Ref. No: IL/RED/NIQ/2025-2026/O&M/013

Date: 23-12-2025

Creating Infrastructure
A PPP INITIATIVE OF GOVERNMENT OF KERALA

Notice for Inviting Tender

INKEL Ltd. Invites competitive quotes from financially and technically sound reputed Contractor for Operation and Maintenance of Total 12.6 MWp Grid connected Ground Mounted Solar Power Plants installed by INKEL limited at various locations in Kerala.

Name of Work	Operation and Maintenance of Total 12.6MWp Grid connected Ground Mounted Solar Power Plants installed by INKEL limited at Various locations in Kerala
Date of publishing bid documents	23-12-2025
Last Date & Time of Submission of Quotation document	05-01-2026
Tender Fee	Rs. 1000 + GST (Can be paid online or in the form of Demand Draft in favour on INKEL Limited payable at Ernakulam)
Opening of Quotation Cover	
Nature of Contract	Work Contract
Period of Contract	A period of five 5 years from the date of site handover, or up to the date of handover to the end client, whichever event occurs earlier

1. Eligibility Criteria

The bidder must fulfil the following eligibility criteria to participate in the tender.

a) The bidder must be registered under GST.
b) The Bidder should be an experienced Solar PV System Integrator or ANERT accredited Urjamitra centre or Electrical substation O&M service provider.

c) **The bidder shall be responsible for meeting all statutory compliances ESI or PF, as applicable are only eligible for this work.**

d) The bidder must have experience in carrying out operation and Maintenance of Ground Mounted solar power plants with HT infrastructure.

The Scope of Works & Technical Specifications to be executed in site is scheduled in Appendix – 1

All the bids are to be submitted as given in two covers **Cover 1 - Documents to prove eligibility, cover 2 – Price Bid Appendix – 2** by Speed post or Online in the below address by mentioning name of work. The quotations submitted online shall be in the form of password protected pdf on email-ID **tenders.re@inkel.in** and the password shall be shared upon request during bid opening.

To,
Deputy General Manager – RE
INKEL Limited, Door No. 7/473ZA – 5 & 6,
1st Floor, Ajiyal Complex, Kakkanad, Cochin, Pin: 682030

Note: Please sign and seal all the pages of the Tender documents and return the same.

The quotation shall be valid for 60 days reckoned from the date of opening of quotation. No correspondence would be made with the bidders once the quotation is submitted. The Bidder shall visit the site before submitting the quotation and later queries will not allowed. 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.

2. Location Details: -

The list of sites is given in Appendix 2. The bidder should visit sites and submit quote as per site conditions. For site visit permissions, bidder may contact INKEL office at the details below.

Further details can be had from the office of the Deputy General Manager – RE, INKEL Limited, Door No. 7/473ZA – 5 & 6, 1st Floor, Ajiyal Complex, Kakkanad, Cochin, Pin: 682030 Phone: 0484-2978101, Ext code:503 E-mail: **tenders.re@inkel.in**

3. Bid Submission Checklist

The bidder shall submit the following:

1. Tender Fee.
2. The entire Tender document signed and sealed as a token of acceptance of terms and conditions.
3. Price Bid as per Appendix 2. Bidder may choose to quote for one or more or all the locations and the price bid is to be filled up accordingly.
4. Copy of GST registration certificate.
5. Copy of ESI/PF registration details.
6. Document to prove eligibility criteria.

4. Payment Terms

4.1. The contractor has to submit a performance guarantee for 5% of the yearly O&M contract value that has been awarded to him after award of contract before entering into the contract agreement. This can be in the form of a Bank Guarantee or Lien marked Fixed Deposit Receipt valid till the end of the contract period. Performance guarantee will be released only after successful completion of the contract.

4.2. 25% of contract value (Total Annual Amount) for each site shall be released to the contractor every 3months from the date of handing over, subject to submission of following documents to INKEL.

4.2.1. Invoice for O&M conducted for each site

4.2.2. Quarterly O&M, Generation reports to INKEL verified and certified by End client if applicable.

4.2.3. Yearly PR test report.

4.2.4. Muster Roll, Wage register, PF & ESI documents or any other statutory documents applicable.

4.2.5. Verification and certification of Maintenance activities and above documents by INKEL Limited.

4.2.6. Liquidated damages if any shall be deducted from bills payable to contractor.

4.2.7. Payment for spares replaced during the O&M period shall be released on submission of invoice. Replacement of spares after receiving approval from INKEL.

4.2.8. Payment for spares will be released at rate mutually agreed by INKEL and the contractor. Contractor has to submit details of spare parts and get approval from INKEL before purchase.

5. Liquidated Damages

The contractor shall be liable to pay liquidated damages to INKEL Limited for plant outage. If the plant outage (partial or full outage) is due to component failure as a result of lack of proper maintenance and unless it is rectified within 7 days in the case of major component failure from the date of intimation to the contractor. Contractor is liable for Liquidated Damages. The monetary compensation for the plant outage days shall be computed as given below: -

4Kwh/kwp/Day X Solar power plant capacity in KWp X (Rs 5 or Average pooled Purchase cost of KSEBL whichever is higher) X No of days of outage

The compensation will be deducted from the payments to the contractor till the same is rectified. Average pooled cost of power purchase will be revised by KSERC for each year. Monetary compensation shall be computed as the difference between the guaranteed value and actual value (from the meter reading) multiplied by the Rs 5 or average pooled power purchase cost of KSEBL per unit whichever is higher.

6. Termination of Contract

INKEL may terminate at any time during the contract period by giving termination notice to the contractor under the following circumstances.

6.1. Contractor fails to fulfill the obligations under this contract.

6.2. Contractor does not apply due diligence in carrying out operation and maintenance activities.

6.3. Contractor breaches or compromises safety of the personnel and equipment at site and nearby customer premises.

6.4. Works carried out by contractor is unsatisfactory.

6.5. All claims of the contractor shall be declined and INKEL will not have any obligation to pay the contractor if termination notice is issued to contractor for above mentioned reasons.

NIQ Annexures:

1. Appendix 1 - Scope of Work and Technical Specifications
2. Appendix 2 - Site details
3. Appendix 3 - Contact Form
4. Appendix 4 - Format for Price Bid

APPENDIX -1

SCOPE OF WORKS & TECHNICAL SPECIFICATIONS

1. Operation And Maintenance of Solar Power Plants –Kerala

The scope of work for bidders is as follows:

1.1. Nature of work

Operation and Maintenance every equipment of the Ground Mounted Solar power plants installed by INKEL as specified in this tender document.

1.2. Contract Period

A period of five 5 years from the date of site handover, or up to the date of handover to the end client, whichever event occurs earlier

1.3. Operation & Maintenance

Contractor has to mandatorily carry out all the O&M, periodic and shutdown for the period mentioned in the tender.

1.4. Performance Ratio

The Performance ratio shall be minimum **75%**.

1.5. Permits/clearances/ sanction/ connectivity

The contractor shall bear responsibility for obtaining clearances from end user / Client for carrying out repairing and maintenance activities at site.

1.6. Schedule of work:

a) Operation and maintenance schedules for following components including preventive maintenance.
   a. PV Modules
   b. Grid connected Solar inverters
   c. Transformers
   d. Cables LT & HT
   e. LT & HT Panels
   f. Double pole structure
   g. UPS and batteries
   h. Control room & Equipment
   i. Pumps and Cleaning equipment
   j. Firefighting & protection equipment

2. Scope of Works – Operation and Maintenance of The Plant

The contractor shall be responsible for Comprehensive Operation and maintenance of the Solar Power Plants installed at locations for a period mentioned in the tender document.

The O&M team will operate the solar Plant in accordance with an Operations and Maintenance Agreement (the "O&M Agreement") which shall provide for, at a minimum, the following services:

Performing routine and non-routine maintenance on the Solar Plant during the contract period:

1. Operating the solar Plant;
2. Providing all services necessary for solar Plant maintenance;
3. Performing all duties for the safe and efficient operation and maintenance as per the standards;
4. Complying with all regulatory obligations;
5.

Contractor shall perform the Work and supply all required spare parts (additional order) in a prudent and efficient manner and in accordance with: -

(a) Manufacturers and systems designers' specifications, the Annual Operating Plan for the Plant and all operation and maintenance manuals.

(b) All Indian applicable laws including environmental protection, pollution, sanitary, employment and safety laws, ("Government Rules").

