

Ref No. INKEL/RED/2023-24/NIQ-Inverters-160kWp Tvm/01
Date:17.10.2023

Notice for Inviting Quotations

INKEL Ltd. Invites sealed quotations from financially and technically sound reputed suppliers for the supply of ON-Grid Inverters at various site locations in Kerala.

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|--|--|
| Name of Work | Quotations invited for supply of ON-Grid Inverters for the quantity of 160kWp at Trivandrum District in Kerala |
| Date of publishing bid documents | 17.10.2023 |
| Last Date & Time of Submission of Quotation document | 24.10.2023,03:00PM |
| Opening of Quotation Cover | 24.10.2023,04:00PM |
| 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. (Authorization letter to be submitted along with quotation)
- c) The PCU Company/OEM should have grid connected solar plants running in the country with inverters at least 10 years from the time of bidding to showcase the service reliability and long-term presence. Also, the PCU/OEM should have local presence in the county for at least last 5 years.

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

All the Quotation documents are to be submitted by Password Protected PDF via email - : tenders.re@inkel.in or Speed post or courier in the designated covers on the below address by mentioning name of Supply.

**To,
The 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.

Bidder can quote price bid with three options of payment terms.

The quotation shall be valid for 1 month reckoned from the date of opening of quotation. No correspondence would be made with the bidders once the quotation is submitted. The decision taken in the INKEL Committee will be final.

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, Ext code:300.

Bidding Process

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

Cover-1: Technical Bid

1. Copy of GST registration certificate.
2. The bidder must be OEM manufacturer or Authorised Distributor or Dealer.
(Authorization letter to be submitted along with quotation)
3. The entire tender document signed and sealed by the bidder as a token of acceptance of all the terms and conditions of this NIQ.
4. Contact form of Appendix-2 should be filled.
5. Copies of IS/IEC standards specified in Technical specification
6. Copy of accreditations and certifications
7. Catalogue and datasheet

Cover- 2: Price Bid

1. Price Bid as per Appendix 3.

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.

Sd/-
Managing Director

NIO Annexures:

1. Appendix 1 - Scope of Supply and Technical Specifications
2. Appendix-2- Contact Form
3. Appendix 3 - Format for Price Bid

Appendix-1
Scope of Supply & Technical Specifications:

1. Scope of Supply

The scope includes the supply of On-Grid (grid Tied) Solar Inverters with BIS certifications as per given standards.

Schedule of Supply:

- The bidder should complete the Supply of On-Grid (Grid Tied) Solar Inverters within 10days from the date of issue of purchase order/payment.
- Price validity should be 30 days from the date of opening of quotation.
- Warranty of On-Grid inverters should be 10years from the date of commissioning.

2. Delivery Schedule:

| Site Name | Delivery Needed | Site Capacity | Inverter Specification | Project Specific Requirement |
|---|-----------------|---------------|---|---|
| ANERT-SMART CITY, Trivandrum District, Kerala | 3 locations | 160kWp | i. 80kWp Three Phase-1nos ii. 60kWp Three Phase-1nos iii. 10kWp Three Phase-1nos iv. 5kWp Three Phase-1nos v. 5kWp Three Phase-1nos | The PCU Company should have grid connected solar plants running in the country with inverters at least 10 years from the time of bidding to showcase the service reliability and long-term presence. Also, the PCU should have local presence in the county for at least last 5 years. The PCU manufacturer may need to provide authentic details to customer if asked to prove the same. |
| Total: 160kWp | | | | |

3. Technical Specifications

The Technical Specifications for On-Grid (Grid Tied) Solar Inverter are given below;

| Sl.No. | Item Description | Inverter Specification | Quantity (Nos) | Project Specific Requirement | Standard |
|--------|---------------------------------------|------------------------|----------------|---|---|
| 1 | ON-Grid Inverter With Wifi-Monitoring | 80kW Three Phase | 1 | The PCU Company should have grid connected solar plants running in the country with inverters at least 7 years from the time of bidding to showcase the service reliability and long-term presence. Also, the PCU should have local presence in the county for at least last 5 years. The PCU manufacturer may need to provide authentic details to customer if asked to prove the same. Warranty shall be 10 years | As per MNRE standards 1. IEC 62109 2. IEC 62116 3. IEC 61683 4. IEC 60068-2 (1, 2, 14,30) |
| 2 | | 60kW Three Phase | 1 | | |
| 3 | | 10kW Three Phase | 1 | | |
| 4 | | 5kW Three Phase | 1 | | |
| 5 | | 5kW Three Phase | 1 | | |

The inverter output shall be 415 Vac, 50 Hz for 3 phase & 230Vac, 50Hz for single phase.

The Technical Specification of On-Grid (Grid Tied) Solar Inverter are summarized below:

| Specifications of Inverters | |
|--|---|
| Parameters | Detailed specification |
| Nominal voltage | 230V for Single Phase & 415V for Three phase |
| Voltage Band | Between 80% and 110% of V nominal |
| Nominal Frequency | 50 Hz |
| Operating Frequency Range | 47.5 to 50.5 Hz |
| Waveform | Sine wave |
| Harmonics | AC side total harmonic current distortion < 3% |
| Ripple | DC Voltage ripple content shall be not more than 1% |
| Efficiency | Efficiency shall be >98% |
| Casing protection levels | Degree of protection: Minimum IP-65 for outdoor units |
| Operating ambient Temp range | -10 to + 60 degree Celsius |
| Operation | Completely automatic including wakeup, synchronization (phase locking) and shut down |
| MPPT | MPPT range must be suitable to individual array voltages |
| Protection class | 1 |
| Protections | Over voltage: both input and output Over current: both input and output Over / Under grid frequency Over temperature Short circuit Lightning Surge voltage induced at output due to external source Islanding Voltage and frequency protection setting shall be visible for verification and the same shall be set at site as per DISCOM requirements |
| Ingress Protection | IP 65 for Outdoor |
| Recommended LED indications | ON Grid ON Under/ Over voltage Overload Over temperature |
| Recommended LCD Display on front Panel | DC input voltage DC current AC Voltage (all 3 phases) AC current (all 3 phases) Frequency Ambient Temperature Instantaneous power Cumulative output energy Cumulative hours of operation Daily DC energy produced |
| Communication Interface | RS485/ RS232/Wi-Fi (with or without USB) |

The IEC Certifications of On-Grid (Grid Tied) Solar Inverter are summarized below:

| Standard | Description |
|-------------------------------|--|
| IEC 61683 | Photovoltaic systems - Power conditioners - Procedure for measuring efficiency |
| IEC 61727 | Photovoltaic (PV) systems- Characteristics of the utility interface |
| IEC/EN 62109-1 | Safety of power converters for use in photovoltaic power systems - Part 1: General requirements |
| IEC/EN 62109-2 | Safety of power converters for use in photovoltaic power systems - Part 2: Particular requirements for inverters |
| IEC/EN 61000-3-3/ 3-11/ 3-5 | Electromagnetic compatibility (EMC) - Part 3-11; Limits; Limitation of Voltage Change, Voltage Fluctuations and Flicker in Public Low-Voltage Supply Systems; Rated Current <16A / >16A and <75A / >75A per Phase respectively |
| IEC/EN 61000-3-2/ -3-12/ -3-4 | Electromagnetic compatibility (EMC) - Part 3-12; Limits; Limits for Harmonic Currents produced by equipment connected to the public low voltage systems with Rated Current <16A / >16A and <75A / >75A per Phase respectively |
| IEC 62116 | Utility-interconnected photovoltaic inverters - Test procedure of islanding prevention measures |
| IEC 60068-2-1 | Environmental testing - Part 2-1: Tests - Test A: Cold |
| IEC 60068-2-2 | Environmental testing - Part 2-2: Tests - Test B: Dry heat |
| IEC 60068-2-14 | Environmental testing - Part 2-14: Tests - Test N: Change of temperature |
| IEC 60068-2-30 | Environmental testing - Part 2-30: Tests - Test Db., Damp heat, cyclic (12 h + 12 h cycle) |

Warranty:

- The Warranty Card to be supplied with the system must contain the details of On-Grid(Grid Tied) Solar Inverter supplied including serial number.
- **For inverters mentioned for ANERT smart city project, Trivandrum 80kW Three phase,60kW ThreePhase,10kW Three Phase,5kW Three Phase,5kW Three Phase all need 10 years warranty period from the date of commissioning.**

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Appendix – 2
CONTACT FORM

| | |
|---|--|
| Name of the Firm | |
| Complete Office Address with Phone Number and E-mail ID | |
| Type of Ownership | |
| GST No. | |
| PAN | |
| Year of Establishment | |
| Name of Contact Person with Designation | |
| Mobile Number & E-mail ID of the Contact Person | |

Appendix-3
Price Bid Details with payment
term option-1
(To be filled by Bidder)

| S l N o | Site Name | Capacity (kVA) | No of Inverters Req(Nos) | Make& Model of PCU | Capacity of inverter | Price per inverter (Rs) | Total Rate (Basic) (Rs) | GST (Rs) | Total price(All inclusive) (Rs) |
|---|---|------------------------|--------------------------------|--------------------------|----------------------------|-------------------------------|----------------------------------|-------------|--|
| 1 | ANERT Smart City- 160kWp Trivandr um | 80kW Three Phase | 1 | | | | | | |
| 2 | | 60kW Three Phase | 1 | | | | | | |
| 3 | | 10kW Three Phase | 1 | | | | | | |
| 4 | | 5kW Three Phase | 1 | | | | | | |
| 5 | | 5kW Three Phase | 1 | | | | | | |
| Total Price in figures.(Rs)(All Inclusive) | | | | | | | | | |
| Total Price in words.(Rs)(All Inclusive) | | | | | | | | | |

Terms and Conditions:

- 1 The above price is inclusive of loading, Transportation to site, Transit insurance, GST, all taxes and duties.
- 2 Payment terms :
 - 10% Payment will be released as advance (GST will be released on reflecting GSTR2B)
 - Balance 90% payment will be released before the dispatch of materials. Vendor shall submit serial no of inverters before the dispatch of inverters. (GST will be released on reflecting GSTR2B).
- 3 Validity of the Quotation is 30 days from the date of opening of quotation.
- 4 Any deviation will have loading factor decided by the management while evaluating the tender.

Bidder Name:

Signature

Official Seal

Date:

Appendix-3
Price Bid Details with payment
term option-2
(To be filled by Bidder)

| S l N o | Site Name | Capacity (kVA) | No of Inverters Req(Nos) | Make& Model of PCU | Capacity of inverter | Price per inverter (Rs) | Total Rate (Basic) (Rs) | GST (Rs) | Total price(All inclusive) (Rs) |
|---|------------------------------------|------------------|--------------------------|--------------------|----------------------|-------------------------|-------------------------|----------|---------------------------------|
| 1 | ANERT Smart City-160kWp Trivandrum | 80kW Three Phase | 1 | | | | | | |
| 2 | | 60kW Three Phase | 1 | | | | | | |
| 3 | | 10kW Three Phase | 1 | | | | | | |
| 4 | | 5kW Three Phase | 1 | | | | | | |
| 5 | | 5kW Three Phase | 1 | | | | | | |
| Total Price in figures.(Rs)(All Inclusive) | | | | | | | | | |
| Total Price in words.(Rs)(All Inclusive) | | | | | | | | | |

Terms and Conditions:

- 1 The above price is inclusive of loading, Transportation to site, Transit insurance, GST, all taxes and duties.
- 2 Payment terms :
100% Payment will be released with 30 days credit from the date of invoice.(GST will be released on reflecting GSTR2B)
- 3 Validity of the Quotation is 30 days from the date of opening of quotation.
- 4 Any deviation will have loading factor decided by the management while evaluating the tender.

Bidder Name:

Signature

Official Seal

Date:

Appendix-3

Price Bid Details with payment term option-3

(To be filled by Bidder)

| S l N o | Site Name | Capacity (kVA) | No of Inverters Req(Nos) | Make& Model of PCU | Capacity of inverter | Price per inverter (Rs) | Total Rate (Basic) (Rs) | GST (Rs) | Total price(All inclusive) (Rs) |
|--|---|------------------------|--------------------------------|--------------------------|----------------------------|-------------------------------|----------------------------------|-------------|--|
| 1 | ANERT Smart City- 160kWp Trivandr um | 80kW Three Phase | 1 | | | | | | |
| 2 | | 60kW Three Phase | 1 | | | | | | |
| 3 | | 10kW Three Phase | 1 | | | | | | |
| 4 | | 5kW Three Phase | 1 | | | | | | |
| 5 | | 5kW Three Phase | 1 | | | | | | |
| Total Price in figures.(Rs)(All Inclusive) | | | | | | | | | |
| Total Price in words.(Rs)(All Inclusive) | | | | | | | | | |

Terms and Conditions:

- 1 The above price is inclusive of loading, Transportation to site, Transit insurance, GST, all taxes and duties.
- 2 Payment terms :
100% Payment will be released through LC with 45 days credit. Only LC opening charges is on INKEL LTD account, the rest charges will be vendor account. (GST will be released on reflecting GSTR2B)
- 3 Validity of the Quotation is 30 days from the date of opening of quotation.
- 4 Any deviation will have loading factor decided by the management while evaluating the tender.

Bidder Name:

Signature

Official Seal

Date: