

J&K Agro Industries Development Corporation Limited
Gole Pully, Talab Tillo, Jammu

NOTICE INVITING TENDER

E NIT No. 16 of 2022-23 of JK AGRO

No.: AGRO/DM /PSJ/801-804

Dated: 13.06.2022

For and on behalf of the JK Agro, Industries Development Corporation Ltd e-tenders are invited on item rate basis for the following work from registered firms/contractors having documentary proof of having undertaken similar nature of work and have executed successfully at least **TWO (02)** similar nature of work for the last five years to the tune of Rs 40 lacs for which bidders must submit proof including client references, order value and performance certificates.

S. No	Description of work	Estimated Cost	Earnest Money	Cost of tender document	Time of completion	Eligibility Criteria of Bidder
1	Supply, Installation, Testing and Commissioning of Miscellaneous Electrical Works at JK Cold Store Delhi & Ice Factory B-13/14, Lawrence Road, Delhi	86.00 lacs	1.50 lacs	5000	60 days	As per tender NIT

Position of AAA:-Accorded

Position of Funds :- Available

Bids must be accompanied with cost of tenders' documents in shape of Bank Receipt in f/o J&K Agro Industries Development Corp. Ltd bearing J&K Bank Acc No CD-0077010200000133, IFSC Code- JAKA0TTILOO, Earnest money/bid security in the shape of CDR/FDR Pledged in favour of Managing Director JK Agro Industries Development Corporation Limited.

The Bidding Document Consisting of qualifying information, eligibility, criteria, Specification, Bill of quantities(BOQ), set of terms and conditions of contract and other details can be seen/downloaded from the departmental website www.jktenders.gov.in as per the schedule of dates given below:-

1. Critical dates:-

S.No	Description	Date		
		DD	MM	YYY
1.	Date of Publish of NIT	21	06	2022
2.	Document downloading start date/ Bid submission start date	21	06	2022
3.	Clarification Start date.	21	06	2022
4	Clarification end date.	13	07	2022
5.	Bid submission End date	13	07	2022
6	Bid opening date	14	07	2022

**Sd/-
Divisional Manager
P&S Jammu
JK AIDCL**

J&K Agro Industries Development Corporation Limited
General terms and Conditions

Name of work: Supply, Installation, Testing & Commissioning of Miscellaneous Electrical Works at JK Cold Store & Ice Factory B-13/14, Lawrence Road, Delhi

The NIT consisting of qualifying information, eligibility criteria, specifications, terms & conditions, Bill of Quantities can be seen/downloaded from the J&K Govt. website www.jktenders.gov.in

1. The Bids shall be deposited in electronic format on the J&K Govt. Website www.jktenders.gov.in
2. The hard copies of original documents alongwith Bid security Declaration should be submitted only by the bidder who is declared as L1 after opening of financial bids in the office of Managing Director, Jammu.
3. The complete bidding process will be online.
4. The Technical bids shall be opened online in the Office of Managing Director, Jammu.
5. In case of holidays /office happens to be closed on the date of opening of the bids, bids will be opened on the next working day at the same time and venue.
6. The Financial bids of qualifying participants /Bidders shall be opened online in the Office of Managing Director, Jammu.
7. **It is presumed that bidder is agreed upon all the terms and conditions of e-NIT and also thoroughly read the scope of work/Technical Specifications and has accepted all in total and is well versed with the's Laws / Rules of e-tendering.**
8. The bids for the work shall remain valid for a period of 180 days from the date of opening of bids.
9. The Bid shall be cancelled: -
 - a) Any bidder/ tenderer withdraws his bid/ tender during the period of bid validity or makes any Modifications in the terms and conditions of the bid.

- b) In case contractor fails to execute the agreement within 05 days after fixation of contract.

10. **Instruction to bidders regarding e-tendering process:**

- a) Bidders are advised to download bid submission manual from the "Downloads" option as well as from "Bidders Manual Kit" on website www.jktenders.gov.in to acquaint with bid submission process.
- b) To participate in bidding process, bidders have to get 'Digital Signature Certificate (DSC)' as per Information Technology Act-2000. Bidders can get digital certificate from any approved vendors.
- c) The bidders have to submit their bids online in electronic format with Digital Signature. No Financial bid will be accepted in physical form.
- d) List of documents to be scanned and uploaded within the period of bid submission i.e.:
- i)** Cost of Tender document in shape of Saving Receipt and uploading a copy of same one-tendering portal.
 - ii)** Bid securing Declaration pledged to Managing Director, JK AIDCL. As per **Annexure "F"**.
 - iii)** Other documents comprising of copies of PAN card, Latest income Tax return, GST Registration Certificate with latest return, Tender document (SBD) duly signed & stamped on each leaf should also be uploaded.
 - iv)** Documentary proof of having undertaken similar nature of projects on turnkey basis and have executed successfully at least **TWO** similar nature of work for the last five years to the tune of Rs.40lacs each for which bidders must submit proof including client references, order value and performance certificates.
 - v)** **The Successful bidder** shall have to furnish the Performance Security @ 3 % of the quoted cost in the shape of **BG/CDR/FDR valid till DLP (defect liability period)** before issuance of LOI (**Letter of Intent**). In case of L-1 failing to provide performance security @ 3 % for the works within 7 days after being notified, his bid shall be cancelled and work shall be offered to L-2 for execution on L-1's rates at the discretion of The Managing Director Concerned.

- vi) The **Performance security @ 3 % of the successful bidder** shall be released after successful completion of work allotted.

Note: The above documents are to be uploaded on the website before opening of technical bid

- a. The bidders are advised to accept and sign each leaf of the tender document with stamp/seal before uploading on the portal.

Note:-Scan all the documents on100 dpi with black and white option.

Originality of the up-loaded documents is sole responsibility of the contractor.

11. The J&K AIDCL will not be responsible for delay in online submission due to any reasons.
12. Bidders may contact office of the Managing Director, Jammu for any guidance for getting DSC or any other relevant details in respect of e-tendering process through email or in writing during office hrs on working days only.
13. Bidders are advised not to make any change in BOQ (Bill of Quantities) contents. In no case they should attempt to create similar BOQ manually. The BOQ downloaded should be used for filling the rate inclusive of all taxes and it should be saved/uploaded with the same name as it contains.
14. The rates and prices shall be quoted by the bidder entirely in Indian Rupees and the rates quoted shall be deemed to include price escalation and all taxes upto completion of the work unless otherwise, specified.
15. Bidders are advised to use "My Documents" area in their user on J&K Govt. E-Tendering portal i.e. www.jktenders.gov.in to store such documents as is required.
16. Scheme of bidding process: The bid submitted by the Bidder shall be in two separate parts.

A) PART I: This shall be named technical Bid and shall comprise of:

- i) Scanned copies of all documents listed in as technical bid (Hardcopies to be submitted only after the bidder is declared L1)

B) PART II: It shall be named Financial Bid and shall comprise of:

- i) Item rates price offer as specified in subject matter—the financial bid (i.e. rates offered in the BOQ) shall be submitted & opened online only. (No hard copy of Price BOQ shall be submitted)

17. Terms and Conditions:

- a) The detailed terms & conditions of the NIT are laid down in Annexure “A” of this tender document.
- b) The intending bidders are advised to visit the site **at JK Cold Store & Ice Factory B-13/14, Lawrence Road, Delhi** to ascertain the exact quantum of work before quoting their rates in their own interest.

18. Bid Prices:

- i) The Contract for the work shall be as described in NIT.
- ii) The Bidder shall quote for the mentioned job in bid form.
- iii) The prices to be quoted by the intending tenderer shall include the supply and installation of all equipment at site, ancillary material and other items whatsoever required for carrying out the job to fulfill the intent and purpose as laid down in the specifications whether specifically mentioned or not. The prices/rates quoted shall be inclusive of all taxes, duties, packing, forwarding, freight, transit insurance and all other levies as applicable by the Central as well as UT Government including the WCT as applicable in the J & K UT Govt. on work contracts for the completion of the work. The successful tenderer/contractor, on completion of the contract/work, shall be issued a certificate on prescribed format from the Managing Director, JK AIDCL for the purpose of proof of payment of such tax. Failure to include all other taxes and duties will not entitle the contractor to any extra claims from the Department. The contractor's rates shall remain firm and fixed during the currency of the contract.
- iv) The rates and prices quoted by the Bidder shall remain fixed for the duration of the contract and shall not be subject to adjustment on any account.

19. Bid Validity:

- i) Bids shall remain valid for a period of 180 days after the deadline date for bid submission.
- ii) In exceptional circumstances, prior to expiry of the original time limit, the Department may request the bidder to extend the period of validity for a specified additional period. The request and the bidder's responses shall be made in writing. A bidder may refuse the request without forfeiting his earnest money. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his earnest money for a period of the extension.

20. **Preparation of Bids:**

- i) Language of Bid is English. (All documents in any other language shall be translated in English)

21. **Format and Signing of Bid:**

- i) The bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the bidder. All pages of the Bid shall be signed by the person or persons signing the Bid.
- ii) The Bid shall contain no overwriting, alterations or additions, except those to comply with instructions issued by the Departments, or as necessary to correct errors made by the Bidder. In that case such corrections shall be made by scoring out the cancelled portion, writing the correction and initialing and dating it by the person or persons signing the Bid.

22. **Submission of Bids:**

- i) The Department may extend the deadline for submission of bids online by issuing an amendment, in which case all rights and obligations of the Department and the bidders previously subject to the original deadline will then be subject to the new deadline.

a) The bid submitted shall be out-rightly rejected:-

- i) If the scanned copy of cost of tender document (non-refundable) is not uploaded.
- ii) If the scanned copy of Bid security Declaration Form duly filled, Sign & Stamp (as per SBD) is not uploaded.
- iii) If bidder submit/upload the copy of **price bid/BOQ** in cover-1st (Technical cover)

b) The bid submitted shall be liable to be rejected:-

- i) If the bidder does not upload all the documents as stipulated in the bid document.
- ii) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies of L1 bidder (declared after technical and commercial evaluation as per Annexure "A") submitted physically after opening of the financial bid in the office of tender opening authority.
- iii) *Originality of the up-loaded documents is sole responsibility of the contractor.*

23. **Fundamental breach of contract will include:**

- i) Continuous stoppage of work for a period of 05 days without authorization of Engineer-in-charge.
 - ii) Contractor is declared bankrupt.
 - iii) Any evidence of involvement of contractor in corrupt practices.
 - iv) Contractor delays the completion of work beyond stipulated time of completion.
24. Pursuant to the process of termination of defaulted contract, the Department reserves the right to invite fresh tender for the balance work at the risk and cost of defaulter contractor.
25. Major labour laws applicable to establishment engaged in building and other construction work:
- i) Compliance with Labour Regulation Laws of U.T.
 - ii) Specification/Quality Control: All items of works shall conform to specifications as per latest ISI specifications/any other relevant prescribed specifications.
 - iii) Insurance: Insurance cover to Labour/Machinery/Work/Plant material/Equipment by the contractor shall be mandatory and is sole responsibility of contractor.
 - iv) Laws Governing the Contract:-The contract shall be governed by Laws of the land.
 - v) Labour Laws applicable as enforced in the U.T of Jammu and Kashmir
26. **The Successful bidder** shall have to furnish the Performance Security @ 3% of the quoted cost in the shape of **BG/CDR/FDR valid till DLP (defect liability period)** before issuance of LOI (**Letter of Intent**). In case of L-1 failing to provide performance security @3% for the works within 7 days after being notified, his bid shall be cancelled and work shall be offered to L-2 for execution on L-1's rates at the discretion of The Managing Director Concerned.
27. The **Performance security @ 3% of the successful bidder** shall be released after successful completion of work allotted.
28. The EMD of the entire bidders including the L1 will be returned on allotment of the work. L1 bidder shall be required to keep 3% only as performance security.

J&K Agro Industries Development Corporation Limited

Annexure “A”

TERMS AND CONDITIONS OF ENIT NO. 16 OF 2022-23 DATED 13.06.2022

1. The tenderers should bear in mind and comply with the following instructions and terms & conditions while tendering for the work/contract on turnkey basis as per scope of work and terms and conditions of the detailed tender document.
2. The tenderer should inspect the site **at JK Cold Store & Ice Factory B-13/14, Lawrence Road, Delhi** of the proposed work and fully acquaint himself with the working conditions before quoting their rates as the job is of turnkey basis. It will be construed that the tenderer has studied the site conditions completely and satisfied him with respect to the same.
3. **Definitions:** In constructing the terms and conditions of this tender document or of the documents forming part thereof, unless the context otherwise requires, the following words and expressions shall have the meanings here in after assigned to them:
 - i) “Corporation” shall mean J&K Agro Industries Development Corporation represented by The Managing Director and/or his authorized representative .Engineer-in-charge” means a representative of JK AIDCL.
 - ii) “Contractor” shall mean the tenderer whose tender has been accepted and who is authorized to enter into an agreement with the Department for execution and completion of the works tendered for by him.
 - iii) “Works” shall mean all works to be executed by the contractor in accordance with the specifications and scope of work as specified in the tender document.
 - iv) Notice in writing or written Notice shall mean a notice or a communication in writing, typed or printed, sent either under registered post, ordinary post or electronic form to the last known private or business address or delivered personally by hand to the contractor.
 - v) Words incorporating the singular only also include the plural and vice-versa.
 - vi) The Marginal Headings and notes shall not be deemed to be part of this contract or taken into consideration in the interpretation or construction of this contract.
4. **Rates:** The rates quoted shall be FOR site, which will include the cost of

transportation of materials to the site, storage at site, all handling at site and incidental expenses, all taxes such as GST, entry tax, toll tax at Lakhanpur and octroi etc. and the fixing in position for which the items of work is intended to be operated.

5. **GST**: GST as applicable under law
6. **Price Escalation**: No cost escalation on any account shall be entertained in the quoted rates and the rates quoted shall be firm & final and shall remain valid till the completion of the contract.
7. **Tender Acceptance**: The acceptance / approval of the tender will rest with the Managing Director, JK AIDCL who does not bind himself to accept the lowest tender and reserves to himself the authority to reject any or all of the tenders received without assigning any reason(s). Conditional tenders shall be out rightly rejected.
The Managing Director, JK AIDCL also reserves the right of accepting the whole or any part of the tenders received and the tenderers shall be bound to perform the same at the quoted rates.
8. **Security deposit/Performance security**
 - a) **The Successful bidder** shall have to furnish the Performance Security @ 3 % of the quoted cost in the shape of **BG/CDR/FDR valid till DLP(defect liability period)** before issuance of LOI (**Letter of Intent**). In case of L-1 failing to provide performance security @3% for the works within 7 days after being notified, his bid shall be cancelled and work shall be offered to L-2 for execution on L-1's rates at the discretion of The Managing Director Concerned.
 - b) The **Performance security @ 3% of the successful bidder** shall be released after successful completion of work allotted.
 - c) The Bid not accompanied by Bid Security Declaration shall be out-rightly rejected.
 - d) If in case contractor failed to start/complete the work, with in the stipulated time period, his Security Deposit/Performance Guarantee @3% shall be forfeited after termination of the contract. Besides, defaulting contractor shall be debarred from taking works in the Department at least for one year.
9. **Terms of Payment**:
90 % payment shall be made after successful completion of work, testing & commissioning and verification thereof by engineer in charge/office incharge/Corporation Consultant, **10%** payment shall be kept as deposit & shall be released after successful completion of the warranty period or against bank guarantee of equivalent amount i.e.10% of the contract value from nationalized bank.

10. **Quantities:** The tendered quantities are tentative and may increase or decrease at the time of actual execution of work as per requirement.
11. **Time of completion:** 60 days from the date of issuance of allotment of work.
12. **Extension in time:** If the contractor shall desire an extension in time for completion of the works on the grounds of his having been un-avoidably hindered in its execution or on any reasonable ground certified as such by the Engineer-in-charge, he shall apply to the Managing Director JK AIDCL within **02 days** of the date of such event. The Managing Director, JK AIDCL may on reasonable grounds therefore authorize such extension as in his opinion is necessary for completion of the works in its entirety.
13. **Penalty:** In the event of contractor's failure, neglecting declining or delaying the supplies / installation or in the event of any damage occurring or being caused or in the event of any default or failure in complying with any of the terms and conditions of the contract, the govt. shall with or without prejudice any other remedy available to it under any law for the time being in force in the:
 - a. Terminate the contract after 30 days notice.
 - b. Recover the amount of loss caused by damage failure or default including the consequential damage as may be determined by the department and/or
 - c. Recover the extra cost, If any, involved in allotting the contract to other party and/or.
 - d. Impose a penalty in form of liquidated damages on accounts of delay beyond the scheduled delivery period subject to **0.1% value of the contract per day** and not exceeding 10% value of the contract and /or.
 - e. Forfeiture of security deposit/Performance guarantee
14. **Commencement of work:** The contractor shall commence work on site within 07 days from the date of issue of work order/letter of intent.
15. **Site Supervision:** The work shall be carried out under the direction and supervision of the Engineer-in-charge or his representative at site/Corporation consultant. The contractor shall intimate the name of their accredited representative who would be supervising the installation and would be responsible for taking instructions for carrying out the work on day to day basis.
16. **Quality:** The decision of the Engineer-in-charge/officer incharge/Corporation consultant with regard to the quality of the material and workmanship will be final and binding and the material/equipment rejected by the corporation shall be immediately removed by the contract or from the site.

17. **Damage to works during or after execution:** If the contractor or his workers break, deface, injure or destroy any part of the structure or other property in the vicinity of the works belonging to any person in or on which they may be working, such structure, road curves, embankment, fencing closure, water pipes, cables, drains, electrical or telephone posts, or wares, trees, grass or grass land or cultivated ground contiguous to the premises on which the work or any part of it is being executed shall make the same good at his own cost and in default, the Engineer-in-charge shall cause the same to be made good and deduct the cost thereof from any sums that may be due to the contractor under this contract from his security deposit for other works under the Department.
18. **Defects Liability Period:** The firm shall be bound for a period of 12 **months** from the date of commissioning of job for satisfactory operation of the same and shall furnish a guarantee to this effect to the department / Government. Any defects found in equipment or any part thereof, which may be caused by bad workmanship, use of inferior material or otherwise, or if in the opinion of the department, any repairs/replacement are required to be made to the equipment the firm shall be liable to remove the defect/ or conduct repairs at his own cost and expenses within a period of **03 days** of the receipt of the notice from the corporation. In the event of failure on the part of the firm to remove these defects or make repairs within the stipulated period, the department may get the defects removed or repairs made by any other agency and the cost thereof shall be recovered from the firm.
19. **Addition/Alteration in work contract:** No addition/alteration in the work shall be allowed without prior approval from the competent authority i.e. Managing Director, JK AIDCL. However, any addition/ alteration exceeding 2% of the value of contract value that improves the overall performance of the system shall be allowed at L.M.R. subject to approval from Higher Authorities.
20. **Subletting:** The contractor shall not assign or sublet the works in whole or part without the written permission from the competent authority & in case the contractor assigns or sublets the contract or attempts to do so. The contract will be terminated and actions as deemed fit shall be taken by the department.
21. The hardcopies of original documents along with EMD in the shape of CDR/FDR should be submitted only by the bidder who is declared as L1 after opening of financial bids in the Office of Managing Director, J&K Agro Industries Development Corporation Limited.
22. **Contract Signing:** After acceptance of the contract the tenderer shall sign the necessary contract **papers/agreement within 03 days of the intimation.**

Expenses for the agreement including cost of stamp papers etc. shall be borne by the contractor. The delay or failure to execute the agreement shall in no way affect the time of completion of work which will be reckoned from the date of placement of supply order/ workorder/ letter of intent.

23. **Warranty Period:** The overall job shall be guaranteed for a period of 12 months.
24. **Fees and Permits:** The contractor shall obtain all necessary permits / clearances and pay for any and all fees required for installation of the equipment.
25. **Watch and ward of equipment/material:** The contractor shall be responsible for the watch and ward of his equipment / materials aforesaid. In case of any loss or damage to the said equipment /material etc. on any account, the contractor shall make good the loss or replace the deteriorated material at his cost and expenses and the Department shall in no case be liable to pay any compensation.
26. **Currency of bid and payment:** The rates and prices shall be quoted by the bidders entirely in Indian Rupees. Accordingly, all payments shall be made in Indian Rupees.
27. **Materials, Plants & appliances:** The contractor shall arrange at his cost all materials, plants, tools, appliances and temporary works required for the execution of the works
28. **Indemnity:**
The contractor shall make the Department harmless and shall settle all compensation claims arising as a result of accidents etc. afore said during the execution of the works at his own cost.
29. **Employee Insurance:** ESI charges, if applicable on the workforce employed, shall be borne by the contractor.
30. **Force Majeure:** Any failure or omission to carry out the provisions of the contract shall not give rise to any claim by the department or the approved supplier/contractor one against the other if such failure or omission arises from an "Act of God" which shall include all natural calamities such as fires, earthquakes, floods, hurricanes, strikes, riots, embargoes or from any political or other reasons beyond the control of parties including war, whether declared or not, civil war or a of insurrection.
31. **Decision of the Managing Director to be final:** Except where otherwise specified in the contract, the decision of the Managing Director, JK AIDCL, shall be final, conclusive and binding upon the contractor on all questions

relating to the meaning specifications, design, drawings, the instructions mentioned and the quality of work man ship or materials/equipment used for the works.

32. **ARBITRATION CLAUSE:** If any question, dispute or difference whatsoever, arises between the firm & the deptt./ Government in relation to or in connection with this contract either of the parties may give notice in writing of such questions, dispute or difference and the same be referred to the arbitration of a person to be mutually agreed upon or failings such agreement with in thirty days of receipt of such notice of person appointed by the Jammu & Kashmir government. This submission shall be deemed to be a submission to arbitration within the meaning of the Jammu & Kashmir Arbitration Act. In witness there of the parties here to have signed this agreement on the dates respectively mentioned against their signatures. The provision of J&K Arbitration Act Samvat 2002 and of the rules there under and statutory modification thereof shall be deemed to apply to the arbitration disputes if any regarding reference to courts shall be subject to jurisdiction of J&K courts only
33. **Jurisdiction of Court:** For any dispute arising out of this contract the Hon'ble High Court of Jammu & Kashmir at Jammu/Srinagar only shall have jurisdiction.
34. **The complete bidding process will be online**
35. If any item is not mentioned / incorporated in scope of work of NIT, but necessary for successful commissioning of the job, it shall be deemed to have been incorporated for which no extra cost shall be paid by the Department.
36. The bidders are requested to visit the site **at JK Cold Store & Ice Factory B-13/14, Lawrence Road, Delhi** to get acquainted with the nature and quantum of job.
37. **Cancellation:** The Department reserves the right to cancel the order in case of fault on the part of the contracting agency and also prior other receipt of the intimation regarding taking in hand execution of work against the order. No, claim whatsoever, shall be tenable against the department on this account
38. All other terms and conditions shall be governed by PWD Form No. 25 of J&K Government.
39. All other terms and conditions as reflected in NIT shall also be applicable.
40. Tenderer / bidder shall quote their rates inclusive of GST.
41. GST, Building & other construction workers cess or any other tax, levies, duties on materials and on complete works in respect of this contract shall

be payable by the contractor . JK AGRO will not entertain any claim whatsoever in this respect. This should be included in the rates quoted by contractor.

42. The contractor shall be required to pay cess @ 1% of cost of construction work in accordance with each bill payable on account of such construction to the concerned State of Govt. (Labour Deptt.). Cost of material shall be outside the purview of cess, when supplied under a separate schedule items.” JK AGRO shall not entertain any claim whatsoever in this respect.
43. Insurances (i.e, Contractor All risk policy & Workmen Compensation Policy) for works, persons and property shall be taken by the contractor at his own cost for the entire duration of the project. Therefore, tenderer shall quote their rates inclusive of premium amounts of the Insurance Policies.
44. If the overall rate, quoted by two or more qualified successful bidders, is the lowest and same, then the successful bidder will be selected on the basis of lottery in presence of concerned bidders. The Tender Evaluation Committee will conduct the lottery.
45. For any difficulty in downloading & submission of tender document at website, www.jktenders.gov.in

(Please contact Mr. Abhinav Bhakaya, Divisional Manager, Cold Store Plant, Delhi, Mobile no. 9891023410 for any further information).

Sd/-
Divisional Manager
P&S Jammu
JK AIDCL

J&K Agro Industries Development Corporation Limited

ANNEXURE "B"

TECHNICAL SPECIFICATION/SCOPE OF WORK

e-NIT:-16 of 2022-23

Dated: 13.06.2022

Name of work: Supply, Installation, Testing & Commissioning of Miscellaneous Electrical Works at JK Cold Store & Ice Factory B-13/14, Lawrence Road, Delhi.

SPECIFICATION FOR TRANSFORMER

DESIGN CRITERIA

The transformers will be suitable for outdoor use and will be used to supply power from 11 KV System.

The transformer shall be capable of continuous operation at specified rating under the following condition:

- a. Voltage variation (+5%) - (-5%) in 2.5% steps
- b. Frequency variation +5%
- c. Combined voltage and Frequency variation (absolute sum) 10%

The transformer shall be capable of withstanding the short circuit stresses due to a terminal fault on one winding with full voltage maintained on the other winding for minimum period of three (3) seconds.

The transformer shall be free from anything hum of vibration. The design shall be such as not to cause any undesirable interference will radio or communication circuits.

SPECIFIC REQUIREMENTS

Tanks shall be of all welded construction and fabricated from good commercial grade low carbon steel of adequate thickness. All seems shall be double welded.

The tank wall shall be reinforced by stiffener to ensure rigidity so that it can withstand without any deformation (a) mechanical shock during transportation and (b) oil filling by vacuum.

All removable covers shall be provided with weatherproof, hot oil resistant, resilient gaskets. The design shall be such as to prevent any leakage of water into or oil from the tank.

Each transformer tank shall be provided with one set of hi-directional rollers for rolling the transformer parallel to either center line.

Jacking pads, lifting eyes and pulling lugs shall be provided to facilitate movement of the transformer. All heavy removal parts shall be provided with eyebolt for ease of handling.

Manholes / hand holes of sufficient size shall be provided for access to leads, windings, bottom terminals of bushings and taps.

Core & Coils

The transformer may be of core or shell type. The core shall be built up with high grade, non-aging, low loss, high permeability grain oriented cold-rolled silicon steel laminations specially suitable for core material.

The coils shall be manufactured from electrolytic copper conductor and fully insulated for rated voltage.

Insulating material shall be of proven design. Coils shall be so insulated that impulse and power frequency voltage stress on minimum.

Coil assembly shall be suitably supported between adjacent section by insulating spacers and barriers, bracing and other insulation used in assembly of the winding shall be arranged to ensure a free circulation of the oil and to reduce the hot spot of the winding.

All leads from the windings to the terminal board and bushings shall be rigidly supported to prevent injury from vibration on short circuit stresses. Guide tube shall be used where practicable.

The core and coil assembly shall be securely fixed in position so that no shifting or deformation occurs during movement of transformer at under short circuit stresses.

Tappings

Off-circuit taps as specified shall be provided on the high voltage winding

The transformer shall be capable of operation at its rated KVA on any tap provided the voltage does not vary by more than +10% of the rated voltage corresponding to the tap.

The winding including the tapping arrangement shall be designed to maintain electromagnetic balance between HV and LV windings at all voltage ratios.

Off-Circuit Tap Changer

The off-circuit tap changing will be effected by a 3 phase gang operated switch. Arrangement shall be such that switch can be operated at standing heights from ground level.

The operating handle can be padlocked at any tap position. The design shall be such that the lock cannot be inserted unless the contacts are correctly engaged.

The mechanism shall be provided with a mechanical tap position indicator and an operation counter.

All contacts shall be silver plated and held in position under strong contact pressure to ensure low contact drop and avoid pitting.

Bushing

Bushing shall be solid porcelain oil communicating type. Bushing shall be provided with terminal connectors of approved type and size. Bushing location shall be provided adequate phase and ground clearances.

Insulating Oil

The transformer shall be filled with transformer insulating oil conforming to IS 335-1953 amended up to date suitably inhibited to prevent sludging.

First filling of oil along with 10% excess shall be furnished for the transformer; Oil shall be supplied in non-returnable containers suitable for outdoor storage.

Oil preservation shall be by means of conservator tank complete with silica gel breather and oil seal.

Terminal Arrangement

Terminals for cable connection shall be brought out through top cover to a detachable cable end box with disconnect link.

Cable end box shall be self supporting, weatherproof, air filled type with sufficient space inside for termination and connection of cables. Cable end box shall be furnished complete with removable gland plate double compression brass glands and necessary hardware. In general, the arrangement shall be such as to permit removal of the transformer without dismantling the cable installation. LV neutral bushing shall be arranged separately in a cable end box for connection to Ground. Terminal for 11 KV side connections shall be brought through top cover mounted outdoor type bushings.

Wiring

All control, alarm and indication devices provided with the transformer shall be wired up to the terminal blocks. Wiring shall be done with PVC wires in conduit or PVC armoured cable, minimum wire size shall be 2.5mm copper. Not more than two wires shall be connected to a terminal. 10% spare terminals shall be provided.

All devices and terminal blocks within the marshalling box shall be identified by symbols corresponding to those used in applicable schematic or wiring diagram.

Grounding

Two grounding pads, located on the opposite sides of the tank, shall be provided for connection to station ground mat. Grounding pad shall have clean buffed surface with two tapped holes, M-10 GL bolts and spring washers for connection to 50x6mm GI flat. Ground terminal shall be also provided on marshalling box to ensure its effective earthing.

Auxiliary Equipment

Natural bushing current transformer shall be furnished where specified in the annexure. The current transformer shall be cast resin type. The arrangement shall be such that the C.T can be removed from the transformer without removing the tank cover. CT secondary leads shall be wired up to the terminal blocks. The terminals for CT secondary leads shall have provision for shorting. The secondary leads of CT shall have polarity marking as per IS.

Painting

All steel surface shall be thoroughly cleaned by sand blasting or chemical agents, as required, to produce a smooth surface free of scales, grease and rust. The internal surfaces in contact with insulating oil shall be painted with heat resistant insulating varnish which shall not react with and be soluble in the insulating liquid used. The external surface, after cleaning, shall be given a coat of high quality red oxide or yellow chromate primer followed by filler coats. The transformer shall be finished with low coats of battle ship grey (IS Shade # 632) synthetic enamel paints. The paints be carefully selected to withstand tropical heat, rain etc. The paint shall not scale off or crinkle or be removed by abrasion due to normal handling. Sufficient quantity of touch up paint shall be furnished for application after installation at site, if required. If it is considered necessary, the transformer may be given a further coating at site by the owner.

TESTS

Routine Tests

During manufacture and on completion, all transformer shall be subject to the IS routine tests. In addition, the following tests shall be performed on each transformer. Transformer tank with coolers shall be tested for leaks with normal head of oil + 35 KN/sqm for a period of 12 hours, if and leak occurs, the test shall be conducted again after all leaks have been repaired. The tank designed for full vacuum shall be tested at an internal pressure of 3.33 KN/sqm (25mm of Hg) for an hour. The permanent deflection of flat plated shall not exceed CBIP specified on release of vacuum. After assembly, each core shall be pressure tested for one minute at 2KV AC between all bolts, side plates, structural steel works on the core. Excitation loss and current measurements shall be made at 90%, 100% and 110% of the rated voltage.

Miscellaneous

All components parts and auxiliary equipment such as oil, brushings, CTs etc. shall be routine tested as per relevant Indian Standards. Test Certificate may be provided.

Test Certificates

Certified reports of all the tests carried out at the works shall be furnished in duplicate copies for approval of the owner.

The equipment shall be dispatched from works only after receipt of owner's written approval of the test reports. Type test certificate on any equipment, if so desired by the owner, shall be furnished.

RATINGS and REQUIREMENTS

1.0	Application	:	Distribution Transformer
2.0	Service	:	Outdoor, Step-down
3.0	Type	:	Oil Immersed
4.0	Rated	:	315 KVA, BIS Marked & BEE Star Label
	Energy Efficiency Level	:	EEL-2;IS:1180-2014 with Amendment no. 1,2,3 & 4
5.0	Cooling	:	ONAN
6.0	Rated Voltage (line to line)	:	11000/433 volts
7.0	Number of Phases	:	3
8.0	Rate Frequency	:	50 Hz
9.0	Temperature rise above 50C	:	
	a) in oil by thermometer	:	45°C
	b) in winding by resistance	:	50°C
10.0	Insulation level	:	
	H.V Winding	:	28 KV
	LV	:	3KV
11.0	Vector group	:	Dyn11
12.0	Type of tap provided	:	Off-circuit, full capacity
13.0	Taps provided on	:	HV Winding
14.0	Range of taps	:	(+5%) – (-5%) at 5 in steps of 2.5%
15.0	Method of tap change control	:	
	a. Manual Local	:	Yes
	b. Electrical Local	:	No
	c. Electrical remote	:	No.
	d. Automatic	:	No.
16.0	Percentage impedance at 75C	:	As per IS
17.0	System earthing	:	
	H.V	:	Not applicable
	L.V	:	Solidly earthed
18.0	Terminal arrangement	:	

H.V Cable Box	:	3 x 150 (E) sqm 11 kv XLPE cable
L.V Cable Box	:	Suitable for LT cable
L.V Natural	:	50 x 6mm G.S Flat
19.0 Transformer bushing voltage class		
H.V	:	11KV
L.V	:	433 V
L.V Natural	:	433 V
20.0 System fault level	:	350 MVA at 11 KV
21.0 Overfluxing	:	Core shall be suitable for over fluxing upto 10% due to combined effect of voltage & frequency

FITTINGS AND ACCESSORIES

Each transformer shall be equipped with fitting and accessories as listed below:

- 1) Oil conservator with filler cap, drain plug and plain oil level gauge
- 2) Silica gel breather with connection pipe and oil seal
- 3) Air release plugs
- 4) Explosion vent for pressure release
- 5) Magnetic oil level gauge
- 6) Buchholz Relay with alarm & trip contacts.
- 7) Oil Temperature indicator with maximum reading pointer and electrically separate contacts for trip and alarm
- 8) Winding Temperature indicator with maximum reading pointer and electrically separate contacts for trip and alarm
- 9) Marshalling Box with TTB
- 10) Thermometer pockets.
- 11) Filler valve with threaded adopter (top and bottom)
- 12) Drain value with threaded adopter
- 13) Sampling valve
- 14) Jacking pads, handling and lifting lugs
- 15) Cover lifting eyes
- 16) Uni-directional rollers and skids complete with clamping device with nuts and bolts for clamping for clamping and transformer on inverted channel
- 17) Hand hole of sufficient size for access to interior of the tank
- 18) Two-grounding pads each complete with two (2) nos. tapped holes, M-10 G.I bolts and washer for transformer tank cover and radiator tank
- 19) Rating and terminal marking plates.
- 20) HT Cable end box and LT side cable end box.
- 21) ONAN cooling system complete with isolator valves and all necessary accessories
- 22) LV neutral bushing separately brought out for earthing of transformer neutral
- 23) Copper flexible with lug installed for affecting earthing of equipment components like radiators, top cover of tank etc
- 24) Externally hand operated lockable off circuit tap changer

TECHNICAL SPECIFICATION FOR HIGH VOLTAGE PANEL

Scope of Supply:

These specifications cover the detailed requirements for supply, installation, testing and commissioning of High Voltage Panels.

(A) VACUUM CIRCUIT BREAKER H.V. PANEL

The Panel board shall be of indoor type, having the incoming sectionalisation and outgoing switch gears as per IS 13118-1991 of VCB, IEC 62271-100 for Breakers and -200 for Panels/IS 3427 of switch board. The degree of enclosure protection shall be IP-4X. Detailed requirements shall be in accordance with the schedule of works at Appendix-II.

Rating: All panels assembled to form a board shall be suitable for the nominal operation voltage and rupturing capacity as specified. They should be rated as specified with a minimum of 630 Amps. And suitable for operation on 11 KV, 3 phase 50 Hz system. Type test certificate for the breaking capacity of the panel shall be supplied. A circuit breaker for a given duty in service is best selected by considering the individual rated values required by load conditions and fault condition.

Type: The HV panel Board shall be metal clad, indoor, floor mounting, free standing type. It shall be totally enclosed dust, damp and vermin proof.

General Construction: Separately earthed compartments shall be provided for circuit breakers, bus bars, relay & instruments, CT&PT and cable boxes, fully and effectively segregating these from one another so that fault in any one compartment do not cause damage to equipment(s) in other compartment(s). The housing shall be of bolted construction to ensure compact and rigid structure, presenting a neat and pleasing appearance. The sheet steel used should not be less than 2mm thick. The panels shall be bolted together to form a continuous flush front switch gear suitable for front operation of board and for extension at both ends. General Design Aspects: The HV panel board shall be designed such that the switchgear, instruments, relays, bus bars, small wiring etc. are arranged and mounted with due consideration for the followings:-

- (i) Facility for inspection, maintenance and repairs of testing terminals and terminal boards for ease of external connection.
- (ii) Minimum noise and vibrations.
 - Risk of accidental short circuits and open circuits.
 - Secured and vibration proof connections for power and control circuits.
- (iii) Risk of accidental contact and danger to personnel due to live connections.
- (iv) Mountings at approachable height

CIRCUIT BREAKER:

General Arrangements: The circuit breaker panels shall be complete with the following:

Racking in / Racking out mechanism.

Isolating plugs and sockets.

Mechanical inter-locks and safety shutters.

Mechanical ON/OFF indicator.

Minimum of 4 NO and 4 NC Auxiliary contacts directly operated by the circuit breaker.

Additional NO & NC contacts can be provided with auxiliary contactors.

Anti condensation space heaters suitable for operation on 240V, 1Ø 50 Hz A.C. for each panel

wherever specified. Suitable tripping arrangement Mechanical counter to assess the total number of operations of the breaker (if asked for specifically).

Type: The circuit breaker shall be of horizontal isolation, horizontal draw out pattern.

Breaker Truck: The breaker carriage shall be fabricated from steel, providing a sturdy vehicle for the circuit breaker and its operating and tripping mechanism. The carriage shall be mounted on wheels, moving on guides, designed to align correctly and allow easy movement of the circuit breaker and for removing the carriage for inspection and maintenance purposes. Vacuum interrupters shall be hermetically sealed and shall be designed for minimum contact erosion, fast recovery of dielectric strength, maintenance free vacuum interrupter, suitable for auto-reclosing. The drive mechanism shall preferably be provided with facility for pad locking at any position namely, "Service", "Test" and "Fully Isolated". It should be possible for testing the circuit breaker for its operation without energizing the power circuit in the "Testing" position. The contacts shall be made only after the breaker is inserted into service position. Interlocking should prevent contacts from being disconnected if circuit breaker is tried to be moved from service position.

General Features: Single break contacts are provided in sealed vacuum interrupter.

Rating: The circuit breakers shall be continuously rated as specified with a minimum rated current of 630 Amps. With voltage rating and breaking capacity as specified.

Operating Mechanism: The operating mechanism shall be one of the following as specified:-
Manually operated spring charged / motor wound spring charged with both mechanical and electrical release for closing. The operating mechanism shall be trip free. External auxiliary supply shall be made available for charging motors & heaters operation.

BUSBAR SECTION:

General Requirement: The switch board shall be single bus bar pattern with air insulated encapsulated bus bars housed in a separate compartment, segregated from other compartments.

Material: The bus bars shall be of high conductivity electrolytic copper rated as specified with a minimum rated current of 630 Amps. The bus bars shall be sized for carrying the rated and short circuit current without over-heating. Maximum bus bar temperature shall not exceed 95 degree C.

CURRENT TRANSFORMER:

General Requirements: Accommodation shall be provided in the circuit breaker panel to mount one set of three numbers dual core dual ratio CTs for metering and protection purposes. Access to the CTs for cleaning, testing or changing shall be from the front, back or top of the panel.

Rating: Dual core & dual ratio CTs of suitable burden (but not less than 15 VA) shall be preferred with 5 Amps secondary. The ratio shall normally be one of the following as specified:

100/50/5/5

Note: CT ratio shall be compatible with the loading pattern on HV side.

The CTs shall conform to relevant Indian Standards. The design and construction shall be robust to withstand thermal and dynamic stresses during short circuits. Secondary terminals of CTs shall be brought out suitably to a terminal block which will be easily accessible for testing and

terminal connections. The protection CTs shall be of accuracy class 5 P 10 of IS 2705- Part III-1992. The metering CTs shall conform to the metering ratio and accuracy class 0.5 of IS 2705-1992 for incomer and class 1 for outgoing Panels.

VOLTAGE TRANSFORMER:

General Requirements: A voltage transformer of burden not less than 100 VA and of proper ratio as specified shall be provided at the incoming panel. The accuracy class for the VT shall be class 0.5 as per IS 3156 parts I to III for incomer and class 1 for outgoing Panels. The transformer shall be of cast epoxy resin construction. It shall be fixed /withdraw able type. MCBs shall be provided on both HV and LV sides.

PROTECTION AND TRIPPING ARRANGEMENT:

Protection: The Relays shall be microprocessor based numerical relays with O/L ,E/F and S/C protection Tripping relay shall be used for tripping signal to the Shunt Trip Coil of Circuit Breaker operating on 24V/30V D C supply / Power pack / 110 V VT supply.

Note: -24V/30V DC shall be provided through 2 No. SMF batteries of 12/15 volts of minimum 26 AH capacity with a battery charger as per recommendation of the manufacturer both for protection as well as indications. Alternatively Power Pack converters fed through PT/230V externally could be provided with 2 Nos., 12/15 volt, 7AH SMF batteries (Power pack with condenser / capacitor backup are also available which do not need batteries, these should not be used) for tripping. In cases where tripping is fed through PT, VA burden of PT shall be suitably increased (say 200 VA) as recommended by the manufacturer depending upon the number of panels and connected controls. In addition external 24 volt / 30 volt DC supply shall be provided for indications etc. through 2 No. SMF batteries of 12/ 15 volts of minimum 26 AH capacity with a battery charger as per recommendation of the manufacturer.

Relays: Over current Relays shall have adjustable setting for current from 50% to 200% and earth fault from 10% to 40% or 20% to 80%. These should be of manual reset type. All relays shall have a LED indicator which will indicate operation for each function. It shall be possible to reset it only by manual operation. The number and types of relays shall be as specified.

SMALL WIRING

The small wiring shall be carried out with minimum 1.5sq. mm FRLS/HFFR insulated copper conductor cables. CT wiring shall be done with minimum 2.5 sq mm wires with colour code: RYB, Gray for auxiliary DC circuits and Black for auxiliary AC circuits The wiring shall be securely fixed and neatly arranged to enable easy tracing of wires. Identification tags shall be fitted to all wire terminals to render identification easy and to facilitate checking in accordance with IS 375. Necessary terminal blocks and cable entries shall be provided for RTD relay wiring, power supply etc.

METERING INSTRUMENT, PANEL ACCESSORIES (DIGITAL):

Metering: Energy metering shall be done on the incomer Instrument Panels: The instrument panel shall form part of the housing. Relays, meters and instruments shall be mounted as per general arrangement drawings to be submitted by the tenderer. They shall be preferably

of flush mounting type at a maximum height of 1800 mm.

Instrumentation:

A voltmeter of class 1.5 accuracy as per IS-1248 shall be provided at incomer panel, with selector switch. The instrument shall be calibrated for the ranges specified. Energy meters of class 1.0 conforming to IS. 722 (Part IX) and power factor meter of class of accuracy of 2 shall be provided. Ammeter of specified range of class 1.5 accuracy as per IS-1248 shall be provided at both incomer and outgoing panels alongwith necessary selector switches. The panel assembly shall also take care of the following requirements: Lamp indication shall be provided to indicate ON/OFF (by red green respectively) of switchgear. Panel illuminating lamp. Mechanical indication for spring charged status. If possible an indicating lamp could be provided. Lamp indicating tripping at fault status. Healthy trip supply shall be indicated by clear lamp. Separate fuses/MCBs shall be provided for lamps, heaters, voltmeters and other instrumentation etc. on each panel. Anti-condensation space heaters shall be provided, and shall be suitable for operation on 240 V, 1 phase, 50 Hz A.C. for each panel.

CABLE BOXES

Cable boxes shall be situated in a compartment at the rear / side of the housing as specified. Cable Entry: provision for top (bus ducts preferred for top entry) / bottom or such other side entry shall be made as per requirement with sufficient head room for cable termination. 3mm thick removable gland plate shall be provided for cable termination.

Earthing: The earthing of the breaker body and moving portion shall be so arranged that the earthing of the non-current carrying structure to the frame earth bar is completed well before the main circuit breaker plugs enter the fixed house sockets. The entire panel board shall have a common tinned copper earth bar of suitable section with 2 earth terminals for effectively earthing metallic portion of the panels. Installation: The installation work shall cover assembly of panels lining up, grouting the units etc. In the case of multi panels switch boards after connecting up the bus bar all joint shall be insulated with HV insulation tape or with approved insulation compound. A common earth bar shall be run preferably at the back of the switch board connecting all the sections for connecting the earth system. All protection, indications & metering connections and wirings shall be completed. Where trip supply battery is installed the unit shall be commissioned, completing initial charging of the batteries. All relay instruments and meters shall be mounted and connected with appropriate wiring. Calibration checks of units as necessary and required by the licensee like CTs, VTs Energy Meters etc. shall be completed before pre-commission checks are undertaken.

TESTING AND COMMISSIONING

Procedure for testing and commissioning of relay shall be in general accordance with good practice. Commissioning checks and tests shall include in addition to checking of all small wiring connections, relays calibration and setting tests by secondary injection method and primary injection method. Primary injection test will be preferred for operation of relay through CTs. Before panel board is commissioned, provision of the safety namely fire extinguishers, rubber mats and danger board shall be ensured. In addition all routine megger tests shall be performed. Checks and test shall include following.

- (a) Operation checks and lubrication of all moving parts.
- (b) Interlock function checks.
- (c) Continuity checks of wiring, fuses etc. as required.
- (d) Insulation tests.
- (e) Trip test and protection gear tests.
- (f) The complete panel shall be tested with 5000V megger for insulation between poles and

poles to earth. Insulation test of secondary of CTs and VT to earth shall be conducted using 500V megger.

(g) Any other tests as may be required by the Licensee / Inspector shall be conducted.

(h) Where specified, the entire switch board shall withstand high voltage test after installation.

(i) Any other test required by the consignee/inspecting officer.

TECHNICAL SPECIFICATION FOR LT PANEL

Scope of Supply:

The LT cubical panel boards shall be indoor type (as per BOQ item) metal enclosed, floor mounted, free standing, front operated flush type suitable for operation on 433 V, phase, 4 wire 50 Hz system conforming to relevant IP protection for external/internal atmosphere as per BOQ item. The LT panel shall be bolted structure, readily extensible on both sides by addition of electrical sections after removal of the end covers. The LT panel board shall in single tier formation for the incoming feeders and outgoing ACB feeders. MCCB feeders can be mounted in multitier configuration. The height of the switchboard shall not exceed 2250mm including the height of the base frame. However, the operating height shall not exceed 1800mm from finished floor level. All sheet steel material used in the construction of the switchboard should be 2.00 mm thick CRCA sheets for load bearing member and 1.6mm thick CRCA sheet for non load bearing member. Danger notice plates shall be provided at suitable locations. Necessary lifting hooks/angles shall be provided in each panel as required.

The entire LT panel shall be factory assembled conforming to IS-8623. Cable entry and terminal shall be provided in the switchboard to suit the number and size of aluminium conductor cable as specified in the schematic diagram. Generous cabling space shall be provided with the position of the cable gland and terminal such that the cables can be easily and safely terminated. An earth bus bar with two earthing cable eyes shall be provided for connection to the main earth. The earth bus bar shall run throughout the length of the switchboard. Vertical earth bus also shall be provided, wherever required. While designing the panel, multitier formation of feeders should be considered. Front rear door and top plates fitted with high quality gasket with fasteners designed to ensure proper compression of the gaskets. When covers are provided in place of doors, generous overlap shall be assured between sheet steel surfaces with closely faced fasteners to preclude the entry of dust. Sheet steel/hylam shrouds and partitions shall be of minimum 1mm thickness. Sheet steel work forming the exterior of the switchboard shall be smoothly finished leveled and free from burrs etc. and the corners should be rounded. The apparatus and circuits in the panel shall be so arranged so as to facilitate their operation and maintenance and at the same time ensure necessary degree of safety.

A base channel of appropriate thickness shall be provided at the bottom. At least 250mm space shall be provided above channel in which no switchgear shall be fixed.

All doors and covers providing access to power equipment shall be provided with tool operated

fasteners and or suitable door interlock to prevent unauthorized operation. All doors of the switchgears shall be earthed independently.

The bus bars shall be of high conductivity aluminum suitable for electrical purposes and of uniform cross section having a rating as per SLD for main bus bars and for neutral bus bars. The bus bar sizes shall be as per CPWD table of size calculation of bus bars and the clearances between bus bars has to be maintained as per CPWD specifications. aluminum bus shall be suitably insulated with heat shrinkable sleeves/epoxy coating/insulating tape to withstand the test voltage of 2.5 KV.

Bus bars for the termination of outgoing cables should be extended in a manner to facilitate ease of termination. The bus bars making arrangement of switchgear, connection and auxiliary wiring shall conform to IS-375. The bus bars shall be supported on fiberglass insulators placed sufficiently close to prevent the bus bars sag and to effectively withstand the electro-dynamic stresses occurring in the event of a short circuit. All bus bars and vertical risers shall be colour coded for identification. Engraved plastic labels shall be provided indicating the feeder details. The LT panel shall be provided with voltmeter 0-500 volts with 3 way on and off selector switch, ammeter of appropriate range with selector switch as per the bill of material in the tender. All metering equipments shall be of digital type.

The switchboards shall be routine tested at the manufacturer works as per IS-8623 1977. The equipment shall comply with the latest Indian Electricity Rules and Indian Electricity Act. The indicating lamps shall be of LED type.

All the equipments fitted in the LT panel should conform to latest IS specifications.

Note:- All MCCB"s exceeding 125 amp. Capacity shall be Micro Processor based or as per BOQ items. All incoming MCCB"s shall be with overload, short circuit and E/L protection and outgoing MCCB"s shall be with overload & short circuit protection.

The Panel shall be from list of approved panel manufacturers and should also have CPRI approval.

Note:

Above makes of equipment are approved subject to their meeting the specifications. The contractor, however, shall seek approval of specific make from Engineer In-charge before commencing the work. The decision of Engineer in-charge shall be final and binding on the contractor in this respect.

Items that are not covered in the above list and are required for execution shall be procured with the approval of Engineer Incharge. The decision of Engineer Incharge shall be final and binding on the contractor in this respect.

**Sd/-
Divisional Manager
P&S Jammu
JK AIDCL**

ANNEXURE“C”

**LIST OF DOCUMENTS TO BE SCANNED AND UPLOADED WITHIN
THE PERIOD OF BID SUBMISSION**

- 1. Cost of Tender document in shape of Demand Draft and uploading a copy of on e-tendering portal. in the name of MD JK Agro Industries Development corporation.**
- 2. Bid security Declaration pledged to Managing Director, JK AIDCL. As per Annexure“F”.**
- 3. Copy of PAN card.**
- 4. Latest income tax Clearance Certificate/return**
- 5. Copy of GST Registration Certificate/With latest return**
- 6. Experience certificate: Similar Nature of works.**
- 7. Tender document (SBD) duly signed & stamped on each leaf should also be uploaded.**
- 1. NOTE:- Similar nature of work means :having undertaken such Projects on turnkey basis and have executed successfully at least TWO(2) similar nature of work for the last five years to the tune of Rs 40 lacs.**

**Sd/-
Divisional Manager
P&S Jammu
JK AIDCL**

ANNEXURE“D”

FORMAT FOR AFFIDAVIT

1. I, do hereby certify that all the contents made in the Tender no.: _____ dated _____ are true & correct.
2. The undersigned also hereby certifies that our firm M/S have neither abandoned any work in the corporation or any other department nor any contract awarded to us for such work have been rescinded during the last five years period prior to the date of this bid.
3. The under signed here by authorize(s) and request(s) any bank, firm or corporation to furnish pertinent deemed necessary and requested by the department to verify this content or regarding any(our)competence and general reputation.
4. The undersigned understands and agrees that further qualifying Information may be requested and agrees to furnish any such information at the request of the department/project implementing authority.

Signature: -

Name: -

Designation: -

Address: -

J&K Agro Industries Development Corporation Limited
ANNEXURE“E”
Bid Acceptance Form

e-NIT- 16 of 2022-23

Dated: 13.06.2022

Name of work: Supply, Installation, Testing & Commissioning of Miscellaneous Electrical Works at JK Cold Store & Ice Factory B-13/14, Lawrence Road, Delhi.

However the following conditions are reconfirmed as under:-

1. Payment clause

Terms of payment:-

As per Annexure of e-NIT ITEM -8

(Yes/No).....

2. Delivery/Completion period

60 days

(Yes/No).....

3. Warranty Clause

12 months from the date of handing over the project

(Yes/No).....

4. Bid Validity period

Valid for a period of 180 days from the date of opening of tenders

(Yes/No).....

5. Terms and conditions

As per Annexure “B” of e-NIT

Yes/No).....

Note: In case of any deviation from any of the terms and conditions of the e-NIT, the same shall have to be given on company/firm/contractor’s Letter Head giving full details and technical reasons.

Seal & signature of
the Tenderer

ANNEXURE-“F”

Bid Securing Declaration Form

Date: _____ Tender No. _____

To
.....
.....

I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am/ We are in a breach of any obligation under the bid conditions, because I/We

- a) have withdrawn/modified/amended, Impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or
- b) Having been notified of the acceptance of our Bid by the purchase during the period of Bid validity (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance security, in accordance with the Instructions to Bidders.

I/ We understand this Bid Securing Declaration shall cease to be valid if I am/ We are not the successful bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or(ii) thirty days after the expiration of the validity of my/our Bid.

Signed:

In the capacity
of.....

Name:.....
.....

Duly authorized to sign the bid for an on behalf of(insert complete name of Bidder)

Dated on _____ day of _____ (Insert date of signing) Corporate Seal (where appropriate)

(Note: in case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid)

Check list to be filled by Bidder before Submission of Bid

S. No	Documents to be submitted by the tenderer along with their bid	Check & confirm of having attached These documents along with Bid (Yes/No)
1.	EMD Deposit.....	
2.	Pre-Qualification (PQ) Performa	
3.	Audited Financial Statements for last three years in proof of financial solvency of the bidder.	
4.	Valid A Class Electrical Contractor Registration as per tender condition.	
5.	Experience Certificate for executing works of similar nature for sub-station as per tender condition.	
6.	Affidavit for non-black listing with any Government agency or body	
7.	Certificate of Registration with Registrars of Company (ROC) in case of company/firm/LLP	
8.	Copy of MSME Registration (if applicable)	
9.	Letter of submission of tender on the letter head of bidder.	
10	Submission of complete tender document, duly signed	
11	Permanent Account Number (PAN) Card	
12	GST registration Certificate	

**MANDATORY PRE-QUALIFYING (PQ)-PROFORMA/COMPARATIVE STATEMENT
(To be filled by bidder and submitted along with tender document)**

Name of Work:		
Tender No:		
NAME OF THE FIRM		
S. No.	Description	Details
1	Name, Address, Organization ID, Tel. /Fax No.& e-mail address of Bidder	
2	Attested copy of Firm Details (Proprietorship/Partnership/private limited / limited company / Registered Society / Registered Trust/ LLP(Limited Liability Partnership),	
3	Attested Copy of Power of Attorney for authorized person signing Tender Document.	
4	Submission of Bid security declaration in lieu of EMD amount	
5	PF Registration.	
6	GST Registration	
7	PAN No. of the firm	
8	Letter of Submission of tender	
9	Contractor Registration as A Class Electrical contractor	
10	Audited Financial Statements for last three years in proof of financial solvency of the bidder	
11	Experience with respect to similar nature of work:- Tenderer must have successfully completed at least three similar work for sub-station.	
i)	Name of Work:- Date of Start Date of Completion Completion Cost Name of Agency/Client	
ii)	Name of Work:- Date of Start Date of Completion Completion Cost Name of Agency/Client	
iii)	Name of Work:- Date of Start Date of Completion Completion Cost Name of Agency/Client	
12	Affidavit (Annexure-D) to be submitted alongwith tender.	

Note: 1: - Bidders have to fill the complete details in Pre-Qualifying Proforma.
Note: 2. The documents pertaining to above details should be scanned and uploaded in the e-tendering website at the time of online tender submission.
Note: 3 RTGS/ NEFT E-payment Challans with UTR no. <u>duly authenticated by Bank</u> may also be scanned & uploaded along with tender submission.
Note: 4 Copy of Certificate must be submitted by the bidder.

Scope of Work

- a) Tenderer has to obtain statutory approvals from relevant authorities, co-ordinate and file all papers/applications (wherever required). JK AIDCL officials will sign relevant papers and application forms and also deposit the required statutory charges.
- b) Tenderer has to supply, install, test and successfully commission all BOQ items.
- c) Tenderer will ensure supply of all items as per the approved makes list mentioned in the tender. In case any make is not available then reference has to be made to CPWD norms and concerned IS for that specific item.
- d) The tenderer shall guarantee all the equipment offered for satisfactory performance for a period of 12 months from the date of commissioning and handing over the installation to JK Agro against defects arising out of faulty design, material & workmanship. The tenderer should make good all the defects free of costs during the guarantee period and replace or repair the defective equipment/parts free of cost promptly and satisfactorily.
- e) The defects liability period will be 12 months after actual & final completion of work.
- f) Security Deposit will be 10% of the contract value and will be released after completion of the defects liability period.

BILL OF QUANTITY						
SCHEDULE A - ELECTRICAL DSR 2018 ITEMS						
S. No.	Ref. of DSR - 2018	Description of Item	Unit	Qty	Rate	Amount
1	8.1	Laying of one NO PVC insulated PVC sheathed /XLPE power cable of 11KV grade of the following sizes direct in ground including excavation, sand cushioning protective covering and refilling the trench etc. as required				
	8.1.1	Upto 120 sq mm	mtr	85	438.00	37230.00
2	8.2	Laying of one NO additional PVC insulated PVC sheathed /XLPE power cable of 11KV grade of the following sizes direct in ground including excavation, sand cushioning protective covering and refilling the trench etc. as required				
	8.2.1	Upto 120 sq mm	Mtr	20	300.00	6000.00
3	10.4	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs, suitable for following size of 3 core XLPE aluminium conductor cable of 11kv grade as required.				
	10.4.2	120 sq mm	No	6	8,947.00	53682.00
4	7.1	Laying of 1No PVC insulated PVC sheathed/XLPE power cable of 1.1KV grade of the following sizes directly in ground including excavation ,sand cushioning protective covering and refilling the trench as required				
a)	7.1.1	Upto 35 sq mm	mtr	760	323.00	245480.00
b)	7.1.2	above 35 sq mm upto 95 sq mm	mtr	150	338.00	50700.00
c)	7.1.4	above 185 sq mm upto 400 sq mm	mtr	90	396.00	35640.00
d)	7.2	Laying of 1No additional PVC insulated PVC sheathed/XLPE power cable of 1.1KV grade of the following sizes directly in ground including excavation ,sand cushioning protective covering and refilling the trench as required				
e)	7.2.1	Upto 35 sq mm	mtr	100	222.00	22200.00
5	7.2.2	above 35 sq mm upto 95 sq mm	mtr	150	236.00	35400.00

6	7.2.4	above 185 sq mm upto 400 sq mm	mtr	80	294.00	23520.00
a)	7.8	Laying of 1 No PVC insulated PVC sheathed/XLPE power cable of 1.1 KV grade of the following sizes in existing masonry open duct as required				
c)	7.6.1	Upto 35 sq mm	mtr	100	23.00	2300.00
f)	7.6.2	above 35 sq mm upto 95 sq mm	mtr	150	38.00	5700.00
7	7.6.4	above 185 sq mm upto 400 sq mm	mtr	80	96.00	7680.00
a)	7.8	Laying of 1 No PVC insulated PVC sheathed/XLPE power cable of 1.1 KV grade of the following sizes on cable tray as required				
8	7.8.1	Upto 35 sq.mm (clamped with 1mm thick saddle)	mtr	100	33.00	3300.00
9	7.8.2	above 35 sq mm upto 95 sq mm (clamped with 25x3mm saddles)	mtr	150	74.00	11100.00
10	7.8.4	above 185 sq mm upto 400 sq mm (clamped with 25x3 mm ms flat clamp)	mtr	80	150.00	12000.00
11	1.50	Installation of exhaust fan in existing opening including making good the damage, connecting, testing, commissioning etc as required				
12	1.50.1	upto 450 mm sweep	no	10	363.00	3630.00
	1.51	Extra for fixing louvers complete with frame for exhaust fan	Each	10	168.00	1680.00
	9.1	supplying and making end termination with brass compression cable gland and Aluminium lugs of the following sizes of PVC insulated PVC sheathed / XLPE aluminium conductor of 1.1 KV grade as required				
13	9.1.1	2X6 sq mm (19mm)	Each	28	198.00	5544.00
	9.1.21	3.5 X 35 (32 mm)	Each	32	300.00	9600.00
14	9.1.24	3.5 X 95 (45 mm)	Each	8	473.00	3784.00
	9.1.29	3.5 X 240 (62mm)	Each	8	809.00	6472.00
21	5.4	Earthing with GI earth plate 600mm x 600mm x 6mm thick including accesories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/coke and salt as required.	set	8	6216.00	49728.00

22	5.6	Earthing with Copper earth plate 600mm x 600mm x 3mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/coke and salt as required.	set	6	11794.00	70764.00
23	5.8	supplying and laying 25X5 mm copper strip at 0.5 mt below ground as strip earth electrode including connection/ terminating with nut bolt spring washer, as required (jointing shall be done by overlapping and with 2 sets of brass nut bolt spaced 50mm)	Metre	200	853.00	170600.00
24	5.9	supplying and laying 25X5 mm GI strip at 0.5 mt below ground as strip earth electrode including connection/ terminating with nut bolt spring washer, as required (jointing shall be done by overlapping and with 2 sets of GI nut bolt spaced 50mm)	Metre	400	131.00	52400.00
25	4.6	Supplying and installing following sizes of perforated hot dipped galvanised iron cable tray (galvanising thickness not less than 50 micron) with perforation not more than 17.5% in convenient sections joined with connectors, suspended from ceiling with GI suspenders including GI nut bolt etc as required				
26	4.6.1	100mm width X 50mm depth X 1.6 mm thickness	Metre	50	599.00	29950.00
27	4.6.4	300mm width X 50mm depth X 1.6 mm thickness	Metre	200	875.00	175000.00
28	4.6.6	450mm width X 50mm depth X 2.0 mm thickness	Metre	200	1213.00	242600.00
		Total amount of Schedule "A" (DSR ELECTRICAL - 2018)				1373684.00

BILL OF QUANTITY

SCHEDULE B - ELECTRICAL NON SCHEDULE ITEMS

S. No.	Description of Item	Unit	Qty.	Rate	Amount
1	Supply, Installation, Testing & Commissioning of indoor type Free standing main LT Panel suitable for 415A, 3P + N +E, 50HZ, 50KA, including capacitor section as per attached Single line diagram and specification	Lot	1	2,065,000.00	2065000.00
2	Supply, Installation, Testing & Commissioning of indoor type Free standing Lighting Panel suitable for 415A, 3P + N +E, 50HZ, 50KA, as per attached Single line diagram and specification.	Lot	1	295,000.00	295000.00
3	Supply of 12" (305mm) dia (900 rpm) single phase Exhaust fan with louvres complete as required.	Nos	10	3500.00	35000.00
4	Supply of following sizes alluminium conductor, XLPE insulated, armoured, PVC sheathed cable 1100 V grade complete as required.				
5	LT Cables				
a.	3.5C x 35 Sq. mm	Mtr	1200	295.00	354000.00
b.	2C x 4 Sq.mm	Mtr	260	82.60	21476.00
c.	3.5C x 95 Sq. mm	Mtr	500	767.00	383500.00
d	3.5C x 240Sq. mm	Mtr	360	1475.00	531000.00
e	4Cx1.5 sq mm	Mtr	500	53.10	26550.00
	Transformer				
5	Supply, installation, testing, commissioning of Outdoor type 315KVA, 11KV/433V Dyn11, ONAN transformer as per attached specification.	No	1	1357000.00	1357000.00
6	11KV VCB panel as per attached specification and SLD	Set	1	1947000	1947000.00
7	11KV XLPE 3X120 sq. mm cable	Mtr	85	2596	220660.00
	Total amount of Schedule "B"				7236186.00

APPROVED LIST OF MATERIALS/EQUIPMENTS/ACCESSORIES

S.No.	Equipment	IS No.	Approved Makes/ Manufactures
1	LT Panel	Relevant IS	Advance, C&S, Adlec, Risha Controls & Contracts, SMA Power Controls.
2	MCCB		L&T, Siemens, GE, Crompton, Schnieder, ABB
3	Floodlight /light fittings/LED Lights	-do-	Bajaj, Crompton, Phillips
4	XLPE insulated, PVC Sheathed Alu. Conductor armoured/un-armoured power cables (HT & LT)	ISI 7098 (Part I)	Havells, Fort Gloster, ICL, Gem Cab, Universal, Polycab, KEI
5	Copper conductor cables		Havells, Standard, Finolex, Gem Cab, Universal, Polycab
6	Cable joints for XLPE LT & HT		Raychem, M-Seal, 3M
7	Measuring instruments (Digital)	1248 and 6236 latest	AE, Capital, Neptune, Rishab (L&T) as per OEM Standard
8	Selector Switch	To relevant ISS	Control Switch Gear, Kaycee, L&T as per OEM standards.
9	Indicating lamps (LED TYPE) /Push Buttons	-do-	Binay, Schneider, L&T or as per OEM standard
10	Aluminium Bus Bar	-do-	Electrolytic grade aluminium
11	Contactors	-do-	L&T, ABB, Siemens
12	MCB		MD. Hager, Legrand, ABB, L&T, Crompton
13	Instrument Transformer		AE, Kappa, Alstom or as per OEM standard
14	Cable Glands	Relevant IS	Comet, Jainson, Gripwel
15	Cable lugs copper	Relevant IS	Dowells, Jainson, Action
16	Distribution Boards	Relevant IS	Hager/ Legrand, ABB, L&T
17	Battery	Relevant IS	Exide, Standard Furukawa, Cummins as per OEM standard
18	Transformer	Relevant IS	Kirloskar, Indian Transformer (Gurgaon), Voltamp, Kanohar, EMCO, Crompton Greaves, PME (CRRI Approved)
19	Relay	Relevant IS	ABB, Siemens, L&T, English Electric, Areva as per OEM standard
20	Fans/ Exhaust Fans	Relevant IS	Bajaj, Crompton, Havells, GE
21	DG Genset	Relevant IS	Electro Equipment, Kirloskar Green, Eicher, Escorts, Mahindra, Cummins
22	Voltage Stabiliser	Relevant IS	Electro Engineers, Green Dot, Indian Transformers & Electrical
23	Street Light Pole	Relevant IS	Bajaj, Power Control Equipment, Sohanlal