

Ref No. INKEL/RED/23-24/NIQ-Inverters-3.5MWp/01

Date: 08.02.2024

**Notice for Inviting Quotations**

INKEL Ltd. Invites quotations from suppliers for the supply of ON-Grid Inverters for a site at Mylatty, Kasaragod in Kerala.

Name of Work	Quotations invited for supply of 250KW ON-Grid String Inverters at Mylatty in Kerala for 3.5MW Project
Earnest Money Deposit	Rs. 50,000.00 in form of Demand draft in favour of INKEL Limited payable at Ernakulam.
Tender Fee	Rs. 2,800.00 in the form of Demand draft in favour of INKEL Limited payable at Ernakulam.
Date of publishing bid documents	08.02.2024
Last Date & Time of Submission of Quotation document	22.02.2024, 3:00PM
Opening of Quotation Cover	22.02.2024,04:00PM
Nature of Contract	Supply

**Eligibility Criteria**

The bidder must fulfil the following eligibility criteria.

- a) The bidder must be registered under GST.
- b) The bidder must be OEM manufacturer or Authorised Distributor or Dealer. The bidder who are not OEM should submit a manufacturers authorisation letter/ certificate along with the bid.
- c) The bidder should arrange a testing facility for testing of On-grid inverters during Pre-Dispatch inspection in India as per client requirements mentioned in this tender document.
- d) Bidders shall not be black listed or banned by INKEL/KSEBL or any other Govt. agencies.
- e) The bidder shall have an average annual turnover equal to or more than Rupees One crore in the last five financial years immediately preceding the bid opening date.

**The Scope of Supply & Technical Specifications to be followed is scheduled in Appendix – 1**

**All the Quotation documents are to be submitted as pdf to [tenders.re@inkel.in](mailto:tenders.re@inkel.in) only.**

**“Supply of 250KW Grid Connected String Inverters for 3.5MW Project”**

**To,**  
**Managing Director**  
**INKEL Limited, Door No. 7/473ZA – 5 & 6,**  
**1st Floor, Ajiyal Complex, Kakkanad, Cochin, Pin: 682030**

**Note: Please sign and seal all the pages in the Notice Inviting Quotation and return the same.**

The quotation shall be valid for 04 months reckoned from the date of opening of quotation. Bidder shall extend the bid validity by another 2 months, if so desired by the Purchaser. The decision taken in the INKEL Committee will be final.

The EMD of unsuccessful bidders shall be returned within 30 days from the date of issue of letter of allocation to the successful bidder on bidders' request.

INKEL Ltd reserves the right to modify/cancel any or all quotations without assigning any reasons.

Further details can be had from the office of the General Manager – Renewable Energy Division, INKEL Limited, Door No. 7/473ZA – 5 & 6, 1st Floor, Ajiyal Complex, Kakkanad, Cochin, Pin: 682030 Phone: 0484-2978101.

For bids submitted online, the hardcopies of the Demand Draft (DD) for remittance of Tender fee and EMD shall be submitted offline to INKEL office.

### **Bidding Process**

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

#### **Cover-1: Technical Bid**

1. Covering Letter
2. Copy of GST registration certificate.
3. The entire tender document signed and sealed by the bidder as a token of acceptance of all the terms and conditions of this tender.
4. Copies of IS/IEC standards specified in technical specification
5. Previous experience details if any
6. Copy of accreditations and certifications
7. Catalogue and datasheet
8. Confirmations by Vendor

#### **Cover- 2: Price Bid (Password Protected PDF)**

1. Price Bid as per Appendix 3.

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

Sd/-  
Managing Director

#### **NIQ Annexures:**

1. Appendix 1 - Scope of Supply and Technical Specifications
2. Appendix 2 – Confirmations by Bidder
3. Appendix 3 - Format for Price Bid
4. Appendix 4 – Covering Letter
5. Appendix 5 – Inspection Requirement Table

**Appendix-1**  
**Scope of Supply & Technical Specifications:**

**1. SCOPE OF SUPPLY**

1.1. Manufacturing, Testing, and delivery to Mylatty, Kasaragod district in Kerala as well as commissioning support of Grid Connected Solar Inverters (String) mentioned in this document.

1.2. The estimated cumulative capacity required is 3.5MW.

1.3. Technical Requirements

<b>Sl No</b>	<b>Item</b>	<b>Specification / Requirement</b>
1	System Configuration	250KW String Inverter
2	Type	String inverter with multiple MPPT trackers
3	Technology	Maximum power point Tracking and IGBT based design
4	Max DC Power Capacity	110% rated capacity
5	Efficiency	Greater than 97% ( Test report as per IEC 61683 at 75% load shall be considered for verification )
6	Voltage Ripple	Less than 3 %
7	Operating Temperature	5°C to 50°C
8	Relative Humidity	95% non-condensing
9	Enclosure protection	Minimum IP65 for outdoor as per IEC62208 specifications
10	Cooling	Forced Convection
11	<b>Input DC</b>	
11.1	Maximum Input voltage	1500 VDC
12	<b>Output AC</b>	
12.1	Rated Output Power at 50°C	Equal to DC Capacity at each site
12.2	Frequency	50 Hz ± 10%
12.3	Phases	3 Phase

12.4	Voltage	As per rated inverter output $\pm 10\%$
12.5	Harmonics	Within limits as per IEEE-519 2014
13	Certifications	The Solar inverters supplied shall have valid certifications given below <ol style="list-style-type: none"> <li>1. IEC 60068</li> <li>2. IEC 62116</li> <li>3. IEC 61727</li> <li>4. IEC 62109</li> <li>5. IEC 61683</li> <li>6. IEC 60255</li> </ol>
14	Protections/Features	The inverters shall be protected against the following conditions <ol style="list-style-type: none"> <li>1. Continuous over load</li> <li>2. Over / Under voltage protection on AC side (+10% / -20%)</li> <li>3. LVRT and HVRT feature</li> <li>4. Over / Under frequency (50.5Hz / 47.5Hz)</li> <li>5. DC reverse polarity</li> <li>6. Short circuit protection</li> <li>7. Over voltage protection</li> <li>8. Over heating</li> <li>9. Islanding</li> <li>10. Ground fault and Earth fault</li> <li>11. Overload capacity 150% for 10 seconds</li> <li>12. Surges and lightning ( with type II MOV surge protection device )</li> <li>13. DC Switch/DC Isolator on DC Side</li> <li>14. Night time VAR capability</li> </ol>
15	Alarms	Alarms shall be provided for <ol style="list-style-type: none"> <li>1. Hardware failures</li> <li>2. Internal or external auxiliary supplies</li> </ol> potential free contacts shall be provided for alarms
16	Data logging & monitoring	<ul style="list-style-type: none"> <li>➤ Communication/SCADA interface – RS485 Modbus/Modbus TCP IP</li> <li>➤ Online monitoring function with Wifi / GSM</li> <li>➤ Data logging function shall be provided in the inverters.</li> </ul> Following parameters are to be logged <ul style="list-style-type: none"> <li>▪ Inverter per phase voltage, current, frequency, kW, KVA</li> <li>▪ Grid Voltage and frequency</li> <li>▪ MPPT current and Voltage</li> <li>▪ Ambient temperature</li> <li>▪ Heat sink and panel temperatures</li> <li>▪ Inverter KWh Import and export</li> <li>▪ Inverter status</li> <li>▪ System settings</li> <li>▪ Hours of operation</li> </ul>

		<ul style="list-style-type: none"> <li>▪ Event logs</li> </ul> <p>Vendor shall not limit the data to the data mentioned above. Vendor can provide additional data in case, the data benefits the end user in operation, improving safety and performance. Any additional features such as string current monitoring shall be indicated separately.</p>
17	.OND File	.OND file for each inverter shall be provided for carrying out PVSyst calculations before supply.

## 2. QUALITY ASSURANCE

- 2.1. Quality Plan and Datasheet shall be subject to Purchaser's approval. Inverters shall be subject to pre-dispatch inspection by Purchaser, Client or any third party designated by Purchaser.
- 2.2. Pre-shipment inspection by Purchaser/Client (Factory Acceptance Test) at Bidder's works will include: -
  - ❖ Dimensional and Visual Check
  - ❖ Electrical Tests for functionality and protection features
  - ❖ MPPT tracker test
  - ❖ AC under / over voltage test
  - ❖ Under / Over frequency test
  - ❖ THD measurement
  - ❖ Efficiency measurement
  - ❖ Hi Pot Test
  - ❖ Any other test as required by customer
- 2.3. Successful bidder has to prepare and submit the Quality assurance plan to INKEL for Customer approval.

## 3. Warranty

- 3.1. Inverter shall be warranted for minimum of 5 years and 6 months against all material or manufacturing defects and workmanship from the date of invoice.
- 3.2. All costs for repair including transportation shall be paid by the vendor.
- 3.3. Inverters that do not meet the above criteria shall be replaced/ repaired on site free of cost by Bidder/Supplier.

## 4. PACKING AND IDENTIFICATION

The inverters shall be packed in carton boxes in road worthy packing. Inverters 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 intimation by Purchaser in the absence of which provisions of Liquidated damages.

## 5. DELIVERY

- 5.1. The materials shall be ready for inspection within 10 days from the date of issue of manufacturing clearance.

## **6. TERMS OF PAYMENT**

- 6.1. 20% advance against proforma invoice against BG.
- 6.2. 80% against delivery of inverters at site and site acceptance/GRN.
- 6.3. GST portion will be released only after the reflection of the same on GST2RB.

## **7. GENERAL CONDITIONS**

- 7.1. Inverters shall be manufactured at the factory of OEM for which PO is placed.
- 7.2. Any additional tests / Type tests / Certification required by INKEL /Client shall be compiled.
- 7.3. MANUFACTURING CLEARANCE APPROVAL PROCEDURE
  - 7.3.1. The successful Bidder shall submit the Datasheet, user manual and Quality assurance plan of the solar inverters for approval.
  - 7.3.2. Bidder shall provide test certificates corresponding to standards mentioned above along with complete test reports for proposed model of solar inverters from MNRE approved Laboratories
  - 7.3.3. The Bidder shall submit a detailed manufacturing quality plan for Inverter with list of checks / tests performed during incoming material inspection, production, pre- dispatch and package.

## **8. MANUFACTURING AND INSPECTION**

- 8.1. The manufacturing shall start only after clearance by the Purchaser after approval.
- 8.2. The Bidder shall inform the inspection date to INKEL at least 05 working days before the proposed schedule of inspection.
- 8.3. Inspection of inverters shall be performed as per the inspection procedure mentioned in the inspection requirement table (IRT).
- 8.4. Tests mentioned in the IRT are minimum test requirements. Bidder shall make all arrangements for testing without any additional costs.

**Appendix – 2  
CONFIRMATIONS BY BIDDER**

<b>Sl No</b>	<b>Item</b>	<b>Acceptance by Vendor ( Yes / No )</b>
1	Max DC Power Capacity higher than 110% rated capacity	
2	Harmonics within limits as per IEEE-519 2014	
3	Facility to conduct Factory acceptance tests as per IRT	
4	Efficiency greater than 97% ( Test report as per IEC 61683 at 75% load shall be considered for verification )	
5	Type Test Certificate availability as per Technical Requirements	

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**Signature of Vendor Bidder with Stamp**

**Appendix - 3**  
(To be filled by bidder)

**PRICE DETAILS:**

<b>Category -II - String Inverters</b>								
<b>Sl No</b>	<b>Make</b>	<b>Model No</b>	<b>Capacity of inverter</b>	<b>No of Inverters</b>	<b>Price of one inverter</b>	<b>Total Rate (Basic)</b>	<b>GST</b>	<b>Total price ( All inclusive )</b>
1			250KW	14				
<b>Total Cost in words ( All inclusive in Rupees)</b>								

**Terms and Conditions:**

1. The above price inclusive of loading, Transportation to site, Unloading at site, GST, all taxes and duties.
2. Validity of the Quotation is 120 days from the date of opening of quotation. Bidder shall extend the bid validity by another 2 months, if so desired by the Purchaser.
3. The quoted price shall be deemed inclusive of expenses for conducting factory acceptance tests.

Bidder Name:

Signature .....

Date:

Official Seal



**Appendix – 4**  
**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 250KW ON-Grid String Inverters at Mylatty, Kasaragod in Kerala for 3.5MW Project.

Dear Sir,

We, the undersigned.....[insert name of the 'Bidder'] having read, examined and understood in detail the RFQ document for Supply of 250KW ON-Grid String Inverters at Mylatty, Kasaragod in Kerala for 3.5MW Project, hereby submit our quotation comprising of technical and commercial Bid.

1. We give our unconditional acceptance to the NIQ terms and conditions, dated..... issued by INKEL Limited, and as amended. We shall ensure that we execute the works as per the provisions of the NIQ and all provisions of such NIQ shall be binding on us.
2. We have submitted our Price Bid strictly as per terms of this NIQ 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 NIQ shall be binding on us. We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfil our obligations with regard to execution of projects of capacity offered by us.
4. We are enclosing herewith the Cover-I (Technical bid) and Cover II (Price Bid) containing duly signed formats, each one duly sealed separately as desired by you in the NIQ for your consideration.
5. It is confirmed that our Bid is consistent with all the requirements of submissions stated in the NIQ and subsequent communications from INKEL Limited. The information submitted in our quotation is complete, strictly as per the requirements stipulated in the NIQ and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our quotation. We confirm that all the terms and conditions of our quotation are valid for acceptance for a period as stated in the NIQ document. We confirm that we have not taken any deviation so as to be deemed non responsive.

Thanking you,  
Yours faithfully,  
(Authorised Signatory of the Bidder)

**Appendix -5**

**INSPECTION REQUIREMENTS TABLE (SOLAR ON GRID INVERTERS)**

Activity No	Inspection by CLIENT			Stages of Inspection
	Inspection by INKEL/PURCHASER			
	Certificates / Compliance to be submitted by Vendor for Review / Approval			
1	A	R	X	Quality Assurance Plan/ Inspection and Test Plan & FAT Procedure
2	R	R	X	Report of Tests: Routine Test, Type Test, Test certificate
4	W	W	X	Visual inspection, Dimensional check, Name plate, Workmanship
5	R W	R W	X	Electrical Tests and Functionality tests
7	R W	R W	X	Dielectric Withstand (Hi pot) test
8	R W	R W	X	Insulation Resistance
9	R W	R W	X	Ground Continuity 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