(c) Prudent Utility Practice.

Laboure's shall use all reasonable and practical efforts: -

- To maximize plant capacity utilization
- To minimize plant downtime
- Optimize useful life of all the equipment of the energy project.

Contractor shall be responsible for all the required activities for the successful running, optimum energy generation & maintenance of all the Solar Photovoltaic Power Plants covering:

a) Monitoring controlling, troubleshooting maintaining of records, registers. Supply of all spares, consumables and fixing/application, Grid Tie Inverter, indoor panels, cables terminals kits, Circuit Breakers, Isolator's switch, and all other associated equipment of solar plant etc., for a period mentioned in work order

b) Supply & use of consumables throughout the maintenance period as per recommendations of the equipment manufacturers.

c) Conducting periodical checking, testing, over hauling and preventive action.

d) On receiving communication from INKEL for rectifications. the contractor shall make the plant good (installation of faulty components) within 24 hours failing which penalty will be imposed.

e) General up keeping including cleaning of all equipment, PV Station, transformer, amenities, Solar Photovoltaic array area (vegetation clearing and Grass cutting etc.). Solar Module cleaning and Vegetation removal shall be done at least every 2 Months interval or whenever required as instructed by

Engineer In charge.

f) Taking care of the full security aspects of the Solar Power Plant.

g) Replacement of damaged modules if any, during the period of contract.

h) Replacement of Grid Tie Inverter and all type of Battery if any used and any other equipment in solar plant time to time if required, during the contract period.

i) Maintaining and replacement of Lightning Arresters.

j) Continuous monitoring the performance of the Solar Power Plant and regular inspection and maintenance of the whole system including Modules, Grid Tie Inverter's, junction boxes, underground cables, outdoor/indoor Distribution Board and all associated equipment etc. necessary for extracting and maintaining the Maximum energy output from the Solar Power Plant.

k) Successful running of Solar Power Plant for the desired Performance ratio.

l) Periodic Testing/ calibration of all measuring devices as per respective manufacturer's instructions/ guideline.

m) Any other activity required for proper upkeep of the plant

The period of Operation and Maintenance will be deemed to commence from the date of handing over (DoH) of sites.

2.1. Operation and Monitoring

INKEL shall depute one operator at each site with a capacity of 1 MWp and above for daily monitoring of plant operations. The bidder's scope under the contract shall include deputing the necessary manpower for the operation and maintenance of the Solar Photovoltaic Power Plant to ensure optimal performance, on a daily basis as required or whenever required. Operation procedures such as preparation to start, routine operations with safety precautions, monitoring of Solar Power Plant etc. shall be carried out as per the manufacturer's instructions for trouble free operation of the complete system. Performance evaluation shall be carried outannually in presence of the officials of INKEL and bills shall be presented for effecting payments.

2.2. Maintenance

The contractor shall carry out the periodical/plant maintenance as given in the manufacturer's service manual and perform at least minimum requirement.

Preventive/ Routine Maintenance shall be done by the Contractor at least once in a every Two months and shall include activities such as, cleaning and checking the health of the SPV system, cleaning of module surface, tightening of all electrical connections, mounting structure, Inverter operations, refilling of firefighting devices and any other activity that may be required for proper functioning of the SPV system as a whole. The contractor shall ensure the generation data availability for proper monitoring of the system.

Regular periodic checks of the Modules, Grid Tie Inverter's shall be carried out as a part of

routine preventive maintenance.

In order to meet the maintenance requirements, the stock of consumables not limited to the following items including various spares as recommended by the manufacturers are to be maintained for the contract period. Particular care shall be taken for outdoor equipment to prevent corrosion. Cleaning of the junction boxes, cable joints, insulators etc shall also be carried out at every three-month interval. Resistance of the earthing system as well as individual earthing is to be measured and recorded every month. If the earth resistance is more than 3-ohm, suitable action is to be taken to bring down the same.

Daily generation report shall be maintained and monthly reports shall be sent to this office.

According to the recommendations stock of special tools and tackles shall be maintained for Modules, Grid Tie Inverter's and other major electrical equipment.

Solar modules surface shall be thoroughly cleaned twice every month or whenever required to ensure maximum possible generation. Manufacturer's approved method of cleaning shall be adopted for the purpose.

