

Notice Inviting Quotations

Ref No. INKEL/RED/NIQ-Transformers-11MWp/02

Date: 01.04.2024

INKEL Ltd. invites sealed competitive quotations from financially and technically sound reputed suppliers for the supply along with commissioning support of transformers at various site locations in Kerala, for Grid Connected Ground Mount Solar Power Plants for KSEBL as per given standards and specifications.

Name of Work	Supply, testing, delivery and commissioning support for transformers at various site locations in Kerala for Grid Connected Ground Mount Solar Power Plants for KSEBL as per given standards and specifications.
Date of publishing bid documents	01.04.2024
Tender Fee	Rs. 2,950.00 in the form of Demand draft in favour of INKEL Limited payable at Ernakulam.
Earnest Money Deposit	Rs. 50,000.00 in form of Demand draft in favour of INKEL Limited payable at Ernakulam.
Last Date & Time of Submission of Quotation document	11.04.2024, 03:00 PM
Opening of Quotation Cover	11.04.2024, 04:00 PM
Nature of Contract	Supply, testing, delivery and commissioning support
Time of Completion of Project	30 Days from Manufacturing Clearance

Eligibility Criteria:

The bidder must fulfil the following eligibility criteria:

- i. The bidder must be registered under GST.
- ii. 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.
- iii. The bidder should arrange a testing facility for testing of transformers during Pre-Dispatch inspection as per client requirements mentioned in this tender document.

- iv. Bidders shall not be black listed or banned by INKEL/KSEBL or any other Govt. agencies.
- v. 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 Technical specifications and scope of work and to be executed in site is scheduled in Appendix – 1.

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.

The Delivery schedule shall be stated in the Purchase Order which will be issued to the successful bidder.

All the Quotation documents are to be submitted as pdf to tenders.re@inkel.in only, by mentioning name of work:

“Supply, testing, delivery and commissioning support for transformers at various site locations in Kerala for Grid Connected Ground Mount Solar Power Plants for 11MWp KSEBL 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 Limited Quotation and return the same.

The quotation shall be valid for 120 days reckoned from the date of opening of quotation and the validity shall be extended by another 2 months, if so desired by the Purchaser.

The decision taken by INKEL will be final. INKEL Ltd reserves the right to modify/cancel any or all quotations without assigning any reasons thereof.

Further details can be had from the office: INKEL Limited, Door No. 7/473ZA – 5 & 6, 1st Floor, Ajiyal Complex, Kakkanad, Cochin, Pin: 682030; email address: tenders.re@inkel.com.

Bid Submission Checklist

The bidder shall submit the following:

1. The entire NIQ signed and sealed as a token of acceptance of terms and conditions.
2. Contact Form duly filled and signed as per Appendix 2

3. Copy of GST registration certificate and PAN.
4. Copy of Certificate of Incorporation/ Registration Certificate
5. Copy of ISO certification.
6. Audited Balance Sheet for Last 3 Financial Years
7. Duly filled GUARANTEED TECHNICAL PARTICULARS as per Appendix 3
8. Price Bid as per Appendix 4 (Password Protected PDF).

NLQ Annexures:

1. Appendix 1: Scope of Work and Technical Specifications
2. Appendix 2: Contact Form
3. Appendix 3: Guaranteed Technical Particulars
4. Appendix 4: Format for Price Bid

Appendix-1

1. SCOPE OF WORK AND TECHNICAL SPECIFICATION

1.1. SCOPE OF SUPPLY

1.1.1. Manufacturing, Testing, delivery to various sites in Kerala along with commissioning support of transformers for solar application as mentioned in this document.

1.1.2. The required site-wise capacity breakup is given below:

Sl. No.	Site Name	District	Solar Capacity (kWp)	Transformer Required	Voltage Ratio LV/HV
1	220kV substation Kanjikkode	Palakkad	2000	2000 kVA	0.800/22 kV
2	Pole Casting Yard, Manathavady	Wayanad	2000	2000 kVA	0.800/11kV
3	220kV Substation Mylatty	Kasargode	3500	2nos ×2000 kVA	0.800/11kV

Table 1 – Site-wise Transformer Capacity Breakup

1.2. TECHNICAL REQUIREMENTS

1.2.1. Transformers should comply to IS2026. Transformers shall have all relevant monitoring and protection devices as per the relevant Indian Standards.

1.2.2. The transformer manufacturer shall provide test certificates carried out on the transformers as per relevant IS standards.

1.2.3. The transformer shall be suitable for solar applications (converter duty).

1.2.4. Transformers shall be equipped with an electrostatic shield between the HV and LV windings and earthing provision for the same.

1.2.5. HV and LV terminations shall be through cable box.

1.2.6. The specification shall be as per the Guaranteed Technical Particular (GTP) datasheet in Clause 1.8.

1.3. QUALITY ASSURANCE

1.3.1. Quality Plan and Datasheet shall be subject to INKEL's approval. Transformers shall be subject to pre-dispatch inspection (FAT) by INKEL/Client or any agency, designated by INKEL.

1.3.2. Pre-dispatch inspection by INKEL/Customer at vendor works will include: -

- a) Dimensional and Visual Check
- b) IR Test
- c) Winding Resistance Test
- d) Magnetic Balance Test
- e) No Load Test
- f) Vector Group Test
- g) Voltage Ratio Test
- h) Load Test and % Impedance
- i) Induced Over Voltage withstand Test
- j) Oil breakdown voltage Test (IS 6792)
- k) Polarization Index Test

1.3.3. Successful bidder has to prepare and submit the Quality assurance plan to INKEL/ Customer approval.

1.4. WARRANTY

1.4.1. 60 months warranty shall be provided for the transformers against all manufacturing defects. All costs for repair including transportation shall be paid by the vendor during this warranty period.

1.4.2. Transformers that do not meet the above criteria shall be replaced/ repaired on site free of cost at INKEL's sole discretion.

1.5. DELIVERY

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

1.6. TERMS OF PAYMENT

1.6.1. 20% advance along with purchase order.

1.6.2. 70% against proforma invoice before dispatch after completion of FAT.

1.6.3. 10% against delivery of Transformer at site.

1.7. MANUFACTURING CLEARANCE APPROVAL PROCEDURE

1.7.1. The successful vendor shall submit the Guaranteed technical Particular (GTP), Datasheet, Bill of Materials (BOM), General Arrangement Drawing and Quality assurance plan of the module for approval.

1.7.2. Vendor shall provide type test certificates corresponding to standards mentioned above.

1.7.3. The vendor shall submit a detailed manufacturing quality plan for Transformer with list of checks / tests performed during incoming material inspection, production, pre- dispatch and package.

1.7.4. The manufacturing shall start only after clearance by INKEL after approval as above.

1.8. FACTORY ACCEPTANCE TEST (FAT)/ PRE-DISPATCH INSPECTION

- 1.8.1. Transformers shall be dispatched only after obtaining Dispatch Clearance from INKEL.
- 1.8.2. Officials from INKEL along with representatives from end Client (Kerala State Electricity Board Limited) will witness the tests conducted at factory.
- 1.8.3. The following tests shall be conducted as part of the inspection:
 - a) Measurement Of Winding Resistance [IS-2026 Part-1].
 - b) Measurement of Voltage Ratio and Check of Phase Displacement [IS-2026 Part-1].
 - c) Measurement of short circuit impedance & Load Loss [IS-2026 Part-1].
 - d) Measurement of No-Load loss & No-Load Current [IS-2026 Part-1].
 - e) Measurement of Insulation Resistance [IS-2026 Part-1].
 - f) Induced over voltage Withstand Test [IS-2026 Part-1].
 - g) Separate Source Voltage Withstand Test [IS-2026 Part-1].
 - h) Oil Leakage Test [IS-2026 Part-1].
 - i) Measurement of Di-Electric Strength of oil.
 - j) Magnetic Balance Test.
- 1.8.4. Inspection of transformers shall be performed as per the inspection procedure mentioned in the inspection requirement table (IRT).
- 1.8.5. Tests mentioned in the IRT are minimum test requirements. Vendor shall make all arrangements for testing without any additional costs.
- 1.8.6. Local conveyance and accommodation for visiting officials shall be arranged by the vendor.

1.9. INSPECTION REQUIREMENTS TABLE (SOLAR TRANSFORMERS)

Activity No	Inspection by CLIENT			
	Inspection by INKEL			
	Certificates / Compliance to be submitted by Vendor for Review / Approval			
	Stages of Inspection			
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 as per IS 2026
6	R	R	X	Insulation Resistance

	W	W		
7	Is	R	X	Issue and documentation at Vendor place (Inspection release Note)
8	W	W	H	Verification of Components as per Inspection release note (IRN)
9	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

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	

Name of Authorized Signatory:

Signature

Seal

Date:

Official

Appendix-3

GUARANTEED TECHNICAL PARTICULARS

(To be furnished for each capacity offered)

Step-Up Transformer				
Sl. No.	Particulars	Required		Detailed Specifications Offered
1	Type	Conventional type, oil immersed for outdoor use		
2	Winding Connections (HV/LV)	High Grade Electrolytic Copper		
3	Rating (kVA)	As per Table 1		
4	Rated frequency	50Hz		
5	Number of phases HV side LV side Neutral (separate outside)	3 phase / 3 phase		
6	Rated Voltage a) HV winding kV b) LV winding kV	HV - 11kV/22kV (As per Table 1) LV - 800V		
7	Vector group	Dyn11		
8	% Impedance	As per IS		
9	Type of cooling	ONAN		
10	Insulation level a) Power frequency withstand kV rms (HV/LV) b) Impulse withstand voltage kV (HV/LV)	11kV TRF a) 28kV/3kV b)75 kV/- As per IS	22kV TRF a) 50 kV/3 kV b)125 kV/- As per IS	
11	Method of Earthing	Solidly earthed		
12	Duty Cycle	Peak Load of 5Hrs in 24Hrs cycle		
13	Short circuit level	50kA		
14	Off circuit tap changer: a) Range % b) In steps of c) Tapping provided on HV side			
15	Tap changer type	OCTC		
16	Overload Capacity	As per IS:6600 - 1972/IEC 60354 No load limit imposed by bushing tap etc.		

Step-Up Transformer			
Sl. No.	Particulars	Required	Detailed Specifications Offered
17	Impedance voltage at 75 deg C a) At principal tapping %		
18	Temperature rises above 50°C ambient a) Top of oil by thermometer °C b) Winding by resistance °C		
20	Terminal details a) HV side b) LV side	a) Cable Box b) Cable Box	
21	Losses (at 75 deg C and principal tapping) a) No load loss at rated voltage, Kw and frequency b) Load loss at rated current Kw (ONAN) c) Total losses at maximum rated power Kw		
22	Efficiency at 75°C and 0.9 PF a) At full load (ONAN) % b) At 75% load (ONAN) % c) At 50% load (ONAN) %		
23	Losses at 50% load	As per IS2026	
24	Losses at 100% Load	As per IS2026	
25	Flux Density		
26	Hot spot temperature in winding limit to °C		
27	Material of Earth conductor		
28	Material of Winding conductor		
29	Dimensions a) Height m b) Breadth m c) Length m		
30	Painting	RAL 7032/7035	
31	Thickness of Sheet used for Tank	As per IS	
32	Data for SCADA over RS485	Winding Temperature Oil Temperature	

Step-Up Transformer			
Sl. No.	Particulars	Required	Detailed Specifications Offered
		Oil Level Winding and Oil Temperature trip and alarm	
33	Reference Standards	IS:2026	
34	Cable Terminations	HV – Cable Box LV – Cable Box	
35	Electrostatic Shield	Between LV & HV	
36	Standard Fittings and Accessories		
37	Type Test Certificates	As per IS (Copies to be enclosed)	

Appendix – 4

Price Bid

(To be filled by Bidder)

Sl. No	Site Name	Solar Capacity (kWp)	Transformer Required	Voltage Ratio LV/HV	Unit (Nos)	Unit Price (Rs.) (excl. GST)	Amount (Rs.) (excl. GST)
1	220kV substation Kanjikkode	2000	2000 kVA	0.800/22 kV	1		
2	Pole Casting Yard, Manathavady	2000	2000 kVA	0.800/11 kV	1		
3	220kV Substation Mylatty	3500	2000 kVA	0.800/11 kV	2		
Total Amount for Sl. 1 to 3 above (Excl. GST) (Rs.) (A)							
GST (..... %)							(B)
Total Amount (Including GST) (Rs.) (A+ B)							

Terms and Conditions:

1. The above unit price is inclusive of loading, Transportation to site, Transit insurance, all taxes and duties and all other services as per Appendix 1 (Technical Specification).
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.

By submitting this quotation, it is hereby confirmed that the quotation is consistent with all the requirements stated in the NIQ and subsequent communications from INKEL Limited, without having taken any deviation so as to be deemed non responsive. Bidder would be solely responsible for any errors or omissions in our quotation.

Signature:

Name of Authorized Signatory:

Bidder's Name:

Address:

Date:

Official Seal: