Solar PV modules used in solar power plants/ systems must be warranted for the product Workmanship for a period of minimum 10 years. Further, they shall also be warranted for their output peak output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years from the completion of the trial run. Modules that do not meet the above criteria shall be replaced free of cost at BHEL's/customer's sole discretion.

5. INSURANCE OR BANK GUARANTEE FOR POWER OUTPUT WARRANTY

The PV module power output warranty as per the technical specification shall be insured and backed up through an insurance policy by a reputed insurance company which will cover against the PV module power output warranty in case of insolvency or bankruptcy of the PV module manufacturer. The Bidder shall submit a suitable insurance from Third Party.

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-415
		Rev. No	01
		Page 7 of 9	

The Successful Bidder who is not able to provide insurance of PV modules as above, shall submit a Bank Guarantee for 10% contract value through BHEL consortium bank, valid for a period of Ten (10) years and 90 days. The minimum validity of the Bank guarantee shall be Two (2) years and shall be renewed by the bidder on their own subsequently for every Two (2) years prior to thirty (30) days of its expiry. In case the PV module fails to provide power output as per its performance warranty, and if the bidder fails to rectify, replace or repair the PV module, then BHEL shall carry out the necessary rectification, repair or replacement at its own discretion at the risk and cost of the supplier. The cost of such rectification, repair or replacement shall be encashed from the Bank Guarantee against PV Module Warranty. The same shall be replenished by the supplier within thirty (30) days, failing which the entire Bank Guarantee amount shall be encashed and all pending payment shall be withheld by BHEL till such amount is replenished by the supplier. In another instance, if the supplier becomes bankrupt or insolvent, then BHEL shall immediately encash the entire amount of the Bank Guarantee against PV Module Warranty.

6. PACKING & IDENTIFICATION OF PV MODULE

The modules shall be packed in carton boxes. One carton box shall contain one module power rating (330 Wp or 335 Wp). The carton box should display the manufacturer's name, number of modules, type, serial numbers, module wattage etc. Modules found damaged at the time of opening of the cartons in the project site shall be replaced by the module manufacturer.


Modules from outside India shall be with Sea worthy packing and modules made in India shall be with road worthy packing.

7. GENERAL CONDITIONS

- a. PV Modules shall be manufactured at the vendor's works only.
- b. Manufacturing clearance shall be given only after approval of Vendor's Credentials, Provenness Criteria, Quality plan, Pre-Shipment inspection plan and approval of drawings and datasheet by BHEL's customer.

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**


 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-415
		Rev. No	01
		Page 8 of 9	

8. Enclosures :

Sl. No.	Document
1.	Self-declaration letter for PV module manufacturing capacity
2.	Signed copy of BHEL Specification PS-439-415 Rev. 01 for confirming to supply as per BHEL Specification.
3.	Filled up Provenness Criteria format with sign and seal
4.	Customer/client certificate for cumulative supply of 20 MW or more of any rating of PV modules to Solar Power Plants. Customer/client certificate for supply and successful performance of power rating of 285 Wp or above PV modules to Solar Plants, which should have completed atleast six months of successful operation as on 01.07.2019.
5.	IEC 61215-1, IEC 61215-1-1, IEC 61215-2 , IEC 61730-1 & 2, IEC 61701, IEC 62804, IEC 62716 test certificates.
6.	Approved CDF (Bill of Materials) of PV modules as per IEC certificates.
7.	Over all PV module assembly drawing indicating mounting hole pitch & data sheet for PV modules.
8.	Third party verified .PAN files for each wattage of PV modules (330 Wp and 335 Wp)
9.	Data sheet for Solar cells used for manufacturing PV modules.
10.	Hard copy of above documents shall be enclosed along with the technical bid. Soft copy of all above documents and IEC test reports to be sent by e-mail to the email id as mentioned in tender documents.
11.	List of equipment available for manufacture and testing of PV modules, PV module production in MW during last 3 financial years, Turnover in the last 3 financial years.
12.	PV module installation and O&M manual

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-415
		Rev. No	01
		Page 9 of 9	

9. Confirmation by the vendor :

Sl. No.	Item	Acceptance by the Module manufacturer (Yes / No)
1.	PV Module model number :	
2.	Multi Crystalline PV Modules with power output \geq 330 Wp in 5 watts bands.	
3.	Multi Crystalline PV Modules suitable for 1500 V System Voltage application	
4.	Availability of IEC 61215-1, IEC 61215-1-1, IEC 61215-2 , IEC 61730-1 & 2, IEC 61701, IEC 62804 and IEC 62716 test certificates and IEC Test reports with CDF.	
5.	PV Modules registered with BIS (Bureau of Indian Standards)	
6.	Back sheet : 3 layered structure, thickness \geq 300 microns, Water Vapour Transmission Rate less than 2.0 g/ m ² /day	
7.	Junction box cable length : 1.2 Metres minimum	
8.	RFID Tag inside or outside the laminate	
9.	Supply of 1 no. of hand held RFID reader with accessories	
10.	Adherence to Manufacturing Quality Plan and Pre-Shipment Inspection as per customer	
11.	Bill of materials as per subset of the CDF of the IEC Certificates	

10. DEVIATION SHEET

Sl. No.	Particulars	Bidder's Confirmation
1.	Confirmation to BHEL Specification PS- 439- 415 Rev. 01 in toto	<i>Yes / No</i> <i>Please indicate deviations, if any.</i>

Signature of Tenderer with stamp

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

CLAUSE NO.

TECHNICAL SPECIFICATIONS



Appendix for Provenness Criteria of Solar PV Modules

A) LIST OF SOLAR PLANTS OF CUMULATIVE CAPACITY 20 MWp or ABOVE WHICH SOLAR PV MODULES HAVE BEEN SUPPLIED DURING ANY ONE FINANCIAL YEAR.

NAME OF PV MODULE MANUFACTURER :

SI No	FINANCIAL YEAR	PROJECT LOCATION, CAPACITY, NAME OF CLIENT	DATE OF AWARD	APPROX CONTRACT VALUE (Rs)	kWp / MWp OF MODULES SUPPLIED DURING THE FINANCIAL YEAR

The Bidder should enclose client certificate/and/or copy of Letter of Award in respect of above

B) LIST OF SOLAR PLANTS IN SUCCESSFUL OPERATION USING THE SUPPLIED PV MODULES OF 285 Wp (FOR CRYSTALLINE SILICON) or above USING INDIGENOUS OR IMPORTED CELLS IN OPERATION FOR AT LEAST 6 MONTHS OF SUCCESSFUL OPERATION AS ON 01.07.2019.

NAME OF PV MODULE MANUFCAURER :

SI No	PROJECT LOCATION, CAPACITY, NAME OF CLIENT	DATE OF AWARD	APPROX CONTRACT VALUE	(>) 285 Wp MODULES SUPPLIED (Y/N)	DATE OF COMMISS IONING OF THE PROJECT

The Bidder should enclose client certificate/and/or Letter from TRANSCO/DISCOM in respect of above.

The works referred to clause (A) & (B) can be in same or different projects.

SOP (Select)



		ITEM - SPV Module		STANDARD QUALITY PLAN				QP NO-0000-999-QQE-5-58 Rev No : 0		REVIEWED BY : APPROVED BY : D.K. Dhillon			
		CONFORMING TO CODE : IS / IEC / NTPC TECHNICAL SPECIFICATION						Date: 09.03.2015		V. Talwar			
								VALID UPTO: 08.03.2018		Raksha Singh			
S/N	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					6 M	6 C/N				M	C	N	
1	2	3	4	5	6 M	6 C/N	7	8	9	D*	10	11	

Note- BOI shall be as per the TUV Certificate

1.00 Raw Material/Bought out Item-														
1.01	SOLAR CELLS	a	Make, type, rating check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	P	V	V	
		b	Cracks or Chips	Major	Visual	AQL*	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	P	V	-	AQL* - IS: 2500:2000 part 1, General Inspection Level II, AQL 1.5 %
		c	Cell Sorting	Major	Electrical	Mnfr std.	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report / suppliers TC/COC	P	V	-	
		d	Power output	Major	Electrical	AQL*	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	P	V	-	
1.02	FRONT GLASS	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	P	V	-	
		b	Dimensional	Major	Measurement	5 nos / PO lot	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	P	V	-	
		c	Chips, Scratches	Major	Visual	5 nos/ PO lot	Same as 6M	Manufacturer Standard	No chips or scratches	Inspection Report	P	V	-	
		d	Light Transmittance	Major	Optical	Mnfr std.	Same as 6M	Manufacturer Standard	> 91%	Supplier TC	V	V	V	
		e	Fragmentation test (Tempering quality)	Major	Mechanical	Mnfr std.	Same as 6M	As per EN 12150	No. of fragments < 40 per 25 sqcm	Supplier TC	V	V	V	
		f	Iron Content	Major	Chemical	Mnfr std.	Same as 6M	Manufacturer Standard	Less than 0.01%	Supplier TC	V	V	V	
1.03	FAST CURE EVA SHEET	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	P	V	V	
		b	Visual and dimensional checks	Major	Visual / Dimension	One ml / lot	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	P	V	-	
		c	Shelf life	Major	Visual	100%	Same as 6M	Manufacturer Standard	Before expiry date	Product Label	P	V	-	

LEGEND: * RECORDS, IDENTIFIED WITH "DCK" (V) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER; C: MAIN SUPPLIER; N: NTPC
 F: PERFORM W: WITNESS AND V: VERIFICATION. CIP: CUSTOMER HOLDPOINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "H" AS "W".
 Format No: Q5-01-QM P. 10/11-08 Page No./Q&A

Sl No		COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
						% M	% C/N			D*	M	C	N		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
		d	Bel Contact	Major	Chemical	5%	Same as 6M	Manufacturer Standard	± 75%	Supplier TC	V	V	V		
		e	Adhesion Peel Test (EVA to Glass)	Major	Adhesion Strength	5%	Same as 6M	Manufacturer Standard	± 60N / 10mm	Inspection Report	V	V	V		
104	BACK SHEET	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	F	V	V		
		b	Visual / Dimension	Major	Visual and dimensional checks	One roll/lot	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	F	V	-		
		c	Shelf life	Major	Visual	100%	Same as 6M	Manufacturer Standard	Before expiry date	Inspection Report	F	V	-		
		d	Adhesion Strength (Back Sheet to EVA)	Major	EVA Adhesion Peel Test	1 Sample / PO lot	Same as 6M	Manufacturer Standard	± 40N / 10mm	Inspection Report	V	V	V		
105	Soldering ribbon & busbar	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	F	V	V		
		b	Visual/ dimension	Major	Visual and dimensional	One roll/ PO lot	Same as 6M	Manufacturer Standard	No damage	Inspection Report	F	V	-		
		c	Coating thickness	Major	Measurement	Mnfr std	Same as 6M	Manufacturer Standard	± 16 microns	Supplier TC	V	V	V		
106	Cable & connector	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	F	V	V		
107	JUNCTION BOX	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	F	V	V		
		b	Physical damage	Major	Visual check	5 nos/ PO lot	Same as 6M	Manufacturer Standard/ Approved Drawing	Manufacturer Standard/ Approved Drawing	Inspection Report	F	V	-		
		c	Diode: make & type check	Major	Visual check	5 nos/ PO lot	Same as 6M	Manufacturer Standard/ Approved Drawing	Manufacturer Standard/ Approved Drawing	Inspection Report	F	V	-		

LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (V) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER; C: MAIN SUPPLIER; N: NTPC; P: PERFORM; W: WITNESS AND V: VERIFICATION. CHP: CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY (COLUMN "N" AS "W").

Form No.: QS-01-QM-P-10/11-00

Engg. Div./QAR

ITEM : SPV Module		STANDARD QUALITY PLAN							QP NO-0000-999-QQE-S-58		REVIEWED BY: APPROVED BY:		
		CONFORMING TO CODE : IS / IEC / NTPC TECHNICAL SPECIFICATION							Rev No : 0		S.K. Dhillon		
COMPONENT & OPERATIONS		CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
Sl No					6 W	6 V/N				M	C	N	
1	2	3	4	5	6	7	8	9	10	11	12	13	
		d No. Of diodes in a Junction Box	Major	Visual check / physical	5 nos/ PO lot	Same as 6M	Manufacturer Standard/ Approved Drawing	Manufacturer Standard/ Approved Drawing	Inspection Report	F	V	-	
		e Degree of protection	Major	Physical	Mfr std.	Same as 6M	Approved Datasheet	Approved Datasheet	Supplier TC	V	V	V	
1.08	ALUMINIUM FRAMES	a Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make lot	TUV certificate make lot	Inspection Report	F	V	V	
		b Visual and dimensional	Major	Visual /Dimension	5 nos/ PO lot	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	F	V	-	
		c Composition	Major	Material	Mfr std.	Same as 6M	Manufacturer Standard	Manufacturer Standard	Supplier TC	F	V	-	
		d Thickness of anodic coating	Major	Passivation	5 nos/ PO lot	Same as 6M	Manufacturer Standard	≥ 15 microns	Inspection Report	F	V	V	
1.09	Frame & junction box Adhesives/Sealant	a Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make lot	TUV certificate make lot	Inspection Report	F	V	V	
2.00	Inprocess - Checks												
2.01	GLASS CLEANING	a Visual check	Major	Visual	100%	Same as 6M	Manufacturer Standard	No dust, scratch, chipping in the glass	Inspection Report	F	V	-	
2.02	CUTTING OF EVA/BACK SHEET	a Dimension	Major	Measurement	Once in a day	Same as 6M	Manufacturer Standard	Manufacturer Standard	-d-	F	V	-	
2.03	TABBING AND STRINGING OF SOLAR	a Visual /machine Check for Cell Crack during Tabling & Stringing	Major	Visual	100%	Same as 6M	Manufacturer Standard	No Cell breakages	-d-	F	V	-	

LEGEND: * RECORDS, IDENTIFIED WITH "DCK" (F) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURED/ SUB-SUPPLIER; C: MAIN SUPPLIER, N: NTPC
F: PERFORM W: WITNESS AND V: VERIFICATION. LMP: CUSTOMER HOLDPOINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".

Format No.: QS-01-QM-P-10/F1-R1



Engg. Div./Q&A

NTPC		ITEM : SPV Module		STANDARD QUALITY PLAN					QP NO: 0000-999-QOE-S-58		REVIEWED BY: [Signature]		
		CONFORMING TO CODE :					Rev No : 0		D. K. Datta		APPROVED BY: [Signature]		
		IS / IEC / NTPC TECHNICAL SPECIFICATION					Date: 09.03.2015		V. Talwar		Raksha Singh		
		VALID UPTO: 06.03.2018											
Sl No	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY		
					6 M	6 C/A				D*	M	C	N
1	2	3	4	5	6 M	6 C/A	7	8	9	10	11	12	
		b Visual check for alignment of Tabs	Major	Visual	100%	Same as 6M	Manufacturer Standard	No significant misalignment of tabs, proper soldering	-do-		P	V	
		c Solder Peel Off Test	Major	Measurement	at random	Same as 6M	Manufacturer Standard	>2N	-do-		P	V	
2.04	LAYOUT	a Visual check for misalignment of cell strings, external stray material	Major	Visual	100%	Same as 6M	Manufacturer Standard	No significant misalignment	-do-		P	V	
2.05	LAMINATION	a Check for Temperature, pressure & time setting	Major	Visual	100%	Same as 6M	Manufacturer Standard	Manufacturer Standard	-do-		P	V	
		b Visual check for air-bubbles, cell cracks, delamination	Major	Visual	100%	Same as 6M	Manufacturer Standard	No external stray material, No air bubbles, cell cracks, delamination	-do-		P	V	
2.06	FRAMING & JUNCTION BOX FIXING	a Check for warpages on the frames and gap between frame & glass after sealing	Major	Visual	100%	Same as 6M	Manufacturer Standard	No warpage/ No significant gap between frame & glass after sealing	-do-		P	V	
2.07	CELL CRACK	a Visual Check of module for Cell Crack by ElectroLuminescence Tester	Major	Visual	100%	Same as 6M	Manufacturer Standard	No Cell Breakage	-do-		P	V	
2.08	RPTD TAG	a Visual Inspection	Major	Visual	100%	Same as 6M	Manufacturing Instruction	As per NTPC Specification	-do-		P	V	V
2.09	HV TEST	a HV TEST for 5 Sec	Major	Electrical	100%	Same as 6M	Manufacturer Standard	No arcing, no dielectric failure	-do-		P	V	V

LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER; C: MAIN SUPPLIER; N: NTPC
P: PERFORM W: WITNESS AND V: VERIFICATION. CHP: CUSTOMER HOLDPOINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".

Formal No.: QP-01-QM-P-10/15-08

Page 13/13

NTPC		ITEM: SPV Module		STANDARD QUALITY PLAN				QIP NO: 0000-999-QOE-S-58		REVIEWED BY: 					
		CONFORMING TO CODE:				Rev No: 0		Date: 09.03.2015		D. K. Datta					
		IS / IEC / NTPC TECHNICAL SPECIFICATION				VALID UPTO: 08.03.2018		V. Talwar		Relative Sign: 					
Sl No	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY				
					% M	% C/N				D*	M	C	N		
1	2	3	4	5	6		7	8	9	D*	M	C	N		
Type Test Clearance from NTPC Engineering as per specification requirements to be verified during inspection															
3.00	FINAL TEST	a	Visual inspection for cell cracks, Inconsistence Cell Cover, air bubbles, de-lamination, faulty interconnection, cell touching one other/ overlapping, excess glue marks, scratches, frame problems (scratches, gap between frame & glass), raking sticker, completeness of Modules, Sealing arrangement of modules	Major	Visual	100%	AQL*	NTPC specification/ approved datasheet/ approved drawing	Free from the Following defects- cell cracks, Inconsistence Cell Cover, air bubbles, de-lamination, faulty interconnection, cell touching one other/ overlapping, excess glue marks, scratches, frame problems (scratches, gap between frame & glass), raking sticker, completeness of Modules, Sealing arrangement of modules	Final Inspection Report	/	P	W	W	AQL* = IS 2500:2000 part 1, General Inspection Level II, AQL 1.5%
		b	Sun Simulator Calibration by Reference Modules before the testing of manufactured modules	Major	Electrical	100%	100%	Manufacturer Standard	IEC 61215/Calibrator certificate	Final Inspectio Report/ Sun Simulator Calibration Reports	/	P	W	W	
		c	Electrical parameters of PV Module of Sun Simulator	Major	Electrical	AQL*	AQL*	Approved datasheet	Approved datasheet	Final Inspection report	/	P	W	W	
		d	HV TEST (at 1000V + 2 X Maximum System Voltage)	Major	Electrical	AQL*	AQL*	Manufacturer Standard	No arcing, no dielectric failure	Final Inspection Report	/	P	W	W	
		e	IR (Before & after HV) at Maximum System Voltage	Major	Electrical	AQL*	AQL*	Manufacturer Standard	measured insulation X the area of module >40MΩ.m ²	Final Inspection Report	/	P	W	W	

LEGEND: * RECORDS, INDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER; C: MAIN SUPPLIER, N: NTPC; P: PERFORM; W: WITNESS AND V: VERIFICATION. CRP: CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".

Form No.: QS-05-QM-P-10/13-08


Engg. Div./QA&I

Sl. No.		COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
						G/M	G/C/N			D*	M	C	N		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
		Robustness of Termination Test	Major	Mechanical	1 Module per offered lot	1 Module per lot	NTPC specification / IEC 61215	IEC 61215	Final Inspection Report	/	P	W	W		
		Mechanical Load Test	Major	Mechanical	1 Module per offered lot	1 Module per lot	NTPC specification / IEC 61215	IEC 61215	Final Inspection Report	/	P	W	W		

LEGEND: * RECORDS, IDENTIFIED WITH "DCK" (V) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER; C: MAIN SUPPLIER; N: NTPC
 P: PERFORM; W: WITNESS AND; V: VERIFICATION. C/P: CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".

Format No.: CS-03-QA-P-30/13-R0

Engg. Div./QA&I


 <p>बि एच ई लि A4-11</p>	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-413
		Rev. No	03
		Page 1 of 7	

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest to the company

TECHNICAL SPECIFICATION FOR SUPPLY OF MULTI CRYSTALLINE SILICON PV MODULES - GSECL

REVISION DETAILS: (03) PQC is removed from the technical specification and provenness criteria added instead	PREPARED CMH 	DATE 10.09.2020
	APPROVED SR 	

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-413
		Rev. No	03
		Page 2 of 7	

1. Provenness Criteria:


Sl. No	Particulars	Bidder's confirmation
1.	The bidder must have cumulatively supplied 300 Wp and above wattage crystalline silicon PV modules for a minimum quantity of 100 MW in India. Out of the above, 10 MW or more of PV modules must have been supplied to at least one solar Power plant project of minimum capacity of 10 MW. The bidder shall also submit the proof of supply.	Yes / No <i>Enclose customer/client certificate/PO copies</i>

2. TECHNICAL REQUIRMENTS:

Sl. No	Item	Remarks
1	PV Module Configuration	Multi crystalline photovoltaic module with 72 nos of cells in 12X6 series configuration. The module construction and bill of material shall be as per vendor's approved IEC certification. Please enclose: <i>i. Module overall assembly drawing with mounting holes</i> <i>ii. Data sheet with typical electrical characteristics, I-V curves, temperature coefficients etc.</i>
2	Power Output	330 Watts and above, in 5 Watt band only. No negative tolerance accepted.
3	System Voltage	Modules shall be suitable for 1500V DC System Voltage application.
4	Efficiency	15% (min)
5	Fill Factor	0.75 (min)
6	Temp coefficient of Power	-0.43% or better
6	Operating Conditions	Modules shall be able to perform satisfactorily in relative humidity up to 85% with temperature between -40°C to +85°C and shall withstand adverse climatic conditions, such as high speed wind with dust/sand particles, saline climatic/soil conditions etc.
7	IEC Certifications	The PV modules supplied shall be with valid latest IEC certifications as below. 1. IEC 61215-1:2016 (Design Qualification and Type Approval-Part 1) 2. IEC 61215-1-1:2016 (Design Qualification and Type Approval-Part 1-1) 3. IEC 61215-2:2016 (Design Qualification and Type Approval-Part 2) 4. IEC 61730-1:2016 (Safety Qualification – Part 1) 5. IEC 61730-2:2016 (Safety Qualification – Part 2) 6. IEC 61701 (Salt Mist Corrosion testing) 7. IEC 62804 (PID Testing, 85 % humidity, 85 Deg. C, 1000 V or higher)

COPYRIGHT AND CONFIDENTIAL


The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-413
		Rev. No	03
		Page 3 of 7	

		8. IEC 62716 (Ammonia test) Vendors shall use raw materials for manufacture of PV modules as per approved IEC Bill of Materials (CDF).
8	Module Safety Class	Safety Class - II
9	BIS Registration	As per the Solar Photovoltaics, Systems, Devices and Components Goods (Requirements for Compulsory Registration) Order, 2017, Government of India, PV Modules used in the grid connected solar power projects in India shall be registered with BIS and bear the Standard Mark as notified by the Bureau of Indian Standards.
10	BILL OF MATERIALS	
10.1	Solar cells	Multi-crystalline solar cells
10.2	EVA	Fast cure type, UV resistant
10.3	Glass	High transmission, low iron, toughened glass
10.4	Back Sheet	Back-sheet shall meet globally benchmarked durability properties such as moisture barrier, tensile strength, UV stability etc.
10.5	PV Module Frame	Corrosion resistant, anodized Aluminum.
10.6	Junction box	IP67 grade with min 3 bypass diodes, UV resistant & weather-proof Junction box shall have two 4 sq mm UV resistant cables of minimum 1.2 metre length and plug-in connectors. Cables shall be of solar grade and shall conform to specification EN 50618.
10.7	Adhesive for framing, junction-box fixing and potting	As per manufacturer's IEC test report
10.8	RFID	RFID tag positioned inside the laminate. RFID shall be durable for the entire life of panel and shall contain the following information: a. Name of module manufacturer with country of origin b. Month & year of manufacture of modules c. Name of cell manufacturer with country of origin d. Month & year of manufacture of cells e. IV curve f. Wattage, I_{max} , V_{max} , V_{oc} , I_{sc} , temperature coefficient of power & fill-factor g. Module model number h. Unique serial number

COPYRIGHT AND CONFIDENTIAL


**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 <p>A4-11</p>	<p>PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS</p>	Spec. No	PS-439-413
		Rev. No	03
		Page 4 of 7	

		<ul style="list-style-type: none"> i. Date of obtaining IEC qualification certificates j. Name of test lab issuing IEC certificates k. Other relevant information etc
10.9	Nameplate	<p>Each module shall be provided with a name plate label (sticker) containing the following information:</p> <ul style="list-style-type: none"> a. Name of module manufacturer b. Module model number c. Overall Dimension d. Weight e. P_{max}, V_{oc}, I_{sc}, I_{max} & V_{max} f. System Voltage g. Relevant standards and certifying lab name h. Warnings, if any i. Other relevant information, etc <p>Nameplate shall be clearly visible and shall not be hidden by equipment wiring. It shall be durable for the entire life of panel.</p>
10.10	BOM as per CDF of IEC Certificate	Solar cells and module materials shall be used as per approved CDF as per IEC Certificate.
10.11	RFID Reader	1 number of hand-held RFID reader (gun type) compatible to read module IV data (at the site) stored in RFID tags to be supplied at free of cost. All associated software, cables and accessories shall also be provided at free of cost for displaying and downloading RFID data from the RFID reader.
10.12	.PAN File	.PAN file for each module wattage offered shall be provided for carrying out PVSYS calculations at our end.
10.13	Mounting hole Pitch	<p>Pl. provide mounting hole pitch details.</p> <p>Horizontal :</p> <p>Vertical :</p> <p>Mounting hole size :</p>

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 <p>A4-11</p>	<p>PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS</p>	Spec. No	PS-439-413
		Rev. No	03
		Page 5 of 7	

3. QUALITY ASSURANCE

Module Quality Plan, Data Sheet and GTP shall be subject to customer's approval. Each lot of modules shall be subject to pre-dispatch inspection by BHEL and BHEL customer or any third party.

Quality plan will include the following:

- I. Incoming Quality Checks on bought out item
- II. In-process Quality Checks
- III. Sample tests on final product

4. WARRANTY

Product warranty shall be for 10 years and performance warranty shall be for 25 years.

PV modules supplied must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and not less than 80% at the end of 25 years from the completion of the trial run. Degradation of PV module for first year shall be limited to 2.5%. Modules that do not meet the above criteria shall be replaced free of cost at BHEL's/customer's sole discretion.


5. INSURANCE or BANK GUARANTEE FOR POWER OUTPUT WARRANTY

The PV module power output warranty as per the technical specification shall be insured and backed up through an insurance policy by a reputed insurance company which will cover against the PV module power output warranty in case of insolvency or bankruptcy of the PV module manufacturer. The Bidder shall submit a suitable insurance from Third Party.

The Successful Bidder who is not able to provide insurance of PV modules as above, shall submit a Bank Guarantee of INR Rs. 10 Lakh per each megawatt of PV modules or an equivalent amount in international currency (i.e. DC capacity), through BHEL consortium bank and shall be valid for a period of twenty five (25) years and 90 days. The minimum validity of the Bank guarantee shall be five (5) years and shall be renewed by the bidder of their own subsequently every five (5) years prior to thirty (30) days of its expiry. In case the PV module fails to provide power output as per its performance warranty, and if the bidder fails to rectify, replace or repair the PV module, then BHEL shall carry out the necessary rectification, repair or replacement at its own discretion at the risk and cost of the supplier. The cost of such rectification, repair or replacement shall be encashed from the Bank Guarantee against PV Module Warranty. The same shall be replenished by the supplier within thirty (30) days, failing which the entire Bank Guarantee amount shall be encashed and all pending payment shall be withheld by BHEL till such amount is replenished by the supplier. In another instance, if the supplier becomes bankrupt or insolvent, then BHEL shall immediately encash the entire amount of the Bank Guarantee against PV Module Warranty.

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 <p>A4-11</p>	<p>PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS</p>	Spec. No	PS-439-413
		Rev. No	03
		Page 6 of 7	

6. PACKING & IDENTIFICATION OF PV MODULE

The modules shall be packed in carton boxes. One carton box shall contain one module power rating (330 Wp or 335 Wp). The carton box should display the manufacturer's name, number of modules, type, serial numbers, module wattage etc. Modules found damaged at the time of opening of the cartons in the project site shall be replaced by the module manufacturer.

Modules from outside India shall be with Sea worthy packing and modules made in India shall be with road worthy packing.

7. GENERAL CONDITIONS

- a. PV Modules shall be manufactured at the vendor's works only.
- b. Manufacturing clearance shall be given only after approval of manufacturing quality plan, Pre-Shipment inspection plan and approval of drawings and datasheet by BHEL's customer.

8. Enclosures :

Sl. No.	Document
1.	Self declaration letter for PV module manufacturing capacity
2.	Signed copy of BHEL Specification PS-439-413 Rev. 03 for confirming to supply as per BHEL Specification.
3.	Customer/client certificate for cumulative supply of 100 MW or more of 300 Wp and above wattage PV modules to India. Out of the above, 10 MW or more of PV modules must have been supplied to atleast one solar Power plant project of minimum capacity of 10 MW.
4.	IEC 61215, 61730-1 & 2, 61701, 62804, 62716 test certificates including CDF.
5.	Over all PV module assembly drawing indicating mounting hole pitch & data sheet for PV modules.
6.	Third party verified .PAN files for each wattage of PV modules (330 Wp and 335 Wp)
7.	PV module installation and O&M manual
8.	Hard copy of above documents shall be enclosed along with the technical bid. Soft copy of all above documents and IEC test reports to be sent by e-mail to the email id as mentioned in tender documents.

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-413
		Rev. No	03
		Page 7 of 7	

9. Confirmation by the vendor :

Sl. No.	Item	Acceptance by the Module manufacturer (Yes / No)
1.	PV Module model number:	
2.	Multi Crystalline PV Modules with power output \geq 330 Wp in 5 watts bands.	
3.	Multi Crystalline PV Modules suitable for 1500 V System Voltage application	
4.	Availability of IEC 61215, 61730-1 & 2, IEC 61701, IEC 62804 and IEC 62716 test certificates and IEC Test reports with CDF.	
5.	PV Modules registered with BIS (Bureau of Indian Standards)	
6.	Junction box cable length : 1.2 Metres minimum	
7.	RFID Tag be inside the laminate	
8.	Supply of 1 no. of hand held RFID reader	
9.	Adherence to Manufacturing Quality Plan and Pre-Shipment Inspection as per customer	
10.	Bill of materials as per subset of the CDF of the IEC Certificates	
11.	Third Party Insurance or Bank Guarantee for Power Performance warranty of PV modules	


10. DEVIATION SHEET

Sl. No.	Particulars	Bidder's Confirmation
1.	Confirmation to BHEL Specification PS- 439- 413 Rev. 03 in toto	<i>Yes / No</i> <i>Please indicate deviations, if any.</i>

Signature of Tenderer with stamp

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company


 <p>बि एच ई लि A4-11</p>	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-416
		Rev. No	02
		Page 1 of 10	

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest to the company

TECHNICAL SPECIFICATION FOR SUPPLY OF MULTI CRYSTALLINE SILICON PV MODULES – NTPC RG

REVISION DETAILS: (02) 1. PQC is removed from the technical specification and provenness criteria added instead 2. Insurance/ bank guarantee for power output warranty is added	PREPARED CMH 	DATE 10.09.2020
	APPROVED SR 	

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-416
		Rev. No	02
		Page 2 of 10	

1. Provenness Criteria :

Sl. No	Particulars	Bidder's confirmation
1.	The bidder should have manufactured and supplied the Solar PV Modules of cumulative installed capacity of 40 MWp or above using any rating of modules and any source of indigenous or imported PV cells in any one financial year to Solar Plants.	Yes / No Enclose client certificate/and/or copy of Letter of Award in respect of above
2.	The bidder should have manufactured and supplied Solar PV Module built up using indigenous and/ or imported PV Cells of power rating 285 Wp or above to Solar Plants, which should have completed atleast six months of successful operation as on 09.06.2019. Note: The works referred to clause (a) & (b) can be in same or different projects.	Yes / No Enclose client certificate/and/or Letter from Transco/Discom (Transmission / Distribution Company) In respect of above

Note A :


- i. Please fill enclosed "PROVENNESS CRITERIA FOR SOLAR PV MODULES"
- ii. The works referred to clause (1) & (2) can be in same or different projects

2. TECHNICAL REQUIRMENTS:

Sl. No	Item	Remarks
1	PV Module Configuration	Multi crystalline photovoltaic module with 72 nos of cells in 12X6 series configuration. The module construction and bill of material shall be as per vendor's approved IEC certification. Please enclose: i. Module overall assembly drawing with mounting holes ii. Data sheet with typical electrical characteristics, I-V curves, temperature coefficients etc.
1 (a)	Module overall dimension	Module overall dimension shall be as per the range below. Length : 1955 to 1976 mm Width : 976 to 996 mm Thickness or Height : 34 to 36 mm

COPYRIGHT AND CONFIDENTIAL


The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-416
		Rev. No	02
		Page 3 of 10	

		This is to suit the BHEL Floater design.
1 (b)	Mounting hole Pitch	PV Modules are required with mounting holes pitch as below. Vertical : 1200 mm Horizontal : 956 mm Mounting hole size : Oblong hole 7 x 9 mm or higher
2	Power Output	330 Watts and above, in 5 Watt band only (i.e. 330 Wp, 335 Wp). No negative power tolerance will be accepted.
3	System Voltage	Modules shall be suitable for 1000 V DC or higher System Voltage application.
4	Efficiency	15% (min)
5	Fill Factor	0.70 (min)
6 (a)	Temp coefficient of Power	-0.45% or better
6 (b)	Operating Conditions	SPV module shall perform satisfactorily with ambient temperatures between - 10° C & +60° C and shall withstand gust up to 150 Km/h on the surface of the panel.
7	IEC Certifications	<p>The PV modules supplied shall be with valid IEC certifications as below.</p> <ol style="list-style-type: none"> 1. IEC 61215-1:2016 (Design Qualification and Type Approval-Part 1) 2. IEC 61215-1-1:2016 (Design Qualification and Type Approval-Part 1-1) 3. IEC 61215-2:2016 (Design Qualification and Type Approval-Part 2) 4. IEC 61730-1:2016 (Safety Qualification – Part 1) 5. IEC 61730-2:2016 (Safety Qualification – Part 2) 6. IEC 61701:2011 (Salt Mist Corrosion testing) 7. IEC 62716:2013 (Ammonia Corrosion testing) 8. IEC 62804-1:2015- (Test methods for the detection of PID - Part 1) <p>Vendors shall use Bill of materials for manufacture of PV modules as per subset of approved CDF of IEC Certificates.</p> <p>All IEC Certificates to be submitted with tender.</p>
8	Module Safety Class	Safety Class - II
9	BIS Registration	As per the Solar Photovoltaics, Systems, Devices and Components Goods (Requirements for Compulsory Registration) Order, 2017, Government of India, PV Modules used in the grid connected solar power projects in India

COPYRIGHT AND CONFIDENTIAL


**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 <p>A4-11</p>	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-416
		Rev. No	02
		Page 4 of 10	

		shall be registered with BIS and bear the Standard Mark as notified by the Bureau of Indian Standards. Enclose copy of BIS Registration for PV modules
10	BILL OF MATERIALS	
10.1	Solar cells	Type : Multi-crystalline solar cells Pl. indicate Cell Source : Size of Cells : Cell efficiency : No. of busbars Enclose a copy of Solar cell data sheet with electrical parameters.
10.2	EVA	Fast cure type, UV resistant, Gel content > 70 %.
10.3	Glass	High transmission (> 90 %), low iron, toughened glass with minimum thickness of 3.2 mm and bending less than 0.3%.
10.4	Back Sheet	The back sheet used in the crystalline silicon based modules shall be of 3 layered structure. The thickness of back sheet should be of minimum 300 microns with water vapour transmission rate less than 2.0 g/ m ² /day (38°C at 90% RH). The Back sheet can be fluoro polymer based or of any other well proven technology. The backsheet shall have globally benchmarked durability properties on Moisture barrier, Tensile Strength (Machine Direction & Transverse Direction), Elongation retention and UV stability and shall be able to withstand system voltage of 1500 V.
10.5	PV Module Frame	Corrosion resistant, anodized Aluminum. The anodizing thickness shall be 15 microns or better.
10.6	Junction box	IP67 grade with 3 nos. of bypass diodes, UV resistant & weather-proof Junction box shall have two 4 sq mm UV resistant cables of minimum 1.2 metre length and plug-in connectors (male and female). Cables shall be of solar grade and shall conform to specification EN 50618.
10.7	Adhesive for framing, junction-box fixing and potting	As per manufacturer's IEC test report

COPYRIGHT AND CONFIDENTIAL


**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 <p>A4-11</p>	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-416
		Rev. No	02
		Page 5 of 10	

10.8	RFID	<p>Each PV module deployed must use a Radio Frequency identification (RFID) tag for traceability. RFID shall either be placed inside the laminate or behind name plate sticker or behind bar code label pasted on the back glass of PV module and must be able to withstand harsh environmental conditions during the module lifetime.</p> <p>RFID tag shall contain the following information:</p> <ol style="list-style-type: none"> Name of module manufacturer with country of origin Month & year of manufacture of modules Name of cell manufacturer with country of origin Month & year of manufacture of cells IV curve Wattage, I_{max}, V_{max}, V_{OC}, I_{SC}, & fill factor Module model number Unique serial number Date of obtaining IEC qualification certificates Name of test lab issuing IEC certificates Other relevant information etc
10.9	Nameplate	<p>Each module shall be provided with a name plate label (sticker) containing the following information:</p> <ol style="list-style-type: none"> Name of module manufacturer Module model number and Serial number Overall Dimension (W x L x D) Weight in Kg P_{max}, V_{OC}, I_{SC}, I_{max} & V_{max} System Voltage Relevant standards and certifying lab name Warnings, if any Other relevant information, etc NTPC Logo on the top corner of each Module (design will be provided). <p>Nameplate shall be clearly visible and shall not be hidden by equipment wiring. It shall be durable for the entire life of panel.</p>
10.10	BOM as per CDF of IEC Certificate	<p>Solar cells and module materials shall be used as per approved CDF as per IEC Certificate. Enclose copy of approved CDF as per IEC Certificate.</p>

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-416
		Rev. No	02
		Page 6 of 10	

10.11	RFID Reader	One number RFID reader (gun type) has to be supplied free of cost by the bidder which has to be compatible to read the module I-V data from the RFID Tag & download the data to Computer. All necessary associated Software, Cables and accessories are to be provided free of cost along with the RFID reader.
10.12	.PAN File	Third Party verified .PAN file for each module wattage (330 Wp and 335 Wp) offered shall be provided for carrying out PVSYS calculations at our end.
10.13	Earthing holes	Earthing holes to be provided on both the shorter arms of PV module frames.
10.14	I-V curves and temperature coefficients	The bidder shall provide the sample solar PV module electrical characteristics including current-voltage (I-V) performance curves and temperature coefficients of power, voltage and current. Enclose Sample I-V performance curve of 330 Wp and 335 Wp PV module Temperature coefficient of Power (Pmax) : Temperature coefficient of Voltage (Voc) : Temperature coefficient of Current (Isc) :

3. QUALITY ASSURANCE

Module Quality Plan, Data Sheet and GTP shall be subject to customer's approval. Each lot of modules shall be subject to Pre Shipment Inspection (PSI) by BHEL and BHEL customer.

Quality plan will include the following:

- I. Incoming Quality Checks on bought out item
- II. In-process Quality Checks
- III. Sample tests on final product by the customer

Standard Quality Plan (SQP) from our customer (NTPC) is enclosed herewith. Required documents to be submitted to our customer at the time of PSI. Sample tests (Visual, Electrical, etc.) will be carried out as per SQP.


4. WARRANTY

Product Warranty shall be for 10 years and Performance Warranty shall be for 25 years.

Solar PV modules used in solar power plants/ systems must be warranted for the product Workmanship for a period of minimum 10 years. Further, they shall also be warranted for their output peak output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years from the completion of the trial run. Modules that do not meet the above criteria shall be replaced free of cost at BHEL's/customer's sole discretion.

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-416
		Rev. No	02
		Page 7 of 10	

5. INSURANCE OR BANK GUARANTEE FOR POWER OUTPUT WARRANTY

The PV module power output warranty as per the technical specification shall be insured and backed up through an insurance policy by a reputed insurance company which will cover against the PV module power output warranty in case of insolvency or bankruptcy of the PV module manufacturer. The Bidder shall submit a suitable insurance from Third Party.

The Successful Bidder who is not able to provide insurance of PV modules as above, shall submit a Bank Guarantee for 10% contract value through BHEL consortium bank, valid for a period of Ten (10) years and 90 days. The minimum validity of the Bank guarantee shall be Two (2) years and shall be renewed by the bidder on their own subsequently for every Two (2) years prior to thirty (30) days of its expiry. In case the PV module fails to provide power output as per its performance warranty, and if the bidder fails to rectify, replace or repair the PV module, then BHEL shall carry out the necessary rectification, repair or replacement at its own discretion at the risk and cost of the supplier. The cost of such rectification, repair or replacement shall be encashed from the Bank Guarantee against PV Module Warranty. The same shall be replenished by the supplier within thirty (30) days, failing which the entire Bank Guarantee amount shall be encashed and all pending payment shall be withheld by BHEL till such amount is replenished by the supplier. In another instance, if the supplier becomes bankrupt or insolvent, then BHEL shall immediately encash the entire amount of the Bank Guarantee against PV Module Warranty.

6. PACKING & IDENTIFICATION OF PV MODULE

The modules shall be packed in carton boxes. One carton box shall contain one module power rating (330 Wp or 335 Wp). The carton box should display the manufacturer's name, number of modules, type, serial numbers, module wattage etc. Modules found damaged at the time of opening of the cartons in the project site shall be replaced by the module manufacturer.


Modules from outside India shall be with Sea worthy packing and modules made in India shall be with road worthy packing.

7. GENERAL CONDITIONS

- a. PV Modules shall be manufactured at the vendor's works only.
- b. Manufacturing clearance shall be given only after approval of Vendor's Credentials, Provenness Criteria, Quality plan, Pre-Shipment inspection plan, drawings and datasheet by BHEL's customer.

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**


 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-416
		Rev. No	02
		Page 8 of 10	

8. ENCLOSURES :

Sl. No.	Document
1.	Self declaration letter for PV module manufacturing capacity
2.	Signed copy of BHEL Specification PS-439-416 Rev. 02 for confirming to supply as per BHEL Specification.
3.	Filled up Provenness Criteria format with sign and seal
4.	Customer/client certificate for cumulative supply of 40 MW or more of any rating of PV modules to Solar Power Plants. Customer/client certificate for supply and successful performance of power rating of 285 Wp or above PV modules to Solar Plants, which should have completed atleast six months of successful operation as on 09.06.2019.
5.	IEC 61215-1, IEC 61215-1-1, IEC 61215-2 , IEC 61730-1 & 2, IEC 61701, IEC 62804, IEC 62716 test certificates.
6.	Approved CDF (Bill of Materials) of PV modules as per IEC certificates.
7.	Over all PV module assembly drawing indicating mounting hole pitch of 1200 x 956 mm, earth holes & data sheet for PV modules.
8.	Al. frame Cross Section drawing
9.	Third party verified .PAN files for each wattage of PV modules (330 Wp and 335 Wp)
10.	Data sheet for Solar cells used for manufacturing PV modules.
11.	Hard copy of above documents shall be enclosed along with the technical bid. Soft copy of all above documents and IEC test reports to be sent by e-mail to the email id as mentioned in tender documents.
12.	List of equipment available for manufacture and testing of PV modules, PV module production in MW during last 3 financial years, Turnover in the last 3 financial years.
13.	PV module installation and O&M manual

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**


 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-416
		Rev. No	02
		Page 9 of 10	

9. Confirmation by the vendor :

Sl. No.	Item	Acceptance by the Module manufacturer (Yes / No)
1.	PV Module model number:	
2.	Multi Crystalline PV Modules with power output \geq 330 Wp in 5 watts bands (i.e. 330 Wp and 335 Wp).	
3.	Module Overall dimension as below. Length : 1955 to 1976 mm Width : 976 to 996 mm Thickness or Height : 34 to 36 mm	
4.	Multi Crystalline PV Modules suitable for 1000 V DC or higher System Voltage application	
5.	Availability of IEC 61215-1, IEC 61215-1-1, IEC 61215-2 , IEC 61730-1 & 2, IEC 61701, IEC 62804 and IEC 62716 test certificates and IEC Test reports with CDF.	
6.	PV Modules registered with BIS (Bureau of Indian Standards)	
7.	Back sheet : 3 layered structure, thickness \geq 300 microns, Water Vapour Transmission Rate less than 2.0 g/ m ² /day	
8.	Junction box cable length : 1.2 Metres minimum	
9.	RFID Tag inside or outside the laminate	
10.	Providing mounting holes with a pitch of 1200 x 956 mm in frames.	
11.	Providing earthing holes on both shorter arms of frames	
12.	Supply of 1 no. of hand held RFID reader with accessories	
13.	Adherence to Manufacturing Quality Plan and Pre-Shipment Inspection as per customer	
14.	Bill of materials as per subset of the CDF of the IEC Certificates	

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-416
		Rev. No	02
		Page 10 of 10	

10. DEVIATION SHEET

Sl. No.	Particulars	Bidder's Confirmation
1.	Confirmation to BHEL Specification PS- 439- 416 Rev. 02 in toto	<i>Yes / No</i> <i>Please indicate deviations, if any.</i>

Signature of Tenderer with stamp

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

CLAUSE NO.

TECHNICAL SPECIFICATIONS



Appendix for Provenness Criteria of Solar PV Modules

A) LIST OF SOLAR PLANTS OF CUMULATIVE CAPACITY (0 MWp or ABOVE WHICH SOLAR PV MODULES HAVE BEEN SUPPLIED DURING ANY ONE FINANCIAL YEAR.

NAME OF PV MODULE MANUFACTURER :

SI No	FINANCIAL YEAR	PROJECT LOCATION, CAPACITY, NAME OF CLIENT	DATE OF AWARD	APPROX CONTRACT VALUE (Rs)	kWp / MWp OF MODULES SUPPLIED DURING THE FINANCIAL YEAR

The Bidder should enclose client certificate/and/or copy of Letter of Award in respect of above

B) LIST OF SOLAR PLANTS IN SUCCESSFUL OPERATION USING THE SUPPLIED PV MODULES OF 285 Wp (FOR CRYSTALLINE SILICON) or above USING INDIGENOUS OR IMPORTED CELLS IN OPERATION FOR AT LEAST 6 MONTHS OF SUCCESSFUL OPERATION AS ON \$- '\$* .2019.

NAME OF PV MODULE MANUFCAURER :

SI No	PROJECT LOCATION, CAPACITY, NAME OF CLIENT	DATE OF AWARD	APPROX CONTRACT VALUE	(>) 285 Wp MODULES SUPPLIED (Y/N)	DATE OF COMMISS IONING OF THE PROJECT

The Bidder should enclose client certificate/and/or Letter from TRANSCO/DISCOM in respect of above.

The works referred to clause (A) & (B) can be in same or different projects.

SOP (Select)



		ITEM - SPV Module		STANDARD QUALITY PLAN				QP NO-0000-999-QQE-5-58		REVIEWED BY: APPROVED BY:				
		CONFORMING TO CODE :		IS / IEC / NTPC TECHNICAL SPECIFICATION		Rev No : 0		Date: 09.03.2015		D.K. Dhillon				
DATE: 09.03.2015		VALID UPTO: 08.03.2018		V. Talwar		Raksha Singh		S.K. N. Jain		REMARKS:				
S/N	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					6 M	6 C/N			M	C	N			
1	2	3	4	5	6 M	6 C/N	7	8	9	D*	10	11	12	

Note- BOI shall be as per the TUV Certificate

1.00 Raw Material/Bought out Item-														
1.01	SOLAR CELLS	a	Make, type, rating check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	P	V	V	
		b	Cracks or Chips	Major	Visual	AQL*	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	P	V	-	AQL* - IS: 2500.2000 part 1, General Inspection Level II, AQL 1.5 %
		c	Cell Sorting	Major	Electrical	Mnfr std.	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report / suppliers TC/COC	P	V	-	
		d	Power output	Major	Electrical	AQL*	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	P	V	-	
1.02	FRONT GLASS	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	P	V	-	
		b	Dimensional	Major	Measurement	5 nos / PO lot	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	P	V	-	
		c	Chips, Scratches	Major	Visual	5 nos/ PO lot	Same as 6M	Manufacturer Standard	No chips or scratches	Inspection Report	P	V	-	
		d	Light Transmittance	Major	Optical	Mnfr std.	Same as 6M	Manufacturer Standard	> 91%	Supplier TC	V	V	V	
		e	Fragmentation test (Tempering quality)	Major	Mechanical	Mnfr std.	Same as 6M	As per EN 12150	No. of fragments < 40 per 25 sqcm	Supplier TC	V	V	V	
		f	Iron Content	Major	Chemical	Mnfr std.	Same as 6M	Manufacturer Standard	Less than 0.01%	Supplier TC	V	V	V	
1.03	FAST CURE EVA SHEET	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	P	V	V	
		b	Visual and dimensional checks	Major	Visual / Dimension	One ml / lot	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	P	V	-	
		c	Shelf life	Major	Visual	100%	Same as 6M	Manufacturer Standard	Before expiry date	Product Label	P	V	-	

LEGEND: * RECORDS, IDENTIFIED WITH "DCK" (V) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER; C: MAIN SUPPLIER; N: NTPC
 P: PERFORM W: WITNESS AND V: VERIFICATION. CIP: CUSTOMER HOLDPOINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "H" AS "W".
 Format No: Q5-01-QM-P-10/11-08 Page: 04/04

Sl No		COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
						% M	% C/N			D*	M	C	N		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
		d	Bell Contact	Major	Chemical	5%	Same as 6M	Manufacturer Standard	± 75%	Supplier TC	V	V	V		
		e	Adhesion Peel Test (EVA to Glass)	Major	Adhesion Strength	5%	Same as 6M	Manufacturer Standard	± 60N / 10mm	Inspection Report	V	V	V		
104	BACK SHEET	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	F	V	V		
		b	Visual / Dimension	Major	Visual and dimensional checks	One roll/lot	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	F	V	-		
		c	Shelf life	Major	Visual	100%	Same as 6M	Manufacturer Standard	Before expiry date	Inspection Report	F	V	-		
		d	Adhesion Strength (Back Sheet to EVA)	Major	EVA Adhesion Peel Test	1 Sample / PO lot	Same as 6M	Manufacturer Standard	± 40N / 10mm	Inspection Report	V	V	V		
105	Soldering ribbon & busbar	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	F	V	V		
		b	Visual/ dimension	Major	Visual and dimensional	One roll/ PO lot	Same as 6M	Manufacturer Standard	No damage	Inspection Report	F	V	-		
		c	Coating thickness	Major	Measurement	Mnfr std	Same as 6M	Manufacturer Standard	± 16 microns	Supplier TC	V	V	V		
106	Cable & connector	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	F	V	V		
107	JUNCTION BOX	a	Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make list	TUV certificate make list	Inspection Report	F	V	V		
		b	Physical damage	Major	Visual check	5 nos/ PO lot	Same as 6M	Manufacturer Standard/ Approved Drawing	Manufacturer Standard/ Approved Drawing	Inspection Report	F	V	-		
		c	Diode: make & type check	Major	Visual check	5 nos/ PO lot	Same as 6M	Manufacturer Standard/ Approved Drawing	Manufacturer Standard/ Approved Drawing	Inspection Report	F	V	-		

LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (V) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER; C: MAIN SUPPLIER; N: NTPC; P: PERFORM; W: WITNESS AND V: VERIFICATION. CHP: CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY (COLUMN "N" AS "W").

Form No.: QS-01-QM-P-10/11-00

Ingg. Div./QAR

ITEM : SPV Module		STANDARD QUALITY PLAN							QP NO-0000-999-QQE-S-58		REVIEWED BY: APPROVED BY:		
		CONFORMING TO CODE : IS / IEC / NTPC TECHNICAL SPECIFICATION							Rev No : 0		S.K. Dhillon		
COMPONENT & OPERATIONS		CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
Sl No					6 W	6 V/N				M	C	N	
1	2	3	4	5	6	7	8	9	10	11	12	13	
		d No. Of diodes in a Junction Box	Major	Visual check / physical	5 nos/ PO lot	Same as 6M	Manufacturer Standard/ Approved Drawing	Manufacturer Standard/ Approved Drawing	Inspection Report	F	V	-	
		e Degree of protection	Major	Physical	Mfr std.	Same as 6M	Approved Datasheet	Approved Datasheet	Supplier TC	V	V	V	
1.08	ALUMINIUM FRAMES	a Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make lot	TUV certificate make lot	Inspection Report	F	V	V	
		b Visual and dimensional	Major	Visual /Dimension	5 nos/ PO lot	Same as 6M	Manufacturer Standard	Manufacturer Standard	Inspection Report	F	V	-	
		c Composition	Major	Material	Mfr std.	Same as 6M	Manufacturer Standard	Manufacturer Standard	Supplier TC	F	V	-	
		d Thickness of anodic coating	Major	Passivation	5 nos/ PO lot	Same as 6M	Manufacturer Standard	≥ 15 microns	Inspection Report	F	V	V	
1.09	Frame & junction box Adhesives/Sealant	a Make & type check	Critical	Visual	100%	Same as 6M	TUV certificate make lot	TUV certificate make lot	Inspection Report	F	V	V	
2.00	Inprocess - Checks												
2.01	GLASS CLEANING	a Visual check	Major	Visual	100%	Same as 6M	Manufacturer Standard	No dust, scratch, chipping in the glass	Inspection Report	F	V	-	
2.02	CUTTING OF EVA/BACK SHEET	a Dimension	Major	Measurement	Once in a day	Same as 6M	Manufacturer Standard	Manufacturer Standard	-d-	F	V	-	
2.03	TABBING AND STRINGING OF SOLAR	a Visual /machine Check for Cell Crack during Tabling & Stringing	Major	Visual	100%	Same as 6M	Manufacturer Standard	No Cell breakages	-d-	F	V	-	

LEGEND: * RECORDS, IDENTIFIED WITH "DCK" (F) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURED/ SUB-SUPPLIER; C: MAIN SUPPLIER, N: NTPC
F: PERFORM W: WITNESS AND V: VERIFICATION. LMP: CUSTOMER HOLDPOINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".

Format No.: QS-01-QM-P-10/F1-R1



Engg. Div./Q&A

NTPC		ITEM : SPV Module		STANDARD QUALITY PLAN					QP NO: 0000-999-QOE-S-58		REVIEWED BY: [Signature]		
		CONFORMING TO CODE :					Rev No : 0		D. K. Datta		APPROVED BY: [Signature]		
		IS / IEC / NTPC TECHNICAL SPECIFICATION					Date: 09.03.2015		V. Talwar		Approved		
							VALID UPTO: 06.03.2018		Raksha Singh		Approved		
Sl No	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY		
					6 M	6 C/A				D*	M	C	N
1	2	3	4	5	6 M	6 C/A	7	8	9	10	11	12	
		b Visual check for alignment of Tabs	Major	Visual	100%	Same as 6M	Manufacturer Standard	No significant misalignment of tabs, proper soldering	-do-		P	V	
		c Solder Peel Off Test	Major	Measurement	at random	Same as 6M	Manufacturer Standard	>2N	-do-		P	V	
2.04	LAYOUT	a Visual check for misalignment of cell strings, external stray material	Major	Visual	100%	Same as 6M	Manufacturer Standard	No significant misalignment	-do-		P	V	
2.05	LAMINATION	a Check for Temperature, pressure & time setting	Major	Visual	100%	Same as 6M	Manufacturer Standard	Manufacturer Standard	-do-		P	V	
		b Visual check for air-bubbles, cell cracks, delamination	Major	Visual	100%	Same as 6M	Manufacturer Standard	No external stray material, No air bubbles, cell cracks, delamination	-do-		P	V	
2.06	FRAMING & JUNCTION BOX FIXING	a Check for warpages on the frames and gap between frame & glass after sealing	Major	Visual	100%	Same as 6M	Manufacturer Standard	No warpage/ No significant gap between frame & glass after sealing	-do-		P	V	
2.07	CELL CRACK	a Visual Check of module for Cell Crack by ElectroLuminescence Tester	Major	Visual	100%	Same as 6M	Manufacturer Standard	No Cell Breakage	-do-		P	V	
2.08	RPTD TAG	a Visual Inspection	Major	Visual	100%	Same as 6M	Manufacturing Instruction	As per NTPC Specification	-do-		P	V	V
2.09	HV TEST	a HV TEST for 5 Sec	Major	Electrical	100%	Same as 6M	Manufacturer Standard	No arcing, no dielectric failure	-do-		P	V	V

LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER; C: MAIN SUPPLIER; N: NTPC
P: PERFORM W: WITNESS AND V: VERIFICATION. CHP: CUSTOMER HOLDPOINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".

Formal No.: QP-01-QM-P-10/15-08

Page 13/13

NTPC		ITEM: SPV Module		STANDARD QUALITY PLAN				QIP NO: 0000-999-QOE-S-58		REVIEWED BY: 					
		CONFORMING TO CODE:				Rev No: 0		Date: 09.03.2015		D. K. Datta					
		IS / IEC / NTPC TECHNICAL SPECIFICATION				VALID UPTO: 08.03.2018		V. Talwar		Relative Sign: 					
Sl No	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY				
					% M	% C/N			M	C	N				
1	2	3	4	5	6		7	8	9	D*	10				
Type Test Clearance from NTPC Engineering as per specification requirements to be verified during inspection															
3.00	FINAL TEST	a	Visual inspection for cell cracks, Inconsistence Cell Cover, air bubbles, de-lamination, faulty interconnection, cell touching one other/ overlapping, excess glue marks, scratches, frame problems (scratches, gap between frame & glass), raking sticker, completeness of Modules, Sealing arrangement of modules	Major	Visual	100%	AQL*	NTPC specification/ approved datasheet/ approved drawing	Free from the Following defects- cell cracks, Inconsistence Cell Cover, air bubbles, de-lamination, faulty interconnection, cell touching one other/ overlapping, excess glue marks, scratches, frame problems (scratches, gap between frame & glass), raking sticker, completeness of Modules, Sealing arrangement of modules	Final Inspection Report	/	P	W	W	AQL* = IS 2500:2000 part 1, General Inspection Level II, AQL 1.5%
		b	Sun Simulator Calibration by Reference Modules before the testing of manufactured modules	Major	Electrical	100%	100%	Manufacturer Standard	IEC 61215/Calibrator certificate	Final Inspectio Report/ Sun Simulator Calibration Reports	/	P	W	W	
		c	Electrical parameters of PV Module of Sun Simulator	Major	Electrical	AQL*	AQL*	Approved datasheet	Approved datasheet	Final Inspection report	/	P	W	W	
		d	HV TEST (at 1000V + 2 X Maximum System Voltage)	Major	Electrical	AQL*	AQL*	Manufacturer Standard	No arcing, no dielectric failure	Final Inspection Report	/	P	W	W	
		e	IR (Before & after HV) at Maximum System Voltage	Major	Electrical	AQL*	AQL*	Manufacturer Standard	measured insulation X the area of module >40MQ.m ²	Final Inspection Report	/	P	W	W	

LEGEND: * RECORDS, INDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER; C: MAIN SUPPLIER, N: NTPC; P: PERFORM; W: WITNESS AND V: VERIFICATION. CRP: CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".

Form No.: QS-05-QM-P-10/13-08


Engg. Dir./QAB

Sl. No.		COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
						G/M	G/C/N			M	C	N			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
		Robustness of Termination Test	Major	Mechanical	1 Module per offered lot	1 Module per lot	NTPC specification / IEC 61215	IEC 61215	Final Inspection Report	/	P	W	W		
		Mechanical Load Test	Major	Mechanical	1 Module per offered lot	1 Module per lot	NTPC specification / IEC 61215	IEC 61215	Final Inspection Report	/	P	W	W		

LEGEND: * RECORDS, IDENTIFIED WITH "ICK" (V) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER; C: MAIN SUPPLIER; N: NTPC
 P: PERFORM; W: WITNESS AND; V: VERIFICATION. CIP: CUSTOMER HOLDPOINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".

Format No.: CS-03-QA-P-30/13-R0


Engg. Div./QA&I

 <p>बि. एच. ई. लि. A4-11</p>	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-401
		Rev. No	02
		Page 1 of 9	

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest to the company

TECHNICAL SPECIFICATION FOR SUPPLY OF CRYSTALLINE SILICON PV MODULES - SCCL

REVISION DETAILS: (02) PQC removed from the technical specification document	PREPARED CMH 	DATE 10.09.2020
	APPROVED SR 	ISSUED ENGG



**PURCHASE SPECIFICATION
GROUP: PHOTOVOLTAICS**

Spec. No PS-439-401

Rev. No 02

Page 2 of 9

1. TECHNICAL REQUIREMENTS:

Sl. No	Item	Remarks
1	PV Module Configuration	Multi crystalline photovoltaic module with 72 nos. of cells in 12X6 series configuration. The module construction and bill of material shall be as per vendor's approved IEC certification. <i>Please enclose:</i> <i>i. Module overall assembly drawing with mounting holes</i> <i>ii. Data sheet with typical electrical characteristics, I-V curves, temperature coefficients etc.</i>
2	Power Output	330 Watts and above, in 5 Watt band only. No negative tolerance accepted.
3	Module Efficiency	17% (min)
4	Fill Factor	0.73 (min)
5	Temp. coefficient of Power	-0.40% / Deg. C or better
6	Operating Conditions	Modules shall be suitable for 1000 V DC or higher System Voltage applications. Also, able to perform satisfactorily in relative humidity up to 85% with temperature between -40°C to +85°C and shall withstand adverse climatic conditions and wind speed as per site condition or as per IS:875 Part-3 whichever is higher.
7.1	IEC Certifications	The PV modules supplied shall be with valid IEC certifications as below. 1. IEC 61215-1:2016 – Edition 1 (Design Qualification and Type Approval-Part 1) 2. IEC 61215-1-1:2016 – Edition 1 (Design Qualification and Type Approval-Part 1-1) 3. IEC 61730-1:2016-Edition 2 (Safety Qualification – Part 1) 4. IEC 61730-2:2016- Edition 2 (Safety Qualification – Part 2) 5. IEC 61701:2011-Edition 2 (Salt Mist Corrosion testing) 6. IEC 62716:2013-Edition 1 (Ammonia Corrosion testing) 7. IEC TS 62804-1:2015-Edition 1 (PID Testing – Part 1, 85°C/85% RH, 192 hours) Vendors shall use Bill of materials for manufacture of PV modules as per subset of approved CDF of IEC Certificates. All IEC Certificates to be submitted with tender.
7.2	Application Class as per IEC 61730	Class A
7.3	BIS Registration	As per the Solar Photovoltaics, Systems, Devices and Components Goods (Requirements for Compulsory Registration) Order, 2017, Government of India, PV Modules used in the grid connected solar power projects in India shall be registered with BIS and bear the Standard Mark as notified by the Bureau of Indian Standards.

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**



**PURCHASE SPECIFICATION
GROUP: PHOTOVOLTAICS**

Spec. No PS-439-401

Rev. No 02

Page 3 of 9

		BIS Registration Received : Yes / No
8	BILL OF MATERIALS	
8.1	Solar cells	Multi-crystalline solar cells Pl. mention make of cells that will be used for this project :
8.2	EVA	The encapsulant used for the PV modules should be UV resistant and PID resistant in nature. No yellowing of the encapsulant with prolonged exposure shall occur. Gel content : > 75% Volume resistivity : > 1×10 ¹⁵ Ω.cm Peeling strength with glass : > 60 N/cm
8.3	Glass	Toughened low iron glass with minimum thickness of 4.0 mm and light transmission of above 90 %. Confirmation for 4 mm thickness glass : Yes / No
8.4	Back Sheet	The back sheet used in the PV modules shall be of three layered structure durable for humid - hot conditions with properties of moisture barrier, elongation retention and UV resistance. Material thickness : ≥ 300 micron Water vapour transmission rate : < 2 g/m ² /day Partial discharge test voltage : ≥ 1000 V / 1500 V Elongation at break : > 100% Adhesion strength with encapsulant : > 70 N/cm Interlayer adhesion strength : > 5 N/cm The Customer reserves the right to conduct Pressure Cooker (PC) test/ Highly Accelerated Stress Test (HAST) to confirm the durability of the back sheet in accelerated conditions.
8.5	PV Module Frame	Corrosion resistant, Anodized Aluminum with provision for earthing holes. Anodization thickness shall not be less than 15 microns.
8.6	Junction box	The material used for junction box shall be UV resistant to avoid degradation during module life. The degree of protection of the junction box shall be at least IP67 . Minimum three number of bypass diodes and two number of IEC 62852/EN 50521 certified MC4 compatible connectors with 1.2 metre length of IEC 62930/EN 50618 certified 4 sq.mm copper cable shall be provided. Pl. confirm for Junction cable length of 1.2 Metre : Yes / No
8.7	Sealant for edge sealing of PV modules	The sealant used for edge sealing of PV modules shall have excellent moisture ingress protection with good electrical insulation (Break down voltage >15 kV/mm) and with good adhesion strength. Edge tapes for sealing are not allowed.

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**



**PURCHASE SPECIFICATION
GROUP: PHOTOVOLTAICS**

Spec. No PS-439-401


Rev. No 02

Page 4 of 9

8.8	Module Sl. No.	Module Sl. No. shall be embedded inside the laminate with barcode for reading.
8.9	RFID & Bar code	<p>RFID tag and Bar code positioned inside the laminate. RFID shall be durable for the entire life of panel and shall contain the following information:</p> <ul style="list-style-type: none"> (i) Name of the manufacturer of PV Module (ii) Name of the Manufacturer of Solar cells (iii) Type of cell: Multi (iv) Month and year of the manufacture (separately for solar cells and module) (v) Country of origin (separately for solar cells and module) (vi) I-V curve for the module (vii) Peak Wattage, I_m, V_m and FF for the module (viii) Unique Serial No. and Model No. of the module. (ix) Date and year of obtaining IEC PV module qualification certificate (x) Name of the test lab issuing IEC certificate (xi) Other relevant information on traceability of solar cells and modules as per ISO 9000 series. <p>Database of all the PV modules containing the above information shall also be provided in excel file format.</p>
8.10	Nameplate	<p>Each module shall be provided with a name plate label (sticker) containing the following information:</p> <ul style="list-style-type: none"> a. Name of module manufacturer b. Module model number c. Overall Dimension d. Weight e. P_{max}, I_{max}, & V_{max} f. Short-circuit current I_{sc} & Open-circuit voltage V_{oc} g. System Voltage h. Relevant standards and certifying lab name i. Warnings, if any j. Other relevant information <p>Nameplate shall be clearly visible and shall not be hidden by equipment wiring. It shall be durable for the entire life of panel.</p>
8.11	.PAN File	.PAN file (Third party verified) for each module wattage offered shall be provided for carrying out PVSYS calculations at our end.
8.12	BOM as per CDF of IEC Certificate	<p>Pl. confirm for using solar cells and module materials as per approved CDF as per IEC Certificate.</p> <p>Vendor confirmation : Yes / No</p>
8.13	RFID Readers	1 number of hand-held RFID reader (gun type) compatible to read module IV data (at the site) stored in RFID tags to be supplied at free of cost. All associated software, cables and accessories shall also be provided at free of cost for displaying and downloading RFID data from the RFID reader.

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-401
		Rev. No	02
		Page 5 of 9	

		Vendor confirmation : Yes / No
8.14	Mounting hole Pitch	Pl. provide mounting hole pitch details. Horizontal : Vertical : Mounting hole size :


2. QUALITY ASSURANCE

Module Quality Plan and Data Sheet shall be subject to customer's approval. Each lot of modules shall be subject to pre-dispatch inspection by BHEL, customer or any third party.

1	Quality Plan and Data Sheet	<p>Quality Plan and Data Sheet format shall be as per document QP-SCCL.PDF.</p> <p>Pre-Shipment inspection by customer at Vendor's works will include :</p> <ul style="list-style-type: none"> i. Dimensional and Visual Check ii. Electrical test (I-V test) iii. IR-HV-IR test and Earth Continuity Test iv. Electro Luminescence (EL) Test v. Wet Leakage test vi. Mechanical Load test vii. Any other test as required by customer <p>The acceptance criteria and Sampling plan are mentioned in the Quality Plan.</p> <p>Pl. confirm for adherence to Quality Plan and Data Sheet format as per document QP-SCCL.PDF</p> <p>Vendor confirmation : Yes / No</p>
---	-----------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-401
		Rev. No	02
		Page 6 of 9	

3. WARRANTY

Product warranty shall be for 10 years and power performance warranty shall be for 25 years.

PV modules must be warranted with linear degradation rate of power output except for first year (maximum 3% including LID) and shall guarantee 80% of the initial rated power output at the end of 25 years. The modules shall be warranted for minimum of 10 years against all material/ manufacturing defects and workmanship.

Modules that do not meet the above criteria shall be replaced free of cost at BHEL's/customer's sole discretion.

4. Third Party Insurance for Product and Power output warranty for 25 years

The PV module power output warranty as per the technical specification shall be insured and backed up through an insurance policy by a reputed insurance company which will cover against the PV module power output warranty for 25 years in case of insolvency or bankruptcy of the PV module manufacturer. The Bidder shall submit a suitable insurance from Third Party.

5. PACKING & IDENTIFICATION OF PV MODULE

The modules shall be packed in carton boxes. One carton box shall contain one module power rating (330 Wp or 335 Wp and Current Rating). Module power rating and current bin rating shall be displayed with a sticker on both the longer sides of the carton box. Eg: 330 Wp-8.8 A Multi Crystalline PV module to be identified as **Multi-330 Wp-8.8 A** Sticker. The carton box should display the manufacturer's name, number of modules, type, serial numbers, module wattage etc.

Current binning of modules shall be employed so that current mismatch of modules in a pallet does not exceed 0.1 A. Different colour codes shall be provided on the modules as well as pallet for identification of different bins. Maximum three nos. of bins will be allowed for each module rating.

Modules from outside India shall be with Sea worthy packing and modules made in India shall be with road worthy packing.


Modules found damaged at the time of opening of the cartons in the project site shall be replaced by the vendor.

6. GENERAL CONDITIONS

- a. PV Modules shall be manufactured at the vendor's works only.
- b. Manufacturing clearance shall be given only after approval of manufacturing quality plan, approval of drawings and datasheet by BHEL's customer and after sample PV Module approval (if deemed necessary).
- c. Any additional tests/type tests/Certification required by BHEL/BHEL's customer shall be complied.

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 <p>A4-11</p>	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-401
		Rev. No	02
		Page 7 of 9	

7. Manufacturing Clearance Approval Procedure


- i. The Vendor shall provide Guaranteed Technical Particular (GTP) datasheet and Bill of Materials (BOM) of the module that is submitted for approval along with the datasheets of each component. The component datasheet shall contain all the information to substantiate the compliance for component specifications mentioned above.
- ii. The Vendor shall also provide test certificates corresponding to the standards mentioned above along with complete test reports for the proposed module. The tests should have been conducted at a test laboratory compliant with ISO 17025 for testing and calibration and accredited by an ILAC/IECEE member signatory. Laboratory accreditation certificate or weblink along with scope of accreditation shall also be submitted.
- iii. The BOM proposed shall be the subset of Constructional Data Form (CDF)'s of all the test reports.
- iv. The Vendor shall submit a detailed Manufacturing Quality Plan (MQP) for the PV Module with list of checks/tests performed during incoming material inspection, production, pre-dispatch and package.
- v. The Vendor shall obtain the approval of the proposed module make & model prior to manufacturing and inspection call.

8. Manufacturing and Inspection

- i. The Vendor shall inform the module manufacturing schedule to the Customer at least 7 (seven) working days before the start of proposed schedule.
- ii. The customer shall perform material inspection at the Manufacturer's factory before the start of proposed manufacturing schedule. Proof of procurement of components as per the approved BOM mentioning manufacturer name, manufacturing date and relevant test certificate shall be submitted during material inspection for verification.
- iii. The Manufacturing shall start only after the clearance by the Customer after the material inspection.
- iv. The cells used for module making shall be free from all defects like edge chipping, breakages, printing defects, discoloration of top surface etc. Only Class A solar cell shall be used.
- v. The modules shall be uniformly laminated without any lamination defects.
- vi. Current binning of modules shall be employed so that current mismatch of modules in a pallet does not exceed 0.1 A. Different colour codes shall be provided on the modules as well as pallet for identification of different bins. Maximum three nos. of bins will be allowed for each module rating.
- vii. Pre-dispatch inspection of modules shall be performed as per the inspection protocol of the customer.

COPYRIGHT AND CONFIDENTIAL

**The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company**

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-401
		Rev. No	02
		Page 8 of 9	

9. Confirmation by the Vendor


Sl. No.	Item	Acceptance by the Vendor (Yes / No)
1.	PV module model number:	
2.	Multi Crystalline PV Modules with module efficiency of 17 % and above	
3.	Temp. coefficient of Power : -0.40% / Deg. C or better	
4.	PV Modules registered with BIS (Bureau of Indian Standards)	
5.	Glass : 4 mm thickness	
6.	Back Sheet : 3 Layer, 300 microns thick, Water vapour transmission rate : < 2 g/m2/day	
7.	IP67 Junction box	
8.	Junction box cable length : 1.2 Metres	
9.	Edge Sealing of modules with Silicone Sealant (RTV)	
10.	Al. Frame anodisation thickness : >= 15 microns.	
11.	RFID Tag and Bar code inside the laminate	
12.	Supply of 2 nos. of hand held RFID readers	
13.	Adherence to Quality Plan as per customer	
14.	Third Party Insurance for Product and Power performance warranty	
15.	Bill of materials as per subset of the CDF of the IEC Certificates	

10. Enclosures

Sl. No.	Document
1.	Proof for PV module manufacturing capacity
2.	IEC 61215-1&1-1, IEC 61730-1 & 2, IEC 61701, IEC 62716 & IEC TS-62804-1 test certificates including CDF certificates.
3.	PV Module catalogue having Over all PV module assembly drawing indicating mounting hole pitch & I-V Electrical data sheet for PV modules.

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company

 A4-11	PURCHASE SPECIFICATION GROUP: PHOTOVOLTAICS	Spec. No	PS-439-401
		Rev. No	02
		Page 9 of 9	

4.	Signed copy of BHEL Specification PS-439-401
5.	.PAN files for 330 Wp and 335 Wp rating PV modules
6.	List of equipment available for manufacture and testing of PV modules, PV module production in MW during last 3 financial years, Turnover in the last 3 financial years.
7.	PV module installation and O&M manual
8.	Hard copy of above documents shall be enclosed along with the technical bid. Soft copy of all above documents and IEC test reports to be sent by e-mail to the email id as mentioned in tender documents.

11. DEVIATION SHEET

Sl. No.	Particulars	Bidder's Confirmation
1.	Confirmation to BHEL Specification PS- 439- 401 Rev. 02 in toto	<i>YES / No</i> <i>Please indicate deviations, if any.</i>

Signature of Tenderer with stamp

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Bharat Heavy Electricals Limited.
It must not be used directly or indirectly in anyway detrimental to the interest of the company



Tender for Design, Engineering, Supply, Construction, Erection, Testing and Commissioning of 150 MW Grid Connected Solar PV Power Plants including 10 Years O&M at different locations of SCCL in Telangana State through Competitive bidding



Annexure – A

Pre-dispatch Inspection Protocol for Crystalline PV Modules by Employer or Employer Deputed Agency

On behalf of



By:



SOLAR ENERGY CORPORATION OF INDIA LIMITED

(A Government of India Enterprise)

1st floor, Wing A, Prius Platinum Building, D-3, District Centre, Saket, New Delhi – 17

Tel: 011 – 71989224, Fax: 011 – 71989241

150 MW SOLAR PV POWER
PLANT PROJECTS AT SCCL
PREMISES

Tender No.
SECI/C&P/NIT/2018/SCCL150

Annexure-A
Page 1 of 13

Signature of
Bidder



Tender for Design, Engineering, Supply, Construction, Erection, Testing and Commissioning of 150 MW Grid Connected Solar PV Power Plants including 10 Years O&M at different locations of SCCL in Telangana State through Competitive bidding



**150 MW SOLAR PV POWER
PLANT PROJECTS AT SCCL
PREMISES**

**Tender No.
SECI/C&P/NIT/2018/SCCL150**

**Annexure-A
Page 2 of 13**

**Signature of
Bidder**



Contents

1. Objective:.....	4
2. Standard:	4
3. Definitions:	4
4. Inspection Schedule:.....	4
5. Scope of Inspection:	4
6. Sampling Process:	5
7. Decision Rules for Acceptance/Rejection.....	6
8. Inspection Process.....	6
9. Re-inspection and review.....	7
10. Inspection Summary:.....	7
11. Disclaimer:	7



Pre-dispatch inspection procedure

1. Objective:

The objective of this document is to establish General inspection protocol with objectivity for verification of Quality Parameters of Solar Modules by the customer (or its authorised inspection agency) prior to dispatch. The decision rules and procedure specified herein seek to uphold quality standards based on industry best practices and technical specifications laid out in tender documents as well as to control risks associated with item procurement.

2. Standard:

Sampling for determining Acceptance Quality Level (AQL) shall follow ISO2859-1:1999.

3. Definitions:

1. Lot: All products/items manufactured in one batch.
Notwithstanding the aforementioned definition, the customer or authorized inspection agency can lay down alternate/additional criteria for determining a lot.
2. Major Defect: A defect that reduces the usability or causes the product to fail to fulfil its nominal characteristic function.
3. Minor Defect: A defect that does not reduce the usability of the product, but does not meet the quality standard.

4. Inspection Schedule:

Customer representative shall propose the schedule for Pre despatch Inspection of Finished Goods to the Customer well in advance, and in no case less than 3 working days prior to commencement of Inspection at a location within India and 7 days in case of a foreign country.

5. Scope of Inspection:

Supplier representative will accompany the Inspector while doing the inspection which shall typically consist of 2 steps for clearance of each Lot:

BOM verification: To be conducted prior to the commencement of production.

The details of materials used will be verified from the ERP/Manufacturing data and corroborated with the Construction Data Form (CDF). This shall include verification of following:



Tender for Design, Engineering, Supply, Construction, Erection, Testing and Commissioning of 150 MW Grid Connected Solar PV Power Plants including 10 Years O&M at different locations of SCCL in Telangana State through Competitive bidding



Item	Method of Verification
Shelf life of the following BOM items: <ul style="list-style-type: none"> • EVA • PV Module Back sheet • Sealant and potting material (Silicone) 	1. Verify the expiry date/shelf life and storage conditions <i>The PV Module manufacturer shall submit all required information to prove that materials being used are within their shelf life.</i>

Note: Supplier shall provide the necessary documents for approval of BOM as per IEC standards and tender Technical Specifications.

Witness Tests:

Manufacturer shall assist the Inspecting agency to witness following checks, the details of which are provided elsewhere in this document:

- I. Flash test- As per sampling Plan
- II. Visual Inspection- As per sampling Plan
- III. EL Inspection-As per Sampling Plan
- IV. Electrical Characteristics (Other than Flash Test)- As per Sampling Plan

Note: The Supplier shall furnish soft and hard copy of the Production Quality Plan prior to commencement of the Inspection.

6. Sampling Process:

- a. Supplier shall provide the list of modules in a lot ready for despatch, along with flash test data (Measured Electrical Data, P_{max}) prior to commencement of Inspection tests.

Note: Smallest lot size for Inspection: 20% of the capacity as per the PO.

- b. Supplier will arrange to move the PV Modules from FG to Inspection area.
- c. Same samples shall be used for all Witness Tests stated at 5.2 above.
- d. Inspector shall commence Inspection process by randomly selecting samples from the list of serial nos. (pallet-wise) provided by Supplier as per ISO 2859: Single Sampling Plan for Normal Inspection, General Inspection plan level-II. However, the Inspector shall reserve the right to switch to tightened or reduced level of Inspection as per the lot quality.



7. Decision Rules for Acceptance/Rejection

Following is a summary of Decision Rules for Acceptance/Rejection of a given Sample in a lot offered for Inspection:

Table 1: AQL Levels

Defect Type	AQL (%)
Major (Ma)	2.5
Minor (Mi)	4

Table 2: Inspection Levels

Inspection steps	Inspection item	Inspection level
1.	Flash Test	General inspection level I
2.	Visual	General inspection level I
3.	EL	General inspection level I
4.	EC (Other than Flash Test)	10 Nos. per lot

8. Inspection Process

a. Electrical Inspection – Flash Tests

For Electrical inspection following preparation will be done:

- Module Temp Stabilisation : Modules will be kept in controlled environmental condition till it reaches $25 \pm 2^{\circ}\text{C}$
- Calibration of Sun-simulator: Sun-simulator will be calibrated as per Calibration Reference .Reference should calibrated against Calibration Reference tested from reputed testing lab TUV / Fraunhofer etc. Testing of modules will be done at STC condition, AM=1.5

Note:

- All modules selected for sampling inspection will be re-tested in the sun-simulator. A P_{\max} retest (repeatability test) variation of $\pm 2\%$ on actual flash P_{\max} value will be acceptable.
- The Supplier shall provide a valid calibration certificate of the apparatus used.

b. Visual Inspection:



- Customer representative will verify the module visual characteristics as per the Visual Acceptance norms.
 - The Visual Inspection shall be carried out in a well-lit room. It shall be the responsibility of the Supplier to ensure adequate brightness in the room.
- c. Electroluminescence (EL) Inspection:
- The EL image shall have sufficient resolution for analysis of defects.
 - Hi-pot test shall be done as per IEC procedure. The Supplier shall provide a valid calibration certificate of the apparatus used.

9. Re-inspection and review

In case of minor non-conformities like cleaning issues, label mismatch, etc. which can be easily reworked, Supplier shall rework/replace the modules and offer them for re-inspection to Inspector.

10. Inspection Summary:

Once the inspection is completed Customer Representative will compile his Inspection Summary Report and share with Supplier and give necessary recommendation on despatch depending upon the audit findings based on the observations made. This report shall be provided within same day of inspection (Format Attached).

11. Disclaimer:

Inspection by SECI/ Employer does not absolve the responsibility of the Supplier/vendor to ensure quality during production of the material and its transport to site. Any damages during transport/ handling shall be replaced before erection at site as directed by Engineer-in-charge without any extra cost to the purchaser.



Tender for Design, Engineering, Supply, Construction, Erection, Testing and Commissioning of 150 MW Grid Connected Solar PV Power Plants including 10 Years O&M at different locations of SCCL in Telangana State through Competitive bidding



Sampling Plan

(Sampling Plan as Per ISO 2859) -1

Table 1 - Sample size code letters (see 10.1 and 10.2)

Lot size	Special inspection levels				General inspection levels		
	S-1	S-2	S-3	S-4	I	II	III
2 to 8	A	A	A	A	A	A	B
9 to 15	A	A	A	A	A	B	C
16 to 25	A	A	B	B	B	C	D
26 to 50	A	B	B	C	C	D	E
51 to 90	B	B	C	C	C	E	F
91 to 150	B	B	C	D	D	F	G
151 to 280	B	C	D	E	E	G	H
281 to 500	B	C	D	E	F	H	J
501 to 1 200	C	C	E	F	G	J	K
1 201 to 3 200	C	D	E	G	H	K	L
3 201 to 10 000	C	D	F	G	J	L	M
10 001 to 35 000	C	D	F	H	K	M	N
35 001 to 150 000	D	E	G	J	L	N	P
150 001 to 500 000	D	E	G	J	M	P	Q
500 001 and over	D	E	H	K	N	Q	R



(Sampling Plan as Per ISO 2859) – 2 – Normal, Tightened and Reduced)

Table 2-A — Single sampling plans for normal inspection (Master table)

Sample size code letter	Acceptance quality limit, AQL, in percent nonconforming items and nonconformities per 100 items (normal inspection)																											
	0.010	0.015	0.025	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000		
	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re
A	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
C	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
D	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
E	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
F	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
G	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
H	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
I	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
J	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
K	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
L	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
M	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
N	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
P	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
Q	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
R	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1

↕ = Use the first sampling plan below the arrow. If sample size equals, or exceeds, lot size, carry out 100 % inspection.
 ↕ = Use the first sampling plan above the arrow.
 Ac = Acceptance number
 Re = Rejection number



Table 2-B — Single sampling plans for tightened inspection (Master table)

Sample size code letter	Acceptance quality limit, AQL, in percent nonconforming items and nonconformities per 100 items (tightened inspection)																											
	0.010	0.015	0.025	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0	5.5	10	15	25	40	65	100	150	250	400	650	1 000		
	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re
A	2	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
B	3	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
C	5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
D	B	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
E	13	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
F	20	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
G	32	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
H	50	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
J	80	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
K	125	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
L	200	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
M	315	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
N	500	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
P	800	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
Q	1 250	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
R	2 000	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
S	3 150	1	2	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

↔ = Use the first sampling plan below the arrow. If sample size equals, or exceeds, lot size, carry out 100 % inspection.

↔ = Use the first sampling plan above the arrow.

Ac = Acceptance number

Re = Rejection number



Table 2-C — Single sampling plans for reduced inspection (Master table)

Sample size code letter	Acceptance quality limit, AQL, in percent nonconforming items and nonconformities per 100 items (reduced inspection)																											
	0.010	0.015	0.025	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1 000		
	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re
A	↓																		←									
B	↓																		←									
C	↓																		←									
D	↓																		←									
E	↓																		←									
F	↓																		←									
G	↓																		←									
H	↓																		←									
J	↓																		←									
K	↓																		←									
L	↓																		←									
M	↓																		←									
N	↓																		←									
P	↓																		←									
Q	↓																		←									
R	↓																		←									

↓ = Use the first sampling plan below the arrow. If sample size equals, or exceeds, lot size, carry out 100 % inspection.
 ↓ = Use the first sampling plan above the arrow.

Ac = Acceptance number
 Re = Rejection number



Tender for Design, Engineering, Supply, Construction, Erection, Testing and Commissioning of 150 MW Grid Connected Solar PV Power Plants including 10 Years O&M at different locations of SCCL in Telangana State through Competitive bidding



Customer inspection Report

CUSTOMER INSPECTION REPORT			
Ref. No. & Date:			
Client:	PMC: SECI	EPC Contractor: PO Ref. No.:	
Place of Inspection:	Date of inspection:	Lot Size	Sample Quantity
Problem Quantity: Detail: <u>Inspection Result (OK/Not OK):</u>			
Visual Inspection Problem Quantity: Detail:			
Flash Test Problem Quantity: Detail:			
EL Inspection: Problem Quantity: Detail:			
EC Inspection (Hipot,DC Continuity,IR): Problem Quantity: Detail:			
Any Other Criteria/Remarks:			
Is the shipment qualified to be released? <input type="checkbox"/> Yes <input type="checkbox"/> No			
From Client	From EPC Contractor	Solar Energy Corporation of India Limited	

Enclosed: Test Details, Flash Test Report, EL test (images- soft copy), EC Test Report

Disclaimer: This Inspection by SECI/ Employer does not absolve the responsibility of the vendor to ensure quality during production of the material and its transport to site. Any damages during transport/ handling shall be replaced before erection at site as directed by Engineer-in-charge without any extra cost to the purchaser.

Details:

Lot :				Date
S.No.	Defect	Module Id	Type (Ma/Mi)	Details
1				
2				

150 MW SOLAR PV POWER PLANT PROJECTS AT SCCL PREMISES	Tender No. <u>SECI/C&P/NIT/2018/SCCL150</u>	Annexure-A Page 12 of 13	Signature of Bidder
-------------------------------------------------------	----------------------------------------------------	-----------------------------	---------------------



Tender for Design, Engineering, Supply, Construction, Erection, Testing and Commissioning of 150 MW Grid Connected Solar PV Power Plants including 10 Years O&M at different locations of SCCL in Telangana State through Competitive bidding



....				

**150 MW SOLAR PV POWER
PLANT PROJECTS AT SCCL
PREMISES**

**Tender No.
SECI/C&P/NIT/2018/SCCL150**

**Annexure-A
Page 13 of 13**

**Signature of
Bidder**

SPECIAL INSTRUCTIONS

1. Suppliers are requested to read the NIT conditions fully before quoting for the tender along with this Special Instructions .
2. BHEL encourages “SIGHT DRAFT WITH 45 DAYS CREDIT PAYMENT TERM” for foreign vendors and “payment with 45 days credit” for indigenous vendors. After receipt of offers , BHEL may reject offers quoted with LC terms by foreign vendors and inland LC terms by indigenous vendors during commercial terms freezing. BHEL’s decision is FINAL and any vendor who has not participated in this tender cannot claim about BHEL’s decisions at later stage. All decisions will be intimated to participated vendors only and hence BHEL’s decisions will NOT be binding on NON QUOTED vendors since it is OPEN TENDER.
3. After manufacturing clearance is issued and completing production as per BHEL requirement, vendors have to submit test reports/ flash data for proof of material readiness along with inspection call.
4. Inspection call received without test reports/ flash data will not be considered as proof for material readiness and in such cases actual inspection date at vendor’s works only will be considered or date of receipt of test reports only will be considered.
5. After making draft invoice, it has to be sent to BHEL before generating actual invoice. Only after BHEL’s concurrence actual invoice to be generated.
6. After quoting in the tender and after participation in RA or price bid opening, vendor cannot withdraw their offer at any stage. Vendor is bind by NIT and PO prices and terms & conditions
7. Before or after award of the contract if any vendor is withdrawing their offer or backout at any stage, it will be viewed very seriously by BHEL and BHEL will be forced to take necessary action for **“Suspension of Business dealing with BHEL”** as per BHEL’s Purchase Policies , procedure and

guidelines and if needed BHEL may take legal action against the default vendors. Also alternate procurement action will be initiated by BHEL in order to meet project commissioning and to meet customer contract commitments. Hence **“RISK and COST” will be invoked** as per our purchase policies ,guidelines and procedure. BHEL being a GOVT OF INDIA(UNDERTAKING COMPANY), any withdrawal by vendors will be treated as **“sabotaging the tender”** and hence all actions will be initiated like informing other PSUs in India, Indian and Foreign Embassy regarding sabotaging our tender and recommend for actions etc .

Hence, please be cautious and take utmost care before quoting.

(G PONNUGURUPACKIAM)
AGM/HOD-SCPV-MM

SPECIAL TERMS

The special terms and conditions mentioned below supersedes the general conditions of contract Doc No. SCPV: PV Module: 002- Rev 02, for contradictory clauses if any.

1. Quotation shall be submitted in **Two part bid,**

Part 1: Unpriced offer i.e. "Techno-commercial Bid" with filled in BHEL Standard commercial terms and conditions along with purchase specification, integrity pact, etc if any in a sealed envelope and must be super scribed as "**Techno-commercial Bid**", **bidder name and RFQ number**.

Part 2: Priced offer i.e. "Price Bid" containing price summary in a separate sealed envelope and must be super scribed "**Price Bid**", **bidder name, RFQ number and item number/quantity**. Separate price bids in separate envelopes to be submitted for each line item. Since there are 4 line items, 4 different price bid envelopes to be submitted.

All these envelopes (one technical bid and 4 price bids) shall be enclosed in a single sealed envelope super scribed with RFQ number, bidder name and due date of tender and any other details as called for in the tender document.

2. Bidders shall confirm **acceptance of technical specification which is part of the tender document. Any deviation from technical specification can be rejected at BHEL's discretion.**

3. BHEL standard terms of payment

For Indian bidders:

100% with 45 days credit from the date of receipt of material at BHEL Project site or 15 days credit from the date of submission of complete set of documentation whichever is later.

For Foreign bidders:

100% through sight draft with 45 days credit from the date of receipt of material at BHEL Project site or 15 days credit from the date of submission of complete set of documentation whichever is later

4. Terms of delivery :

For Indian bidders - Delivery duty paid (DDP) Project Site

The site address as below:

Sl.no. 1 - 67525 KW

a) 36010 KW

NTPC Simhadri

BHEL Site Office-NTPC 25MW Floating Solar PV Power Plant

NTPC Road, Visakhapatnam Steel Plant, Visakhapatnam, Andhra Pradesh 531020

b) 31515 KW

NTPC Kayamkulam

BHEL Site Office-NTPC 22MW Floating Solar PV Power Plant

NTPC Kayamkulam P.O. Choolatheruvu, Dist. Alappuzha-690 506, Kerala

Sl.no. 2 - 43888 KW

BHEL Site Office - GSECL 100 MW Solar PV Project

Gujarat State Electricity Corporation Limited

Raghanesda-1 Solar Park, Ta -Vav,

Dist – Banaskantha, Gujarat – 385575

Sl.no. 3 - 46068 KW

BHEL Site Office-NTPC 100MW

Floating Solar PV Power Plant

P.O. Jyothinagar, Dist. Karim Nagar

Ramagundam, 505215

Sl.no.4 – 1982 KW

- a) 861.65 KW – Yellandu
- b) 666.60 KW- Ramagundam
- c) 415.80 KW – Manuguru
- d) 37.95 KW – Pegadapally

BHEL Site Office, SCCL Solar PV Project, Telangana

Note: Transit insurance to be covered up to DDP project site office.

For foreign bidders -

Sl.no. 1 - 67525 KW – CIF Chennai

Sl.no. 2 - 43888 KW – CIF Mumbai

Sl.no. 3 - 46068 KW – CIF Chennai

Sl.no.4 – 1982 KW – CIF Chennai

5. Delivery Schedule: BHEL requires delivery schedule as below:

Sl.no. 1 - 67525 KW– within 12 weeks from manufacturing clearance date

Sl.no. 2 - 43888 KW– within 12 weeks from manufacturing clearance date

Sl.no. 3 - 46068 KW– within 12 weeks from manufacturing clearance date

Sl.no.4 – 1982 KW– within 8 weeks from manufacturing clearance date

Note: The delivery schedule will be same for each vendor even in case of splitting of RFQ quantity on more than one vendor.

6. Splitting will be applicable as below: 1MW =1000 KW

Sl No.	Project	Quantity	Splitting if any
1	NTPC, Simhadri & Kayamkulam	67.525 MW	L1- 36.010 MW - NTPC, Simhadri L2- 31.515 MW - NTPC, Kayamkulam
2	GSECL, Raghnesda-1	43.888 MW	L1 – 26.333 MW (60%) L2 – 17.555 MW (40%)
3	NTPC Ramagundam	46.068 MW	L1 – 27.641 MW (60%) L2 – 18.427 MW (40%)
4	SCCL Replacement	1.982 MW	NA

BHEL reserve the right to Split the order quantity as per above table between L1 and L2 vendor respectively for individual line item subjected to L2 vendor accept to supply as per L1 negotiated price. In case, L2 vendor does not accept to supply as per L1 negotiated price, the counter offer will be extended to subsequent vendors ie L3,L4.... If two qualified vendors are not available for quantity splitting for each line item, BHEL shall decide on the splitting in fair and transparent manner. The decision of BHEL shall be final on this matter.

In case L1 vendor gets the L2 quantity also, additional delivery of 4 weeks will be applicable.

7. Evaluation of offers: L1 vendor (lowest Bidder) will be decided based on 'Cost to BHEL' value after considering the applicable loading factors and other costs including packing & forwarding, applicable duties, taxes, transportation until the site, transit insurance etc if it is in the scope of BHEL.

Evaluation/RA will be done on item level.

The evaluation currency for this tender shall be INR.

8. Preference to Make in India: For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by the respective nodal ministry shall be applicable even if issued after issue of this NIT but before finalization of contract/PO /WO against this this NIT. In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and/ or local content in respective of this procurement, same shall be applicable.

9. Changes in Statutory Levies: If any rate of Tax are increased or decreased, a new tax is introduced, an existing tax is abolished or any change in interpretation or application of any tax occurs in the course of execution of the contract within the contractual delivery period, which was or will be assessed on the bidder in connection with performance of the contract, an equitable adjustment of the contract price or deduction there from, as the case may be. However, these adjustments would be restricted to direct transactions between BHEL and the bidder/ agent of foreign bidder (if applicable). These adjustments shall not be applicable on procurement of raw materials, intermediary components, etc. by the bidder/ agent.

10. The rate quoted shall be in **price per kilowatt basis** and not per module.

11. Pre-shipment inspection: Pre-shipment inspection at vendor's works will be carried out by BHEL / BHEL's customer/ Third party agency (Buyer's representative). The cost of inspection/ pre-dispatch inspection/ in-stage inspection (Exclusive of buyer's representatives TA/DA) shall be borne by the vendor. Travel expenses for the representatives for such inspections shall be borne by the buyer.

However, in case re-inspection is necessitated on account of non-acceptance of item(s) due to failure on Factory Acceptance Test(s), the cost of associated travel and accommodation borne by the buyer shall be on account of the vendor. The vendor shall provide assistance, instruments, labour and materials as are normally required for examining, measuring and testing any workmanship as may be selected and required by the Inspector.

On successful completion of pre-shipment inspection/ inspection waiver, BHEL will issue material dispatch clearance certificate (MDCC) after which the vendor can proceed to the material dispatch. However, the vendor has to ensure the material dispatch (BL date/ LR date) within 15 days from date of MDCC.

12. In case of **changes in scope of the tender** and/ or technical specifications and commercial terms & conditions by BHEL during techno commercial evaluation, the same will be communicated only to the bidders who have participated in the tender. The techno-commercially qualified bidders will be asked for submitting impact price bid, if any is applicable as per BHEL purchase policy and guidelines.

13. Warranty: As per BHEL specifications for each item

14. Insurance/PBG: As per BHEL specifications for each item

15. Integrity Pact (IP): The bidder shall sign an "INTEGRITY PACT" in the formats enclosed.

(a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. A panel of Independent External Monitors (IEMs) have been appointed to oversee implementation of IP in BHEL.

The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory who signs in the offer) along with techno-commercial bid. Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.

Details of IEM for this tender is furnished below:

Sl	IEM	Address	Phone & Email
----	-----	---------	---------------

No.			
1.	Shri Arun Chandra Verma, IPS (Retd.)	Flat No. C -1204, C Tower, Amrapali, Platinum Complex, Sector 119, Noida (U.P.)	Ph: +91 8130386387 acverma1@gmail.com
2.	Shri Virendra Bahadur Singh, IPS (Retd.)	H. No. B-5/64, Vineet Khand, Gomti Nagar, Lucknow - 226010	Ph: +91 8853760730 vbsinghips@gmail.com

(b) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to the IEM mentioned in the tender.

Note: No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department. For clarifications/ issues related to the tender, please contact:

Sl No.	Contact person	Address	Phone & Email
1.	Mr. S.Pankaj Kumar	SC&PV MM Department, BHEL Electronics Division, PB NO 2606, Mysore road, Bangalore-560 026. INDIA	Ph: +91 80 26989667, +91-8126333426 spankaj@bhel.in
2.	Mr. Ponnugurupackiam		Ph: +91 80 26998669 +91- 9449869617 ponnuguru@bhel.in

16. Offers with non-acceptance of BHEL terms, can be rejected on BHEL's discretion.

17. For this procurement, the local content to categorize a supplier as a Class-I local supplier/ Class-II local supplier/ Non-local supplier and purchase preference to Class-I local supplier, is as defined in Public procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT. In case of subsequent Orders issued by the Nodal Ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of price bid/s against this NIT.

Any Indian Bidder intending to avail the benefits shall submit the requisite documents as per the aforesaid orders.

18. The Bidder shall mandatorily submit Declaration as mentioned below, under Rule 144(xi) of General Financial Rules, 2017 amendment dt 23.07.2020 issued by Ministry of Finance, Govt. of India. The declaration to be submitted on Company Letter head duly signed and sealed by authorised signatory, for ascertaining the eligibility of offer in the tender.

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered."

(Where applicable, evidence of valid registration by the Competent Authority shall be attached).
The Competent Authority for the purpose of registration under this Order shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).

Refer Model certificate annexure for details.

Doc No. SCPV: PV Module: SPKSCPV056:Rev 00

19. In case BHEL/ customer are unable to come for physical inspection at vendor works, BHEL/ customer may engage third party inspection agency. Hence all charges for third party inspection at vendor works to be borne by vendor.

Bidder's Contact details

BHEL RFQ No:	SPKSCPV056 dated 16.09.2020
Bidder Name:	
Offer Reference No:	
If already registered with BHEL, vendor code :	
Registered Office Address:	
Telephone No:	
Email:	
Ordering Address:	
Telephone No:	
Email:	
Manufacturing plant Address:	
Telephone No:	
Email:	
Contact person Name :	
Telephone No:	
Mobile No:	
Email :	
Contact person in India (If any)	
Telephone No:	
Mobile No:	
Email :	

Techno commercial bid

BHEL RFQ No. SPKSCP056 dated 16.09.2020
 Item: Multi Crystalline PV Module >=330 Wp

	Terms and conditions	Bidder's confirmation/ deviation, if any.
1	Terms of payment: (For Indian bidders) 100% with 45 days credit from the date of receipt of material at BHEL Project site or 15 days credit from the date of submission of complete set of documentation whichever is later	Acceptable/ Not acceptable
	Terms of payment: (For Foreign bidders) 100% through sight draft with 45 days credit from the date of receipt of material at BHEL Project site or 15 days credit from the date of submission of complete set of documentation whichever is later	Acceptable/ Not acceptable
2	Terms of Delivery: (For Indian bidders) Delivery duty paid (DDP) project site. The site address as below, Sl.no. 1 - 67525 KW - a) 36010 KW NTPC Simhadri b) 31515 KW NTPC Kayamkulam Sl.no. 2 - 43888 KW GSECL Raghnesda -1 100 MW Solar PV Project Sl.no. 3 - 46068 KW NTPC Ramagundam 100MW Floating Solar PV Plant. Sl.no. 4 - 1982 KW SCCL 129 MW Solar PV Plant. Note: Transit insurance to be covered up to DDP project site office.	Acceptable/ Not acceptable
	Terms of Delivery: (For Foreign bidders) Sl.no. 1 - 67525 KW – CIF Chennai Sl.no. 2 - 43888 KW – CIF Mumbai Sl.no. 3 - 46068 KW – CIF Chennai Sl.no.4 – 1982 KW – CIF Chennai	Acceptable/ Not acceptable
3	Validity: Quotation should remain valid for a minimum period of 45 days from the RFQ due date.	Acceptable/ Not acceptable
4	Delivery Schedule: Sl.no. 1 - 67525 KW– within 12 weeks from manufacturing clearance date Sl.no. 2 - 43888 KW– within 12 weeks from manufacturing clearance date Sl.no. 3 - 46068 KW– within 12 weeks from manufacturing clearance date Sl.no.4 – 1982 KW– within 8 weeks from manufacturing clearance date Note: The delivery schedule will be same for each vendors even in case of splitting of RFQ quantity on more than one vendor.	Acceptable/ Not acceptable
5	Penalty for delayed delivery: 0.5 % of basic material cost of undelivered portion per week, subject to a maximum of 10 %. Loading factor will be applicable for non-acceptance of penalty clause, Non- Acceptance: 10% Partial non Acceptance (X%): (10- X)%	Acceptable/ Not acceptable

6	<p>Order Splitting: Sl.no. 1 -67.525 MW L1- 36.01 MW L2- 31.515 MW Sl.no. 2- 43.888 MW L1 – 26.333 MW (60%) L2 – 17.555 MW (40%) Sl.no. 3- 46.068 MW L1 – 27.641 MW (60%) L2 – 18.427 MW (40%) Sl.no. 4- 1.982 MW - No splitting BHEL reserve the right to Split the order quantity as per above table between L1 and L2 vendor respectively for individual line item subjected to L2 vendor accept to supply as per L1 negotiated price. In case, L2 vendor does not accept to supply as per L1 negotiated price, the counter offer will be extended to subsequent vendors ie L3,L4.... If two qualified vendors are not available for quantity splitting for each line item, BHEL shall decide on the splitting in fair and transparent manner. The decision of BHEL shall be final on this matter. In case L1 vendor gets the L2 quantity also, additional delivery of 4 weeks will be applicable.</p>	Acceptable/ Not acceptable
7	<p>Acceptance of Reverse Auction: BHEL will finalize the tender based on reverse auction with techno-commercially approved bidders to arrive at L1.</p>	Acceptable/ Not acceptable
8	<p>Price basis: Price is to be quoted on per Kilowatt basis. Purchase order will be placed on “Kilowatt” basis.</p>	Acceptable/ Not acceptable
9	<p>Integrity Pact: The bidder shall sign an “INTEGRITY PACT” in the formats enclosed.</p>	Acceptable/ Not acceptable
10	<p>Pre-shipment inspection: Pre-shipment inspection at vendor’s works will be carried out by BHEL / BHEL’s customer/ Third party agency. Required assistance for testing will have to be provided by the vendor at the time of pre-shipment inspection, without any additional cost implication to BHEL. On successful completion of pre-shipment inspection/ inspection waiver, BHEL will issue material dispatch clearance certificate (MDCC) after which the vendor can proceed to the material dispatch. However, the vendor has to ensure the material dispatch (BL date/ LR date) within 15 days from date of MDCC. In case BHEL/ customer are unable to come for physical inspection at vendor works, BHEL/ customer may engage third party inspection agency. Hence all charges for third party inspection at vendor works to be borne by vendor.</p>	Acceptable/ Not acceptable
11	<p>Warranty: As per BHEL specifications for each item</p>	Acceptable/ Not acceptable
12	<p>Insurance/ PBG for warranty : As per BHEL specifications for each item</p>	
12	<p>Country of origin: (For foreign bidders only) Please specify country of origin. Certificate of origin shall be arranged for each lot of shipment. Port of shipment and country to be specified. Note: Any custom duty will be applicable as per the notifications issued by Govt of India time to time. Wherever applicable, the same will be considered for arriving cost to BHEL.</p>	<p>Country of origin: Port of shipment:</p>
13	<p>Eligibility under Preference to Make in India Order: For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent orders. Please specify if you are eligible to claim the benefits of Indian vendor for supply of PV Modules to BHEL against Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017. If yes, the required documents evidencing the eligibility as per the order, has to be submitted.</p>	<p>Yes/No, If yes, required documents to be submitted</p>
14	<p>BHEL Guidelines for Indian Agents of Foreign Suppliers: Supplier shall adhere to “BHEL Guidelines for Indian Agents of Foreign Suppliers” in case the supplier has Indian Agent.</p>	Acceptable/ Not acceptable
15	<p>Model certificate to be submitted as per attached format.</p>	Yes/No

Signature of the tenderer with seal

Unpriced bid -Indian Bidder (Item no. 1)

BHEL RFQ No. SPKSCPV056 Dated 16.09.2020

Supplier:

Offer ref:

SI No.	PV0679040722 Multi Crystalline PV Module-NTPC SIM,KKM	
1	Quantity	67525
2	Unit	KW
3	Quoted	Yes/ No
4	HSN/SAC Code	
5	Currency	INR
6	Percentage of Taxes/ duties applicable for Indian vendor on PV Modules only	
7	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

**Note: 1. Please mention unit price and total price in both figures and words.
2. Taxes applicable on the PO quantity only shall be paid/reimbursed by BHEL.
Any other cost incurred will be to vendor's account.**

Signature of the tenderer with seal

Unpriced bid -Indian Bidder (Item no. 3)

BHEL RFQ No. SPKSCPV056 Dated 16.09.2020

Supplier:

Offer ref:

SI No.	PV0679040731 Multi Crystalline PV Module -NTPC RG	
1	Quantity	46068
2	Unit	KW
3	Quoted	Yes/ No
4	HSN/SAC Code	
5	Currency	INR
6	Percentage of Taxes/ duties applicable for Indian vendor on PV Modules only	
7	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

**Note: 1. Please mention unit price and total price in both figures and words.
2. Taxes applicable on the PO quantity only shall be paid/reimbursed by BHEL.
Any other cost incurred will be to vendor's account.**

Signature of the tenderer with seal

Unpriced bid -Indian Bidder (Item no. 2)

BHEL RFQ No. SPKSCPV056 Dated 16.09.2020

Supplier:

Offer ref:

SI No.	PV0679040706 Multi Crystalline PV Module- GSECL	
1	Quantity	43888
2	Unit	KW
3	Quoted	Yes/ No
4	HSN/SAC Code	
5	Currency	INR
6	Percentage of Taxes/ duties applicable for Indian vendor on PV Modules only	
7	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

**Note: 1. Please mention unit price and total price in both figures and words.
2. Taxes applicable on the PO quantity only shall be paid/reimbursed by BHEL.
Any other cost incurred will be to vendor's account.**

Signature of the tenderer with seal

Unpriced bid -Indian Bidder (Item no. 4)

BHEL RFQ No. SPKSCPV056 Dated 16.09.2020

Supplier:

Offer ref:

SI No.	PV0679040374 Multi Crystalline PV Module -SCCL	
1	Quantity	1982
2	Unit	KW
3	Quoted	Yes/ No
4	HSN/SAC Code	
5	Currency	INR
6	Percentage of Taxes/ duties applicable for Indian vendor on PV Modules only	
7	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

**Note: 1. Please mention unit price and total price in both figures and words.
2. Taxes applicable on the PO quantity only shall be paid/reimbursed by BHEL.
Any other cost incurred will be to vendor's account.**

Signature of the tenderer with seal

Price bid -Foreign Bidder (Item no. 1)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

SI No.	PV0679040722 Multi Crystalline PV Module-NTPC SIM,KKM	
1	Quantity	67525
2	Unit	KW
3	Quoted	Yes/ No
4	HSN/SAC Code	
5	Currency	
6	Percentage of Taxes and duties applicable on PV Modules	
7	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

Signature of the tenderer with seal

Price bid -Foreign Bidder (Item no. 3)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

SI No.	PV0679040731 Multi Crystalline PV Module -NTPC RG	
1	Quantity	46068
2	Unit	KW
3	Quoted	Yes/ No
4	HSN/SAC Code	
5	Currency	
6	Percentage of Taxes and duties applicable on PV Modules	
7	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

Signature of the tenderer with seal

Price bid -Foreign Bidder (Item no. 2)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

SI No.	PV0679040706 Multi Crystalline PV Module- GSECL	
1	Quantity	43888
2	Unit	KW
3	Quoted	Yes/ No
4	HSN/SAC Code	
5	Currency	
6	Percentage of Taxes and duties applicable on PV Modules	
7	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

Signature of the tenderer with seal

Price bid -Foreign Bidder (Item no. 4)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

SI No.	PV0679040374 Multi Crystalline PV Module -SCCL	
1	Quantity	1982
2	Unit	KW
3	Quoted	Yes/ No
4	HSN/SAC Code	
5	Currency	
6	Percentage of Taxes and duties applicable on PV Modules	
7	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

Signature of the tenderer with seal

Price bid -Indian Bidder (Item no. 1)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

Sl No.	PV0679040722 Multi Crystalline PV Module-NTPC SIM,KKM	
1	Quantity	67525
2	Unit	KW
3	Currency	INR
4	Unit price	
5	Unit price in words	
6	Percentage of Taxes/ duties applicable for Indian vendor on PV Modules only	
7	Total for 67525 KW	
8	Total in words	
9	Whether taxes are Inclusive/ Exclusive in the unit price	

Note: 1. Please mention unit price and total price in both figures and words.

2. Taxes/duties applicable on the PO quantity only shall be paid/reimbursed by BHEL. Any other cost incurred will be to vendor's account.

Signature of the tenderer with seal

Price bid -Indian Bidder (Item no. 3)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

Sl No.	PV0679040731 Multi Crystalline PV Module -NTPC RG	
1	Quantity	46068
2	Unit	KW
3	Currency	INR
4	Unit price	
5	Unit price in words	
6	Percentage of Taxes/ duties applicable for Indian vendor on PV Modules only	
7	Total for 46068 KW	
8	Total in words	
9	Whether taxes are Inclusive/ Exclusive in the unit price	

Note: 1. Please mention unit price and total price in both figures and words.

2. Taxes applicable on the PO quantity only shall be paid/reimbursed by BHEL. Any other cost incurred will be to vendor's account.

Signature of the tenderer with seal

Price bid -Indian Bidder (Item no.2)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

Sl No.	PV0679040706 Multi Crystalline PV Module- GSECL	
1	Quantity	43888
2	Unit	KW
3	Currency	INR
4	Unit price	
5	Unit price in words	
6	Percentage of Taxes/ duties applicable for Indian vendor on PV Modules only	
7	Total for 43888 KW	
8	Total in words	
9	Whether taxes are Inclusive/ Exclusive in the unit price	

Note: 1. Please mention unit price and total price in both figures and words.

2. Taxes applicable on the PO quantity only shall be paid/reimbursed by BHEL. Any other cost incurred will be to vendor's account.

Signature of the tenderer with seal

Price bid -Indian Bidder (Item no. 4)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

Sl No.	PV0679040374 Multi Crystalline PV Module -SCCL	
1	Quantity	1982
2	Unit	KW
3	Currency	INR
4	Unit price	
5	Unit price in words	
6	Percentage of Taxes/ duties applicable for Indian vendor on PV Modules only	
7	Total for 1982 KW	
8	Total in words	
9	Whether taxes are Inclusive/ Exclusive in the unit price	

Note: 1. Please mention unit price and total price in both figures and words.

2. Taxes applicable on the PO quantity only shall be paid/reimbursed by BHEL. Any other cost incurred will be to vendor's account.

Signature of the tenderer with seal

Price bid -Foreign Bidder (Item no. 1)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

Sl No.	PV0679040722 Multi Crystalline PV Module-NTPC SIM,KKM	
1	Quantity	67525
2	Unit	KW
3	Currency	
4	Unit price	
5	Unit price in words	
6	Percentage of Taxes and duties applicable on PV Modules	
7	Total for 67525 KW	
8	Total in words	
9	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

Note: 1. Please mention unit price and total price in both figures and words.

Signature of the tenderer with seal

Price bid -Foreign Bidder (Item no. 3)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

Sl No.	PV0679040731 Multi Crystalline PV Module -NTPC RG	
1	Quantity	46068
2	Unit	KW
3	Currency	
4	Unit price	
5	Unit price in words	
6	Percentage of Taxes and duties applicable on PV Modules	
7	Total for 46068 KW	
8	Total in words	
9	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

Note: 1. Please mention unit price and total price in both figures and words.

Signature of the tenderer with seal

Price bid -Foreign Bidder (Item no. 2)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

Sl No.	PV0679040706 Multi Crystalline PV Module- GSECL	
1	Quantity	43888
2	Unit	KW
3	Currency	
4	Unit price	
5	Unit price in words	
6	Percentage of Taxes and duties applicable on PV Modules	
7	Total for 43888 KW	
8	Total in words	
9	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

Note: 1. Please mention unit price and total price in both figures and words.

Signature of the tenderer with seal

Price bid -Foreign Bidder (Item no. 4)

BHEL RFQ No. SPKSCPV056 dated 16.09.2020

Supplier:

Offer ref:

Sl No.	PV0679040374 Multi Crystalline PV Module -SCCL	
1	Quantity	1982
2	Unit	KW
3	Currency	
4	Unit price	
5	Unit price in words	
6	Percentage of Taxes and duties applicable on PV Modules	
7	Total for 1982 KW	
8	Total in words	
9	Whether taxes and duties are Inclusive/ Exclusive in the unit price	

Note: 1. Please mention unit price and total price in both figures and words.

Signature of the tenderer with seal

ANNEXURE-III

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of the Bharat Heavy Electricals Limited ¹ (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____ through its Unit at.....(name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) having its registered office at _____² hereinafter referred to as the 'Contractor/Supplier', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated³ valued at Rs.....⁴ (Rupees -----)/FC.....(in words.....) for⁵ (hereinafter called the 'Contract') and the Contractor having agreed to provide a Contract Performance Guarantee, equivalent to% (.... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

we,, (hereinafter referred to as the Bank), having registered/Head office at and inter alia a branch at being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer a maximum amount Rs ----- (Rupees -----) without any demur, immediately on a demand from the Employer, .

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Contractor/ Supplier in any suit or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the contractors/supplier shall have no claim against us for making such payment.

We thebank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Contractor/Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Contractor/Supplier and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor/Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Contractor/Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

This Guarantee shall remain in force upto and including.....⁶ and shall be extended from time to time for such period as may be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor/Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the⁷we shall be discharged from all liabilities under this guarantee thereafter.

We, BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....⁸
- b) This Guarantee shall be valid up to⁹
- c) Unless the Bank is served a written claim or demand on or before _____¹⁰ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated.....

Place of Issue.....

¹ NAME AND ADDRESS OF EMPLOYER I.e Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

⁴ PROJECT/SUPPLY DETAILS

⁵ BG AMOUNT IN FIGURES AND WORDS

⁶ VALIDITY DATE

⁷ DATE OF EXPIRY OF CLAIM PERIOD

⁸ BG AMOUNT IN FIGURES AND WORDS.

⁹ VALIDITY DATE

¹⁰ DATE OF EXPIRY OF CLAIM PERIOD

Note:

1. In Case of Bank Guarantees submitted by Foreign Vendors-

- a. **From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India)** can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.
- b. **From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)**
 - b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by **any of the Consortium Banks only** will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank (BHEL's Consortium Bank). It is advisable that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.
 - b.2 **In case, Foreign Vendors intend to provide BG from Overseas Branch of our Consortium Bank** (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at **sl.no. b.1** will required to be followed.
 - b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). In case, of Foreign Vendors, the BG Format provided to them should clearly specify the same.
 - b.4 The BG should clearly specify that the demand or other document can be presented in electronic form.

FRAUD PREVENTION POLICY:

The bidder along with its associate/collaborators/sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

Fraud Prevention policy and List of Nodal Officers shall be hosted on BHEL website, vendor portals of Units/regions intranet.

Annexure V

List of Consortium Banks			
Sl. No	Nationalised Banks	Sl. No	Public Sector Banks
1	State Bank of India	18	IDBI
2	Allahabad bank		
3	Andhra bank	Sl. No	Private banks
4	Bank of Baroda	19	Axis Bank
5	Canara Bank	20	HDFC
6	Corporation bank	21	ICICI
7	Central bank	22	The Federal Bank Limited
8	Indian Bank	23	Kotak Mahindra Bank
9	Indian Oversea Bank	24	Indusind Bank
10	Oriental bank of Commerce	25	Yes Bank
11	Punjab National Bank		
12	Punjab & Sindh Bank	Sl. No	Foreign banks
13	Syndicate Bank	26	CITI Bank N.A
14	UCO Bank	27	Deutsche Bank AG
15	Union Bank of India	28	HSBC
16	United Bank of India	29	Standard Chartered Bank
17	Vijaya Bank	30	J P Morgan

DISCREPANCY IN WORDS & FIGURES – QUOTED IN PRICE BID

Following guidelines will be followed in case of discrepancy in words & figures-quoted in price bid:

- (a) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.
- (b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- (c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.
- (d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.

ANNEXURE VII

Provisions Applicable for MSE (Micro and Small Vendors)

Benefits/facilities as applicable for Micro and Small Enterprises (MSEs) shall be available to MSEs 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. Vendors have to submit any of the following documents along with the tender documents in the Part I / Technical bid to avail the applicable benefits:

- a. Attested copy of valid NSIC certificate or
- b. Attested copy of either Entrepreneur's Memorandum part II (EM II) certificate/Udyog Aadhar certificate having deemed validity (five years from the date of issue of acknowledgement in EM II/Udyog Aadhar) or
- c. EM II/ Udyog Aadhar certificate along with attested copy of a CA certificate (Format enclosed at Annexure VIII where deemed validity of EM II certificate/ Udyog Aadhar certificate of five years have expired) applicable for the relevant financial year (latest audited).

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.

Evaluation of Offer for MSEs

- A) 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.
 - B) The MSE Vendor matches the L1 Price.
 - C) L1 Price is from Non MSE Vendor.
 - D) L1 Price will be offered to the nearest 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 vendor will be offered who is within the L1 + 15% band (if L3 is also within 15% band).
 - E) 25% of the 25% (i.e. 6.25% of the total required quantity) will be earmarked for SC/ST owned MSE firms provided conditions as mentioned in (A) and (B) are fulfilled.
- Minimum 3% reservation for women owned MSEs within the above mentioned 25% reservation
- F) In case no vendor under SC / ST category firms are meeting the conditions mentioned in (A) and (B) or have not participated in the tender, in such cases the 4% quantity will be distributed among the other eligible MSE vendors who have participated in the tender.
 - G) Serial no. A to E will not be applicable wherever it is not possible to split the tendered quantity/items on account of customer contract requirement, or the items tendered are systems.

CERTIFICATE BY CHARTERED ACCOUNTANT ON LETTER HEAD

This is to certify that M/s
.....(Hereinafter referred to as `Company`) having
its registered office at is registered under MSMED Act 2006, (Entrepreneur
Memorandum No ((Part-II) dtd Category:
(Micro/Small). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the
latest audited financial year **as per MSMED Act 2006 is as follows:**

1. For Manufacturing Enterprises: Investment in plant and machinery (i.e., original cost excluding land
and building and the items specified by the Ministry of Small Industries vide its notification No.S.O.1722
(E) dated October 5, 2006:

Rs.Lacs.

2. For Service Enterprises: Investment in equipment (original cost excluding land and building
and furniture, fittings and other items not directly related to the service rendered or as may be
notified under the MSMED Act, 2006:

Rs.Lacs.

The above investment of Rs. Lacs in within permissible limit of Rs..... Lacs
for.....Micro / Small (Strike off which is not applicable) Category under MSMED
Act 2006.

(or)

The company has been graduated from its original category (Micro/Small) (Strike off which is not
applicable) and the date of graduation of such enterprise from its original category is
.....(dd/mm/yy) which is within the period of 3 years from the date of graduation of such enterprise
from its original category as notified vide S.O.No.3322(E) dated 01.11.2013 published in the gazette
notification dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

Name -

Membership Number -

Seal of Chartered Accountant

**Electronic Funds Transfer (EFT) OR
Paylink Direct Credit Form**

Please Fill up the form in **CAPITAL LETTERS** only.

TYPE OF REQUEST(Tick one): _____ CREATE _____ CHANGE

BHEL Vendor / Supplier Code:	<input type="text"/>
Company Name :	<input type="text"/>
Permanent Account Number(PAN):	<input type="text"/>
Address	<input type="text"/>
	<input type="text"/>

City: <input type="text"/>	PINCODE <input type="text"/>	STATE <input type="text"/>
----------------------------	------------------------------	----------------------------

Contact Person(s)	<input type="text"/>
Telephone No:	<input type="text"/>
Fax No:	<input type="text"/>
e-mail id:	<input type="text"/>

1 Bank Name:	<input type="text"/>
2 Bank Address:	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
3 Bank Telephone No:	<input type="text"/>
4 Bank Account No:	<input type="text"/>
5 Account Type: Savings/Cash Credit	<input type="text"/>
6 9 Digit Code Number of Bank and branch appearing on MICR cheque issued by Bank	<input type="text"/>
7 Bank swift Code(applicable for EFT only)	<input type="text"/>
8 Bank IFSC code(applicable for RTGS)	<input type="text"/>
9 Bank IFSC code(applicable for NEFT)	<input type="text"/>

- A I hereby certify that the particulars given above are true, correct and complete and that I, as a representative for the above named Company, hereby authorise BHEL, EDN, Bangalore to electronically deposit payments to the designated bank account.
- B If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
- C This authority remains in full force until BHEL, EDN, Bangalore receives written notification requesting a change or cancellation.
- D I have read the contents of the covering letter and agree to discharge the responsibility expected of me as a participant under ECS / EFT.

Date:

Authorised Signatory:

Designation:

Telephone NO. with STD Code

Company Seal

Bank Certificate

We certify that _____ has an Account No _____ with us and we confirm that the bank details given above are correct as per our records.

Date:

(.....)

Place:

Signature

Please return completed form along with a blank cancelled cheque or photocopy thereof to:

Bharath Heavy Electricals Ltd,

Attn:

Electronics Division, Mysore Road,

BANGALORE - 560 026

In case of any Query, please call : 080-26998xxx / 2674xxxx or fax no. 080-2674xxxx

Certificate by statutory auditor or cost auditor of the company (in the case of companies)

or

from a practicing cost account or the practicing chartered accountant (in respect of supplies other than companies) on their letter head

In line with latest Government Public Procurement Order No. P-45021/2/2017-BE-II dt. 15.06.2017, P-45021/2/2017-PP (BE-II) dated 28.05.2018 & P-45021/2/2017-PP (BE-II) dated 29.05.2019 we hereby certify that

.....

(Supplier name) are local supplier meeting requirement of minimum local content defined in as above orders for the material against Enquiry No.

SPKSCPV056 dtd. 16.09.2020 for supply of Multi Crystalline PV Module \geq 330 Wp PV Module.

Details of location at which local value addition will be made is as follows:

.....
.....
.....

We also understand, false declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

Seal and Signature of Authorized signatory with date



GUIDELINES FOR REVERSE AUCTION - 2020

**(AA:SSP:RA:04)
revised as on 04.03.2020**

(applicable for all NITs issued on or after 04.06.2020)

Note: Abridged version for information of the bidders

**SOURCING STRATEGY & POLICY
CORPORATE OPERATIONS MANAGEMENT**

BHARAT HEAVY ELECTRICALS LIMITED

Regd. Office: BHEL House, Siri Fort, New Delhi – 110049, India

Website: www.bhel.com

CIN: L74899DL1964GOI004281

Guidelines for Reverse Auction – 2020

Doc. No. AA:SSP:RA:04
Dated: 04.03.2020

1.0 Scope

This document describes the guidelines to be followed by each Unit/ Division/ Region for conducting Reverse Auction (RA) for procurement of material/ works/ services. These guidelines will be applicable for all purchases/ contracts to be awarded under Purchase/ Works policy and the RA shall follow the philosophy of English Reverse (No ties).

English Reverse (No ties) is a type of auction where the starting price and bid decrement are announced before start of online reverse auction. The interested bidders can thereupon start bidding in an iterative process wherein the lowest bidder at any given moment can be displaced by an even lower bid of a competing bidder, within a given time frame. The bidding is with reference to the current lowest bid in the reverse auction. All bidders will see the current lowest quoted price and their rank. The term 'No ties' is used since more than one bidder cannot give an identical price, at a given instant, during the reverse auction. In other words, there shall never be a tie in the bids.

3.0 Upfront declaration in NIT

Wherever it is felt that procurement may be done through Reverse Auction, the bids shall be invited in two parts/ three parts or single part bid (Price Bid) where Techno-Commercial MoU already exists. Wherever, the evaluation is done for individual line item, separate sealed envelope price bid for each line item shall be taken.

Decision to go for RA would be taken before floating of the tender. In case it is decided to go for RA, same shall be declared upfront in NIT by inserting the following **clause**:

"BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among all the techno-commercially qualified bidders.

Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking."

Guidelines for Reverse Auction – 2020

Doc. No. AA:SSP:RA:04
Dated: 04.03.2020

6.0 Business rules for RA

Model Annexure-I is attached.

7.0 Role of Service Provider

- Acknowledge the receipt of mandate from BHEL.
- Contact the bidders, provide business rules and train them, as required.
- Get the process compliance form signed by all the participating bidders before RA event.
- Conduct the event as per the contract and business rules.
- Submit the Login Reports, Results, History sheet and authorized final bid from the bidders.
- To obtain price breakup from successful bidder and submit the same to BHEL.

10.0 Reverse Auction Process

10.1 Reverse Auction will be conducted if three or more bidders are techno-commercially qualified. In case of more than four techno-commercially qualified bidders, H1 bidder (whose quote is highest in sealed envelope price bid) shall not be allowed to participate in RA. However, there will be no H1 removal in case H1 happens to be MSE or qualifying under PPP-MII, Order 2017 irrespective of the number of bidders qualifying techno-commercially.

In case of multiple H1 bidders, all H1 bidders (excluding MSEs and bidders qualifying under PPP-MII, Order 2017) shall be removed provided minimum three bidders remain in fray, else no H1 removal.

10.2 During RA, all bidders will see their rank and current L1 price and their ranking L1, L2 etc. on the screen. Once the RA is done, the ranking status would be based on the last quoted price of the bidder(s) irrespective of the quote received in RA or sealed envelope price bid.

10.3 No bidder shall be allowed to lower its bid below the current L1 by more than 5 decrements at one go.

Guidelines for Reverse Auction – 2020

Doc. No. AA:SSP:RA:04
Dated: 04.03.2020

13.0 Processing of case after RA

- 13.1 Wherever the evaluation is done on total cost basis, after Reverse Auction, prices of individual line items shall be reduced on pro-rata basis.
- 13.2 In case of splitting requirement, H1 bidder(s) who were removed from participation in RA may also be considered for counter offer if the pre-stated (NIT) numbers of suppliers do not accept the counter offer.

15.0 Others

- 15.2 In case of enquiry through e-Procurement, the sealed electronic price bid (e-bid) is to be treated as sealed envelope price bid.
- 15.3 BHEL will inform bidders the details of service provider who will provide business rules, all necessary training and assistance before commencement of online bidding.
- 15.4 Bidders are advised to read the 'Business Rules' indicating details of RA event carefully, before reverse auction event.

---XXX---

Guidelines for Reverse Auction – 2020

Doc. No. AA:SSP:RA:04
Dated: 04.03.2020

Business Rules for Reverse Auction

Annexure – I

This has reference to tender no **{tender number....date...}**. BHEL shall finalise the Rates for the supply of *{item name}* through Reverse Auction mode. BHEL has made arrangement with M/s. *{Service provider}*, who shall be BHEL's authorized service provider for the same. Bidders should go through the instructions given below and submit acceptance of the same.

The technical & commercial terms are as per (a) BHEL Tender Enq. No. {...} dated {...}, (b) Bidders' technical & commercial bid (in case of two part bid) and (c) subsequent correspondences between BHEL and the bidders, if any.

1. Procedure of Reverse Auctioning

- i. Price bids of all techno-commercially qualified bidders shall be opened.
- ii. **Online Reverse Auction:** The 'bid decrement' will be decided by BHEL.
- iv. Bidders by offering a minimum bid decrement or the multiples thereof can displace a standing lowest bid and become "L1" and this continues as an iterative process. However, no bidder shall be allowed to lower its bid below the current L1 by more than 5 decrements at one go.
- v. After the completion of the online reverse auction, the Closing Price (CP) shall be available for further processing.
- vi. Wherever the evaluation is done on total cost basis, after Reverse Auction, prices of individual line items shall be reduced on pro-rata basis.

2. Schedule for reverse auction: The Reverse Auction is tentatively scheduled on *{date}*; *:{start time}*; *:{Close Time}* }.

3. Auction extension time: If a bidder places a bid in the last {...} minutes of closing of the Reverse Auction and if that bid gets accepted, then the auction's duration shall get extended automatically for another {...} minutes, for the entire auction (i.e. for all the items in the auction), from the time that bid comes in. Please note that the auto-extension will take place only if a bid comes in those last {...} minutes and if that bid gets accepted as the lowest bid. If the bid does not get accepted as the lowest bid, the auto-extension will not take place even if that bid might have come in the last {...} minutes. In case, there is no bid in the last {...} minutes of closing of Reverse

Guidelines for Reverse Auction – 2020

Doc. No. AA:SSP:RA:04
Dated: 04.03.2020

Business Rules for Reverse Auction

Annexure – I

Auction, the auction shall get closed automatically without any extension. However, bidders are advised not to wait till the last minute or last few seconds to enter their bid during the auto-extension period to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc.

The above process will continue till completion of Reverse Auction.

Complaints/ Grievances, if any, regarding denial of service or any related issue should be given in writing thru e-mail/ fax to M/s. {Service provider} with a copy to BHEL within 15 minutes prior to initial closing time of Online Reverse Auction.

4. **Bid price:** The Bidder has to quote the {.....} Price inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, taxes, duties, freight and insurance as specified in tender document, including loading (if indicated by BHEL due to deviations in technical/commercial terms) for the Items specified. Details are as shown in Excel Sheet for calculation of total cost to BHEL (To be specified by Unit as per NIT conditions).
5. **Bidding currency and unit of measurement:** Bidding will be conducted in *Indian Rupees per Unit* of the material as per the specifications {...}

In case of foreign currency bids, exchange rate (TT selling rate of State Bank of India) as on scheduled date of tender opening (Part-I bid) shall be considered for conversion in Indian Rupees. If the relevant day happens to be a Bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken.
6. **Validity of bids:** Price shall be valid for {... days} from the date of reverse auction. These shall not be subjected to any change whatsoever.
7. **Lowest bid of a bidder:** In case the bidder submits more than one bid, the lowest bid at the end of Online Reverse Auction will be considered as the bidder's final offer to execute the work.
8. Unique user IDs shall be used by bidders during bidding process. All bids made from the Login ID given to the bidders will be deemed to have been

Guidelines for Reverse Auction – 2020

Doc. No. AA:SSP:RA:04
Dated: 04.03.2020

Business Rules for Reverse Auction

Annexure – I

made by the bidders/ bidders' company.

- 9. Post auction procedure:** BHEL will proceed with the Lowest Bid in the Reverse Auction for further processing.
11. Computerized reverse auction shall be conducted by BHEL (through M/s {Service Provider}), on pre-specified date, while the bidders shall be quoting from their own offices/ place of their choice. Internet connectivity shall have to be ensured by bidders themselves.

During the RA process if a bidder is not able to bid and requests for extension of time by FAX/ email/ phone then time extension of additional 15 minutes will be given by the service provider provided such requests come before 5 minutes of auction closing time. However, only one such request per bidder can be entertained.

In order to ward-off contingent situation of connectivity failure bidders are requested to make all the necessary arrangements/ alternatives whatever required so that they are able to circumvent such situation and still be able to participate in the reverse auction successfully. Failure of power or loss of connectivity at the premises of bidders during the Reverse auction cannot be the cause for not participating in the reverse auction. On account of this, the time for the auction cannot be extended and neither BHEL nor M/s. {Service provider} is responsible for such eventualities.

12. Proxy bids: Proxy bidding feature is a pro-bidder feature to safe guard the bidder's interest of any internet failure or to avoid last minute rush. The proxy feature allows bidders to place an automated bid in the system directly in an auction and bid without having to enter a new amount each time a competing bidder submits a new offer. The bid amount that a bidder enters is the minimum that the bidder is willing to offer. Here the software bids on behalf of the bidder. This obviates the need for the bidder participating in the bidding process until the proxy bid amount is decrementally reached by other bidders. When proxy bid amount is reached, the bidder (who has submitted the proxy bid) has an option to start participating in the bidding process.

The proxy amount is the minimum amount that the bidder is willing to offer. During the course of bidding, the bidder cannot delete or change the

Guidelines for Reverse Auction – 2020

Doc. No. AA:SSP:RA:04
Dated: 04.03.2020

Business Rules for Reverse Auction

Annexure – I

amount of a proxy bid.

Bids are submitted in decrements (decreasing bid amounts). The application automates proxy bidding by processing proxy bids automatically, according to the decrement that the auction originator originally established when creating the auction, submitting offers to the next bid decrement each time a competing bidder bids, regardless of the fact whether the competing bids are submitted as proxy or standard bids. However, it may please be noted that if a manual bid and proxy bid are submitted at the same instant manual bid will be recognized as the L1 at that instant.

In case of more than one proxy bid, the system shall bid till it crosses the threshold value of 'each lowest proxy bid' and thereafter allow the competition to decide the final L1 price.

Proxy bids are fed into the system directly by the respective bidders. As such this information is privy only to the respective bidder(s).

13. Bidders are advised to get fully trained and clear all their doubts such as refreshing of Screen, quantity being auctioned, tender value being auctioned etc from M/s {Service provider}.
14. M/s. {Service provider}, shall arrange to demonstrate/ train the bidder or bidder's nominated person(s), without any cost to bidders. M/s. {Service provider}, shall also explain the bidders, all the business rules related to the Reverse Auction. Bidders are required to submit their acceptance to the terms/ conditions/ modalities before participating in the Reverse Auction in the process compliance form as enclosed. Without this, the bidder will not be eligible to participate in the event.
15. Successful bidder shall be required to submit the final prices (L1) in prescribed format for price breakup, quoted during the Online Reverse Auction, duly signed and stamped as token of acceptance without any new condition (other than those already agreed to before start of auction), after the completion of auction to M/s. {Service provider} besides BHEL within two working days of Auction without fail.
16. Any variation between the final bid value and that in the confirmatory signed price breakup document will be considered as tampering the tender

Guidelines for Reverse Auction – 2020

Doc. No. AA:SSP:RA:04
Dated: 04.03.2020

Business Rules for Reverse Auction

Annexure – I

process and will invite action by BHEL as per extant guidelines for suspension of business dealings (as available on www.bhel.com).

17. Bidders' bid will be taken as an offer to execute the work/ supplies the item as per enquiry no. {...} dt. {...}. Bids once made by the bidder, cannot be cancelled/ withdrawn and bidder shall be bound to execute the work as mentioned above at bidder's final bid price. Should bidder back out and not execute the contract as per the rates quoted, BHEL shall take action as per extant guidelines for suspension of business dealings (as available on www.bhel.com).
18. Bidders shall be able to view the following on their screen along with the necessary fields during Online Reverse Auction:
 - a. Leading (Running Lowest) Bid in the Auction (only total price of package)
 - b. Bid Placed by the bidder
 - c. Start Price
 - d. Decrement value
 - e. Rank of their own bid during bidding as well as at the close of auction.
19. BHEL's decision on award of contract shall be final and binding on all the Bidders.
20. BHEL reserves the right to extend, reschedule or cancel the Reverse Auction process at any time, before ordering, without assigning any reason, with intimation to bidders.
21. BHEL shall not have any liability to bidders for any interruption or delay in access to the site, irrespective of the cause. In such cases, the decision of BHEL shall be binding on the bidders.
22. Other terms and conditions shall be as per bidder's techno-commercial offers and other correspondences, if any, till date.
23. If there is any clash between this business document and the FAQ available, if any, in the website of M/s. {Service provider}, the terms & conditions given in this business document will supersede the information contained in the FAQs. Any changes made by BHEL/ service provider (due to unforeseen contingencies) after the first posting shall be deemed to have been

Guidelines for Reverse Auction – 2020

Doc. No. AA:SSP:RA:04
Dated: 04.03.2020

Business Rules for Reverse Auction

Annexure – I

accepted if the bidder continues to access the portal after that time.

24. Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant *BHEL guidelines for suspension of business dealings (as available on www.bhel.com)*, shall be initiated by BHEL.

ABRIDGED VERSION

INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for

_____. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions:

Section 2 - Commitments of the Bidder(s)/ Contractor(s)

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and will await their decision in the matter.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to

demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher.

Section 5 - Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 - Equal treatment of all Bidders/ Contractors / Sub-contractors

- 6.1 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain responsible for any default by his sub-contractors.
- 6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 - Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality in line with Non- disclosure agreement.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

- 8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.9 IEM should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organisation.
- 8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.
- 8.12 The word 'Monitor' would include both singular and plural.


Section 9 - Pact Duration

- 9.1 This Pact shall be operative from the date IP is signed by both the parties till the final completion of contract for successful bidder and for all other bidders 6 months after the contract has been awarded. Issues like warranty / guarantee etc. should be outside the purview of IEMs.
- 9.2 If any claim is made/ lodged during currency of IP, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

- 10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

- 10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- 10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- 10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.



 For & On behalf of the Principal
 जी. पोन्नगुरुपाकियम, अ.स.प/एच.डी. एवं पी.डी. (एम. एम)
 G.PONNUGURUPACKIAM, AGM/SC&PV (MM)
 BHEL-EDN, MYSORE ROAD, BENGALURU-560026
 (Office Seal)

 For & On behalf of the Bidder/
 Contractor
 (Office Seal)

Place BANGALORE
 Date _____

Witness: 
 (Name & Address) _____
 रामचन्द्र, अ.स.प. / एच.डी. एवं पी.डी. - एम.एम, अ.स.
 RAMACHANDRA, SR. DGM / SC&PV MM(PUR)
 BHEL-EDN, MYSORE ROAD, BANGALORE-560026

Witness: _____
 (Name & Address) _____

**No.11/05/2018-Coord.
Government of India
Ministry of Power**

**Shram Shakti Bhawan, New Delhi
Dated the 28th July, 2020**

ORDER

Sub: Public Procurement (Preference to Make in India) to provide for Purchase Preference (linked with local content) in respect of Power Sector.

Ref: Department for Promotion of Industry and Internal Trade (DPIIT) Notification No.P-45021/2/2017-PP (BE-II) dated 4th June, 2020.

The Government of India, Department for Promotion of Industry and Internal Trade (DPIIT) issued Public Procurement (Preference to Make in India), Order 2017 for encouraging 'Make in India' and promoting manufacturing and production of goods and services in India with a view to enhancing income and employment. Further, DPIIT vide order No.P-45021/2/2017-PP (BE-II) dated 4th June, 2020, have issued the revised Public Procurement (Preference to Make in India) Order 2017.

2. In the light of the Public Procurement (Preference to Make in India) Order 2017, this Ministry had notified purchase preference (linked with local content) for Hydro and Transmission sector vide Order No.11/05/2018-Coord. dated 20.12.2018, for Thermal sector vide Order dated 28.12.2018 and for Distribution sector vide Order dated 17.03.2020. Further, a combined order dated 04.04.2020 was also issued.

3. In furtherance of Para 19 of the DPIIT Notification No.P-45021/2/2017-PP(BE-II) dated 04.06.2020 and in supersession of all the aforementioned orders issued by this Ministry, the following has been decided:

- i. For the purpose of this order, the definitions of various terms used in the order, and provisions relating to (i) Eligibility of 'Class-I local supplier'/'Class-II local supplier'/'Non-local suppliers' for different types of procurement, (ii) purchase preference, (iii) exemption to small purchases, and (iv) margin of purchase preference, shall be the same as in DPIIT order dated 04.06.2020, referred to above and extracts of the same given at **Appendix**.
- ii. In procurement of all goods and services or works in respect of which there is sufficient local capacity and local competition as in **Annexure-I**, only "Class-I local supplier", shall be eligible to bid irrespective of purchase value.
- iii. In procurement of all goods, services or works not covered by sub-para 3(ii) above, and with estimated value of purchases less than Rs.200 Crore, in accordance with Rule 161(iv) of GFR, 2017, Global Tender Enquiry (GTE) shall not be issued except with the approval of the competent authority as designated by Department of Expenditure. Only 'Class-I local supplier' and 'Class-II local supplier' shall be eligible to bid in procurement undertaken by procuring entities, except when Global Tender Enquiry has been issued. In Global tender enquiries, 'Non-local suppliers' shall also be eligible to bid along with 'Class-I local suppliers' and 'Class-II local suppliers'.
- iv. For the purpose of this order, 'Works' means all works as per Rule 130 of GFR-2017, and will also include '*turnkey works*', Engineering, Procurement and Construction (EPC) contracts and service contracts including System Integrator (SI) contracts. This order shall be applicable to Tariff Based Competitive Bidding (TBCB) projects also.

4. The list of items, in respect of which, local capacity with sufficient competition exists as per **Annexure-I**, will be reviewed at regular intervals with a view to increase number of items in this list.

5. Purchase preference shall be given to local suppliers in accordance with **para 3A** of DPIIT Order dated 04.06.2020, and extracts of the same given at **Appendix**.

6. Further, it has been decided to constitute a committee for independent verification of self-declarations and auditor's / accountant's certificates on random basis and in the case of complaints. The composition of the committee is given below:

Chairperson	Member (Planning), CEA
Member	Chief Engineer (PSETD), CEA
Member	Chief Engineer (HETD), CEA
Member	Chief Engineer (TETD), CEA
Member	Chief Engineer (DP&R), CEA
External Expert	As may be co-opted by CEA
Convener	Chief Engineer (R&D), CEA

7. Further, it has also been decided to constitute a committee to examine the grievances in consultation with stakeholders and recommend appropriate actions to the Competent Authority in MOP. The composition of the Committee is given below:

Chairperson	Chairperson, CEA
Member	Member (Hydro), CEA
Member	Member (Power System), CEA
Convener	Member (Thermal), CEA

8. The complaint fee of Rs.2 Lakh or 1% of the value of the local item being procured (subject to maximum of Rs.5 Lakh), whichever is higher, shall be paid in the form of online transaction or Demand Draft, drawn in favour of DDO, CEA. In case the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.

9. All other conditions, not stipulated in this order, shall be as laid down in the DPIIT's order No.P-45021/2/2017-PP (BE-II) dated 04.06.2020.

10. This order shall be applicable in respect of the procurements made by all attached or subordinate offices or autonomous body under the Ministry of Power, Government of India including Government Companies as defined in the Companies Act, and /or the States and Local Bodies making procurement under all Central Schemes/ Central Sector Schemes where the Scheme is fully or partially funded by Government of India. The aforesaid orders shall also be applicable in respect of funding of capital equipment by PFC/ REC.

11. Procuring entities as defined in the DPIIT's Order dated 04.06.2020 are advised to revise their tender documents fully complying with the said DPIIT's Order and the subsequent Orders that would be issued in this regard by DPIIT/this Ministry from time to time.

12. All tenders for procurement by Central Government Agencies have to be certified for compliance of the PPP-MII Order by the concerned procurement officer of the Government Organization before uploading in the portal.

13. In pursuance of the provision of para 13 of the DPIIT Order, 2020, equipment used in the power sector which are manufactured under license from foreign manufacturers holding intellectual property rights and where there is a transfer of technology agreement are listed as under **Annexure-II**. However, Annexure-II will undergo regular review to check for those items in the list for which sufficient local manufacturing capacity and competition have got developed and which meet minimum local content of 50% now, so that these items become eligible for inclusion in Annexure-I of this order and the provisions as contained in para 3 above of this order start becoming applicable in respect of these items too.

14. In order to further encourage Make in India initiative and promote manufacturing and production of goods and services in India, general guidelines as enclosed at **Annexure-III** may be adopted in an appropriate manner according to the circumstances by the procuring entities in their tendering process.

15. This issues with the approval of Hon'ble MoS (IC) for Power and NRE.



(R.K. Das)

Under Secretary to the Government of India
Tel. No.011-23752495

To:

1. All Ministries/ Departments of Government of India (As per list)
2. Secretary (Coordination), Cabinet Secretariat
3. PS to PM, Prime Minister's Office
4. Vice Chairman, NITI Aayog
5. Chief Secretaries of all States/UTs
6. Director General, Comptroller and Auditor General of India
7. Secretary, DPIIT, Chairman of Standing Committee for implementation of Public Procurement Order, 2017
8. Joint Secretary, DPIIT, Member-Convener of Standing Committee for implementation of Public Procurement Order, 2017
9. Chairperson, CEA
10. CMDs of CPSEs/ Chairmen of DVC & BBMB/ MD of EESL
11. All JSs/ EA, MoP

Extracts of important provisions contained in DPIIT Order No.P-45021/2/2017-PP (BE-II) dated 4th June, 2020

1. Definitions:

'Local content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%, as defined under said Order.

'Class-II local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under this Order.

'Non-Local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than or equal to 20%, as defined under this Order.

'L 1' means the lowest tender or lowest bid or the lowest quotation received in a tender, bidding process or other procurement solicitation as adjudged in the evaluation process as per the tender or other procurement solicitation.

'Margin of purchase preference' means the maximum extent to which the price quoted by a "Class-I local supplier" may be above the L 1 for the purpose of purchase preference.

'Procuring entity' means a Ministry or department or attached or subordinate office of, or autonomous body controlled by, the Government of India and includes Government companies as defined in the Companies Act.

'Works' means all works as per Rule 130 of GFR- 2017, and will also include *turnkey works* '.

2. Eligibility of 'Class-I local supplier'/ 'Class-II local supplier'/ 'Non-local suppliers' for different types of procurement

- (a) In procurement of all goods, services or works in respect of which the Nodal Ministry / Department has communicated that there is sufficient local capacity and local competition, only 'Class-I local supplier', as defined under the Order, shall be eligible to bid irrespective of purchase value.
- (b) In procurement of all goods, services or works, not covered by 2(a) above, and with estimated value of purchases less than Rs.200 Crore, in accordance with Rule 161(iv) of GFR, 2017, Global Tender Enquiry shall not be issued except with the approval of competent authority as designated by Department of Expenditure. Only 'Class-I local supplier' and 'Class-II local supplier', as defined under the Order, shall be eligible to bid in procurements undertaken by procuring entities, except when Global Tender Enquiry has been issued. In Global Tender Enquiries, 'Non-local suppliers' shall also be eligible to bid along with 'Class-I local suppliers' and 'Class-II local suppliers'.
- (c) For the purpose of this Order, works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

3. Purchase Preference

- (a) Subject to the provisions of this Order and to any specific instructions issued by the Nodal Ministry or in pursuance of this Order, purchase preference shall be given to 'Class-I local supplier' in procurements undertaken by procuring entities in the manner specified here under.
- (b) In the procurements of goods or works, which are covered by para 2(b) above and which are divisible in nature, the 'Class-I local supplier' shall get purchase preference over 'Class-II local supplier' as well as 'Non-local supplier', as per following procedure:
 - i. Among all qualified bids, the lowest bid will be termed as L 1. If L 1 is 'Class-I local supplier', the contract for full quantity will be awarded to L 1.
 - ii. If L 1 bid is not a 'Class-I local supplier', 50% of the order quantity shall be awarded to L 1. Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L 1 price for the remaining 50% quantity subject to the Class-I local supplier's quoted price falling within the margin of purchase preference, and contract for that quantity shall be awarded to such 'Class-I local supplier' subject to matching the L 1 price, In case such lowest eligible 'Class-I local supplier' fails to match the L 1 price or accepts less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase preference shall be invited to match the L 1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local suppliers, then such balance quantity may also be ordered on the L 1 bidder.
- (c) In the procurements of goods or works, which are covered by para 2(b) above and which are not divisible in nature, and in procurement of services where the bid is evaluated on price alone, the 'Class-I local supplier' shall get purchase preference over 'Class-II local supplier' as well as 'Non-local supplier', as per following procedure:
 - i. Among all qualified bids, the lowest bid will be termed as L 1. If L 1 is 'Class-I local supplier', the contract will be awarded to L 1.
 - ii. If L 1 is not 'Class-I local supplier', the lowest bidder among the 'Class-I local supplier', will be invited to match the L 1 price subject to Class-I local supplier's quoted price falling within the margin of purchase preference, and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L 1 price.
 - iii. In case such lowest eligible 'Class-I local supplier' fails to match the L 1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L 1 price and so on and contract shall be awarded accordingly, In case none of the 'Class-I local supplier' within the margin of purchase preference matches the L 1 price, the contract may be awarded to the L 1 bidder.
- (d) "Class-II local supplier" will not get purchase preference in any procurement, undertaken by procuring entities.

4. Exemption of small purchases: Procurements where the estimated value to be procured is less than Rs.5 Lakh shall be exempt from this Order. However, it shall be ensured by procuring entities that **procurement is not split for the purpose of avoiding the provisions of this Order.**

5. Margin of Purchase Preference: The margin of purchase preference shall be 20%.

Annex III

Model Clause /Certificate to be inserted in tenders etc.

(While adhering to the substance of the Order, procuring entities and GeM are free to appropriately modify the wording of the clause/ certificate based on their past experience, local needs etc.)

Model Clauses for Tenders

- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.
- II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
- III. "Bidder from a country which shares a land border with India" for the purpose of this Order means: -
 - a. An entity incorporated, established or registered in such a country; or
 - b. A subsidiary of an entity incorporated, established or registered in such a country; or
 - c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
 - d. An entity whose *beneficial owner* is situated in such a country; or
 - e. An Indian (or other) agent of such an entity; or
 - f. A natural person who is a citizen of such a country; or
 - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above
- IV. The *beneficial owner* for the purpose of (iii) above will be as under:
 1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation—

 - a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;

10/12

- b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;
2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;
 3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;
 4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
 5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.
- V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.
- VI. *[To be inserted in tenders for Works contracts, including Turnkey contracts]* The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

Model Certificate for Tenders (for transitional cases as stated in para 3 of this Order)

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I hereby certify that this bidder is not from such a country and is eligible to be considered."

Model Certificate for Tenders

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the

11/12

Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]

Model Certificate for Tenders for Works involving possibility of sub-contracting

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Model Certificate for GeM:

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this vendor/ bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this vendor/ bidder fulfills all requirements in this regard and is eligible to be considered for procurement on GeM. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

12/12



ಭಾರತ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
 भारत हेवी इलेक्ट्रिकल्स लिमिटेड

**Bharat Heavy Electricals Ltd.,
 (A Government of India undertaking)**

Electronics Division

PB 2606 , Mysore Road Bangalore , 560026 INDIA

Doc No: SCPV: PV Module: 002- Rev 02

GENERAL COMMERCIAL CONDITIONS FOR CONTRACT

These 'General Commercial Conditions for Contract for Purchase' hereinafter referred to as GCC apply to all enquiries, tenders, requests for quotations, orders, contracts and agreements concerning the supply of goods and the rendering of related services (hereinafter referred to as "deliveries") to Bharat Heavy Electricals Limited and any of its units, regions or divisions (hereinafter referred to as "BHEL" or the Purchaser) or its projects / customers.

Any deviations from or additions to these GCC require BHEL's express written consent. The general terms of business or sale of the vendor shall not apply to BHEL. Acceptance, receipt of shipments or services or effecting payment shall not mean that the general terms of business or sale of the vendor have been accepted.

Orders, agreements and amendments thereto shall be binding if made or confirmed by BHEL in writing. Only the Purchasing department of BHEL is authorized to issue the Purchase Order or any amendment thereof.

Definitions: Throughout these conditions and in the specifications, the following terms shall have the meanings assigned to them, unless the subject matter or the context requires otherwise.

- a) 'The Purchaser' means Bharat Heavy Electricals Limited, Electronics division, Mysore road, Bangalore 560 026, a Unit of Bharat Heavy Electricals Limited (A Govt. of India Undertaking) incorporated under the Companies Act having its registered office at BHEL House, Siri Fort, New Delhi-110049, India and shall be deemed to include its successors and assigns. It may also be referred to as BHEL.
- b) 'The vendor' means the person, firm, company or organization on whom the Purchase Order is placed and shall be deemed to include the vendor's successors, representative heirs, executors and administrator as the case may be. It may also be referred to as Seller, Contractor or Supplier.
- c) 'Contract' shall mean and include the Purchase Order incorporating various agreements, viz. tender/ RFQ, offer, letter of intent / acceptance / award, the General Conditions of Contract and Special Conditions of Contract for Purchase, Specifications, Inspection / Quality Plan, Schedule of Prices and Quantities, Drawings, if any enclosed or to be provided by BHEL or his authorized nominee and the samples or patterns if any to be provided under the provisions of the contract.
- d) 'Parties to the Contract' shall mean the 'The Vendor' and the Purchaser as named in the main body of the Purchase Order.
- e) "Bidder" shall mean duly established reputed organisation , manufacturer etc. having requisite financial and technical capability and experience of participating in the bid invited by the purchaser for the tender.
- f) Bid- The term "bid" or "bidding" can also relate to the documented Offer submitted in response to a request for quotation (RFQ) /Tender.

Interpretation:

In the contract, except where the context requires otherwise:

- a) words indicating one gender include all genders;

- b) words indicating the singular also include the plural and words indicating the plural also include the singular;
- c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing, and
- d) "Written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record.

Applicable Conditions:

1. **Price Basis:** All prices shall be firm until the purchase order is executed / completed in all respects. No price variations / escalation shall be permitted unless otherwise such variations / escalations are provided for and agreed by BHEL in writing in the purchase order.
2. **Validity:** The offer will be valid for a period of 90 days from the date of technical bid opening date. Validity beyond 90 days, if required, will be specified in the SCC (special conditions of contract).
3. **Ordering and confirmation of Order:** Vendor shall send the order acceptance on their company letter head within two weeks from the date of Purchase Order or such other period as specified / agreed by BHEL. BHEL reserves the right to revoke the order placed if the order confirmation differs from the original order placed. The acceptance of goods/services/supplies by BHEL as well as payments made in this regard shall not imply acceptance of any deviations.
The purchase order will be deemed to have been accepted if no communication to the contrary is received within two weeks (or the time limit as specified / agreed by BHEL) from the date of the purchase order.
4. **Documentation:** After receipt of Purchase Order, vendor should submit required documents like drawings, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report , O & M Manuals and/or any other relevant documents as per Specification/Purchase Order, as and when required by BHEL/Customer. At any stage within the contract period, the vendor shall notify of any error, fault or other defect found in BHEL's documents /specifications or any other items for reference. If and to the extent that (taking account of cost and time) any vendor exercising due care would have discovered the error, fault or other defect when examining the documents/specifications before submitting the tender, the time for completion shall not be extended. However if errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the vendor's documents, they shall be corrected at his cost, notwithstanding any consent or approval.

5. TERMS OF DELIVERY:

FOR IMPORTED PURCHASE:

Price offered shall be for goods packed and delivered CIF Indian 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.

FOR INDIGENOUS PURCHASE:

Equipment shall be delivered on “DDP Project site” basis, inclusive of freight, packing, insurance & forwarding charges.

Packing shall be Road / Rail / Air / Sea worthy, best suitable for transshipment and to take care of transit damages. Smaller consignments can be dispatched through Courier services/ RPP with the prior approval of the purchasing Executive.

Deviation for the delivery term, can be rejected at discretion of BHEL.

6. **Penalty for delay in delivery:** In the event of delay in agreed contractual delivery as per Purchase Order, penalty @ 0.5 % (half percent) per week or part thereof but limited to a max of 10% (ten percent) value of undelivered portion (basic material cost) will be applicable. Delivery will commence from the date of document approval by customer / BHEL or date of issue of manufacturing clearance, whichever is later. The date for which Inspection call is issued by vendor along with test certificates / test reports / Certificate of Conformance / calibration reports, as proof of completion of manufacturing will be treated as date of deemed delivery for penalty calculation. In the absence of furnishing such document indicated above as proof of completion of manufacturing along with inspection call, actual date of inspection will be considered as date of deemed delivery and BHEL will not be responsible for delay in actual date of inspection.

Penalty for delayed documentation/delayed delivery, if applicable, shall be deducted at the time of first payment. If penalty is applicable for duration of less than a week, penalty @ 0.5% (half percent) of the basic material value will be deducted.

7. **Contract variations (Increase or decrease in the scope of supply):** BHEL may vary the contracted scope as per requirements at site. If vendor is of the opinion that the variation has an effect on the agreed price or delivery period, BHEL shall be informed of this immediately in writing along with technical details. Where unit rates are available in the Contract, the same shall be applied to such additional work. Vendor shall not perform additional work before BHEL has issued written instructions / amendment to the Purchase Order to that effect. The work which the vendor should have or could have anticipated in terms of delivering the service(s) and functionality (i.e.) as described in this agreement, or which is considered to be the result of an attributable error on the vendor's part, shall not be considered additional work.
8. **Reverse Auction:** BHEL will go for reverse auction and will follow REVERSE AUCTION PROCEDURE (ONLINE BIDDING ON NETWORK) before finalising the Purchase order on technically competent bidders, as per the guidelines given in Annexure II.
9. **Pre Shipment Inspection:** Prior written notice of at least 10 days shall be given along with internal test certificates / COC and applicable test certificates. Materials will be inspected by BHEL-EDN-QS/CQS or BHEL nominated Third Party Inspection Agency (TPIA) or BHEL authorized Inspection Agency or Customer / Consultant or jointly by BHEL & Customer / consultant. All tests have to be conducted as applicable in line with approved Quality plan or QA Checklist or Purchase specification and original reports shall be furnished to BHEL-EDN, Bangalore for verification / acceptance for issue of dispatch clearance.
All costs related to inspections & re-inspections shall be borne by vendor. Whether the Contract provides for tests on the premises of the vendor or any of his Sub-contractor/s, vendor shall be responsible to provide such assistance, labor, materials, electricity, fuels, stores, apparatus, instruments as may be required and as may be reasonably demanded to carry out such tests efficiently. Cost of any type test or such other special tests shall be borne by BHEL only if specifically agreed to in the purchase order.
10. **Transit Insurance:** Transit Insurance is in Vendor’s scope for all Inclusive value or as specified in RFQ.

For imported items with FOB / ex-Works terms contracts, BHEL will provide Insurance.

11. **High Sea Sales (HSS):** Customs clearance of the consignment landed on Indian Sea / Air ports will be done by BHEL based on the original HSS documents provided by vendors.
Any delay in submission of complete / correct HSS documents to BHEL may incur demurrage charges. All demurrage charges on account of incomplete / incorrect HSS documents submission by vendor will be to vendor's account and all such charges will be recovered from any of the available vendor bills with BHEL.
12. **Packaging and dispatch:** The Seller shall package the goods safely and carefully and pack them suitably in all respects considering the peculiarity of the material for normal safe transport by Sea / Air / Rail / Road to its destination suitably protected against loss, damage, corrosion in transit and the effect of tropical salt laden atmosphere. The packages shall be provided with fixtures / hooks and sling marks as may be required for easy and safe handling. If any consignment needs special handling instruction, the same shall be clearly marked with standard symbols / instructions. Hazardous material should be notified as such and their packing, transportation and other protection must conform to relevant regulations.
The packing, shipping, storage and processing of the goods must comply with the prevailing legislation and regulations concerning safety, the environment and working conditions. Any Imported/Physical Exports items packed with raw / solid wood packing material should be treated as per ISPM – 15 (fumigation) and accompanied by Phytosanitary / Fumigation certificate. If safety information sheets (MSDS – Material Safety Data Sheet) exist for an item or the packaging, vendor must provide this information without fail along with the consignment.
Each package must be marked with Consignee name, Purchase order number, Package number, Gross weight and net weight, dimensions (L x B x H) and Seller's name. Packing list of goods inside each package with PO item number and quantity must also be fixed securely outside the box to indicate the contents of each box. Total number of packages in the consignment must also be indicated.
Separate packing & identification of items should be as follows.
 1. Main Scope - All items must be tagged with part no. & item description.
 2. Commissioning spares - All items must be tagged with part no. & item description.
 3. Mandatory spares - All items must be tagged with part no. & item description.
13. **Assignment of Rights & Obligations; Subcontracting:** Vendor is not permitted to subcontract the delivery or any part thereof to third party or to assign the rights and obligations resulting from this agreement in whole or in part to third parties without prior written permission from BHEL. Any permission or approval given by the BHEL shall, however, not absolve the vendor of the responsibility of his obligations under the Contract.
14. **Progress report:** Vendor shall render such report as to the progress of work and in such form as may be called for by the concerned purchase officer from time to time. The submission and acceptance of such reports shall not prejudice the rights of BHEL in any manner.
15. **Non-disclosure and Information Obligations:** Vendor shall provide with all necessary information pertaining to the goods as it could be of importance to BHEL. Vendor shall not reveal confidential information that may be divulged by BHEL to Vendor's employees not involved with the tender/ contract & its execution and delivery or to third parties, unless BHEL has agreed to this in writing beforehand. Vendor shall not be entitled to use the BHEL name in advertisements and other commercial publications without prior written permission from BHEL.
16. **Cancellation / Termination of contract:** BHEL shall have the right to completely or partially terminate the agreement by means of written notice to that effect. Termination of the Contract, for whatever reason, shall be without prejudice to the rights of the parties accrued under the Contract up to the time of termination. BHEL shall have the right to cancel/foreclose the Order/ Contract, wholly or in part, in case it is constrained to do so, on account of any decline, diminution, curtailment or stoppage of the business.

17. **Risk Purchase Clause:** In case of failure of supplier, BHEL at its discretion may make purchase of the materials / services NOT supplied / rendered in time at the RISK & COST of the supplier. Under such situation, the supplier who fails to supply the goods in time shall be wholly liable to make good to BHEL any loss due to risk purchase.
In case of items demanding services at site like erection and commissioning, vendor should send his servicemen /representatives within 7 days from the service call. In case a vendor fails to attend to the service call, BHEL at its discretion may also make arrangements to attend such service by other parties at the **RISK & COST** of the supplier. Under such situation the supplier who fails to attend the service shall be wholly liable to make good to BHEL any loss due to risk purchase / service including additional handling charges due to the change.
18. **Shortages:** In the event of shortage on receipt of goods and/or on opening of packages at site, all such shortages shall be made good within a reasonable time that BHEL may allow from such intimation and free of cost.
Transit Damages: In the event of receipt of goods in damaged condition or having found them so upon opening of packages at site, Supplier shall make good of all such damages within a reasonable time from such intimation by BHEL.
19. **Remedial work:** Notwithstanding any previous test or certification, BHEL may instruct the vendor to remove and replace materials/goods or remove and re-execute works/services which are not in accordance with the purchase order. Similarly BHEL may ask the vendor to supply materials or to execute any services which are urgently required for any safety reasons, whether arising out of or because of an accident, unforeseeable event or otherwise. In such an event, Vendor shall provide such services within a reasonable time as specified by BHEL.
20. **Indemnity Clause:** Vendor shall comply with all applicable safety regulations and take care for the safety of all persons involved. Vendor is fully responsible for the safety of its personnel or that of his subcontractor's men / property, during execution of the Purchase Order and related services. All statutory payments including PF, ESI or other related charges have to be borne by the vendor. Vendor is fully responsible for ensuring that all legal compliances are followed in course of such employment.
21. **Product Information, Drawings and Documents:** Drawings, technical documents or other technical information received by Vendor from BHEL or vice versa shall not, without the consent of the other party, be used for any other purpose than that for which they were provided. They may not, without the consent of the Disclosing party, otherwise be used or copied, reproduced, transmitted or communicated to third parties. All information and data contained in general product documentation, whether in electronic or any other form, are binding only to the extent that they are by reference expressly included in the contract.
Vendor, as per agreed date/s but not later than the date of delivery, provide free of charge information and drawings which are necessary to permit and enable BHEL to erect, commission, operate and maintain the product. Such information and drawings shall be supplied in as many numbers of copies as may be agreed upon.
All intellectual properties, including designs, drawings and product information etc. exchanged during the formation and execution of the Contract shall continue to be the property of the disclosing party.
22. **Intellectual Property Rights, Licenses:** If any Patent, design, Trade mark or any other intellectual property rights apply to the delivery (goods / related service) or accompanying documentation shall be the exclusive property of the Vendor and BHEL shall be entitled to the legal use thereof free of charge by means of a non-exclusive, worldwide, perpetual license. All intellectual property rights that arise during the execution of the Purchase Order/ contract for delivery by vendor and/or by its employees or third parties involved by the vendor for performance of the agreement shall belong to BHEL. Vendor shall perform everything necessary

to obtain or establish the above mentioned rights. The Vendor guarantees that the delivery does not infringe on any of the intellectual property rights of third parties. The Vendor shall do everything necessary to obtain or establish the alternate acceptable arrangement pending resolution of any (alleged) claims by third parties. The Vendor shall indemnify BHEL against any (alleged) claims by third parties in this regard and shall reimburse BHEL for any damages suffered as a result thereof.

23. **Force Majeure:** Notwithstanding anything contained in the purchase order or any other document relevant thereto, neither party shall be liable for any failure or delay in performance to the extent said failures or delays are caused by the "Act of God" and occurring without its fault or negligence, provided that, force majeure will apply only if the failure to perform could not be avoided by the exercise of due care and vendor doing everything reasonably possible to resume its performance.

A party affected by an event of force majeure which may include fire, tempest, floods, earthquake, riot, war, damage by aircraft etc., shall give the other party written notice, with full details as soon as possible and in any event not later than seven (7) calendar days of the occurrence of the cause relied upon. If force majeure applies, dates by which performance obligations are scheduled to be met will be extended for a period of time equal to the time lost due to any delay so caused.

Notwithstanding above provisions, in an event of Force Majeure, BHEL reserves for itself the right to cancel the order/ contract, wholly or partly, in order to meet the overall project schedule and make alternative arrangements for completion of deliveries and other schedules.

24. **Guarantee / Warranty:** Wherever required, and so provided in the specifications / Purchaser Order, the Seller shall guarantee that the stores supplied shall comply with the specifications laid down, for materials, workmanship and performance. The guarantee / warranty period as described above shall apply afresh to replaced, repaired or re-executed parts of a delivery. Unless otherwise specifically provided in the Purchase Order, Vendor's liability shall be co terminus with the expiration of the applicable guarantee / warranty period.

25. **Limitation of Liability:** Vendor's liability towards this contract is limited to a maximum of 100% of the contract value and consequential damages are excluded. However the limits of liability will have no effect in cases of criminal negligence or wilful misconduct.

The total liability of Vendor for all claims arising out of or relating to the performance or breach of the Contract or use of any Products or Services or any order shall not exceed the total Contract price.

26. **Liability during guarantee / warranty:** Vendor shall arrange replacement / repair of all the defective materials / services under its obligation under the guarantee / warranty period. The rejected goods shall be taken away by vendor and replaced / repaired. In the event of the vendor's failure to comply, BHEL may take appropriate action including disposal of rejections and replenishment by any other sources at the cost and risk of the vendor.

In case, defects attributable to vendor are detected during first time commissioning or use, vendor shall be responsible for replacement / repair of the goods as required by BHEL at vendor's cost. In all such cases expiry of guarantee / warranty will not be applicable.

27. **Liability after guarantee / warranty period:** At the end of the guarantee / warranty, the Vendor's liability ceases except for latent defects (latent defects are defects / performance issues notices after the guarantee / warranty has expired). The Contractor's liability for latent defects warranty for the plant and equipment including spares shall be limited to a period of six months from the end of the guarantee / as specified in RFQ.

28. **Compliance with Laws:** Vendor shall, in performing the contract, comply with all applicable laws. The vendor shall make all remittances, give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the laws in relation to the execution and completion of the contract and for

remedying of any defects; and the Contractor shall indemnify and hold BHEL harmless against and from the consequences of any failure to do so.

29. Settlement of Disputes: Except as otherwise specifically provided in the Purchase Order, decision of BHEL shall be binding on the vendor with respect to all questions relating to the interpretation or meaning of the terms and conditions and instructions herein before mentioned and as to the completion of supplies/work/services, other questions, claim, right, matter or things whatsoever in any way arising out of or relating to the contract, instructions, orders or these conditions or otherwise concerning the supply or the execution or failure to execute the order, whether arising during the schedule of supply/work or after the completion or abandonment thereof. Any disputes or differences among the parties shall to the extent possible be settled amicably between the parties thereto, failing which the disputed issues shall be settled through arbitration. Vendor shall continue to perform the contract, pending settlement of dispute(s).

30. Arbitration & Conciliation Clause:

a) In case of contractors/vendors /consultants other than Public Sector Enterprise (PSE) or a Government Department: The parties shall attempt to settle any disputes or difference arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract, or in connection with this contract through friendly discussions. In case no amicable settlement can be reached between the parties through such discussions, in respect of any dispute; then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration of an arbitrator appointed by Head of the BHEL –EDN. Such Sole Arbitrator appointed, shall conduct the arbitration in English language.

The Arbitrator shall pass a reasoned award and the award of the Arbitration shall be final and binding upon the Parties.

Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be Bangalore.

The cost of arbitration shall be borne as decided by the Arbitrator upon him entering the reference.

Subject to the Arbitration Clause as above, the Courts at Bangalore alone shall have exclusive jurisdiction over any matter arising out of or in connection with this Contract.

Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the parties shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and efficiency in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.

b) in case of Contract with contractors/vendors /consultants when they are a Public Sector Enterprise (PSE) or a Government Department: In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contract, such dispute or difference shall be referred by either party for Arbitration to the Sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any Party aggrieved by such Award may make further reference for setting aside or revision of the Award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the Parties hereto finally and conclusively. The Parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.”

31. **Applicable Laws and Jurisdiction of Courts:** Prevailing Indian laws both substantive and procedural, including modifications thereto, shall govern the Contract. Subject to the conditions as aforesaid, the competent courts in BANGALORE alone shall have jurisdiction to consider over any matters touching upon this contract.
32. **General Terms:** That any non-exercise, forbearance or omission of any of the powers conferred on BHEL and /or any of its authorities will not in any manner constitute waiver of the conditions hereto contained in these presents.
That the headings used in this agreement are for convenience of reference only.
That all notices etc., to be given under the Purchase order shall be in writing, type script or printed and if sent by registered post or by courier service to the address given in this document shall be deemed to have been served on the date when in the ordinary course, they would have been delivered to the addressee.
33. **BHEL Fraud Prevention Policy:** The bidder along with its associate/collaborators/sub-contractors/sub-vendors/consultants/service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to your notice.



ಭಾರತ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
 भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division

PB 2606 , Mysore Road Bangalore , 560026 INDIA

Doc No: SCPV: PV Module: 001- Rev 02

INSTRUCTIONS TO BIDDERS (Common for all RFQs)

Bidder is requested to read the instructions carefully and submit their quotation covering all the points:

A. GENERAL INSTRUCTIONS:

1. Any Purchase Order resulting from this enquiry shall be governed by the Instructions to Bidders (document reference: SCPV: PV Module: 001 – Rev 02), General Conditions of Contract (document reference: SCPV: PV Module: 002 - Rev 02) and Special Conditions of Contract, if any, of the enquiry.
2. Any deviations from or additions to the “General Conditions of Contract” or “Special Conditions of Contract” require BHEL’s express written consent. The general terms of business or sale of the bidder shall not apply to this tender.
3. Bidders (also includes the term suppliers / contractors wherever used in this document) are instructed to quote their most competitive price and best delivery, etc. in the offer. Prices should be indicated in both figures & words. **(Please also refer clause 11 under section B)**
4. Regret letter (either through post or by mail) indicating reasons for not quoting must be submitted without fail, in case of non-participation in this tender. If a bidder fails to respond against 3 consecutive tenders for the same item, he will be liable for removal as a registered vendor of BHEL.
5. Procurement directly from the manufacturers shall be preferred. However, if the OEM / Principal insist on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer / supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer / supplier or the manufacturer / supplier could bid directly but not both. In case bids are received from the manufacturer / supplier and his agent, bid received from the agent shall be ignored.
6. Consultant / firm (and any of its affiliates) shall not be eligible to participate in the tender/s for the related goods for the same project if they were engaged for consultancy services for the same project.
7. If an Indian representative / associate / liaison office quotes on behalf of a foreign based bidder, such representative shall furnish compulsorily the following documents:
 - a. Authorization letter to quote and negotiate on behalf of such foreign-based bidder.
 - b. Undertaking from such foreign based bidder that such contract will be honored and executed according to agreed scope of supply and commercial terms and conditions.
 - c. Undertaking shall be furnished by the Indian representative stating that the co-ordination and smooth execution of the contract and settlement of shortages / damages / replacement / repair of imported scope till system is commissioned and handed over to customer will be the sole responsibility of the Indian representative / associates / agent / liaison office.
8. In case of imported scope of supply with delivery terms other than DDP, customs clearance & customs duty payment will be to BHEL account after the consignment is received at Indian Airport / Seaport. Bidders must provide all original documents required for completing the customs clearance along with the shipment. Warehousing charges/ demurrage charges due to incomplete or missing documentation will be recovered

from the supplier's bill. All offers for imported scope of supply must be made from any of the gateway ports (within the country) indicated. **(Refer Annexure I)**

9. The offers of the bidders who are on the banned list and also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of the banned firms is available on BHEL website: **www.bhel.com**.
10. Any bidders, against whom, action due to non-performance has been initiated by BHEL are not eligible for participating in the tender. Such offers will not be considered.
11. Business dealings with bidders will be suspended if they are found to have indulged in any malpractices / misconduct which are contrary to business ethics like bribery, corruption, fraud, pilferage, cartel formation, submission of fake/false/forged documents, poor quality, certificates, information to BHEL or if they tamper with tendering procedure affecting the ordering process or fail to execute a contract, or rejection of 3 consecutive supplies or if their firms / works are under strike / lockout for a long period.

B. GUIDELINES FOR PREPARATION OF OFFER:

1. Quotation shall be submitted in Single Part Bid, Two Part Bid or Three Part Bid, as called for in the tender:
 - **SINGLE PART BID:** Technical and Commercial Bid with prices along with price summary & filled in BHEL Standard Commercial terms and conditions in a single sealed envelope.
 - **TWO PART BID:** Unpriced offer i.e. "Techno-commercial Bid" with filled in BHEL Standard Commercial terms and conditions in a sealed envelope **along with the copy of the "Price Bid" without the prices** should be enclosed in one cover and the cover must be super scribed "**Techno-commercial offer**) and Priced offer i.e. "Price Bid" containing price summary in a separate sealed envelope and must be super scribed "**Price Bid**". Both these envelopes shall be enclosed in a single sealed envelope super scribed with enquiry number due date of tender and any other details as called for in the tender document.
 - **THREE PART BID:** Pre-qualification Bid (Part-I), Techno Commercial Bid with filled in BHEL Standard Commercial terms and conditions (Part-II), and Price Bid (Part-III). All three envelopes shall be enclosed in a single sealed envelope super scribed with enquiry number due date of tender and any other details as called for in the tender document.

If any of the offers (Part I, Part II or Part III) are not submitted before the due date and time of submission at the venue/place specified or if any part of the offer is incomplete the entire offer of the bidder, can be rejected at discretion of BHEL.

2. Supplier shall ensure to super scribe each envelope with RFQ number, RFQ Date, RFQ Due date and time, Item Description and Project clearly & boldly. Also mention on the envelope whether it is "Techno Commercial Bid" or "Price Bid" or "Pre-Qualification Bid". Please ensure complete address, department name and purchase executive name is mentioned on the envelope (before dropping in the tender box or handing over) so that the tender is available in time for bid opening.
3. BHEL standard Commercial Terms and Conditions shall be duly filled, signed & stamped and must accompany Technical-Commercial offer without fail and should be submitted in original only. Xerox copy will not be accepted.
4. Any of the terms and conditions not acceptable to supplier, shall be explicitly mentioned in the Techno-Commercial Bid. If no deviations are brought out in the offer it will be treated as if all terms and conditions of this enquiry are accepted by the supplier without any deviation.
5. Deviation to this specification / item description, if any, shall be brought out clearly indicating "DEVIATION TO BHEL SPECIFICATION" without fail, as a part of Techno-Commercial Bid. If no deviations are brought out in the offer it will be treated as if the entire specification of this enquiry is accepted without deviation.
6. Suppliers shall submit one set of original catalogue, datasheets, bill of materials, dimensional drawings,

mounting details and / or any other relevant documents called in purchase specification as part of Technical Bid.

7. "Price Bid" shall be complete in all respects containing price break-up of all components along with all applicable taxes and duties, packing & forwarding charges (if applicable), freight charges (if applicable) etc. Once submitted no modification / addition / deletion will be allowed in the "Price Bid." Bidders are advised to thoroughly check the unit price, total price to avoid any discrepancy.
8. In addition, bidder shall also quote for erection & commissioning charges (E&C charges), documentation charges, service charges, testing Charges (type & routine), training charges, service tax, etc. wherever applicable. The price summary must indicate all the elements clearly.
9. Vendors should indicate "lump sum" charges (including To & Fro Fare, Boarding, Lodging, Local Conveyance etc.) for Supervision of Erection, Commissioning and handing over to customer. The quotation shall clearly indicate scope of work, likely duration of commissioning, pre-commissioning checklist and service tax (if any).
10. Wherever bidders require PAC (Project Authority Certificate) for import of raw materials, components required for Mega Power Projects, Export Projects, MNRE Concession or other similar projects wherein supplies are eligible for customs duty benefits, lists and quantities of such items and their values (CIF) has to be mentioned in the offer. Prices must be quoted taking into account of such benefits.
11. All quotations shall be free from corrections /overwriting. Corrections if any should be authenticated with signature and seal. Any typographical error, totaling mistakes, currency mistake, multiplication mistake, summing mistakes etc. observed in the price bids will be evaluated as per **Annexure VI** "Guidelines for dealing with Discrepancy in Words & Figures – quoted in price bid". BHEL decision will be final.

C. GUIDELINES FOR OFFER SUBMISSION:

1. Offers / Quotations must be dropped in tender box before 13.00 Hrs. on or before due date mentioned in RFQ. The offers are to be dropped in the proper slot of the Tender Box kept in our reception area with caption "CE, SC&PV, DEFENCE." Tenders are opened on 3 days in a week (Monday/Wednesday/Friday). Tender must be deposited in the slot corresponding to the day (Monday - Box no.4/Wednesday - Box no. 6 /Friday - Box no.8) while depositing the offer. **(This clause will not be applicable for e-tenders)**
2. E-Mail / Internet / EDI offers received in time shall be considered only when such offers are complete in all respects. In case of offers received through E-mail, please send the offer to the email ID specified in the SCC of the tender. (Refer to SCC document of tender) within time of submission of tender.
3. In cases where tender documents are bulky, or due to some reasons tender documents are required to be submitted by hand or through posts/couriers, the offers are to be handed over either of the two officers whose names are mentioned in the RFQ. (Refer to SCC document of tender)
4. Tenders will be opened on due date, time and venue as indicated in the RFQ in the presence of bidders at the venue indicated in the RFQ. In case of e-procurement, bidders can see tender results till seven days after due date and time.
5. Vendor will be solely responsible:
 - a. For submission of offers before due date and time. Offers submitted after due date and time will be treated as "Late offers" and will be rejected.
 - b. For submission of offers in the correct compartment of the tender box based on the day of due date (Monday/Wednesday/Friday). Please check before dropping your offer in the correct tender box.
 - c. For depositing offers in proper sealed condition in the tender box. If the bidder drops the tender in the wrong tender box or if the tender document is handed over to the wrong person BHEL will not be responsible for any such delays.
 - d. For offers received through email/courier etc., suppliers are fully responsible for lack of secrecy on information and ensuring timely receipt of such offers in the tender box before due date & time.

- e. In case of e-tender, all required documents should be uploaded before due date and time. Availability of power, internet connections, etc. will be the sole responsibility of the vendor. Wherever assistance is needed for submission of e-tenders, help line numbers and executives of service provider of BHEL may be contacted.

Service provider: ABC Procure

Website address: <https://bhel.abcprocure.com/EPROC/>

Purchase Executive / BHEL will not be responsible for any of the activities relating to submission of offer.

D. PROCESSING OFFERS RECEIVED:

1. Any discount / revised offer submitted by the supplier on its own shall be accepted provided it is received on or before the due date and time of offer submission (i.e. Part-I bid). The discount shall be applied on pro-rata basis to all items unless specified otherwise by the bidder.
2. Changes in offers or Revised offers given after Part-I bid opening shall not be considered as a part of the original offer unless such changes / revisions are requested by BHEL.
3. In case there is no change in the technical scope and / or specifications and / or commercial terms & conditions by BHEL, the supplier will not be allowed to change any of their bids after Technical bids are opened (after the due date and time of tender opening of Part-1 Bid).
4. In case of changes in scope and/ or technical specifications and/ or commercial terms & conditions by BHEL and it accounts for price implications from vendors, all techno-commercially acceptable bidders shall be asked by BHEL (after freezing the scope, technical specifications and commercial terms & conditions) to submit the impact of such changes on their price bid. Impact price will be applicable only for changes in technical specification / commercial conditions by BHEL. The impact price must be submitted on or before the cut-off date specified by BHEL and the original price bid and the price impact bid will be opened together at the time of price bid opening. Impact price means only for those items which have been impacted by addition / deletion / changes in the technical specifications or commercial conditions. The impact may be +/- incremental value of the currency in which originally quoted. The impact price bid to be submitted on the cut-off date, time & venue as specified by BHEL. The impact price bid shall be opened along with original price bid.
5. BHEL EDN reserves the right to adopt Reverse Auction or standard Price Bid Opening procedure for price evaluation, at its discretion. This will be decided after completion of technical evaluation of tender.
6. Un-opened bids (including price bids) will be returned to the respective bidders after release of PO and receipt of order acknowledgement from the successful bidder
7. Vendor shall accept warranty clause as required in the tender document. Offers not complying with Warranty terms as per RFQ Terms, can be rejected at discretion of BHEL.
8. After receipt of Purchase Order, supplier should submit required documents like drawings, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report , O & M Manuals and / or any other relevant documents as per Specification / Purchase Order, as and when required by BHEL / Customer.
9. Any deviation to the terms and conditions not mentioned in the quotation by supplier in response to this enquiry will not be considered, if put forth subsequently or after issue of Purchase Order, unless clarification is sought for by BHEL EDN and agreed upon in the Purchase Order.
10. Evaluation shall be on the basis of delivered cost (i.e. "Total Cost to BHEL"). As per RFQ terms. "Total Cost to BHEL" shall include total basic cost, packing & forwarding charges, taxes and duties, Surcharge/ Cess, freight charges, test charges, insurance, service tax for services, any other cost indicated by vendor for execution of the contract and loading factors (for non-compliance to BHEL Standard Commercial Terms & Conditions). Benefits arising out of Nil Import Duty on Mega Projects, Physical Imports or such 100% exemptions & MNRE Exemptions (statutory benefits), customer reimbursements of statutory duties (like

GST, SGD) will also be taken into account at the time of tender evaluation. (Wherever applicable and as indicated in SCC document of tender)

11. For evaluation of offers in foreign currency, the exchange rate (TT selling rate of SBI) shall be taken as under:

Single part bids:	Date of tender opening
Two/three part bids:	Date of Part-I bid opening
Reverse Auction:	Date of Part-I bid opening

If the relevant day happens to be a bank holiday, then the exchange rate as on the previous working day of the bank (SBI) shall be taken.

The evaluation currency for this tender shall be INR.

12. Ranking (L-1, L-2 etc.) shall be done only for the techno-commercially acceptable offers and on the basis of evaluation of Total Cost to BHEL.

E. INFORMATION ON PAYMENT TERMS:

1. All payments will be through Electronic Fund transfer (EFT). Vendor has to furnish necessary details as per BHEL standard format (**Refer Annexure XI**) for receiving all payments through NEFT. (Applicable for Indian vendors only)
2. In case of High Sea Sales transaction, customs clearance of the consignment landed on Indian Sea / Air ports will be done by BHEL based on the original HSS documents provided by vendors. All warehousing charges due to delay in submission of complete and or correct HSS documents to BHEL will be to suppliers account only. Such recovery will be made out of any of the available bills.
3. Statutory deductions, if any, will be made and the deduction certificate shall be issued. In case vendor does not provide PAN details, the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act. (Applicable for Indian vendors only).
Foreign vendors shall submit relevant details of their bankers like Swift Code, Banker's Name & Address etc.
4. Vendors must submit bills & invoices along with required supporting documents in time. Incomplete documentation / delayed submission of invoice / documents will result in corresponding delay in payment.

F. STANDARD PAYMENT TERMS OF BHEL-EDN

i) Purchase Orders for indigenous procurement

100% with 45 days credit from the date of receipt of material at BHEL Project site or 15 days credit from the date of submission of complete set of documentation whichever is later

ii) Purchase orders for import procurement:

100% through sight draft with 45 days credit from the date of receipt of material at BHEL Project site or 15 days credit from the date of submission of complete set of documentation whichever is later

Note: Quotations with "Advance payment" shall be rejected.

G. LOADING FACTORS FOR DELAYED DELIVERY:

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.

SI No	Deviation on	Nature of Deviation / Offered Terms	Loading %
1.	Penalty for Delayed Delivery	1) Non – Acceptance	10 %
		2) Partial Acceptance (X%)	(10 – X) %

H. DOCUMENTS REQUIRED AT THE TIME OF DISPATCH FOR PROCESSING OF BILLS:

Invoice in Triplicate, LR Copy / Bill of Lading, Packing List, PSI Call Letter Copy, Material Receipt Certificate & Warranty Certificate, Copy of Insurance certificate or Bank guarantee.

I. BANK GUARANTEE (BG) / PERFORMANCE BANK GUARANTEE (PBG):

Bank guarantee (BG) / Performance bank guarantee (PBG) will be applicable as called in the tender documents. Such PBG shall be valid for a period of Warranty Period + claim period of 3 months for a value equal to 10 % of the basic value of the purchase order. No deviation for the duration of PBG / BG will be permitted.

- a. PBG shall be from any of the BHEL consortium of bankers
- b. PBGs from nationalized banks are also acceptable.
- c. PBG should be sent directly by the bank to the dealing executive mentioned in the purchase order located at the address mentioned in the purchase order. PBG should be in the format indicated. No deviation to these formats will be allowed.
- d. Confirmation from any of the BHEL consortium of banks or any of the Indian Public Sector Banks is essential for the acceptance of PBGs issued by foreign banks (located outside India).
- e. Expired BGs / PBGs will be returned only after expiry of the claim period or on completion of the contractual obligation.

In case vendor does not accept for submission of PBG, the vendor can be rejected on commercial grounds

J. PROVISIONS APPLICABLE FOR MSE VENDORS (MICRO AND SMALL ENTERPRISES)

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. Vendors have to submit any of the following documents along with the tender documents in the Part I / Technical bid cover to avail the applicable benefits.

- a. Valid NSIC certificate or
- b. Entrepreneur's Memorandum part II (EM II) certificate (deemed valid for 2 years).
- c. EM II certificate with CA certificate (**in the prescribed format given in Annexure VIII**) applicable for the year certifying that the investment in plant and machinery of the vendor is within permissible limits as per the MSME Act 2006 for relevant status where the deemed validity is over.
- d. Documents submitted for establishing the credentials of MSE vendors must be valid as on the date of part I / technical bid opening for the vendors to be eligible for the benefits applicable for MSE vendors. Documents submitted after the Part I / Technical bid opening date will not be considered for this tender.

PURCHASE PREFERENCE FOR MSE VENDORS:

- e. 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. Minimum of 3% reservation for women owned MSEs within the above mentioned 25% reservation.
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 nearest 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. 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) and (2) are fulfilled.
 5. In case no vendor under SC / ST category firms are meeting the conditions mentioned in (1) and (2) or have not participated in the tender, in such cases the 6.25% quantity will be distributed among the other eligible MSE vendors who have participated in the tender.
 6. Serial no. 1 to 5 will not be applicable wherever it is not possible to split the tendered quantity / items on account of customer contract requirement, or the items tendered are systems. Such information that tendered quantity will not be split will be indicated in the SCC.

K. INTEGRITY COMMITMENT IN THE TENDER PROCESS, AND EXECUTION OF CONTRACTS:1. Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the Tender process and execution of the Contract. BHEL will, during the tender process, treat all bidder / suppliers in a transparent and fair manner, and with equity.

2. Commitment by Bidder(s)/ Contractor(s):

- a. The Bidder(s)/ Contractor(s) commit(s) to take all measures to prevent corruption and will not directly or indirectly try to influence any decision or benefit which he is not legally entitled to.
- b. The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding or any actions to restrict competition.
- c. The Bidder(s)/ Contractor(s) will not commit any offence under the relevant Acts. The Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain or pass on to others, any information or document provided by BHEL as part of business relationship.
- d. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to the relevant guidelines issued from time to time by Government of India/ BHEL.

If the Bidder(s) / Contractor(s), before award or during execution of the Contract commit(s) a transgression of the above or in any other manner such as to put his reliability or credibility in question, BHEL is entitled to disqualify the Bidder(s) / Contractor (s) from the tender process or terminate the contract and/ or take suitable action as deemed fit.