A maintenance record is to be maintained by the contractor to record the regular maintenance work carried out as well as any breakdown maintenance along with the date of maintenance, reasons for the breakdowns, steps taken to attend the breakdown, duration of the breakdown etc. should be maintained in each location.

The installation and maintenance of the ground mounted solar PV power plant during the non-office hours and holidays should be carried out only with prior written approval from custodian of site.

The Contractor shall deploy enough manpower at Solar Photovoltaic Power Plant site to carryout work instructions and preventive maintenance schedules as specified.

The Contractor will attend to any breakdown jobs immediately for repair/replacement /adjustments and complete at the earliest working round the clock. The details of the emergency assistance personnel of the contractor shall be displayed in all locations. During breakdowns (not attributable to normal wear and tear) at O&M period, the Contractor shall immediately report the accidents, if any, to the parties involved showing the circumstances under which it happened and the extent of damage and or injury caused.

The Contractor shall comply with the provision of all relevant acts of Central or State Governments including payment of Wages Act 1936, Minimum Wages Act 1948, Employer's Liability Act 1938, Workmen's Compensation Act 1923, Industrial Dispute Act 1947, Maturity Benefit Act 1961, Mines Act 1952, Employees State Insurance Act 1948, Contract Labour (Regulations & Abolishment) Act 1970, Electricity Act 2003, Grid Code, Metering Code, MNRE guide lines or any modification thereof or any other law relating whereto and rules made there under from time to time.

The contractor shall at his own expense provide all amenities to his workmen as per applicable laws and rules.

The Contractor shall ensure that all safety measures are taken at the site to avoid accidents to his Workmen. If negligence / mal-operation of the contractor's Labours results in failure of equipment such equipment should be repaired /replaced by contractorat free of cost.

If any jobs covered in O&M Scope are not carried out by the contractor during the O&M period pro-rata deduction will be made based on the quantum of work from the O&M contract bills.

2.3. Tools and Tackles

The Contractor shall arrange for all the necessary tools and tackles for carrying out all the maintenance work covered under this contract.

The Contractor shall check growth of vegetation cleaning of roof and removing moss and lichens under solar PV modules, accumulation of debris water clogging etc.

3. Performance Ratio: Performance Ratio Test (PR Test)

The PR test shall be conducted at site by the Contractor in presence of the INKEL officials as per IEC 61724. The PR test procedure shall be submitted by the Contractor for review and approval. Any special equipment, instrumentation tools and tackles required for the successful completion of the performance test shall be arranged by the Contractor at his own cost.

2.4. The procedure for PR demonstration test shall be as follows: -

- After the successful verification of the initial parameters by INKEL officials and client representative, PR test shall be conducted.

2.5. Following factors shall be excluded for calculation: -

- Generation loss due to grid outage.
- Irradiance below 250 W/m2.
- The measured global solar radiation of the period of the outage of the power evacuation system shall be executed to calculate average global solar radiation for the period of PR test.

PR Calculation:

Performance ratio (Rp)= Final PV system Yield (Yf)/Reference Yield (Yr)Rp= Yf/Yr

Yf = Plant AC Output (kWh)/plant capacity (kWp)Yr= Collector plane irradiance (kWh/m2)/Irr Ref Irr= 1kW/m2

Performance ratio of the solar plant for a period of time = Energy measured (kWh)/(Irradiance (kWh/m2) on the panel x Active area of PV module x PV module efficiency)

Contractor shall demonstrate minimum PR of 75-80% (measured at the HT panel outgoing feeder level of the inverter room) in the initial PR test within 7 consecutive days. If the contractor fails to prove the desired performance ratio at the time of completion and during any of the consecutive years of defect liability period, he will be given a second chance to demonstrate the PR within another 7 consecutive days. Still if it is not achieved, the same shall be demonstrated within another 7 consecutive days and still if it is not achieved,

3. Handing Over

Date of Handing Over is the date on which the PR ratio will be proved to the satisfaction of INKEL/Client along with the successful clearing of snag list of all projects.

APPENDIX – 2

SITE DETAILS

Name of Work: Operation and Maintenance of Total 12.6MWp Grid Connected Ground Mounted Solar Power Plant installed by INKEL in Kerala

No of Sites	Ground Mounted Solar Power Plants	Capacity (kWp)	District	O&M Upto
1	220KV Substation KSEBL, Mylatty, Kasaragod	3500	Kasaragod	Not commissioned – O&M period to be expected from Jan 2026 – Jan 2031
2	KSEBL Land Kuzhinilam, Mananthavady	2000	Wayanad	22-06-2030
3	KSEBL Wind Farm, Kanjikode	2000	Palakkad	Not commissioned – O&M period to be expected from Dec 2025 – Dec 2030
4	Autokast, Cherthala	2000	Alappuzha	January 2026 to January 2031
5	KSEBL land opposite to 220KV Substation KSEBL, Nenmara	1500	Palakkad	26-02-2030
6	33KV Substation KSEBL Agali	1000	Palakkad	11-11-2026
7	110KV Substation KSEBL, Cheruppulasserry	450	Palakkad	18-02-2030
8	Peralassery Grama Panchayath	150	Kannur	16-08-2029
	TOTAL	**12600 (12.6MWp)**		

Contractor Name:

Signature …… Official Seal

Date:

APPENDIX – 3

(To be filled by bidder)

CONTACT FORM

Name	
Complete Office Address with Phone Number and E-mail ID	
Type of Ownership	
GST No.	
PAN	
Year of Establishment	
Electrical Contractor License Details if applicable	
Name of Contact Person with Designation	
Mobile Number & E-mail ID of the Contact Person	

Name of Authorized Signatory:

Signature …… Official Seal

Date:

APPENDIX – 4

(To be filled by bidder)

PRICE BID:

Name of Work: **Operation and Maintenance of Total 12.6MWp Grid connected Ground Mounted Solar Power Plants installed by INKEL limited at various locations in Kerala.**

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Sr. No	Description	Unit	Qty	O&M Period from handing over of site	Amount (Rs)
1	Operation and Maintenance Charges of 3.5MWp Grid Connected Ground Mounted Solar Power Plant at 220KV Substation KSEBL, Mylatty, Kasaragod	kWp	**3500**	1st year	
				2nd year	
				3rd year	
				4th year	
				5th year	
2	**Operation and Maintenance Charges of 02MWp Grid Connected Ground Mounted Solar Power Plant at KSEBL Land Kuzhinilam, Mananthavady	kWp	**2000**	1st year	
				2nd year	
				3rd year	
				4th year	
				5th year	
3	Operation and Maintenance Charges of 02MWp Grid Connected Ground Mounted Solar Power Plant at KSEBL Wind Farm, Kanjikode	kWp	**2000**	1st year	

				2nd year	
				3rd year	
				4th year	
				5th year	
4	**Operation and Maintenance Charges of 02MWp Grid Connected Ground Mounted Solar Power Plant at Autokast, Cherthala	kWp	**2000**	1st year	
				2nd year	
				3rd year	
				4th year	
				5th year	
5	**Operation and Maintenance Charges of 1.5MWp Grid Connected Ground Mounted Solar Power Plant at KSEBL land opposite to 220KV Substation KSEBL, Nenmara	kWp	**1500**	1st year	
				2nd year	
				3rd year	
				4th year	
				5th year	
6	**Operation and Maintenance Charges of 01MWp Grid Connected Ground Mounted Solar Power Plant at 33KV Substation KSEBL Agali	kWp	**1000**	1st year	

7	**Operation and Maintenance Charges of 450kWp Grid Connected Ground Mounted Solar Power Plant at 110KV Substation KSEBL, Cheruppulasserry	kWp	**450**	1st year	
				2nd year	
				3rd year	
				4th year	
				5th year	
8	**Operation and Maintenance Charges of 150kWp Grid Connected Ground Mounted Solar Power Plant at Peralassery Grama Panchayath	kWp	**150**	1st year	
				2nd year	
				3rd year	
				4th year	
TOTAL Amount					
GST					
Total Amount Inclusive of GST					
Grand Total In words:					

***The O&M contract for the sites shall conclude as specified in Appendix–2. If, in the final year, the O&M period is less than 12 months due to the contract ending with KSEBL, the payment shall be made on a proportionate basis, even if the bidder has quoted the price for a full year.*

Contractor Name:

Signature …… Official Seal

Date: