



**SUPPLY OF SOLAR PV MODULES  
for 11MWp KSEB**

No: 11MWp-RFQ-SPLY-SPV

Rev. No: 01

Date: 18.11.2022

**NOTICE INVITING QUOTATIONS**

***Name of Work:* SUPPLY OF DCR Type Mono PERC/Mono  
Crystalline/Polycrystalline SOLAR PV MODULES**



**Creating Infrastructure**  
A PPP INITIATIVE OF GOVERNMENT OF KERALA

Deadline for submission of Bids : 12/12/2022 up to 5.00 PM

Date and time of Bid opening : 13/12/2022 at 03.00 PM

**INKEL Ltd.**  
**7/473ZA – 5 & 6, 1<sup>st</sup> and 2<sup>nd</sup> Floor, Ajiyal  
Complex, Kakkanad, Cochin, Pin: 682030  
(Kerala) Phone: 0484 2978101  
Email: [tenders@inkel.in](mailto:tenders@inkel.in)**



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**NOTICE INVITING QUOTATIONS**

**Tender No –11MWp-RFQ-SPLY-SPV dated 18/11/2022**

**INKEL Limited** invites offers from reputed companies for manufacture, supply (including packing and transportation to site) of DCR Type Mono PERC/Mono Crystalline/Polycrystalline SOLAR PV MODULES.

Name of work	Supply of DCR Type Mono PERC/Mono Crystalline/Polycrystalline SOLAR PV MODULES of capacity 335Wp or higher.
Location of Supply	Different Districts in Kerala.
Date of publishing bid documents	18/11/2022
Last Date of receiving queries	01/12/2022
Date of publication of clarification on queries	06/12/2022
Last date & Time of submission of Bid documents	12/12/2022 up to 5.00 PM
Mode of bid submission	Offline Only
Nature of the contract	Supply
Period of completion	04 months
Earnest Money Deposit	INR 5,00,000/-
Date and time of opening of tender	13/12/2022 at 3.00 pm

The detailed bid document can be obtained by sending a request mail to [tenders@inkel.in](mailto:tenders@inkel.in), [manju.kb@inkel.in](mailto:manju.kb@inkel.in)

Prospective bidders shall submit their offers in a sealed cover before the deadline mentioned above addressed to **The Managing Director,**

**INKEL Limited**  
**1<sup>st</sup> Floor Ajiyal Complex,**  
**Kakkanad, Cochin Pin :- 682030**  
**Phone: 0484-2978101, 0484-2978103**

The bids shall be opened on 13/12/2022 at 3.00 pm at the office of INKEL Limited, Kakkanad. If the tender opening date happens to be on a holiday or non-working day due to any other valid reason, the tender opening process will be done on the next working day at same time and place.



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Tenders/ bids received without the details mentioned in Instructions to the Bidders will not be considered valid and shall be summarily rejected.

More details or queries if any may be addressed to the following email addresses: can be had from the Office of INKEL Limited during working hours from [tenders@inkel.in](mailto:tenders@inkel.in) , [manju.kb@inkel.in](mailto:manju.kb@inkel.in)

All subsequent Government orders connected to tenders and any revision in the rates of taxes would also be applicable to this tender.

INKEL Limited reserves the right to accept or reject any or all tenders without assigning any reason thereof.

## 1. INSTRUCTIONS TO BIDDERS

The Bidder's quotation shall be strictly in accordance with these instructions and the provisions of the Documents below.

Non-compliance with the same may result in Purchaser not considering the submitted offer/quotation of the Bidder.

### 1.1. BIDDING PROCESS

The bid in response to this NIQ shall be submitted in hardcopy as follows:

#### Cover 1 – Technical Bid

All documents as per list of enclosures mentioned in the bid submission checklist (Section 5) as well as all other relevant documents except the Price Bid.

#### Cover 2 – Price Bid

The Bidder shall inter-alia take into account the following while preparing and submitting the Price Bid in the format given in clause 5.2 hereto, duly signed by the Bidder's authorized signatory.

- a. The quoted price shall be deemed inclusive of all taxes and duties.
- b. The quoted price shall be deemed inclusive of loading, freight, and transit insurance for delivery of materials as per purchase order to site.
- c. The quoted price shall be deemed inclusive of expenses for conducting factory acceptance tests (including air travel, local conveyance and accommodation for five officials of Purchaser/Client from Kerala to Bidder's manufacturing & testing location and return).

**Cover 1 and Cover 2 shall be enclosed in a single cover. The tender name, number and due date shall be super scribed on all the covers.**

**All pages of the Bidder's submission shall be signed and stamped by the duly authorized of the Bidder.**

### 1.2. PRICE BREAK UP

The bidder shall quote the prices on FOR Site as per the Price Bid Format of this document. The currency of this tender and ensuing Purchase Order is Indian Rupees and all payments shall be in the same currency.

The quantity of item to be purchased may vary from quantity enquired according to the actual requirement at the time of placing the purchase order.

### 1.3. DELIVERY PERIOD

The bidder shall abide the delivery schedule and deliver the PV Modules at the location as specified by the purchaser in the purchase order at any site in Kerala. Delivery shall be made

by the Bidder / Supplier in compliance with staggered delivery schedules stated in the PO or as informed by the Client.

The proposed site locations are identified in clause 5.7 herein.

#### **1.4. VALIDITY PERIOD FOR BIDDER'S QUOTATION**

Validity of the quotation shall be for 4 months from date of opening of the bid. Bidder shall extend the bid validity by another 2 months, if so desired by the Purchaser.

#### **1.5. ADDRESS FOR BID SUBMISSION**

The Bidder shall submit their complete Commercial and Technical Quotation at the following address:

**Attn: Managing Director**  
**INKEL Limited**  
**Door No 7/473ZA, 1<sup>st</sup> Floor Ajjyal Complex**  
**Kakkanad Cochin Pin: - 682030**

#### **1.6. MODIFICATIONS OF TENDER CONDITIONS**

Purchaser reserves the right to modify, amend, delete, add, and / or clarify any part of this Bid Document at any time prior to the Bid Closing Date & Time. Purchaser shall issue such modifications, amendments, and / or clarifications in writing. All such written communication shall be deemed to become part of the Bid Package. Clarifications or answers provided by Purchaser, in response to Bidder's queries, shall not be construed as an amendment to Bid Document unless these are issued by Purchaser in writing as corrigendum.

Bidder's questions, requests for clarifications, etc., if any, may be submitted through the email stated in the NIQ and shall reach the Purchaser no later than seven (7) calendar days prior to the Bid Closing Date. Questions raised thereafter by Bidder may remain unanswered.

#### **1.7. PREVIOUS EXPERIENCE**

Bidders shall submit details of facilities/capabilities proposed to be deployed to execute the work, together with details of past experience and performance track record of meeting the requirements/specifications.

#### **1.8. COSTS & EXPENSES**

All costs involved in the preparation and submission of Bid shall be borne by the Bidder. INKEL will in no case be responsible or liable for any loss to the bidders in this regard. This is applicable in the case of extension or annulment of bidding also.

## 1.9. PRE-QUALIFICATION REQUIREMENTS

The Bidder shall meet the qualification criteria given below to be eligible for participating in the bid. Bids submitted by ineligible bidders will be rejected

- a. Bids shall be submitted only by the original PV module manufacturer (OEM) or Authorized Dealer. Authorized Dealer should submit manufacturer authorization letter/certificate.
- b. The SPV modules should be manufactured within India.
- c. The OEM should have in-house manufacturing facility with minimum manufacturing capacity of 100MWp per annum for PV modules both DCR and non DCR.
- d. The Solar PV Module should be of power rating 335Wp or higher, manufactured in India in a plant certified under ISO 9001: 2008 & ISO 14001 or equivalent BIS standard and must have test certificate issued from accredited test laboratories of MNRE Govt. of India or abroad.
- e. OEM shall have in-house laboratory for carrying out routine in process and finished product testing.
- f. Average minimum annual financial turnover of the bidder, during last 3 (three) years, ending on 31-03-2022 should be more than Rs. 15 Crores Vendor shall submit audited balance sheet and profit & loss account for last 3 (three) years, ending on 31-03-2022.
- g. Bidders shall not be black listed or banned by INKEL/KSEBL or any other Govt. agencies.

## 1.10. EVALUATION OF PROPOSAL

Purchaser reserves the right to reject at his absolute discretion any or all of the proposals without assigning reasons to the relevant Bidder.

## 1.11. LANGUAGE

Bids shall be submitted in English language only. The Bidder shall ensure that all communication and agreements are in English language only. All documents, drawings, installation & maintenance manual etc. shall be in English language only.

## 1.12. SUBMISSION OF TENDER

The Bid Closing Time and Date shall be as mentioned in the Notice Inviting Quotation. Offers received after this time will not be considered.

## 1.13. EARNEST MONEY DEPOSIT (EMD)

- 1.13.1. The Bidder shall furnish Earnest Money Deposit (EMD) in the form of a Demand Draft drawn in favor of "INKEL Limited", payable at Ernakulam.
- 1.13.2. The EMD of unsuccessful bidders shall be returned within 30 days from the date of issuance of Purchase Order to the successful Bidder.
- 1.13.3. EMD shall be denominated in Indian Rupees and shall be in the form of a Demand Draft from a Nationalized Schedule Bank to be submitted in its original form; copies will not be accepted and remain valid for the period stated in clause 1.4 hereto.

1.13.4. The EMD shall be forfeited without prejudice to the Bidder being liable for any further consequential loss or damage incurred to INKEL under following circumstances:

- a) Hundred Percent (100%) of EMD amount, if a Bidder withdraws/revokes or cancels or unilaterally varies his bid in any manner during the period of Bid Validity specified in the bid document.
- b) Hundred Percent (100%) of EMD amount, if the Successful Bidder fails to unconditionally accept the Purchase Order within 8 days from the date of its issuance.
- c) Hundred Percent (100%) of EMD, if the Successful Bidder fails to execute the agreement as per Purchase Order.

1.13.5. The EMD of the Successful Bidder(s) will be retained as security deposit till the successful delivery of all materials as per LOA at site and be returned, without any interest upon completion of delivery of all materials as per LOA. In case where the non-financial Bid of any Bidder are not found acceptable due to any reason as specified in the tender document, the bids of such Bidder shall be returned unopened. This shall mean return of Earnest Money Deposit (EMD).

## 2. GENERAL PURCHASE CONDITIONS

### 2.1 DEFINITIONS

In these General Conditions, the following words and expressions shall have the meaning hereby assigned to them unless otherwise specified.

- 2.1.1 'Company' or 'Client' shall mean Kerala State Electricity Board Limited (KSEBL) who has awarded the EPC contract for execution of Project on Purchaser and includes its consultant.
- 2.1.2 'Equipment' or 'Material' or 'Goods' shall mean all machinery, equipment, materials and supplies which shall be supplied including incidental services to be provided therein, by the Bidder as specified in the Purchase Order.
- 2.1.3 'Effective Date' shall mean the date as specified in Purchase Order, from which date Bidder is responsible for commencing and performing the Scope of Works in accordance with this Purchase Order.
- 2.1.4 'Purchaser' shall mean INKEL Limited ( INKEL ), having registered office at Door No. 7/473 ZA-5&6, 2nd Floor, Ajiyal Complex, Kakkanad, Cochin Ernakulam Kerala, India 682030 and includes its personnel, legal representatives, successors, and permitted assignees.
- 2.1.5 'Purchase Order' or 'Order' or 'PO' shall mean the document issued by the Purchaser to Bidder and accepted by the Bidder, along with its Annexure I (Item wise Price and Delivery Schedule) forming part of the Purchase Order document and shall include following attachments as listed below:
  - a) Appendix I: Special Purchase Conditions (SPC)
  - b) Appendix II: General Purchase Conditions (GPC)
  - c) Appendix III A: Technical Queries no. ..., Minutes of Meeting dated.....



Appendix III B: Material Requisition including Scope of Works, Data Sheets, Drawings and Specifications, Inspection Requirement Table (IRT) as per RFQ dated .....

d) Appendix IV: Integrity pact (Proforma for Integrity pact is attached in clause 5.6 in this document)

- 2.1.6 'Bidder' shall mean person or persons, firm or company who manufacture and/ or supply Equipment, Material and provide services to the Purchaser under this Purchase Order and shall include their legal representatives, successors, and permitted assignees.
- 2.1.7 'Sub-Bidder' or 'Sub-vendor' shall mean a person or persons, firm or company, who is supplying material or services to the Bidder in relation to this Purchase Order.
- 2.1.8 'Scope of Works' shall mean all the work including design, manufacturing of the Goods in accordance with material requisition attached in Appendix III and other activities such as inspection etc. to be performed by Bidder in accordance with this Purchase Order.

## 2.2 PURCHASE ORDER DOCUMENTS AND ENTIRE AGREEMENT

- 2.2.1 The Bidder's scope of supply of Equipment and/or Material and/or services and/or other obligations shall be in accordance with the provisions of the following documents, which form an integral part of the Purchase Order.
- 2.2.1.1 Request for Quotation including Instructions to Bidders and all other documents attached therein such as SPC, GPC, Material Requisition etc., as incorporated in the Purchase Order.
- 2.2.1.2 All Drawings, Specifications, Data Sheets, Standard and other Technical Documents (Inspection Plan, if any) of the Equipment and/ or Material to be supplied under the Order and record notes of discussions duly agreed.
- 2.2.2 The Purchase Order constitutes the sole and entire agreement between the Purchaser and the Bidder and supersedes all prior representations, arrangements and understandings between Bidder and Purchaser, and except as expressly provided herein, is intended by the Parties to be the complete and exclusive statement of the terms and conditions of this Purchase Order. It is agreed that no change or amendment to this Purchase Order shall be made except in writing and with due signature by the authorized signatories of the Parties.

In case of ambiguities or conflicts, Bidder shall intimate the same immediately upon noticing such ambiguities or conflicts for Purchaser's determination. Purchaser shall determine such conflicts or ambiguities between documents by following the order of precedence in which the documents are listed below, which determination shall be final and binding on Bidder:

- a) Top sheet of Purchase Order along with its Annexure I.
- b) Appendix I: Special Purchase Conditions (SPC)
- c) Appendix II: General Purchase Conditions (GPC)
- d) Appendix III A: Technical Queries no. ....and Minutes of Meeting dated....., Appendix III B: Material Requisition including Scope of



Works, Data Sheets, Drawings and Specifications, Inspection Requirement Table (IRT) as per RFQ dated .....

e) Appendix IV: Integrity pact (proforma for Integrity pact is attached in 5.6 in this document)

In the event of any ambiguity, conflict or discrepancies within the document under Appendix III A, and Appendix III B, Bidder shall inform Purchaser of such ambiguity, conflict or discrepancies as soon as possible after discovery. Purchaser's determination in line with Company's requirements shall be final and binding on Bidder.

2.2.3 A legal and binding Purchase Order shall be deemed to have been entered into, between the Bidder and the Purchaser, when the Purchaser issues Purchase Order in writing to the Bidder and the Bidder acknowledges the acceptance of the Purchase Order.

### **2.3 ACCEPTANCE OF PURCHASE ORDER**

Purchase Order shall be acknowledged by email or fax immediately, on receipt. One copy of the Purchase Order duly signed, dated and stamped signifying Bidder's unconditional acceptance of Order shall be returned to the Purchaser within eight (8) days from the date of receipt of Order.

If the Bidder fails to give written acceptance within 8 days of receipt of the Purchase Order, Purchase Order shall be considered duly accepted by the Bidder.

### **2.4 NON-WAIVER**

Nothing herein shall be construed as limiting the Purchaser's right, otherwise provided by law. The Purchaser's delay or failure to enforce any of its rights shall not be considered a waiver of such rights by the Purchaser, unless the Purchaser expressly stipulates such waiver in writing.

### **2.5 PRICE**

All rates, sums, and prices mentioned in the Purchase Order is deemed to cover any and all costs and expenses to be incurred by the Bidder in fulfillment of his obligation under the Order. All rates, sums, and prices mentioned herein will remain firm until the Order is executed and shall not be subject to escalation for any reason whatsoever. No adjustment to the Price shall be made as a result of changes in the values of any currencies, change in raw material or labour prices, changes in law or any other reason whatsoever.

All rates, sums, and prices mentioned herein shall include the cost of facilities to be provided to Purchaser pursuant to Clause 2.7 of GPC during all Site Visits for whatsoever reason.

### **2.6 DELIVERY TIME**

The delivery date(s) stipulated in the Purchase Order is the essence of the Order. Delivery of the Equipment/ Material along with necessary documents shall be made at the place/s and at the time and manner specified in the Purchase Order. Purchaser reserves the right to take any remedial action for default in delivery by Bidder at Bidder's risk and cost.

## **2.7 VISIT OF PURCHASER / CLIENT / COMPANY'S REPRESENTATIVES:**

Purchaser / Client / Company may decide to depute its representative to the works of the Bidder for the purpose of drawing approval, expediting or inspection. The Bidder shall provide a suitable place for the Purchaser / Client / Company's representative to sit in his office or works and provide him with facilities such as internet connectivity and conveyance between his place of stay & Bidder's work place etc.

## **2.8 LIQUIDATED DAMAGES FOR DELAY**

- 2.8.1 In case the Bidder fails to deliver the Equipment/ Materials in accordance with the delivery date as specified in the delivery schedule in the Purchaser Order, the Purchaser shall recover liquidated damages (LD) @ 0.5% of Purchase Order Value for the part delivery delayed, calculated for each week of delay or part thereof subject to a maximum of 5% of total Purchase Order Value. Any fractional week of delay shall be counted as a complete week. such LD shall be calculated and applied cumulatively for all part delivery schedules not fulfilled by the Bidder
- 2.8.2 For the purpose of liquidated damages calculations, the delay shall mean the period from scheduled delivery date of the Equipment/ Goods to site as specified in the Purchase Order till actual date of delivery date of Equipment/ Good to the project site location stated in the Purchase Order.
- 2.8.3 The Parties agree that the amount of LD provided herein is a genuine pre- estimate of the loss and damages which will be suffered on account of delay on the part of the Bidder and the said amount shall be payable on demand without there being any proof of the actual loss or damage caused by such delay / breach.

## **2.9 FORCE MAJEURE**

- 2.9.1 The term "Force Majeure" as employed herein shall mean act of God, fire, flood, war, typhoon and Acts and Regulations of respective Governments of the two parties, namely the Purchaser and Vendor directly affecting the performance of Purchase Order. Force Majeure will not be applicable for the delays due to labour problems, strike at Bidder / sub Bidder's work places.
- 2.9.2 In the event of either party being rendered unable by Force Majeure to perform any obligation required to be performed by them under the Purchase Order, (other than the obligation to make payments due and payable under this Purchase Order except when the Purchaser is physically prevented by a Force Majeure event from making payment, in which case) the obligation of the party affected by such Force Majeure shall upon notification to the other party be suspended for the period during which such cause lasts.
- 2.9.3 Upon the occurrence of such cause and upon its termination, the party alleging that it has been rendered unable as aforesaid thereby, shall notify the other party in writing within (48) hours of the alleged beginning and ending thereof giving full particulars and satisfactory evidence in support of its claim.
- 2.9.4 Time for performance of the relative obligation suspended by the Force Majeure shall then stand extended by the period of delay which is directly caused by Force Majeure event.

The party who has given such notice shall be excused from the performance or timely performance of its obligations under the Purchase Order, for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered or delayed, provided the party or parties affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect thereof upon its performance of the Contract and to fulfill its obligation under the Purchase Order.

2.9.5 If deliveries of bought out items and/or Works to be executed by the Vendor are suspended by Force Majeure conditions lasting for more than (2) two months, the Purchaser and Bidder shall each have the option of terminating this Purchase Order in whole or part thereof. Upon such termination, Purchaser shall compensate in accordance with the clause 2.11 herein.

2.9.6 Delay or non-performance by a party hereto caused by the occurrence of any event of Force Majeure shall not:

(a) Constitute a default or breach of the Purchase Order,

OR

(b) Give rise to any claim for damages or additional cost or expense occasioned thereby, if such delay or non-performance is caused by the occurrence of an event of Force Majeure. Force Majeure conditions are not payable under any circumstances.

## 2.10 MODIFICATIONS AND VARIATIONS

Unless authorized in writing by the Purchaser, Bidder shall be bound to execute the Order strictly in accordance with the Scope of Works, drawings, specifications, standards, other technical documents and terms and conditions of the Order.

## 2.11 TERMINATION / CANCELLATION

2.11.1 The purchaser may at any time terminate the Order in whole or part by giving 15 days written notice thereof and without assigning any reasons. Bidder shall on receipt of notice of termination discontinue all further activities connected with the execution of the Order and inform the Purchaser of details of work carried out as on date. In the event of such termination, other than default of Bidder, Purchaser shall compensate Bidder towards the cost of materials delivered at site in good condition and accepted by the Purchaser.

2.11.2 Purchaser shall also be entitled to terminate the part or whole of Purchase Order in case of any default by Bidder, including but not limited to, following:

2.11.2.1 Bidder becomes bankrupt or has a receiving order made against him or presents his petition in Bankruptcy or makes an arrangement with or assignment in favour of his creditors or agrees to carry out the Contract under a committee of inspection of his creditors or (being a corporation) goes into liquidation (other than a voluntary liquidation for the purposes of amalgamation or reconstruction),

OR

2.11.2.2 has an execution levied on his Goods,

OR

2.11.2.3 assigns the Purchase Order without the previous written consent of the Purchaser,

OR

2.11.2.4 Bidder has to the detriment of good workmanship or in defiance of the Purchaser's Representative's instruction to the contrary, sub-contracted for any part of the Purchase Order,

OR

2.11.2.5 Bidder repudiates or abandons the Purchase Order,

OR

2.11.2.6 Bidder without reasonable excuse fails to commence the Works or suspends the progress of the Work and substantially delays the delivery

OR

2.11.2.7 Bidder, despite previous notice in writing by the Purchaser's Representative, is not executing the Scope of Works in accordance with the Purchase Order to the satisfaction of the Purchaser's representative or is persistently or flagrantly neglecting to carry out his obligations under the Purchase Order.

OR

2.11.2.8 Bidder commits material breach under the Purchase Order

2.11.3 In such an event, Purchaser shall issue 10 days' notice to Bidder for remedying the default. In the event, the Bidder does not remedy the default within the notice period; Purchaser is entitled to terminate the Order, either in whole or part. Purchaser shall withhold all the payments due to Bidder and shall get the work carried out from third party at the risk and cost of Bidder. Bidder shall be fully liable to the Purchaser for all the costs incurred by Purchaser over and above the Purchase Order price of the terminated Goods to meet the Purchaser's schedule requirements.

## **2.12 GUARANTEE AND WARRANTY**

2.12.1 The Bidder guarantees that the Equipment / Materials including spare parts, and consumables, if any, supplied under the Order shall be genuine, new and unused or not reconditioned.

2.12.2 Bidder guarantees that the Equipment/Material procured from his Sub-Bidder/Vendor is genuine, new and unused or not reconditioned.

2.12.3 The Bidder guarantees that the Equipment/Materials are of the best quality and free from defects in design, material and workmanship and are suitable for the operating conditions and purpose as specified in the Order. The guarantee/warranty for the Equipment/Materials shall be valid till the period mentioned in the Special Purchase conditions (SPC).

2.12.4 Should any defect in the Equipment/ Materials be noticed during the guarantee period, the Purchaser shall notify the Bidder with the details of defects observed and the Bidder at no cost to the Purchaser shall make the defect good at site as promptly as required, by way of

repair/modification or replacement of the Equipment/Materials. For any defective work requiring repair or replacement, guarantee/warranty period shall be further extended for an additional period of 6 months from the date of acceptance of any warranty repair or replacement work, if any.

- 2.12.5 If the Bidder does not repair or replace the Equipment / Materials notified as defective within a reasonable period of time as required by the Purchaser / Client / Company, the Purchaser shall have right to remedy the said defect at Bidder's risk and cost but without prejudice to any right the Purchaser may have against the Bidder in respect of any breach of these guarantee conditions.
- 2.12.6 In the event of an emergency, where in the judgment of the Purchaser, delay would cause serious loss or damage, repairs or adjustments may be made by the Purchaser or a third party chosen by the Purchaser without advance notice to the Bidder and the cost of such work shall be paid by the Bidder. In the event of such action taken by the Purchaser, the Bidder will be notified promptly and he shall assist wherever possible in making necessary corrections. This shall not relieve the Bidder from liability under the terms and conditions of the Order.
- 2.12.7 The Bidder shall ensure that all guarantee or warranty certificates issued by the Bidder covering performance of the said Equipment and Materials be issued in the joint names of the Purchaser and Client / Company.
- 2.12.8 The Guarantee Certificate that will be submitted by the Bidder at the time of supply of Equipment and Materials shall reflect all the above requirements.

## 2.13 TECHNICAL DISCUSSION

In an endeavor to expedite the delivery, the Purchaser may instruct the Bidder to depute his competent technical personnel for technical discussions with the Purchaser/Purchaser's design and engineering consultant/Company's Consultants/ Client, in order to expedite the respective activity. The Bidder shall, on receipt of such intimation, depute his technical personnel accordingly. All costs associated with such visits shall be borne by the Bidder.

## 2.14 NOTIFICATION OF SUITS/ CLAIMS

The Bidder shall give the Purchaser prompt notice in writing of any suit or action filed against the Bidder, the settlement of which could result in a claim against the Bidder. Bidder shall promptly furnish copies of all relevant papers to the Purchaser.

## 2.15 APPLICABLE LAWS

- 2.15.1 Bidder shall comply with all the laws, rules and regulations including but not limited to those related to security matters, Contract Labour (R&A) Act, Minimum Wages Act etc.
- 2.15.2 Bidder shall fully comply with the Security Provisions governed by rules & regulations formulated from time to time by the Government of India and / or its concerned departments / agencies as well as the requirements of Company and Purchaser.
- 2.15.3 Bidder shall comply with and conform in all respects with the provisions of any statute, ordinance or law as aforesaid and the regulations or by laws of any international, local or other duly constituted authority which may be applicable to the works or to any temporary

works and with such rules and regulations of public bodies and companies as aforesaid and shall be responsible for all costs arising from compliance and/or violation of the same.

2.15.4 Bidder shall defend, indemnify and hold Company/Purchaser harmless from and against any and all penalties, liabilities, damages, claims, fines and expenses of whatever nature arising out of or resulting from the violation of such laws or rules or regulation by Bidder.

## **2.16 ARBITRATION**

2.16.1 Any dispute arising under the Purchase Order shall be resolved by mutual discussions between the Bidder and the Purchaser.

2.16.2 If any dispute, difference or question shall at any time arise between the Purchaser and the Bidder, regarding the rights, liabilities or duties of the said parties, which cannot be mutually resolved by the parties, the same shall be referred to for arbitration to be carried out in accordance with Arbitration and Conciliation Rules 1996 and any subsequent amendments. Arbitration proceedings shall be held in Cochin, India. The language of Arbitration shall be English.

2.16.3 Under no circumstances, the Bidder shall hold up production or dispatch of Equipment pending resolution of the disputes.

## **2.17 ASSIGNMENT / SUB-CONTRACTING**

2.17.1 Any assignment or sub-contracting of the Purchase Order can only be effected with prior written consent of the Purchaser and shall not relieve the Bidder from any obligation, duty or responsibility under the terms of Purchase Order.

## **2.18 PASSING OF PROPERTY/TITLE**

2.18.1 The title to the Equipment and Materials shall be deemed to have been passed to the Purchaser when the Goods are identified for the Purchase Order during manufacturing, or the date on which Goods are delivered in accordance with the Purchase Order or the date of payment by Purchaser to Bidder, whichever event occurs earlier. The transfer of title shall not in any way affect the Purchaser's right under the provisions of the Purchase Order.

2.18.2 In case of any non-performance by Bidder due to any cause including Force Majeure or early termination, Purchaser shall be entitled for the IP rights, if any pertaining to the Goods delivered and transfer the Goods else-where for this project.

## **2.19 TESTING/ INSPECTION**

2.19.1 Bidder has to conduct a Factory Acceptance Test (FAT) on the material prior to dispatch which will be witnessed by Purchaser and its end Client. FAT inspection should be intimated at least 10 days ahead of the test date.

2.19.2 The Bidder shall include the charges for the inspection by Purchaser / Client as per his proposed QA Plan. (The proposed QAP shall meet requirements of the RFQ & Inspection Requirement Table (IRT)).



- 2.19.3 The Bidder shall submit the QA Plan for the approval of Purchaser. This QA Plan shall demonstrate product conformance with INKEL drawings/Specifications & IRT as applicable.
- 2.19.4 The QA Plan shall indicate all stages of inspection as Review (R) or Witness (W) or Hold (H) or Monitor (M) as defined, for inspection coverage by INKEL or External Inspection Agency and Client/Client’s Certifying agency.
- 2.19.5 Purchaser and Client/Client’s Certification Agency shall indicate stages of inspection to be witnessed in the QA Plan and approve the same.
- 2.19.6 Finalization of QA Plan is important to ensure timely delivery of Material/Equipment. The Bidder shall therefore, depute his competent QC Engineer to INKEL/ Company office to discuss & finalize the QA Plan within 10 days of receipt of Purchase Order
- 2.19.7 The Bidder shall obtain confirmation reports from Purchaser for witnessing stages of inspection on behalf of Purchaser as indicated in the QA Plan. The stage inspection reports prepared by the Purchaser or External Inspection Agency shall be forwarded by the Bidder after every visit or once in every fortnight to the Purchaser.
- 2.19.8 Prior to dispatch of Equipment/ Material, the Bidder shall obtain an Inspection Release Note from Purchaser mentioning compliance with the Approved drawings, Approved RFQ, Guaranteed Technical particular and Q.A. Plan and furnish the same prior to dispatch.
- 2.19.9 Material shall be inspected by Company / Certifying agency as applicable as per the approved Quality Control Plan. Prior to dispatch of Equipment/ Material, Bidder shall obtain an Inspection Release Notes from Company / certifying agency.
- 2.19.10 No revision will be allowed except those submitted in form B and approved. INKEL reserves the right to cost / delivery impact if any deviations / concession taken post order.
- 2.19.11 Purchaser reserves the right to take remedial action for default in delivery and same shall be debited to Bidder.
- 2.19.12 The Company/ Client, Purchaser and/or their authorized representatives (including their nominated inspection agencies) shall have the right to inspect/witness the processing/testing of the Equipment/ Materials by the Bidder or his Sub-Bidders at stages referred to in the Quality Control Plan approved by the Purchaser. Such inspection/expediting or waiver thereof by the Company / Client / Purchaser or their representatives shall not absolve the Bidder of the responsibilities with regard to quality assurance and/or delivery commitments. Bidder shall at all reasonable times provide free access to the Company / Client / Purchaser’s authorized inspectors to all places where processing /manufacturing is carried out and make available to them all facilities required to carry out their duties.
- 2.19.13 The expenses for conducting factory acceptance tests (including air travel and accommodation for four officials from Kerala to vendor works and return) shall be included in the price quoted by the bidder.

**2.20 SHIPPING/PACKING INSTRUCTIONS**

- 2.20.1 Bidder shall comply with the Shipping/ Packing instructions as specified in the Order. In any case the Bidder shall ensure that packing is to the best international standards and



adequate to withstand all hazards during shipment and storage. Any loss/ damage from insufficient/ defective packing shall be to Bidder's account.

- 2.20.2 Purchaser right to reject the defective material which shall be replaced by bidder at his own cost. Bidder shall dispatch the materials to site after the receipt of unconditional inspection release note.
- 2.20.3 Each package shall have on its outer side the following marking in English in indelible ink.
- 2.20.3.1 Location of Loading
- 2.20.3.2 Name of Purchaser
- 2.20.3.3 Purchase Order Number
- 2.20.3.4 Address of destination
- 2.20.3.5 Consignee particulars in brief
- 2.20.4 In addition each package shall carry serial number or other appropriate indelible marking/ identification indicating the Company / Client / Purchaser's representative's certification of quality and inspection. Such marking/identification may be applied in the presence of the Company / Client's representative. This marking shall be correlated in the invoice, packing list and express bill of lading, mailing certificates etc., exactly as they appear on the Equipment/Materials.
- 2.20.5 Immediately upon shipment, the Bidder shall send the following original documents by courier and scan copy via email to the purchaser:
- 2.20.5.1 Lorry Receipt / GCN (Goods Consignment Note).
- 2.20.5.2 Commercial Invoice, Packing list.
- Bidder shall also inform the name, address and telephone / fax nos. of the freight forwarder's agent in Cochin in case the freight forwarder has been arranged by the Bidder.
- 2.20.6 Bidder shall ensure that all items as per Purchase order are included in one invoice & are dispatched as a single consignment. If it is unavoidable to dispatch the items in two consignments, Bidder shall prepare two separate invoices & packing lists for each consignment.
- 2.20.7 Any charges incurred by the Purchaser, on account of the delay in sending the required documents / submission of wrong documents and / or not following shipping instructions shall be charged back to the Bidder.
- 2.20.8 Purchaser may be entitled for certain exemption benefits for which Purchaser shall separately inform Bidder on the documentation requirements, Description of the Items, Line Item Weights, Price break break-ups etc. to be specified as per Purchaser's instructions. Any additional cost incurred by Purchaser due to deficiency in the documentation submitted by Bidder shall be to Bidder's Account.

## 2.21 PACKING OF MANDATORY SPARE PARTS

All supplied spare parts shall be wrapped and packed, so that they will be preserved in original as new condition under normal conditions in India and shall be properly tagged and coded, so that later identification as to its intended equipment usage will be facilitated. They shall be packed separately and clearly marked “MANDATORY SPARE PARTS” and shipped with the equipment. Separate packing lists for each package shall be furnished so that the parts can be handled without uncrating if desired.

## 2.22 INVOICING AND TERMS OF PAYMENT

2.22.1 Bidder shall raise the Invoices in accordance with the payment terms Specified in SPC.

2.22.2 Payment shall be released only after receipt of correct invoice along with all necessary documents including but not limited to following:

2.22.2.1 Packing List

2.22.2.2 Inspection Release Note

2.22.2.3 Material Test Certificates (MTC) as applicable,

2.22.2.4 Copy of Lorry Receipt / GCN (Goods Consignment Note) and any other documents as specified in SPC.

## 2.23 INTEGRITY

2.23.1 The Bidder / Sub-Bidder commit itself 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 Purchase Order execution.

2.23.1.1 The Bidder / Bidder will not, directly or through any other person or firm, offer, promise or give to any of the Purchaser/ Client employees involved in the tender process or the execution of the Purchase Order or to any third person any material or immaterial 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.

2.23.1.2 The Bidder / Sub-Bidder will not enter with other Bidders into any 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. Further, no Bidder should have a conflict of interest that affects the tender / bidding process, in any of the following manner:

2.23.1.2.1 such Bidder (or any constituent thereof) and any other Bidder (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this qualification shall not apply in cases where the direct or indirect shareholding in a Bidder or a constituent thereof in the other Bidder(s) (or any of its constituents) is less than 1 % of its paid up and subscribed capital; or

2.23.1.2.2 a constituent of such Bidder is also a constituent of another Bidder ; or

2.23.1.2.3 such Bidder receives or has received any direct or indirect subsidy from any other Bidder, or has provided any such subsidy to any other Bidder; or

- 2.23.1.2.4 such Bidder has the same legal representative for purposes of this Bid as any other Bidder; or
- 2.23.1.2.5 such Bidder has a relationship with another Bidder, directly or through common third parties, that puts them, in a position to have access to each other's information about, or to influence the Bid of either or each of the other Bidder, or
- 2.23.1.2.6 such Bidder has participated as a consultant to the authority in the preparation of any documents, design or technical specifications of the project

2.23.2 The Bidder / Sub-Bidder will not commit any offence under the relevant Anti-corruption Laws of India; further the Bidder / Sub-Bidder 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.

2.23.3 The Bidder / Sub-Bidder will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Purchase Order.

2.23.4 Bidder confirms full compliance with Company's Integrity pact as executed by Purchaser with the Company for this Project and attached at Appendix VI. Bidder's authorized representative shall execute this integrity pact in original and send to Purchaser within 7 days of Effective Date. Purchaser reserves the right to withheld Bidder's payment if integrity pact duly executed in original by Bidder is not received by Purchaser.

## **2.24 CONFIDENTIALITY**

2.24.1 Neither Bidder nor its Sub-Bidder and their personnel and agents shall divulge to any third party any information designated in writing as confidential and obtained from the disclosing party during the course of the execution of Purchase Order.

2.24.2 Upon completion of the Purchase Order or in the event of early termination of the Purchase Order, Bidder shall immediately return to the Purchaser all drawings, plans, specifications and other documents supplied to the Bidder by or on behalf of the Purchaser or prepared by the Bidder solely for the purpose of the performance of the Purchase Order, including all copies made thereof by the Bidder.

## **2.25 AUDIT RIGHTS**

Bidder shall prepare and retain full records relating to the performance of the Scope of Works. Purchaser or its authorized representative(s) or agent(s) shall be granted access to examine and to take copies of all records other than records associated with building up of fixed lump sums prices and rates. Bidder shall preserve all original form and make available for inspection without any additional charge, statutory records for a period of six (6) years after the expiry of Warranty period or earlier termination of the Purchase Order. Any amount, by which the total payment by Purchaser to Bidder exceeds the amount due to Bidder as shown by the examination, shall be returned to Purchaser.

## 2.26 TAXES AND DUTIES

- 2.26.1 All applicable taxes including withholding tax in India, if any, fees, levies, imposts, duties, charges etc. (including all direct and indirect expenses, any and all penalties and fines) during the performance of Works under this Purchase Order shall be included in the Purchase Order price. Bidder remains solely liable in respect of taxes which are indirectly related to the performance of this Purchase Order, in particular taxes which may be levied on the personal income or the personal belongings of his employees.
- 2.26.2 The Bidder shall indemnify the Purchaser against any and all liabilities or claims arising out of the work performed by the Bidder under this Purchase Order for any taxes and duties including interest and penalty, which any Tax Authority may assess or levy against Purchaser and Bidder.

## 2.27 GOVERNING LAW

The validity, interpretation and performance of this Purchase Order and legal relations between the parties shall be governed by the laws (substantive and procedural, whether national, state, municipal, local or other), rules and regulations of India.

## 2.28 SAMPLES

Bidders shall provide all samples at no additional cost to Purchaser for his approval upon request from the Purchaser.

## 2.29 INDEMNITIES

- 2.29.1 The Bidder shall indemnify and keep harmless Purchaser, Company, its other contractors and/ or sub-contractors and its/their employees (hereinafter Purchaser Group) from all actions, proceedings, suits, claims, demands, liabilities, damages, losses, costs, charges, expenses judgments and fines arising out of or in the course of, or caused by the execution of work under the Purchase Order or other obligations hereunder directly or indirectly associated herewith including but not limited to:
- 2.29.1.1 personal injury, illness or death of:
- 2.29.1.1.1 any of Bidder's, Sub-Bidder's, their other agents or employees (hereinafter Bidder Group) personnel (even if caused by or contributed to by the negligence or fault of Purchaser); and
- 2.29.1.1.2 any third party person to the extent the injury, illness or death is caused by the Bidder Group and
- 2.29.1.2 loss or damage to:
- 2.29.1.2.1 any property owned, hired or supplied by Bidder or Sub Bidder's
- 2.29.1.2.2 Any third party property to the extent the loss or damage is caused Bidder Group.
- 2.29.2 The Bidder shall indemnify and keep harmless Purchase Group from any claims, demands, costs, actions, proceedings, suits liabilities, damages and fines arising due to infringement of any intellectual property by Bidder Group while carrying out Scope of Works under the Purchase Order. Bidder shall provide perpetual and royalty free right to Purchase and Company for using the Goods if any such rights are embedded therein.

2.29.3 Notwithstanding any other provisions, except only in cases of willful misconduct and/or criminal acts, neither the Purchaser (including Purchaser Group) nor the Bidder (including Bidder Group) shall be liable to the other, whether in contract, tort, or otherwise, for any consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided however that this exclusion shall not apply to any obligation of the Bidder to pay Liquidated Damages to Purchaser.

### **2.30 HSE AND RELATED COMPLIANCES FOR SITE DEPUTATION**

2.30.1 Bidder shall follow the safety rules and regulations in line with Purchaser's and Company's HSE policy and specifications set out herein. The Bidder shall also be responsible to comply with code requirements of ISO-14000 series, and other international practices. In case of conflict between the requirements of the various specifications and/or the requirements specified in the Purchase documents, the more stringent requirement shall be followed.

2.30.2 Bidder shall not dump any material in the vicinity of the existing facilities of COMPANY or the facilities which are being installed under the Contract.

2.30.3 None of Bidder's personnel / employees / representatives including personnel / employees / representatives of his Sub-Bidders carry out any type of cameras nor do any photography in or around any of Company's / Purchaser's installations / facilities and also ensure that they shall hand over all films and photographs to the Purchaser's Representative before leaving site. All employees/representatives of Bidder including employees / representatives of his Sub-Bidders shall sign a declaration as prescribed by Company every time before their departure for/from Site.

2.30.4 Bidder should ensure that all his personnel being deployed at Site are aware of:

2.30.4.1 Elementary First Aid.

2.30.4.2 Fire Fighting.

2.30.4.3 OHAS

## **3 SPECIAL PURCHASE CONDITIONS**

The terms and conditions of this Special Purchase Conditions shall be read in conjunction with General Purchase Conditions and in the event of any conflict arising between SPC and GPC, the terms of SPC shall take precedence.

### **3.1 RFID READING**

3.1.1 One no. of hand held RFID reader of reputed make (gun type) compatible to read RFID tags along with all accessories to be supplied at free of cost.

3.1.2 Alternately the vendor may choose to arrange the reader with his trained personnel at site during Site Acceptance Testing (SAT).

### **3.2 DELIVERY PERIOD**

The delivery date and delivery schedule for the Material/Equipment / Goods at Site shall be as specified in the Purchase Order. i.e Delivery to the site (locations) must be

completed within the delivery schedule stated in the PO, on non-compliance of which Liquidated Damages as specified in the GPC shall apply. In the event the Supplier fails to deliver the whole or part of the Equipment/ material/Goods within the agreed schedule, Purchaser reserves the right to cancel the PO without any liability to the Bidder and to charge the Bidder on any loss incurred as a result of the Bidder's failure to comply with the stipulations of the Purchase Order.

### **3.3 PAYMENT TERMS**

3.3.1 Payment shall be made to the Supplier against the actual quantity of material delivered to each of the Site, calculated at the rate stated in the Purchase Order, which shall be released as follows:

3.3.1.1 40% upon delivery of material/Equipment to site and after site inspection and acceptance tests and verification by Client/Purchaser and production of the insurance certificates for the materials delivered at Site.

3.3.1.2 40% after installation of material/Equipment at site and readying for test charging for commissioning

3.3.1.3 20% after satisfactory testing and commissioning and after proving the Performance ratio and upon submission of a performance bank guarantee (PBG) equivalent to five percent (5%) of the value of material /equipment delivered to each site and will remain valid for 5 years from the date of commissioning.



## **4 SCOPE OF WORK AND TECHNICAL SPECIFICATION**

### **4.1 SCOPE OF SUPPLY**

- 4.1.1 Manufacturing, Testing and delivery of DCR Type Mono PERC/Mono Crystalline/Poly Crystalline Solar PV modules as mentioned in this document.
- 4.1.2 The estimated Quantity required is 11MWp. Purchaser shall state the actual quantity to be supplied by the Bidder in the Purchase Order. Purchaser reserves the right to reduce the quantity of purchase as required without change in agreed rate.
- 4.1.3 The Solar PV module should be of power rating 335Wp or higher measured at standard test conditions (STC) of solar radiation at 1000 W per sq meter at 25 deg. Celsius, spectrum AM 1.5.
- 4.1.4 Cells and modules shall be manufactured in India.

### **4.2 TECHNICAL REQUIREMENTS**

<b>Sl. No</b>	<b>Item</b>	<b>Remarks</b>
1	PV module Configuration	DCR Type Mono PERC/ Mono Crystalline/ Polycrystalline Photovoltaic module with 72 nos. of solar cells. Please enclose: a. Module overall assembly drawing with mounting holes b. Datasheet. c. Type Test certificates
2	Power Output and Efficiency	335 Watts Peak or higher at STC and efficiency greater than 17% . No negative tolerance allowed from the rated Capacity at STC.
3	Fill Factor	Greater than 70%
4	Temperature coefficient of Power	Less than -0.4% / °C
5.1	Operating Conditions	Modules should perform satisfactorily in relative humidity up to 85% with temperature between -40°C to 85°C and wind speed of 150 Km/hr
5.2	Maximum System Voltage	1500 VDC
6.1	Certifications	The PV modules supplied shall have valid certifications as given below 1. IEC 61215 / IS 14286 2. IEC 61730 – 1:2007 3. IEC 61730 – II:2007 4. IEC 61701 5. IEC 61853 Vendor shall use same bill of materials for manufacture of PV modules as per subset of approved CDF of all IEC certificates <b>Copies of above certificates &amp; test reports shall be submitted along with the offer.</b>



Sl. No	Item	Remarks
6.2	Application class as per IEC 61730	Class A
7	Bill of Materials	
7.1	Solar Cells	DCR Type Mono PERC/Mono Crystalline/Polycrystalline. Mention the make of cells used for this project
7.2	EVA	UV and PID resistant encapsulating material
7.3	Glass	Toughened low iron glass with minimum thickness of 3.2mm / 4mm and light transmission above 90%
7.4	Back Sheet	3 layered structure durable for humid hot conditions with properties for moisture barrier, elongation retention and UV resistance
7.5	PV module frame	Anodized aluminium with earthing holes. Anodization thickness not less than 15 microns.
7.6	Junction Box	IP 65 rated, Minimum 3 nos. of schottky bypass diodes, copper cable 4 sq.mm. of length 1.5 mtr for positive terminal & 1.5mtr for negative terminal(IEC 62930 / EN 20618 certified) with MC4 type connectors(IEC 62852/ EN 50521 certified)
7.7	Blocking Diodes	Schottky Type
7.8	Sealant for edge Sealing of PV modules	Excellent ingress protection with electrical insulation (Break down voltage > 15 kV/mm.) and good adhesion strength.
7.9	Module Serial Numbers	Module serial numbers shall be inside the laminate with barcode for reading
7.10	RFID & Bar code	RFID and barcode shall be positioned inside the laminate. RFID shall be durable for the entire life of panel and contain the following information 1. name of Manufacturer of PV module 2. Name of Manufacturer of solar cells 3. Month and Year of Manufacture (Separately for Solar modules and cells) 4. Country of Origin(Separately for Solar modules and cells) 5. I-V Curve for the module 6. Wattage, Im, Vm, and Fill factor 7. Unique serial number of the module 8. Date and year of obtaining IEC/BIS PV module qualification certification 9. name of test lab issuing the test certificate 10. Information on traceability of solar cells and modules as per ISO 9000. 11. Name of Client : KSEBL
7.11	Name Plate	Each module shall be provided with name plate label sticker containing the following information 1. Name of module Manufacturer

Sl. No	Item	Remarks
		2. Module model number 3. Overall dimension 4. Weight 5. Pmax, Vmax, Imax 6. Short circuit current Isc and open circuit voltage Voc 7. System voltage 8. Relevant standards and certifying lab name 9. Warnings if any 10. Other relevant information
7.12	.PAN File	.PAN file for each module wattage band shall be provided for carrying out PVSyst calculations before supply
7.13	Authorised Test Centres	1. PV modules must be tested and approved by one of the IEC authorized test centers 2. In addition a PV module qualification test certificate as per IEC standard, issued by ETDC, Bangalore or MNRE solar Energy Centre.

### 4.3 MECHANICAL CHARACTERISTICS

- a. Peak power point voltage and the peak power point current of any supplied module and/or any module string (series connected module) shall not be more than 3% from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
- b. Each module shall have low iron tempered glass front for strength and superior light transmission (4 mm tempered for SSI-M6-270 & SSI-3M6-270, 3.2 mm for others).
- c. It shall have back sheet for environment protection against moisture and high voltage electrical insulation.
- d. The fill factor of module shall not be less than 0.70 (typical). The V-I curve of each PV module with Sl. Nos. should be submitted along with Modules meeting the required specifications.
- e. Solar cell shall have surface anti-reflective coating to help to absorb more light in all weather conditions.
- f. Solar module shall be laminated using lamination technology using established polymer (EVA) and Pedlar/Polyester laminate.
- g. Output Cables: Polarized Weather Proof DC rated multi-contact connector of relevant international/national standards.
- h. Photo conversion efficiency of SPV Module should be greater than or equal to 17%.
- i. The module frame shall be made of Anodized Aluminium alloy/corrosion resistant material, which shall be electrically compatible with the structural material.
- j. Fuses of adequate rating shall also be provided in each solar array module to protect them against short circuit. The fuse shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP 65 enclosures with transparent covers.
- k. Bidder must consider Shading Losses as per the relevant Industry Standard & Practice while designing the proposed power plant and the same shall be specifically indicated.
- l. Bidder shall provide data sheet for Solar PV Module (Under STC) along with their offer as per Guarantee Technical Particular Data Sheet- 1.

#### **4.4 QUALITY ASSURANCE**

- 4.4.1 Module Quality Plan and Datasheet shall be subject to Purchaser's approval. Each lot of module shall be subject to pre-dispatch inspection by Purchaser, Client or any third party arranged by the Purchaser.
- 4.4.2 Pre-shipment inspection by Purchaser/ Client at Bidder's works will include:-
- a) Dimensional and Visual Check
  - b) Electrical Test ( I-V test)/Flash Test
  - c) IR-HV-IR test and Earth continuity test
  - d) Electro luminescence (EL) test
  - e) Wet leakage test
  - f) Mechanical load test
  - g) Any other test as required by customer
- 4.4.3 Successful bidder has to prepare and submit the Quality assurance plan to INKEL for approval

#### **4.5 WARRANTY**

- 4.5.1 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 Light induced degradation) and shall guarantee output voltage of 90% at the end of 10 years and 80% of the initial rated power output at the end of 25 years. Module shall be warranted for minimum of 10 years against all material or manufacturing defects and workmanship. Manufacturer's OEM warranty certificate should be submitted along with the supply of materials.
- 4.5.2 Modules that do not meet the above criteria shall be replaced free of cost by Bidder/ supplier.

#### **4.6 PACKING AND IDENTIFICATION**

The modules shall be packed in carton boxes in road worthy packing. One carton box shall contain modules of same wattage. Modules found damaged at the time of opening of the cartons in the project site shall be replaced by the vendor, free of cost at site within 07 days of intimation by Purchaser in absence of which provisions of LD as per clause 2.8 of GPC shall apply.

#### **4.7 GENERAL CONDITIONS**

- 4.7.1 PV modules shall be manufactured at the factory of OEM for which PO is placed.
- 4.7.2 Any additional routine tests / Certification required by MNRE customer shall be complied.

#### **4.8 MANUFACTURING CLEARANCE APPROVAL PROCEDURE**

- 4.8.1 The successful Bidder shall submit the Guaranteed Technical Particular (GTP), Datasheet, Bill of Materials (BOM), General Arrangement Drawing and Quality assurance plan of the module for approval along with datasheets of individual components.
- 4.8.2 Bidder shall provide test certificates corresponding to standards mentioned above along with complete test reports for proposed module from MNRE approved Laboratories.

- 4.8.3 The BOM proposed shall be the subset of (Constructional Data Form) CDF of all test reports indicated in clause 6.1 of this specification.
- 4.8.4 The Bidder shall submit a detailed manufacturing quality plan for PV module with list of checks / tests performed during incoming material inspection, production, pre- dispatch and package.

#### **4.9 MANUFACTURING AND INSPECTION**

- 4.9.1 The manufacturing shall start only after clearance by Purchaser after approval as above and inspection of material as per CDF verified by Purchaser at Bidder works.
- 4.9.2 The Bidder shall inform the module manufacturing schedule to Purchaser at least 7 working days before start of proposed schedule.
- 4.9.3 Purchaser may perform material inspection at 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.
- 4.9.4 The cells used for module making shall be free from defects like edge chipping, breakages, printing defects, discoloration of top surfaces etc.
- 4.9.5 The modules shall be uniformly laminated without any lamination defects.
- 4.9.6 Inspection of modules shall be performed as per the inspection procedure mentioned in the inspection requirement table (IRT).
- 4.9.7 Tests mentioned in the IRT are minimum test requirements. Vendor shall make all arrangements for testing without any additional costs.

#### 4.10 INSPECTION REQUIREMENTS TABLE ( SPV MODULES )

Activity No	Inspection by CLIENT			
	Inspection by INKEL / Purchaser			
	Certificates /Compliance to be submitted by Vendor for Review / Approval			
	Stages of Inspection			
1	A	R	X	QA Plan/ Inspection and Test Plan & FAT Procedure
2	R	R	X	Report of Tests: Routine Test, Type Test, Test certificate
3	R	W	X	BOM Verification prior to commencement of Production
4	W	W	X	Visual inspection, Dimensional check, Name plate, Workman ship
5	RW	RW	X	Flash test
6	RW	RW	X	EL Inspection
7	RW	RW	X	Dielectric Withstand (Hipot) test
8	RW	RW	X	Insulation Resistance
9	RW	RW	X	Ground Continuity Test
10	RW	RW	X	Wet Leakage Test
11	Is	R	X	Issue and documentation at Vendor place ( Inspection release Note)
12	W	W	H	Verification of Components as per Inspection release note (IRN)
13	R	R	X	Inward Material Inspection Report as per IRN

#### LEGENDS & NOTES:

- RW – Random witness Inspection - Sampling percentage specified as minimum 1%
- W – Witness Inspection – 100% inspection
- A – Approval
- R – Review
- X – Submission of supporting documents during review at any stage
- Is – Issue
- H- Hold

## 5 ANNEXURES AND FORMATS

### 5.1 COVERING LETTER

(On the Letterhead of the bidder)

From,

(Insert address of the bidder)

To,

Managing Director,

INKEL Limited

Kakkanad, Kochi, Kerala-682030

Sub: Supply of DCR Type Mono PERC/Mono Crystalline/Polycrystalline SOLAR PV MODULES of capacity 335Wp or higher.

Dear Sir,

We, the undersigned.....[insert name of the 'Bidder'] having read, examined and understood in detail the tender document for Supply of DCR Type Mono PERC/Mono Crystalline/Polycrystalline SPV Modules of capacity 335Wp or higher, hereby submit our bid comprising of price bid and non-financial Bid.

1. We give our unconditional acceptance to the tender, dated.....and tender documents attached thereto, issued by INKEL Limited, as amended. This shall also be construed as a token of our acceptance to the tender documents including all its amendments and clarifications. We shall ensure that we execute such tender documents as per the provisions of the tender and all provisions of such tender documents shall be binding on us.
2. We have submitted our Price Bid strictly as per terms of this tender, without any deviations, conditions and without mentioning any assumptions or notes for the Price Bid in the said format(s).

3. **Acceptance**

We hereby unconditionally and irrevocably agree and accept that the decision made by INKEL LTD. in respect of any matter regarding or arising out of the tender shall be binding on us. We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfill our obligations with regard to execution of projects of capacity offered by us.

4. We are enclosing herewith the Cover-I (Non-Financial bid documents) and

Cover II (Price Bids) containing duly signed formats, each one duly sealed separately as desired by you in the tender for your consideration.

5. It is confirmed that our Bid is consistent with all the requirements of submissions stated in the tender and subsequent communications from INKEL Limited. The information submitted in our Bid is complete, strictly as per the requirements stipulated in the tender and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid. We confirm that all the terms and conditions of our Bid are valid for acceptance for a period as stated in clause 1.4 of Instructions to Bidders . We confirm that we have not taken any deviation so as to be deemed non responsive.
6. We confirm to arrange for RFID reading at site for Site Acceptance Testing (SAT).

Thanking you,

Yours faithfully,

(Authorised Signatory of the Bidder)



**5.2 PRICE BID FORMAT**

Site : 16 locations in Kerala				Estimated Cumulative PV Module Capacity : 11MWp				
Sl No	SPV Make	Model No	Type	Unit Rate (per Wp)	Quantity (Wp)	Rate	GST	Total price (All inclusive)
<b>Total price (in Words)</b>								

**Notes :**

1. Price to be inclusive of all duties, taxes, transit insurance and transportation to site.
2. Price to be inclusive of expenses for conducting FAT (as per QAP) at Manufacturer's factory.
3. The material shall be delivered within 10 days after issuing of dispatch clearance from INKEL LTD.

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**Sign & Seal of Bidder**

### 5.3 GUARANTEED TECHNICAL PARTICULARS

GUARANTEED TECHNICAL PARTICULARS			
DATA SHEETS			
SL NO	Particulars	Required	Offered
1	PV Module Manufacture name & Address		
2	PV Module type	Mono PERC/ Mono Crystalline /Poly crystalline	
3	Product Code/Model No		
4	No. of PV cells per Module	72	
5	Max. Power, Pmp @STC	335Wp or above	
6	Max. power tolerance (%)	Not more than 3% (No Negative tolerance is allowed)	
7	Max. power voltage (Vmp)@STC	To be specified	
8	Max. power current (Imp) @STC	To be specified	
9	Open circuit voltage @STC	To be specified	
10	Short circuit current @STC	To be specified	
11	Nominal voltage	To be specified	
12	Nominal Wattage	To be specified	
13	Fill Factor	Above 0.70	
14	Temp. coefficient of Voc (%/C)		
15	Temp. coefficient of Pmp (%/C)		
16	Temperature Co-efficient of Isc (%/°C)		
17	Normal Operating Cell Temperature (NOCT) (°C)		
18	Operating Temperature (°C)		
19	Max Temperature rise of solar cells under severe working conditions over Max. Ambient Temp.	To be specified	
20	Module is suitable to operate at 50 ambient	Yes/No	
21	Cell efficiency	>15%	
22	Module efficiency	≥17%	
23	Maximum System Voltage	1500V	
24	No. of By-pass Diodes	3	
25	Mounting arrangement for Solar Module	Fixed Arrangement	

**GUARANTEED TECHNICAL PARTICULARS**

**DATA SHEETS**

SL NO	Particulars	Required	Offered
26	Solar Module frame material	Anodized Aluminium	
27	Finish		
28	Types of Sections used		
29	Module dimensions cms (LxWxH)	To be specified	
30	PV panel Weight (kg)	To be specified	
31	Module Life (minimum)	25 years	
32	Standards/Approvals from International Agencies	IEC 61215/IEC 61730/ IEC 61701	
33	Guaranteed output confirm	Yes	
34	Output Cables	Polarized, UV protected & Weather Proof DC rated multi-contact connector	
35	Output Terminal	PV Connectors	
36	Junction Box	Weather resistant HDPE (IP65)	
37	Construction Front and Back	High transmittance glass, Polyester Ethyl Vinyl Acetate(EVA) encapsulate	
38	Glass	Low iron tempered	

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Signature of Bidder with Stamp

#### 5.4 CONFIRMATIONS BY BIDDER

Sl No.	Item	Acceptance by BIDDER(Yes / No )
1	DCR Type Mono PERC/Mono Crystalline/Poly crystalline PV modules with wattage 335 Wp and above	
2	Efficiency 17% and above at STC	
3	PV modules registered with BIS	
4	Glass : 4 or 3.2 mm thickness	
5	Back sheet : 3 layers 300 microns thick, water vapor transmission rate < 2g/m/day	
6	IP 65 Junction box	
7	Junction box cable length 1.2 Meters	
8	Edge Sealing of modules with silicone sealant ( RTV)	
9	Al Frame anodisation thickness >= 15 Microns	
10	RFID tag and bar code inside laminate	
11	Supply of hand held RFID readers	
12	Adherence to Quality plan as per customer	
13	Third party insurance for product and power performance warranty	
14	Bill of materials as per subset of CDF of IEC certificates	
15	Facility to conduct Factory acceptance tests as per IRT	
16	Solar cells and module materials as per approved CDF as per IEC certificates submitted as per clause 6.1	
17	One no. of hand held RFID reader of repute make (gun type) compatible to read RFID tags along with all accessories to be supplied at free of cost. OR Alternately the vendor may choose to arrange the reader with his trained personnel at site during SAT.	

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Signature of Bidder with Stamp

### 5.5 BID SUBMISSION CHECKLIST

<b>Cover 1</b>
Covering Letter
EMD as per clause 1.13
The entire tender document signed and sealed by the bidder as a token of acceptance of all the terms and conditions of this tender.
Proof of pre-qualification requirements as per clause 1.9
Previous experience details as per clause 1.7
Copy of accreditations and certifications
Catalogue and datasheet
Copy of IEC 61215 / IS 14286 , IEC 61730-I & II , IEC 61701, IEC 61853
Duly filled General technical particulars with sign and seal of the bidder
Confirmations by Vendor
Power of Attorney (if applicable)
<b>Cover 2</b>
Price Bid

## 5.6 Proforma for Integrity Pact

(Certificate to be furnished by the bidder with the tender document downloaded from INKEL LTD Web-site)

### CERTIFICATE

I/We ..... undertake that the tender submitted by us is downloaded from INKEL Website (www.inkel.in) and is same in content and form (verbatim), and any deviation, of detected, at any stage, would entitle the Employer to reject our bidding/ offer without assigning any reason or recourse to any penal action and would be legally binding on us.

Signature of Bidder

Seal

**5.7 Site/Location wise capacity break up of power plants are given below.**

Sl No	Name of Location	Capacity(kWp)
1	Manathavady	2000
2	110KV Substation,Payangadi	100
3	110KV Substation,Manjeshwaram	400
4	110KV Substation,Pudukad	100
5	110KV Substation,Kattoor	100
6	Balaramapuram Substation	100
7	Thalakkulathur	250
8	KSHEP Power House	100
9	KDPP Premises	150
10	Decommissioned 66KV Substation,Kozhinjampara	250
11	220KV Substation,Mylatty	4000
12	Neyyattinkara 110KV Substation	50
13	220KV Substation,Kanjikode	2000
14	LMSHEP Meenmutty Location	200
15	110KV Substation,Cherppulassery	500
16*	New Location	700

**\*Site Yet to be finalized**

**Note :**

**The capacity of PV modules to be delivered to each site mentioned above are tentative capacity. The capacity at individual site will be confirmed during detailed engineering.**