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भारतीय प्रौद्योगिकी संस्थान धारवाड

Indian Institute of Technology Dharwad

Survey no's: 678 to 740/3, Chikkamalligewad,
Kelageri Village, Dharwad-580008.

Tender for providing Annual Maintenance Contract for Operations and Maintenance of 33/11 kV Main receiving sub-station (ESS-1)-1 No and 3 No's zonal sub stations, External Lighting, Hydro Pneumatic pumps, DG Sets including complaint management of all facilities.

Tender no: IITDH/IPS/EE/2023-24/001



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Tender no.: IITDH/IPS/EE/2023-24/001

SECTION -I-NOTICE INVITING TENDER

Name of the work:	Tender for providing Annual Maintenance Contract for Operations and Maintenance of 33/11 kV Main receiving sub-station (ESS-1)-1 No and 3 No's zonal sub stations, Hydropneumatic system, External Lighting, DG sets including complaint management of all facilities.	
Type of Tender:	Open Tender Enquiry	
Estimate Value:	Rs.134 lakhs approx.	
Cost of tender documents	Free of cost	
EMD:	1.5% of Estimated cost (Rs.2,01,726).	
Issue of tender:	25 th September, 2023.	
Last date for submission of tender:	Date: 16 th October, 2023. Time: 10:00 AM	
<u>Two Bid System: -</u> The two-bid system will be followed for this tender. In this system bidder must submit their offer in separate sealed envelopes as – Technical Bid and Financial Bid. Separate technical bid and financial bid envelopes should be clearly marked as "Envelope No. 1 - Technical Bid" and "Envelope No. 2 - Financial Bid". Both these sealed covers are to be put in a bigger cover which should also be sealed and duly super-scribed with our Tender No. & Due Date and to be submitted to the concern department/section mentioned in tender document. Note: The technical offer should not contain any price information. If the price quoted is submitted in technical bid, the tender will be rejected at the sole discretion of IIT Dharwad. Initially Technical Bids will be opened and evaluated by the works committee. Financial bids of only Technically qualified bidders will be opened later. Contract/ Work Order will be awarded to the lowest bidder (L1) identified.		
Covers Information / Submission of Bids		
Cover No.	Cover Type	Description
1	Technical	EMD, Technical Specification, Tender Document, Schedule of Requirement and Compliance, Bidders Information/Indian Agent Information, Previous Work Orders etc.
2	Financial	Financial Bid
Opening of technical bid:	Date: 16 th October,2023 Time: 10:30 AM	
	Schedule for opening of Financial Bid will be notified only to the bidders qualifying the Technical Bid. Presence of the bidder or his/her authorized representative at the time of opening of the Commercial bid is highly preferable.	
Contacting Authority:	The Executive Engineer (EE-IPS) Near High Court, P B Road Dharwad-580008. E-mail: ee.ips@iitdh.ac.in . Telephone: 91-836-2212-839	



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SECTION-II

FORWARDING LETTER

(To be submitted on firm/contractor's letterhead)

No.....

Date:.....

To
The Executive Engineer,
Indian Institute of Technology Dharwad,
Near High Court, P.B. Road,
Dharwad-580008.

Dear Sir,

Annual Maintenance Contract for Operations and Maintenance of 33/11 kV Main receiving sub-station (ESS-1)-1 No and 3 No's zonal sub stations, External Lighting, Hydro Pneumatic pumps (5 UG Sumps), DG SETS including complaint management of all facilities.

With reference to your Notice for AMC for 24X7 basis operation and maintenance of Electrical, installations, I am / we are pleased to offer myself / ourselves for undertaking above work in your esteemed organization. In submission of this offer, we confirm that

- i) We have not made any misleading or false representation in the forms, statements, and attachments in proof of the qualification requirements.
- ii) We do not have records of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion, litigation history or financial failures etc.
- iii) Business has never been banned by the Central / State Government Department/ Public Sector Undertaking or Enterprise of Central / State Government.
- iv) We have submitted all the supporting documents and furnished the relevant details as per prescribed format.
- v) The information and documents submitted with the tender by us are correct and we are fully responsible for the correctness of the information and documents submitted by us.

Yours faithfully,

(Signature of the authorized person of the firm/contractor with office seal).



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Section -III

Application form

PART-1 (BASIC INFORMATION)

1	Name of the Contractor / Firm / Organization / Company.	
2	Official Address for Correspondence with Telephone & Mobile Nos.	
3	Correspondence address with contact person's name, telephone number, mobile number etc. (The company should have office and service facilities in Karnataka)	
4	Type of Firm / Organization, whether proprietorship, partnership or private limited company etc.	
5	Year of establishment	
6	Name of the Proprietor / Partners /Directors in Organization	a) b) c) d)
7	a) Details of Registration (Firm, Company etc) i. Registering Authority ii. Date iii. Number b) Details of Labor license i. Registering Authority ii. Reg No. iii. Date of issue iv. Date of expiry.	To be filled by the vendors



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	c) Details of Electrical license i. Registering Authority ii. Reg No. iii. Date of issue. iv. Date of expiry. (Copies to be enclosed).	
8	a) Details of Income Tax Permanent Account Number (PAN No.) . b) Details of TIN No. c) Details of EPF No. d) Details of ESI No. e) Details of GST No. (enclose a copy of the certificate competent Authority)	To be filled by the vendors
9	Annual turnover of the firm for last three years (in Rs. Lakhs) (Furnish copies of Balance Sheet and Profit & Loss Account)	a) For F.Y. 2022-23: b) For F.Y. 2021-22: c) For F.Y. 2020-21:
10	Whether registered / empaneled with any of the Govt., Semi Govt., MES, IIT, NIT, IISc, Govt. Undertaking, Public Sectors etc. as approved contractors and if so, furnish details.	
11	Whether any technical personnel are employed with the Firm / Organization and if so, give details of their experience, qualification	
12	If involved in any litigation earlier with any organization. If so, please submit the details.	
13	Any civil suits pending in any of the works executed. If so, furnish details.	

Signature of the Contractor / Authorized person on behalf of the Firm / Organization



PART-II EXPERIENCE

Annual Maintenance Contract for Operations and Maintenance of 33/11 kV Main receiving sub-station (ESS-1)-1 No and 3 No's zonal sub stations, External Lighting, Hydro Pneumatic pumps (5 UG Sumps),DG Sets including complaint management of all facilities.

A) List of similar works / contracts executed by the contractor / Firm / Organization During the last 5 years prior to last month ending to the date of application issued.

Sr.No.	Name of the work	Name & Address of the Company for whom the work was executed	Nature / Type of the work	Name, Address & mobile/phone No. of Officer / Person under whom the work was carried out	Value of the work executed (Rs)	Duration of the Contract with commencement and completion date
1						
2						
3						
4						
5						

Note: Copies of the work orders and performance certificate should be enclosed



B) List of similar works / contracts being executed presently by the contractor / Firm / Organization

Sr.No.	Name of the work	Name & Address of the Company for whom the work was executed	Nature / Type of the work	Name, Address & mobile/phone No. of Officer / Person under whom the work was carried out	Estimated value of the work (Rs)	Duration of the Contract with commencement and expected date of completion
1						
2						
3						
4						
5						

Note: Copies of the work orders should be enclosed

**Signature of the contractor /
Authorized person on behalf of
the Firm / Organization**

SECTION-IV	General Conditions of Contract
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TENDER DOCUMENT

Tender for providing Annual Maintenance Contract for Operations and Maintenance of 33/11 kV Main receiving sub-station (ESS-1)-1 No and 3 No's zonal sub stations with External Lighting, Hydropneumatics pumps, DG sets including complaint management of all facilities.

NAME OF THE TENDERER:

ADDRESS: -----

Last date of submission of the tender: On or before **16.10.2023** by **10:00 Hrs.**

TECHNICAL BID

VOLUME-I

Tender for providing Annual Maintenance Contract for Operations and Maintenance of 33/11 kV Main receiving sub-station (ESS-1)-1 No and 3 No's zonal sub stations, External Lighting, Hydro Pneumatic Pumps, DG Sets including complaint management of all facilities.

Tender no.: IITDH/IPS/EE/2021-22/001

GENERAL CONDITIONS OF CONTRACT

Sealed tenders are hereby invited on behalf of the Indian Institute of Technology, (IIT) Dharwad, for providing Annual Maintenance Contract for Operations and Maintenance of 33/11 kV Main receiving sub-station (ESS-1)-1 No and 3 No's zonal sub stations, Hydro pneumatic pumps, External Lighting, DG sets including complaint management of all facilities.

Annual Maintenance Contract (AMC) for Operations and Maintenance of 33/11 kV Main receiving sub-station (ESS-1)-1 No and 3 No's zonal sub stations, Hydropneumatic pumps, External lights, DG sets including complaint management of all facilities for a period of One year to IIT Dharwad Permanent Campus, Karnataka.

2.QUALIFICATION CRITERIA:

Only those bidders fulfilling the following Eligibility Criteria should participate in the tender: -

- 2.1 The contractor should have a valid 33KV 'A' Grade/ Class-I Electrical Contractor's License issued by Competent authority. Bidders must be in the business of providing AMC in respect of substation maintenance works in the past 5 years or more (i.e., the firm must be in the business since September 2018 or earlier, The Experience of Electrical works installation shall not be considered, the experience of Operations and Maintenance of 33Kv and above substations only will be considered exclusively). The Bidder should have his registered office within 500 Km range in and around IIT Dharwad.
- 2.2 The Bidder must have carried similar AMC work as per following range in reputed organizations /IITs/IIMs/Govt. offices/PSUs/Central-Universities/ ESCOM / KPTCL etc. during a period of last 5 years (i.e., Work orders issued before during October 2018 till date). Completion certificates/work done certificates etc. to this effect are required to be enclosed. Only AMC/Maintenance contracts (entire one year period) will be considered for evaluation (**Installation/execution of Electrical installations will not be considered on experience**). The contractor should have successfully executed similar works (ie.

Operation and Maintenance of HT & LT Electrical) during last 5 years (ie. till the last date of month before the date of application issued) as under:

- a. If Total value of three completed/ ongoing and similar annual works of 40% estimated value of this contract **(i.e., Rs.53 lakh)** (OR)
- b. If Total value of two completed/ ongoing and similar annual works of 60% estimated value of this contract **(i.e., Rs.80 lakh)** (OR)
- c. If Total value of one completed/ongoing and similar annual work of 80% estimated value of this contract **(i.e., Rs.107 lakh)**.

The Total value of all work orders in any one year in previous five years shall be considered for assessment of eligibility in this category.

2.3A Certificate/Undertaking on the letter head of the Company to the effect that the bidder has not been blacklisted anywhere in India or abroad by any organization. A self-certification to this effect is required to be enclosed.

2.4 The Bidder should be registered with concerned statutory authorities for GST/Income Tax etc. The bidder should furnish relevant GST registration documents and

2.5 PAN/TAN copies along with the bank details of the firm.

2.6 The bidder shall enclose documentary proof of engagement of manpower of 20 Heads and more such as PF Statements.....etc.

Any prospective bidder, not satisfying any of the above-mentioned qualification criteria shall be disqualified on technical grounds and the price bid of such disqualified bidder will not be considered for this tender.

3. Tender documents can be obtained from IIT Dharwad

website: http://www.iitdh.ac.in/announcements_worktenders.php

4. Tenders are invited under Open Tender Enquiry and two bid system for Annual Maintenance Contract for Operations and Maintenance of 33/11 kV Main receiving sub-station (ESS-1)-1 No and 3 No's zonal sub stations, Hydropneumatics Pumps, External Lights and DG sets. Technical Bid along-with

supporting documents, Earnest Money Deposit (if applicable) (in form of DD/Bankers Cheque in favor of **The Registrar, IIT Dharwad** payable @ Dharwad) shall be submitted in separate sealed envelopes and then encased inside one sealed envelope super scribed 'Technical Bid for providing Annual Service Maintenance Contract (ASMC) in respect of Electrical and Miscellaneous works for a period of one year to IIT Dharwad Permanent campus.' All the pages of this tender document along with necessary Appendices (as applicable) duly signed and stamped, will form the technical bid.

5. The bidder must submit the following documents/information within the Technical Bid (all 6 criteria to be mandatorily fulfilled for technical qualification):

- a. The entire tender document duly signed on each page.
- b. Copy of the valid PAN Card, Goods & Sales Tax Registration be forwarded.
- c. Proof of establishment of company/business for a period of more than 5 years.
- d. Completion certificates by the Bidder for Annual Electrical AMC work in reputed organizations/IITs/IIMs/PSUs/ Central universities/escom/KPTCL etc. during a period of last 5 years (as per the qualification criteria limits).
- e. A Certificate/undertaking on the letter head of the company to the effect that the bidder/ manufacturer had not been blacklisted anywhere in India or abroad by any organization.
- f. In case EMD exemption is sought under SME/MSME/NSIC, Valid certificate explicitly mentioning nature of operation shall be forwarded in addition.

6. The Price Bid as per **Annexure-2** with this tender document, should be duly filled, stamped, and signed by the authorized signatory of the agency/firm/company and sealed in a separate envelope super scribing 'Financial Bid for providing Annual Service Maintenance Contract (ASMC) in respect of Electrical and Miscellaneous works for a period of one year to IIT Dharwad Permanent campus, survey no's: 678 to 740/3, Chikkamalligewad, Kelageri Village, Dharwad-580008.

7. The Technical bid and the Price bid shall be sealed in one envelope super scribing 'Tender for providing Annual Maintenance Contract (ASMC) in respect of Electrical and Miscellaneous works for a period of one years to IIT Dharwad Permanent campus, survey no's: 678 to 740/3, Chikkamalligewad, Kelageri Village, Dharwad-580008.

8. The technical bids shall be opened as per schedule placed at Notice Inviting

Tender (NIT). The vendors who are short listed after qualifying technical bid evaluation will be intimated the date of opening of price bids subsequently through proper means. IIT Dharwad reserves the right to reject any or all the tenders/bids without assigning any reason thereof.

9. Tenders are to be submitted in a serially numbered & bounded manner. The tender should be submitted in the **tender box by the tenderer kept in Office of Executive Engineer up to 10:00 AM** on or before last date and time of bid submission as mentioned in Notice Inviting Tender (NIT) and will be opened by **Executive Engineer** or his authorized representatives in his office / any other place in the Institute on date and time of tender opening as mentioned in NIT, in the presence of such tenderers who desire to attend.

10. Tenders should be addressed to **“The Executive Engineer, Indian Institute of Technology Dharwad, Near High Court, PB Road Dharwad 580011”**. The name of the tenderer and the name of the work must be noted on the above.

11. Income Tax PAN number & GST registration number is to be submitted along-with the bid.

12. The tenderers should write in figures as well as in words for the rates quoted by them on the proper form of the tender. All corrections / over writings must be attested by the dated initials of the contractor. The tenderer is advised to avoid offering discount /rebate in the covering page or at the end of the schedule. Instead, the same can be incorporated in the unit rate by reducing the unit rates. If at all offered, the discount / rebate percentage offered is to be written in words such as Five percent / point Five percent etc.

13. The rates quoted shall be inclusive of all taxes, royalties etc. The contractor shall quote for all the items whose rates are asked and not leave any blanks all taxes including GST shall be borne by the contractor.

14. The offer should be valid for 90 days from the date of opening for the purpose of issue of acceptance letter. The amount quoted herein after referred to as Base rate must be firm and inclusive of all charges of any kind and inclusive of any kind of liability from / to any authority. GST shall be mentioned separately and must not form part of base price. There will be no extra payment or payment of escalation in the amount under any circumstances whatsoever. Statutory taxes will be deducted

at source from the payment against the bill amount.

15. No extra item or substitute item shall be allowed out without prior approval in writing.

16. Work must be carried out in consultation with the representative as authorized by IIT Dharwad.

17. The tenderer should submit the requisite interest free Earnest Money Deposit (EMD, if applicable) by pay order or Demand Draft in favor of **The Registrar, IIT Dharwad**. Tenders not accompanied by the Earnest Money Deposit shall not be considered. The EMD of unsuccessful tenderers will be returned within one month of award of work. In case EMD exemption is sought under SME/MSME/NSIC, Valid certificate from MSME explicitly mentioning the tender work herein, is required to be submitted.

18. The full value of Earnest Money Deposit is to be absolutely forfeited to the Director, IIT Dharwad or his authorized representative, with prejudice to any other rights or remedies to the Director, IIT Dharwad or his authorized representative, if the contractor fails to commence the work within 15 days continuously from the schedule date of commencement specified.

19. The Earnest money deposit paid at the time of tender, will be released after payment of final bill.

20. No part of the contract shall be sublet without written permission of IIT Dharwad nor shall transfer be made to power of Attorney authorizing others to receive payment on contractor's behalf.

21. IIT Dharwad reserves the right to reject any tender or all the tenders without assigning any reason therefore.

22. The Contractor shall comply with the provisions of all Acts, Statutes, Rules, Regulations etc. of the Central and State Government as the case may be that may apply to his case and if necessary, get himself duly registered as required by the said Acts, Statutes, Rules, Regulations etc.

23. The contractor for the work shall be liable to pay applicable tax (including Taxes

on works contract to state Government) if any that may be levied by the State or Union Government. Any request contrary to this will not be accepted.

Note:

- The details furnished shall be for the maintenance jobs & not for the installation works. The contractor must have experience in operation & maintenance of Electrical.
- The vendors submitting the credential of installation works shall not be eligible for prequalification.
- The track record of the contractor should be clean and he should not have any involvement in any illegal activities or frauds.

24. Period of ASMC: Initially for a period of one year from the date of award of work order and further extendable up to two year based on performance. The period of AMC may be extended for another two years subject to the satisfactory performance of the contractor.

25. Terms of payment: As per the measurements at site and on certification of Junior Engineer- Electrical, IIT Dharwad.

- a) The contractor shall submit his monthly bill along with monthly muster sheet & written approvals. Kindly note that the monthly bills for work done under AMC must be submitted by 5th day of next month (i.e., for the work done in September 2023, the bills must be submitted on or before 5th October 2023 along with the details of payment of wages to the respective manpower bank accounts, Receipts of payment of PF and ESI). Submission of delayed bills may lead to imposition of penalty @ 0.5% of bill value for each delayed week.
- b) The payment shall be released through NEFT/RTGS payment system only in the bank account of the contractor after necessary deduction of statutory dues.
- c) TDS and other Statutory taxes shall be deducted at the source from the monthly bills.
- d) Security Deposit of 5 % shall be deducted from Monthly bills and shall be paid on the completion of contract period successfully.

26.It shall be open to the Institute to abandon or give up at any stage of the construction of any of the said works or any part thereof. In the event of such abandonment or giving up or in the event of termination of the agreement, the Contractor shall be paid up to the work performed by then.

27. Deviation, Extra Items & Approvals for Pricing:

In case of execution of any extra items(s), apart from the BOQ, contractor must intimate the office of Dean (IPS) to obtain prior sanction for carrying out the work along with the quantities & rates. Thereafter, the contractor may submit the bills as per the usual practice of submission of RA bills.

DEVIATION LIMIT FOR THE CONTRACT ITEMS IS 50%.

In case of contract items which exceed the limit of 50%, the contractor must intimate the office of Dean (IPS) to obtain prior sanction for carrying out the work along with the quantities & rates. Thereafter, the contractor may submit the bills as per the usual practice of submission of RA bills.

28. Termination of contract: If the Contractor fails to perform any of its obligations under this agreement or if Institute is dissatisfied with the services of the Contractor, Institute may issue seven days' written notice intimating the Contractor of their failures or deficiencies and calling upon Contractor to rectify within such time as may be specified in the notice and if the Contractor fails to perform such obligation or make good such deficiencies as pointed out to the Contractor in the notice, Institute may terminate the services of Contractor under this agreement. Institute may also terminate the Contract hereunder:

- i) if the firm is adjudged bankrupt or
- ii) if they make a general assignment for the benefit of their creditors or
- iii) if a receiver is appointed on account of their insolvency or
- iv) they disregard law, ordinances, rules, regulations, or orders of any public authority having jurisdiction on the works.

The termination shall be without prejudice to all rights, liabilities and remedies that have arisen or accrued till date of such termination or that may arise on account of such termination and Institute may get the project completed by whatever method they may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment, if due, until the loss, damage or expense incurred by Institute due to breach of this agreement by Contractor have been settled.

In case the Contractor abandons the work during the project, the Institute has the right to appoint an alternate Contractor or arrange for carrying out the work of Contractor, at the risk and cost of the Contractor. Traveling / daily allowances shall not be payable to the Contractor, its representatives, officials, and consultants engaged by it for their visit to construction site, offices of local authorities, Employer's office, or any other place in Dharwad.

The scope of work broadly described herein and assigned to Contractor, as their area of responsibility is inclusive of all consultancy and other services required in connection with the completion of work whether specifically mentioned herein or not and rendering such consultancy services will not entitle the Contractor to charge any additional fees in as much as the same are included in the overall professional fees payable to them.

29. Liquidated Damages Clause: If any delay in execution of the works is attributable to the acts or omissions and commissions of Contractor Institute shall be entitled to recover liquidated damages at the rate of 0.5% of the total fees per week of delay limited to maximum of 10% of the total actual fees payable.

30. Professional indemnity: Contractor warrants that it shall exercise high degree of care and diligence in rendering the services pursuant to this agreement and that; such services shall be of a quality and standard satisfactory to Institute. The Contractor shall indemnify Institute from any damage or loss arising from such lack of care and diligence or arising out of any unsatisfactory performance of service by Contractor. The contractor is required to obtain a Contractor All Risk (CAR) policy for successful and safe completion of project. Contractor shall provide a copy of this policy to Institute showing that such insurance has been taken and being maintained and that all the premium thereon has been paid. A certified copy of such insurance policy shall be deposited with Institute.

31. Dispute Settlement: In case of any dispute or difference arise between the parties during the progress of or after construction of this contract or touching or relating either to the said buildings or works, or to any other matter or thing arising directly or indirectly under this contract, then and in such an event the same shall be referred to Director, IIT Dharwad as the SOLE ARBITRATOR who shall alone consider and determine the same, whose decision / award shall be binding and conclusive upon both the said parties and this clause shall be deemed a submission within the meaning of Arbitration and Conciliation Act

1996 or Statutory modification or re-enactment thereof. It is specifically agreed that the Contractor shall continue to render its services provided herein with all the due diligence, professional skill and tact notwithstanding that any matter, question, or dispute has been referred to arbitration. The venue of Arbitration proceedings shall be Dharwad. It is further agreed between the parties as hereto that the Dharwad Courts alone shall have the exclusive jurisdiction.

32. Site: The contractor shall remove all surplus materials, debris etc. out of the IIT Campus from the site of work on completion work and will hand over the site clean before the bill is processed for final payment. Dismantled materials if any (declared by Engineer-in-charge of the work) shall be returned to the Estate/Electrical stores by the contractor at his own cost. The disposal of material shall be done in environmentally friendly way and complying with the local rules and regulations.

33. Security:

a. Movement of contractor's materials:

Any materials which are removed from the site of work and are required to be taken out from the IIT campus, the contractor should follow the following procedure:

The contractor shall apply in writing to the Engineer- in-charge the details of the materials to be removed including which are rejected etc. This application shall be endorsed by the engineer in charge or his authorized representatives. The materials shall only be allowed to go out of IIT campus after counter signature of the security officer and checked at the gate. No materials/tools will be allowed to be brought on holidays/Saturdays/Sundays inside the campus. Contractors can bring the materials/tools/between 0900 hours and 1700 hours on any working day (Monday to Friday). This may please be noted.

b. Search:

Thorough search of all persons and transport shall be carried out at each gate and for as many times as gate is used for entry or exit and may also be carried out at any time or any number of times at the works site within the restricted area.

c. Working Hours:

The units controlling restricted areas usually work during five days in the week and remain closed on Saturday and Sundays. The working hours available to

contractor's labor and staff are however appreciably reduced because of the time of entry and exit during working hours. The exact working hours, working days and non-working days observed for the restricted areas where works are to be carried out shall be deemed to have been ascertained by the contractor before submitting the tender. The tenderer's attention is invited to the fact that the total number of working hours for units are prescribed in regulations and no work beyond the prescribed working hours shall be permitted.

d. Entry and Exit:

The contractor, his agents, representatives, workmen, etc. and his materials, carts, trucks, or other means of transport, etc. will be allowed to enter through and leave from only such gate or gates and at such times as the concerned authorized in charge of the restricted area may, at their sole discretion, permit. Contractor's authorized representatives, if required, are to be present at the places of entry and exit for the purpose of identifying his carts, trucks, etc. to the personnel in charge of the security of the restricted area.

e. Labour Law:

The work will be executed strictly following the Labour Laws of Central Govt & State Govt as may be applicable.

34. Manpower

Deployment:

S.No	Manpower	Shifts (Timings)	Working Days in a week
1	Site-in-charge	in General Shift (ie. from 9:00 am to 5:30 pm)	6 days in a week
2	Shift-in-charge	in all the 3 Shifts (ie. from 6:00 am to 2:00 pm, 2:00 pm to 10:00 pm and 10:00 pm to 6:00 am)	All days in a week
3	Electrician	in General Shift (ie. from 9:00 am to 5:30 pm)	6 days in a week
4	Shift Assistant	in all the 3 Shifts (ie. from 6:00 am to 2:00 pm, 2:00 pm to 10:00 pm and 10:00 pm to 6:00 am)	All days in a week
5.	Unskilled	in General Shift (ie. from 9:00 am to 5:30 pm)	6 days in a week

The contractor shall provide minimum one-day duty off once in a week for the

employees working in shifts and shall provide relievers for the employees on off duty / sick / leave. However, in case of exigencies, the contractor shall provide services beyond above mentioned hours.

The contractor should deploy experienced manpower to carry out operations and maintenance of 33/11Kv Main receiving substation- one number, zonal substations-Three numbers, External Lighting, Hydro Pneumatic Pumps and DG Sets as under:

- Site in Charge should be a “Minimum Bachelor of Engineering in Electrical/Electrical and Electronics / Electronics and Communication Engineering with 3 years from a recognized University/Diploma in Electrical Engineering having minimum 5 years of experience in maintaining and operation of Electrical system” .
- Shift -in-charge should be a “Minimum Diploma in Electrical Engineering having minimum 3 years of experience in maintaining and operation of Electrical” OR “ITI Electrical Trade Holder having minimum 6 years of experience in maintaining and operation of Electrical”.
- Electrician and Shift Assistant should be an ITI Electrical/ Holder having minimum 3 years of experience in operation and Maintenance of 33/11Kv substations/ Hydro pneumatic pump systems/ External lights and DG sets.
- Unskilled manpower shall not be under the age of 18 Years.

The IIT Dharwad shall not permit double shift for any staff employed by the contractor.

Contractor should provide Uniforms, Shoes, safety & protection gear, Identity Cards, working tools etc. to the staff deployed, at no extra cost beyond the provisions of tender.

Log book and complaint books, all stationery like registers, sheets, markers, pens and pencils etc. will be supplied by the contractor and no extra payment for these shall be made. Log book format must be approved by IIT Dharwad Engineer- in- charge.

No work shall be partially or fully stopped for want of personnel or tools or instruments. If such an event occurs, the fine will be levied.

- Contractor will ensure consistency of work and work force, correct
-

troubleshooting, good workmanship, follow all safety procedures and will make all necessary efforts to maintain a healthy environment and reliable services.

- If any of the staff members appointed by Contractor is found to be ‘not competent’, he has to be replaced by a right person within a stipulated time as given by Engineer in charge, IIT Dharwad.
- All the relevant documents pertaining to staff deployed, like copies of job appointment order with the contractor, address proof, photocopy of ID card etc. and any other details as sought shall be provided to IIT Dharwad, by the contractor under his responsibility for the correctness.
- Wages of the staff deployed should not be less than as that mentioned in Minimum Wage Act applicable to the respective category/experience, as on date. The ESI, PF, gratuity, bonus etc., labor law, other rules & norms requirements as found required for contracts of this nature should be met. The same details shall be submitted along with a tender bid.
- In no case, the contractor or his/her employees shall claim job / employment with IIT Dharwad. No transport facility shall be provided for the contractor’s employees by IIT Dharwad.
- In case of delay, repetition of work, noncompliance, and inadequate staff etc. fine will be imposed as per the fine clause mentioned.
- Safety aspects in work places have to be followed as per relevant standards & codes. Any accident or damage to death will be treated as negligence & it is purely the responsibility of contractor. IIT Dharwad is not responsible for any accidents or damages to death. Safety of all the staff under this contract is the sole responsibility of the contractor.
- Contractor is responsible for the behavior & conduct of his workmen and hence they should be properly educated and controlled.

‘FINE’ CLAUSE:

The Availability & functioning of Electrical, Hydro Pneumatic is very essential and critical. Non-availability may result in many tangible & intangible losses in research work, equipment, Occupants etc.

Hence all the work routine, servicing, breakdown maintenance has to be carried out in accordance with all standards and statutory norms with minimum time and maximum accuracy to ensure maximum availability. Failure in meeting the above requirements will attract the ‘fine’ clause as below.

Contractor should depute experienced personnel to carry out maintenance work both low & high side in such a way that the repetition of the problem should be avoided.

Absenteeism: No absenteeism shall be allowed. In case of absence of any staff in the agreed staff pattern, fine will be imposed at one and half times the rate for the day the staff remains absent.

Non-Compliance of work: In the event of failure of compliance of awarded work in stipulated time a fine will be imposed as per double of actual expenditure incurred in attending the same by another agency.

IIT Dharwad concerned engineers will be authorized to deduct the amount from the contractor bill or security deposit or initiate any other action as found suitable.

Contractor must visit the site, understand the site condition, type of work involved, quantum of work etc., for carrying out works, before quoting.

General

- All the removed materials for routine maintenance works should be brought to the office for accountability and a separate register needs to be maintained showing all received/used electrical consumables supplied by IIT Dharwad. No materials should be left anywhere in the campus.
- All the general & special tools for daily operation, tackles, chain pulley blocks etc., required for proper maintenance and repairs/break down etc., shall be arranged by the contractor at his own cost and issued to the staff deployed by him for this work.

Following calibrated, well-maintained instruments should always be available at site:

- Clamp meter - 2 No
 - Insulation Tester - 1 No
 - Earth Electrode Tester -1No.
 - Following tools should always be available at site;
 - Two sets of all sizes double end open spanner & Ring Spanners
 - Two nos. adjustable wrenches each.
 - Three set of Allen keys (2 set metric & 1 set inch)
 - Screw driver set (normal & star) - 3 set
 - Hack saw cutting sets with spare blades - 2 sets
 - Pliers -2No.s
 - Air Blowers - 2 No
 - Electrician Tools Kit-2 Sets
 - Following maintenance materials should always be available at site;
 - HT & LT insulation tapes, Waste cotton, Lugs (up to 16 sq.mm), Cable Ties, Screws, distilled water (50 Ltrs) for batteries etc. to be provided at no extra cost.
-
- All breakdown calls/complaints received during normal working hours should be attended to as early as possible. No complaints should be left unattended and not be postponed to next day.

 - Any damage is caused to any equipment or items available at the office premises due to negligence of the contractor's work force shall be entirely on contractor, the amount so involved on this account shall be deducted from the payment due to contractor.

Documents to be maintained by the contractor: -

- Log book of daily events
- Complaints registers
- Planning and scheduling of preventive maintenance
- Reports of preventive maintenance done
- Daily breakdown maintenance/status reports
- Reports of testing/checking done
- Reports of modification done
- Attendance sheet.
- Details of plant record book

Details of work

- 1) To maintain all substations, HT, and LT cable network upto main receiving panels at individual facilities and units, Main receiving panels at individual buildings, External lighting circuits, Hydro pneumatic system, firefighting pumps including complaint management etc. installed at all utility areas within the campus and the buildings, flats, etc. and to Operate and Maintain electrical DG Sets at IIT Dharwad.
- 2) The contractor/ Site in charge posted should attend and available in the IIT Dharwad campus to attend the work 24x7 on all days (if in case any person goes on leave qualified alternate person shall be report only after handover of the charge of duty The on-duty person shall be relived).
- 3) Electrical installation means lights, fans, equipment, generators, blowers, compressors, motors, pumps, electrical wirings, switches, plugs, starters, DB Boxes, MCB's, Main switches etc.
- 4) It will be the duty of the contractor to see that street lights are operated regularly; exhaust fans of ventilation system and machineries are operated smoothly.
- 5) The contractor will monitor power supply voltage regularly. It will be the duty of the contractor to see that the generator which is under AMC (Annual Maintenance Contract) is maintained in excellent condition and switch on the generator as and when the power supply fails or on other demands and ensure continuous supply of power round the clock.
- 6) The contractor should ensure that all the fans and electrical fittings need to be cleaned regularly at least once in a month.
- 7) The contractor possessing valid electrical license for operations of 33 kV substation and above and having enough work experience shall employ necessary number of qualified, healthy, and talented electricians to attend all the above-mentioned electrical works (as per qualification stated in the BOQ) should be made available to undertake the electrical maintenance work. A copy of their certificates with originals may be produced in this office for verification.
- 8) The contractor shall provide tools necessary for the work and no work should be left un- attended for want of tools.
- 9) The contractor has the responsibility to provide all safety garments, equipment's, tools etc.to his staff or the persons dealing with work.
- 10) The Contractor shall ensure that all fittings are working properly and all items required for replacement will be provided by the office as and when required. For items needed for replacement, the Contractor shall furnish the requirement to the Office of IIT Dharwad for making necessary provisions. The item

replaced shall be returned to the stores (Issue) section of the Institute.

- 11) The contractor shall ensure sufficient stock of diesel to run the Generator sets. The requirements of the diesel should be intimated to the office sufficiently in advance for taking procurement action. Necessary log book needs to be maintained by the contractor.
- 12) Maintaining a register for all activities detailing date, time, item description, quantity complaints diagnosis, time of completion of work etc. This register will be daily shown to the authorized staff of IIT Dharwad and countersigned to acknowledge the activities attended to reflect daily progress.
- 13) The contractor shall ensure that all energy efficient appliances, spare parts should be replaced as per the standards of approved make/ brand by PWD, KPTCL or ESCOM such as BIS, BEE, ISI, IEEE, ISO etc.
- 14) The Contractor shall ensure the type of works to be taken place in IIT Dharwad campus on visiting the Site and must Prepare the quotation based on site inspection only.
- 15) The work of the Contractor will be supervised by the authorized representative Junior Engineer- Electrical of IIT Dharwad.
- 16) Instruments: Earth tester, Tong tester, Megger for insulation resistance measurements, Lux meter, Temperature gun (for remote recording) to be kept at site office all time.
- 17) The power factor of the installation must be maintained / monitored daily and monthly as per the statutory requirements of KPTCL / HESCOM.
- 18) Due to negligence of operator if any, “the power factor” goes below 0.9 lag during the month, P.F. penalty will be imposed and recovered from the monthly maintenance bill (as per rate of Electricity Board.)
- 19) Electrician must maintain the earthing point/ stations of the electrical power system, adding water & salt and keeping the station in good conductive //wet, at least once in a month regularly and keep that the earthing system is in good condition.
- 20) The operating / Supervisor staff shall possess the Knowledge of firefighting and first aid.
- 21) The operating/supervisor personnel shall have the basic Knowledge and technical skill of the DG set / HT equipment and shall be capable of independently carrying out the emergency repair works on generator/ AMF panel.
- 22) All the accessories, equipment comprising of batteries, battery chargers. Control panel, switch boards shall be operated and maintained by the agency.
- 23) The contractor / operator / supervisory personnel shall have a clear working

Knowledge of the various electrical circuits and shall not meddle / alter the electrical circuits without the permission of the Engineer in charge.

SECTION-V	Scope of work
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Scope of Work

1. The Operation and Maintenance envisage all the required tasks to ensure

- Maximum system availability.
- Most efficient, effective, and optimum usage of electrical system.
- Enhance the life expectancy of equipment.
- Regular operation and maintenance of equipment.
- Compliance with safety rules and regulations.
- Preventive maintenance / scheduled maintenance.
- Break down maintenance.
- Maintaining uninterrupted power supply.
- Maintenance of proper records of operation and maintenance (Logbook, Registers, checklist, etc., shall be approved by IITDh)
- Assistance to IITDh in expansions and modification.

2. Operation and Maintenance of Substations.

- Switching ON and Switching OFF 33kV HT Side Circuit Breakers, Isolators, 11kV incoming and outgoing breakers, HT Panels, 415V Building Outgoing feeders breaker, LT Panel operations, Yard Lights, etc. as and when required according to institute operations.
- Maintaining records of all the operations and records of loads such as voltage, current, power factor, frequency, connected load, and energy consumption on hourly/daily/weekly / fortnightly / monthly/quarterly/half-yearly, and yearly basis.
- Maintaining records of power failures with reasons.
- Observing the yard and control room continuously and reporting any problem or faults to the "Engineer in Charge" which requires major/minor improvements/repairs.
- Maintaining system handing over and taking over charge sheets.

- Current and voltage settings of feeders right from 11kV, 33kV, and I/C line till the user end (at least till 440 V 3Phase level).
 - Maintaining records of maintenance.
 - With prior intimation to "Engineer in Charge", Changing the taps of transformers as and when required.
 - Coordination with operators in KPTCL/HESCOM Substations for efficient, reliable operation of 33kV Substation.
 - Attending the faults and restoration of the power supply without delay.
 - Follow the permit system (Line Clearance) and maintain a permit book to facilitate system maintenance without accidents/mishaps.
 - Taking preventive maintenance such as maintenance of defective insulators, lightning arrestors, cables, transformers, Isolators, Breakers, HT panels, LT panels, Station Transformers, CT, PT, Battery chargers, Battery bank, control room wiring, etc., The Contractor must maintain a checklist for preventive maintenance and upkeep the system accordingly. However, the contractor must prepare a detailed checklist covering all the required items and submit it to the "Engineer in charge" for approval before being implemented.
3. The operation of 415V, 11kV, and 33kV Switchyard, 11 kV Indoor / Outdoor Sub Station, HT< Switch Gear, and Distribution Systems involves the deployment of the right persons as mentioned above for operation and these persons would be responsible for the work contracted for this purpose. The main jobs will include:
- Routine Surveillance of 415V, 11kV, and 33kV Switch Yard, indoor/outdoor equipment like Control Relay Panels, Station Metering Panels, Switchyard Control Panels, and AC& DC Distribution Boards.
 - Routine Surveillance of 415V, 11kV, and 33kV Switch Yard Outdoor equipment such as Power Transformers, SF6 / Vacuum Circuit Breakers and their respective Field Control Panels, Isolators and their Respective Field Control Panels, Air Compressors, CTs, VTs, LAs etc., Distribution Transformers and all Indoor HT Boards and LT Distribution System.
 - Routine/Monthly maintenance of 415V, 11kV, and 33kV switch yard by trimming the weed and proper distributions of gravels.

- Filling up Approved Data Sheets for the different Indoor and outdoor equipment of 415V 11kV and 33kV Switch Yard, raising deficiency reports, and communicating to the "Engineer in Charge".
- Recording all tripping of breakers and other events that occur in the order of sequence with the time of occurrence correctly and recording them in the Log Book and monthly it must be reviewed/verified by the "Engineer in Charge".
- Strictly following operating instructions given by the "Engineer in Charge".
- Observing all safety precautions and ensuring the safety of men, materials, and equipment during the contract period.
- Attending to all emergencies which may arise during the contract period such as equipment failures, fire accidents, etc., shall get acquainted with the operations of all equipment covered under the contract.
- Attending to all Telephone calls and issuing receipt messages promptly.
- Preparing daily reports and periodic returns in the prescribed format in duplicate and submit to the concerned "Engineer in Charge".
- Assuming responsibility for the equipment and other materials kept at the Substation area.
- To be alert and attend to all operations and events promptly without any delay.
- Updating of interruptions Register, Call register, and Data Book. Apart from the above, the contractor shall carry out the checks in the document during the contract period daily.
- Ensuring routine, preventive, and breakdown maintenance works for the Maintenance of 415V, 11kV, and 33kV Switchyard, 11 KV Indoor/Outdoor Sub Station, HT< Switch Gear & Distribution Systems.

4. Coordination with HESCOM / KPTCL / Inspectorate

- Coordination with HESCOM / KPTCL officials for all related works and giving reports to "Engineer in Charge", regarding, information from KPTCL/HESCOM and coordination with Electrical Inspectorate in all relevant activities.

5. Technical and general specifications

✓ Tools & Tackles:

- All Consumables for tools and tackles required for the safe and satisfactory operation and maintenance including preventive and breakdown maintenance of the substation and related equipment will be handled by the "contractor".
- The careful maintenance and management of these tools will be the responsibility of the agency.
- Any Specialized tools that would be required for safe maintenance of the substation will be provided by IIT Dharwad.

✓ Hourly Operations:

- Taking readings of all meters installed at control panels, ACDB, DCDB, Battery Charger etc.
- Air and Gas pressures of Gas circuit breakers.
- Oil and winding temperatures of Transformers.
- Checking any sparking or flash over / hotspots in the substation.

✓ Daily Operation:

- Checking the operation of compressors of the Circuit breaker.
- Visual inspection of isolator contacts for proper position.
- Checking oil levels of all bushings, Main & OLTC Conservator, CTs and PTs, etc.
- Checking oil leakages if any for Transformers, CTs, and PTs taking appropriate action for its timely repair.
- Checking air/gas/ oil leakages if any for Circuit Breakers.
- Checking the condition of Silica gel.
- Checking of Battery and charger DC voltage.
- Cleaning of premises, Control relay panels, etc.
- Maintaining logbooks and daily checklists.
- Grass removal from the yard and surroundings of the substation
- Checking the Deposition of dust and dirt on Insulators.
- Checking Locks and doors of the substation are in good condition.
- Checking no leaks have developed in the roof. Ventilating systems.
- Checking the heating systems are working normally.
- Checking the prescribed safety aids are in place and in good order.

- Checking the earthing connections for proper connectivity.
- Checking the packing of cables entering and leaving the trenches or tunnels within the premises is intact.
- Checking the access roads to the oil-filled devices are not obstructed.
- Draining the air/moisture from air conservators of circuit breakers.
- Troubleshooting and repair of Electrical circuit components in case of any abnormal conditions.
- Checking Yard and control room lighting.
- ✓ **Weekly Operation:**
 - Checking Yard and control room lighting circuit.
 - Checking the individual battery voltage, liquid level, specific gravity, contacts, applying petroleum jelly, etc.
- ✓ **Monthly Operation:**
 - Checking Auto/ Manual operations of OLTC.
 - Checking earthing points and their contact tightness wherever required.
 - Checking and sealing of cable entry holes.
 - Preparation of monthly checklist and events log for the month.
- ✓ **Events**
 - Logging auto / manual operations of OLTC.
 - Logging the breakdown events with relay indications etc.
 - Logging shutdown events, and log of operations during the shutdown period.
 - Logging of on /off feeders in the 33kV, 11 kV, and 415V distribution systems.
 - Maintaining visitor registers along with their comments and details of their visits.

6. Maintenance

This Maintenance scope (includes both preventive and breakdown maintenance) is indicative only and shall include other maintenance activities required for satisfactory operation. Preventive Maintenance shall be routinely carried out as per the details provided.

Breakdown maintenance shall be provided as and when the situation warrants a failure/fault in the system. The breakdown maintenance shall be attended to at the highest priority to make good the faulted system and put it into operation. For breakdown maintenance, the contractor shall coordinate/liaison with the “**Engineer in Charge**” and the original equipment manufacturer for the replacement of parts and services as necessary. During the preventive (routine) maintenance, the contractor shall carry out the following as listed for various system components:

Though the list contains several individual jobs they could be executed in a combined scope as in the servicing or overhauling of the component.

6.1 Transformer:

✓ **Hourly:**

- Check oil & winding temperatures, check for abnormalities & recording them.
- Observe and record Load (amperes) and Voltage. Check against the rated figure.
- Visual check for overheating if any at terminal connections (Red hots) and observation for any unusual internal noise. This check is a must in each shift.

✓ **Daily:**

- Observation of oil levels in (i) main conservator tank (ii) OLTC conservator (iii) bushings and examination for oil leaks if any from the transformer.
- Checking the colour of silica gel in the breather and the oil level of the oil seal. If the silica gel colour changes from blue to pink by 50% the silica gel is to be reconditioned or replaced.
- Visual check of explosion vent diaphragm for any cracks.

✓ **Monthly:**

- Physical examination of the diaphragm of the vent pipe for any cracks.
- Cleaning of bushings, inspecting for any cracks or chippings of the porcelain, and checking for tightness of clamps and jumpers.

- Measurement of IR values of transformer with suitable megger according to the rating of the transformer. Recording of the values specifying the temperature at which measurements are taken.
- Cleaning of Silica gel breather.
- Checking temperature alarms by shorting contacts by operating the knob.
- ✓ **Yearly:**
 - Testing of oil for dissolved gas analysis, acidity, tan delta, and interface tension-specific resistivity.
 - Tan delta testing for Bushings.
 - Calibration and testing of oil and winding temperature indicators.
 - Measurement of magnetizing current at normal tap and extreme taps.
 - Measurement of winding resistance.
 - Turns ratio test at all taps.
 - Overhaul of tap changer and mechanism.
 - Calibration of the tap position indicator.
 - Filtration of oil or replacement of oil in the main tank/OLTC when the BDV of the oil is found less than the acceptable limit.
 - Changing the gaskets at all locations as and when leakage is found or the gasket is damaged or else yearly.
 - Replacing of Buchholz relay, OTI, and WTI if found malfunctioning.
 - OLTC mechanism shall be completely over-hauled for smooth and trouble-free operation.
 - Replacement of bushing if required.

6.2 Circuit Breaker:

- ✓ **Hourly:**
 - Check the Status of VCB.
- ✓ **Daily:**
 - Check the operation of compressors /motors. Check timing and sound.
- ✓ **Monthly:**
 - Air cleaning with a blower.
 - Cleaning of circuit breaker body and bushings.
 - Auxiliary contact cleaning.
 - Tightening of nuts and bolts.

- Checking breaker Operation (Local/Remote operation).
- Check anti-condensation protection.
- Check of motor control
- Checking and sealing of cable entry holes.
- Use of anti-corrosion spray where required.
- ✓ **Quarterly:**
 - Oiling and greasing of all moving parts.
 - Functional check of trip circuit.
 - Checking the settings of air and gas pressure switches.
- ✓ **Half-Yearly:**
 - Checking ON/OFF Timings of Circuit breaker poles.
 - Complete servicing, lubricating, and greasing of all moving parts.
Replacement of any defective part.
 - Measurement of contact resistance and contact gap.
 - Operation of control and Auxiliary circuits.
 - Recharge time of operating mechanism after specified sequence.
 - Checks on specific operations.
 - Inspection and operation of control circuit.
 - Measurement of Humidity if necessary.
- ✓ **Yearly:**
 - Touch up painting wherever required.
 - Checking contact resistance of Breaker main contacts.
 - Checking of circuit breaker position level by using the spirit level indicator.
 - Mechanism checking and lubrication to all moving parts.
 - IR values of Power and Control Circuits.
 - Operating circuits power consumption during operations.
 - Verification of correct rated operating sequence.
 - Checking and adjustment of Track alignment and Interlocking mechanism.

6.3 Lightning Arrestors:

- ✓ **Daily:**
 - Checking the readings of surge arrestor counters.
- ✓ **Monthly:**

- Cleaning of porcelain Insulators of LA.
- ✓ **Quarterly:**
 - Removing bird nests, if any.
 - Monitor the total leakage current (capacitive and resistive current) and resistive current.
 - Records of the number of operations of the Arrester should be maintained and if a greater number of operations are seen then the same should be informed to the concerned authority.
- ✓ **Yearly:**
 - Testing of counters

6.4 Isolators:

- ✓ **Daily:**
 - Visual Inspection
- ✓ **Monthly:**
 - Clean the porcelain insulators and inspect for cracks and chip-off.
 - Check for tightness of nuts and bolts, drive tube locknuts, drive lever, and phase coupling plan bolts, etc.,
- ✓ **Quarterly:**
 - Open the disconnect and earthing switch and inspect the contacts. (Wipe the contact surface with solvent).
 - Check for contact surface coating/wearing.
 - After maintenance and inspection, smear the contact surface lightly coated with contact lubricant (petroleum jelly).
 - Check for split pins in the clevis replace the same if damaged.
 - Lubricate all clevis pins.
 - Check the contact gap, if found inadequate replace the contact spring.
- ✓ **Half Yearly:**
 - Maintenance of Drive Mechanism:
 - Apply grease on the teeth of the spur gear and GEAR box / Lead screw and guide nut in case of lead screw type.
 - Oil auxiliary switch linkage and pivot on the guard aperture for manual operation.

- Cleaning of auxiliary switch contact and greasing with silicon grease
- Check that all the electrical components are firmly fixed and let the contactors operate freely.
- Check all electrical connections for tightness.
- Check all mounting bolts for tightness.
- Apply grease to the mechanical interlock-cam groove if the disconnect is with an earth switch.
- Check interlocks.
- Adjustment of the limit switch if it is required.
- ✓ **Main Contacts**
 - Cleaning and lubrication of main contacts
 - Check Alignment.
 - Main contact resistance measurement
 - Tightness of nuts, bolts, and pins, etc.,
 - Cleaning of support insulators and checking of insulator cracks, if any.
- ✓ **Earth Switch**
 - Checking and Alignment of earthing blades
 - Cleaning of contacts
 - Checking of Contact resistance
 - Operation of earthing switch.
 - Checking of aluminium/Copper flexible conductor.
 - Checking of earth connections of structures and marshalling box.
 - Marshalling Box
 - Visual check of auxiliary contacts.
 - Cleaning and terminal tightness.
 - Checking of space heaters and illumination.
 - Checking of healthiness of gaskets, else replace the gaskets.

6.5 Current Transformer:

- ✓ **Daily:**
 - Visual Check
 - Check for Oil leakage

- ✓ **Monthly:**
 - Clean the porcelain insulators and inspect for cracks and chip-off.
 - The secondary connection of the CT should be intact.
- ✓ **Half-yearly:**
 - Check the I.R. value of each Current Transformer and keep a record.
 - Check the Pressure Diaphragm. If the pressure diaphragm is defective, replace it with a new one as per the procedure explained in the instruction manual.
 - If the insulation resistance of the current transformer is low it can be improved by oil filtration under vacuum.
 - Attending to oil leakage in the CT. If it is due to failure of gaskets, the gaskets need to be replaced. (Gaskets should be provided by the contractor)
- ✓ **Yearly:**
 - Accuracy test, FS, on metering core,
 - Ratio and phase angle error, composite error test on Protection core,
 - Turns ratio and Knee point voltage test on Special core.

6.6 Voltage Transformer:

- ✓ **Daily:**
 - Check the Oil level and check for any leakage
 - Chattering sounds
- ✓ **Monthly:**
 - Cleaning of Bushing
 - Checking for Oil level and topping up of oil if required
 - Checking of secondary fuse and fuse contacts.
- ✓ **Half yearly:**
 - Check the I.R. value of each Voltage Transformer and keep records.
 - Check the Pressure Diaphragm. If the pressure diaphragm is defective, replace it with new one as per the procedure explained in the instruction manual.
 - If the insulation resistance of the Voltage transformer is low it can be improved by oil filtration under vacuum.

- Attending to oil leakage in the VT. If it is due to failure of gaskets, the gaskets need to be replaced (Gaskets should be provided by the contractor)
- ✓ **Yearly:**
 - Accuracy test on metering core.

6.7 Switch Yard:

- Checking the yard at periodic intervals and attending to any unusual observations, defects, sparks, loose contacts, red hot spots loose bolts and nuts, etc., and informing the concerned authority. The records of operational persons shall also be consulted for this purpose.
- Checking the earth resistance of earthing half-yearly.
- Checking the Protection and control circuit of each equipment monthly.
- Checking of operation and interlock of all equipment monthly.
- The premises should be kept neat and clean.

6.8 HT Control & Relay Panels:

- ✓ **Daily:**
 - Check for any tripping chattering in the electrical parts, abnormal noise, overheating in the panels.
 - Check whether indication lamps, annunciator lights, bells, buzzers, and hooters are working.
 - Check all terminal cubicles for healthy contacts, minor repairs/services/cleaning, etc.
 - Observe the annunciation window, and if there is any alarm then consult the concerned authority.
 - Check the panel for proper closing.
 - Cleaning of relay cases of dirt etc.
 - Cleaning the panels, and relay covers, blowing dust from the inner side of panels.
 - Voltage of DC supply.
 - Physical checks of all wiring and connections.
- ✓ **Monthly:**

- Check for the proper working of all ammeters, voltmeters, relays, contactors malfunction, etc.
- Clean the panels from the inside with the help of the blower/ vacuum cleaners.
- Check all the cables for overheating, tightness of the glands, lugs, and crimping.
- Check the fuse-link & fuse holders.
- Check the control wiring of the panel along with the controls for proper functioning and tripping at the preset parameters.
- Tightening of all earthing connections.
- ✓ **Yearly:**
 - Check the operation of MCB, relays, etc
 - Testing and calibration of relays.

6.9 11kV Panels:

- ✓ **Daily:**
 - Visual inspection
 - Check whether indication lamps, selector switches, ammeter, MF meters, etc., are working.
 - Checking and ensuring the closing of all the panel doors etc.,
 - Check whether all relays are functioning properly.
- ✓ **Quarterly:**
 - Visual inspection of panels.
 - Checking of control scheme for healthiness.
 - Visual Checking of Panel Meters.
 - Checking of heater circuit and rectification if required.
 - Checking handles and doors and rectification if required.
 - Checking and sealing of cable entry holes.
 - Tightening of all earthing connections.
- ✓ **Yearly:**
 - Measurement and recording of IR values for the Main Bus bar.
 - Checking all terminations for tightness.
 - Checking of CT, PT, and relay connections for tightness.
 - Testing of all panel Relays and Meters CT & PT.

- Measurement of insulation resistance value of circuit breaker.
- Measurement of breaker closing and tripping time.
- Vacuum test
- Measurement of contact resistance
- Checking of control circuit
- Visual inspection of earth connections and checking of tightness
- Checking of mechanical and electrical interlocks, interlocks within the switchboard to ensure proper functioning of the same.
- Checking and sealing of cable entry holes

6.10 LT Panel:

✓ **Daily:**

- Visual inspection
- Check whether indication lamps, selector switch, TNC and all meters are working.
- Checking and ensuring the closing of all the panel doors etc.,
- Check whether all relays are functioning properly.

✓ **Quarterly:**

- Visual inspection of panels.
- Checking and sealing of cable entry holes.
- Checking of D.C. supply and control switchgear.
- Checking of Indication lamps, replacement if required.
- Checking of Indication Meter and rectification/replacement if, required.
- Checking/replacement of fuses if required.
- Checking of Bus bar connection, tightening of nut bolts, cleaning of bus bar if, required.
- Cleaning and Tightening of the bus bar in the bus bar chamber.
- Tightening of all earthing connections.
- Checking and sealing of cable entry holes.
- Cleaning of the inside and outside panels using blowers and vacuum cleaners.

✓ **Yearly:**

- Checking of D.C. supply and control switchgear.
- Checking and ensuring the closing of the wall panels/panel doors including the supply of necessary material if required.
- Cleaning of circuit breakers, lubricating the moving parts as per maintenance procedure
- Checking of alignment in the racking mechanism of breakers for free and smooth movement of circuit breakers
- Checking of contact wearing of circuit breakers
- Checking of mechanical/ electrical interlocks, and interlocks within the switchboard to ensure proper functioning of the same
- Functional operations check of limit switches, auxiliary contacts Etc.,
- Visual inspection of earth connections and checking of tightness
- Measurement of the insulation resistance value of circuit breakers
- Measurement of contact resistance of circuit breaker poles
- Measurement of circuit breaker closing and tripping time
- Functional operations check of circuit breaker
- During operation, any of the items found malfunctioning must be replaced. All materials will be provided by IITDh.
- Measurement and recording of IR values for the Main Bus bar.
- Checking all terminations for tightness.
- Checking of CT, PT, and relay connections for tightness.
- Testing of all panel Relays and Meters, CT & PT.

6.11 415V Distribution System (Main DBs and DBs):

✓ **Daily:**

- Visual inspection and proper doors closing.
- Check whether indication lamps, selector switch, ammeter, MCBs etc. are working.

✓ **Quarterly:**

- Check if all the panels are ingress-protected.
- Checking of termination of incoming and outgoing cables

- Routing of cables for new loads if required (only flexible cables and indoor).
- At the time of adding new cable proper tags and ferruling must be done.
- Cleaning of the panel.
- Checking and sealing of cable entry holes.
- Tightening of all earthing connections.

6.12 Cable Network:

✓ Monthly:

- Visual inspection of cables.
- Checking all cable terminals and joins for overhauling /loose connections and tightening, terminating, rejoining, if required termination will be done by the contractor and material will be provided by IITDh.
- Checking and recording of IR values of all cables with Megger of suitable range.

6.13 Earthing System:

✓ Daily:

- Watering and proper closing of earth pit chamber

✓ Quarterly:

- Checking of all earthing connections, joints, cleaning, and tightening thereof.
- Checking and recording of earth resistance of all points, and pits and taking corrective action to improve it, if required.
- Identification marking and updating the details of the indication board.

6.14 Meters:

• Yearly:

- Checking of each meter (analogue/digital) for its correct operation.
- Calibration of indicating/ measuring meter.

6.15 Energy Meter / Power Quality Analyser:

- Note down the energy meter reading as per scheduled time and monitor the power consumption.
- Submit daily report /log books on power consumption.

6.16 Duty of Trained Engineer

- To carry out the check as required,
- Carrying out the preventive maintenance check as per the manufacturer's guidelines.
- Submit the daily report as required by the **“Engineer in Charge.”**
- To attend break down/ maintenance works.

6.17 DG SETS:

✓ **Daily:**

- Checking for Engine lubricating leaks, operation of oil heaters, engine oil level and hydraulic governor oil level.
- Checking engine cooling for leaks and operation of coolant heaters and changing water filter.
- Checking engine fuel for leaks.
- Checking switchgear start switch automatic.

✓ **Weekly:**

- Checking engine lubricating for leaks. Operation of oil heater, engine oil level and hydraulic governor oil level.
- Checking of engine cooling for leaks, operation of coolant heater and coolant level.
- Checking for air intake – air cleaner restriction.
- Checking engine fuel for leaks.
- Checking battery charging system
- Checking engine for unusual vibrations.
- Checking switchgear start switch automatic.

✓ **Monthly:**

- Checking for Engine lubricating leaks, operation of oil heaters, engine oil level and hydraulic governor oil level.
- Checking of engine cooling for leaks, radiator air restriction, operation of coolant heater, hose and connections, coolant level, anti-freeze and concentration of coolant, belt condition and tension
- Checking for leaks and air intake – air cleaner restriction.
- Checking engine fuel for leaks and fuel level.
- Checking exhaust for leaks, exhaust restriction and exhaust drain condensate trap.
- Checking battery charging system, battery electrolyte level and specific gravity.
- Checking engine for unusual vibrations.
- Checking main generator air inlet and outlet for restriction.
- Checking switchgear start switch automatic and transfer switch.
- Checking service tool availability and performance of operational load test.

✓ **Half Yearly:**

- Checking for Engine lubricating leaks, operation of oil heaters, engine oil level, hydraulic governor oil level and changing the lubricating full flow filter, by-pass filter, engine oil and hydraulic governor oil.
- Checking of engine cooling for leaks, radiator air restriction, operation of coolant heater, hose and connections, coolant level, anti-freeze and concentration of coolant, belt condition and tension, fan hub drive pulley and water pump, heat exchanger zinc anode plugs, motor operated louvers and change of cooling water filter, cleaning water separator and cooling system.
- Checking for leaks and air intake – air cleaner restriction, piping and connections and changing crankcase, breather, and air cleaner element.

- Checking engine fuel for leaks, fuel level, governor linkage fuel lines and connections, fuel transfer pumps, draining sediments from tanks and changing fuel filter, float tank breather.
- Checking exhaust for leaks, exhaust restriction and exhaust drain condensate trap.
- Checking battery charging system, battery electrolyte level, specific gravity and safety controls and alarms
- Checking main generator air inlet, outlet for restriction and cleaning generator.
- Checking switchgear start switch automatic, instrumentation, power distribution wiring and connections, power circuit breakers and transfer switch.
- Checking service tool availability, generator load bank test and performance of operational load test.
- **Yearly:**
 - Changing engine lubricating full flow filter, by-pass filter, engine oil and hydraulic governor oil.
 - Changing water filter and cleaning water separator in cooling system.
 - Changing fuel filters and draining sediments from tanks and cleaning float tank breather, calibrating injector, fuel pump and valves.
 - Checking service tool availability, generator load bank test and performance of operational load test.

6.18 Battery Bank and Charge

- ✓ Daily:
 - Checking the individual battery cell and battery bank.
 - Checking the battery charger output voltage and current etc.
- ✓ Monthly:
 - Cleaning the battery bank.
 - Checking the tightness of the battery terminals and applying petroleum jelly.

6.19 External lighting Maintenance:

- To provide technical support for operation and maintenance.

- To appoint qualified personnel & staff to carry out the day-to-day maintenance.
- To hire /have a jeep fixed with ladder in good condition & shall have a valid R.T.O permit for the purpose of maintenance.
- Successful tenderer shall prepare area wise master register comprising of pole number, type of fitting and submitted to Engineer-in-charge.
- -Regular inspection of all the areas and for proper maintenance of streetlights daily and keep the streetlights and parking lights in regular working condition, throughout the year including holidays.

6.20 House Keeping Work

- Sweeping the entire floor area of the Control room, battery room, Auxiliary room, office room of sub-station once a day in the morning and again as and when required or called for including dusting the carpets.
- Wet mopping the entire floor area of the Control room, battery room, Auxiliary room, office room of sub-station once a day in the morning with disinfectants and deodorants and again as and when required.
- Cleaning of general toilets/washbasins with disinfectants at least two times a day and again as and when called for.
- Dusting and cleaning of doors, windows, furniture, fixtures, glass partitions, electrical fixtures and other equipment's like computer cubicles, table tops, chairs, overhead storage units, side racks, drawer boxes, filing racks, cupboards, cabinets, paper trays, flower vases, telephones etc. with wet cloth.
- Clearing and cleaning of dust bins/waste paper baskets once a day in the morning.
- Washing and cleaning of drinking water glasses, cleaning of water purifiers, once a day in the morning.
- Filling up of clean potable water in the water filters once a day or as and when required.
- Spraying of room perfumes whenever required and as directed.
- Sweeping and wet mopping of staircases and cleaning of stair case handrails at least twice a day and again as and when required.

- Sweeping of the entire yard areas in a day and again as and when required.
- Sweeping and wet mopping of all entrance steps twice a day and again as and when required.
- Pumping of water from sump tank to overhead tank as and when required.
- The agency shall ensure continuous supply of water at all time.
- Cleaning of all light fittings, ceiling/pedestal fans, tube light fittings, air conditioners etc.
- Removing of cobwebs.
- Gardening, planting trees & Plants by the side of compound of Sub-station and watering them.
- Weed cleaning in the station yard, maintaining the jelly such that it is even throughout station yard, maintaining the station yard neatly.
- Removing of stains and spills on the table tops/floors with suitable solvents.
- Removal of moss, fungus and lichen from the building wall.
- Cleaning of rainwater drains, manholes etc.
- Cleaning of all terraces, chejjas and clearing of rainwater outlets etc
- The daily garbage shall be collected and disposed in the municipal corporation dustbin at the end of working hours.
- Scrap generated during renovation and repairs shall be stored till it amasses to a volume to remove by lorry/temp.
- The common toilet waste, pantry waste, kitchen waste etc., shall be bagged and removed at the end of the day.
- Maintaining small plants on both the side of the road in Sub-station.
- Any other work assigned by the Electrical Safety Officer from time to time.
- All cleaning material including access ladder, vacuum cleaner etc. required for carrying out the operations shall be arranged by the tenderer and also arrange for soaps, phenol, disinfectants, cleaning agents, chemicals, room freshener's etc. for the use during the operations.

Engagement terms of labour:

- i. The agreement between IIT Dharwad and the contractor shall be purely based on service agreement. The Contractor shall make his own arrangements for the engagement of the labour.
- ii. In respect of the engagement, employment, wages, transport, paying, feeding, housing, and working conditions of labour and of all matters connected therewith, the contractor shall be solely responsible and liable.
- iii. During the continuance of the Contract, the contractor shall at all times be liable to obligations imposed on him by the provisions and requirements of any Central or State Statute ordinance or other law or any Regulation or Bye-law of any local or other duly constituted authority which may be applicable including any such law regulation or order passed or made or coming into force during the period of the Contract.
- iv. The Contractor shall comply with the provision of all labour legislation including the requirements of:
 - a) The payment of Wages Act
 - b) Owner's Liability Act
 - c) Workmen's Compensation Act
 - d) Contractor Labour (Regulation & Abolition) Act 1970 and Central Rules 1971
 - e) Apprentices Act 1961
 - f) Any other Act or enactment relating thereto and rules framed there under from time to time.
- v. The successful tenderer shall keep all mandatory records like PF, ESI, Bonus etc. of his employees deployed at IIT Dharwad as per requirement of the labour enforcement inspector from time to time.

vi. The successful tenderer shall take necessary license from the Asst. Labour Commissioner and comply with the central Labour Act of 1970.

vii. The successful tenderer shall have to take necessary insurance coverage for his workmen and keep IIT Dharwad indemnified against risk. Copy of such insurance premium receipt shall be submitted to IIT Dharwad before the release of first payment.

Accidents:

The Contractor shall report within 24 hours of the occurrence of any accident or mishap at or about the Site or in connection with the execution of the work shall report such incident to IIT Dharwad. The Contractor shall also report such accident to the competent authority whenever such report is required by law.

Insurance:

Workman insurance policy in the joint name of IIT Dharwad and the Bidder should be submitted to IIT Dharwad before commencing the work. Contractors shall cover all the men and labourers, deployed by him on this work under an adequate comprehensive contractor's all risk policy, to insure Workmen and third party insurance etc.

The work is to be carried out in occupied office and laboratory premises and hence the contract shall be governed by the rules of IIT Dharwad regarding the working hours, supply & removal of materials etc. The contractor and their personnel shall not cause disturbance to the staff and research activities of IIT Dharwad

The contractor should make proper safety arrangements like safety belts and helmets, etc. for the persons working on site. Contractor shall provide individual identity card to each of his staff /worker as per the approval format. The identity card shall be carried and displayed by the person during his entire presence or working in the premises.

Evaluation Criteria:

The L-1 will be decided on the Grand Total Rate quoted for the work. All levies/taxes (i.e., GST etc.) must be clearly mentioned in the row provided for the purpose (as per format of financial bid).

However, the decision of the Competent authority will be final and binding in awarding the order. In case of any clarification required, the same can be clarified from IIT Dharwad before submission of the bids.

The bidders must also note that the quantities may vary (10% more or less). Additional items may also crop up other than the listed items as per site conditions.

Bidder Information

1.	Name of the Bidder	
2.	Address of the Bidder	
3.	PAN No.	
4.	GSTN No.	
5.	State of GST Registration	
6.	E-mail	
7.	Contact Person's Name & Designation	
8.	Mobile No.	

Signature of the Bidder with date and seal

Tender no.: IITDH/IPS/EE/2022-23/001

PRICE-BID-SCHEDULE OF WORK / BOQ / PRICE BID**(To be quoted on the letter head of the bidder)****Sub Head-A**

Sl.No.	Description	Site in Charge	Shift in Charge	Shift Assistant	Unskilled
	F.No.1/5(3)/2023-LS-11 dated 03/04/23	Highly Skilled	Skilled	Semi- Skilled	Un Skilled
	No of working days per month.	26 days	30 days	30 days	26 days
A	Basic wages per day	Rs. 637/-	Rs.579/-	Rs. 494/-	Rs.437/-
1	Basic Wages	Rs.16562/-	Rs.17370/-	Rs.14820/-	Rs.11,362/-
B	Basic VDA per day	Rs. 260/-	Rs.237/-	Rs.201/-	Rs179/-
2	Variable Dearness Allowance	Rs.6740/-	Rs.7110/-	Rs.6030/-	Rs.4654/-
3	Sub Total	Rs.23302/-	Rs.24,480/-	Rs.20850/-	Rs.16016/-
4	PF @ 13% (Sr. no 4 = 1950/A if Monthly salary > 15000)	Rs.1950/-	Rs.1950/-	Rs.1950/-	Rs.1950/-
5	ESI @ 3.25% (Sr. No 5=Sr. no 3x3.25% (0 if Sr.no 3 >21000)	Rs.0.00/-	Rs.0.00/-	Rs. 677/-	Rs.520/-
6	Other Allowance (Bonus+ Fixed)	Rs. 9748/-	Rs.6267/-	Rs.5505/-	Rs. 4834/-
7	Total from Sr. No.03 to 08	Rs.35,000/-	Rs.32,697/-	Rs.28,982/-	Rs.23,320/-
8	No. of Employees to be deployed	One	Ten	Ten	Four
9	Total minimum charges for proposed deployment in Rs. i.e. (Sr.No.07 x Sr.No.08)	Rs.32,193/-	Rs.3,26,970/-	Rs.2,89,820/-	Rs.93,280/-
10	Service Charges @.....% of Sr no. 09				
11	Total Amount Per Month (i.e. Sr No. 09 + Sr No.10)				
12	Total Amount Per Year (12 months x Sr.No. 11)				
13	GST @18% On Sr No. 12				
14	Total Amount including GST per year(i.e. Sr No. 12+Sr. No. 13)				
15	Total Amount Per Year of Sub Head-A				

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Sub Head-B-Maintenance of RMU Yard and Misc items of work

Sl.no	Description of Item	UOM	Quantity	Rate	Amount
1.00	Charges for Petrol allowance/ Telephone reimbursement for 25 Manpower per Month	Months	12		
2.00	Fixed charges for Annual Maintenance Contract for HT 33KV RMU yard (comprises of Air Break Switches, Metering, CT&PTs, 33KV VCB, Earthing, etc.) & LT power supply including attending all power failures. Contractor shall ensure that power should be restored within an hour at campus in coordination with Hescom officials as mentioned in the scope of works. However, any replacement of material/parts will be paid by IIT Dharwad at actual	LS	1		
Sub Total of Sub Head- B					
GST @18%					
Total of sub head including GST					

III	Grand Total of (Sub Head A + B) in Rs.	
Grand Total in Words: _____		Only

Important note for quoting the rates for supply of labour/manpower:

The Price Bid is to be quoted after considering - Minimum Wages for Zone 'B,' as prescribed by Central Ministry of Labour & Employment, Govt. of India, as applicable on the date of issue of this tender. ESI, EPF & other statutory payments should not be less than what is stipulated by the statutory provisions / acts by the Central Government. Any bidder quoting labor wages lower than the minimum wages will be rejected and price bid will not be considered. The proof of payment of minimum wages, EPF, ESI, relieving charges (along with ESI & EPF, if applicable) etc. is required to submitted for processing the monthly bills. The payment will not be processed in absence of documentary evidence for compliance with statutory requirements in respect of labor/manpower.

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The quoted amount shall be inclusive of Basic wages +variable DA +PF+ESI+ Other allowances+ Transport allowance+ Uniform expenses+ Cost of PPE'S (Karam) + Mobile Charges +Tools+ Consumables.

The cost of uniform expenses+ Cost of PPE'S and consumables shall be considered in the service charge percentage.

Eligibility Criteria for other allowances: -

- 1) If the Staff completes all the items of check list and submits the reports on time and maintain the system with zero break down (within his scope), the electrician would be eligible for 50 % of other allowances.
- 2) If the electrician completes all the scheduled maintaince activities, Electrician will be eligible for balance 50 % of other allowances.

Note: -

- a. The contractor shall provide minimum one-day duty off once in a week for the employees working in shifts and shall provide relievers for the employees on off duty / sick / leave. However, in case of exigencies, the contractor shall provide services beyond above mentioned hours.
- b. The IIT Dharwad shall not permit double shift for any staff employed by the contractor.
- c. The quoted rates shall be inclusive of *Minimum Wages payable as per Central Labour commission for the classification of skill set of manpower engaged*, all taxes, duties, insurance, works contract tax, sales tax, VAT etc. all inclusive.
- d. The contractor shall make the payment to personnel engaged by him as per minimum wages notified by Office of the Regional Labour Commissioner (Central) and any revision in the wages during the period of contract.
- e. The quoted rates shall be inclusive of all applicable statutory payments viz. Minimum Wages (**including revisions**), PF, ESI, Gratuity, Bonus, and necessary risk policy for covering the comprehensive risk of all employees etc.
- f. Conditional tenders shall be summarily rejected.
- g. Please note that the final **bid amount** will be considered for evaluation of tenders.

- h. Contractor shall take care of any probable revision in minimum wages during the contract period and no additional payments will be made in this regard.
- i. The contractors are advised to visit the site and thoroughly understand the nature and scope of work and be familiar with the site conditions before quoting.

Declaration: I/We do hereby accept all the terms and conditions laid down in the tender document for the above said work/supply. I/We also agree to the condition that the right to suspend the tender process or part of the process, to accept or reject any or all the tenders at any stage of the process and/or to modify the process or any part thereof at any time without assigning any reasons thereto is reserved by the Competent authority of the Institute without any obligation or liability whatsoever.

Signature of the Bidder with seal.

LIST OF APPROVED MAKE/MODEL

- 1) All material shall confirm to relevant technical specification. The material shall be further subjected to tests in the recognized laboratories at the sole discretion of the Engineer-in- Charge and shall be at contractor's cost.
- 2) Material bearing appropriate IS marking and having valid license for the last 3 years shall be given preference while selecting for the work.
- 3) In the case of material which are not widely available with IS marking in the market but confirm to the technical specification mentioned in the tender documents, the same shall be procured from any of the manufacturer listed below after prior approval of the EIC.
- 4) EIC can approve any other brand subject to verification of the adherence to the relevant technical specification.

Sl. No.	MATERIALS	MAKE /BRAND
1	Rigid FR PVC conduit Pipe and accessories	Avon plast, wireman, Nihir, precision, Polycab or equivalent
2	Copper wire /Conductor	Finolex, Polycab, RR cable, Havells, or Equivalent
3	Modular type	Mk, Legrand, anchor, Havells or equivalent
4	MCB / ELCB/ RCCB	Legrand, ABB, Hager, Schindler L&T, Indo-Asian or equivalent
5	MCCB/ ACB	Legrand, ABB, Hager, Schindler L&T, Indo-Asian or equivalent
6	Lighting fixtures & Lamps	Philips, Crompton, Wipro, Havells or equivalent
7	Ceiling fans & exhaust fan	Crompton, orient, Havells, Bajaj, Usha or Equivalent
8	Geyser	Racold, Havells, Bajaj, Usha, AO smith or Equivalent
9	PVC tape	Steel grip, anchor, Jonson or equivalent
10	Call bell	Anchor, Orpat, max or equivalent
11	Distribution board	Indo-Asian, Havells, Siemens, L&T or equivalent
12	UG 1.1kv LT cables	Finolex, Polycab, RR cable, Havells, or Equivalent
13	Air conditioners	Voltas, Daikin, Blue Star, LG or Equivalent
14	PVC casing capping and accessories	Modi, Polycab, classic
15	Motor pump set	Crompton, Kirloskar, KSB or equivalent
16	Timers	L&T, Siemens, ABB, cutler hammer or equivalent
17	Selector switch	L&T, Hpl, Cummins, Havells or equivalent
18	Cable lugs	Dowell's, Johnson, hex or equivalent
19	Cable jointing kit	Raychem, Denson, m-seal or equivalent
20	Indicating led lamp	Siemens, ABB, L&T, Wipro or equivalent
21	Protection relay	L&T, Siemens, ABB, cutler hammer or equivalent

List of consumables for 1-year period for each substation.

Sl.no.	Particulars	Quantity for Each substation for 1 Year	Sl.no.	Particulars	Quantity for Each substation for 1 Year
1	Petroleum Jelly	4 Kg	12	Waste Cloth	20 KG
2	Grease	3 Kg	13	Phenol	50 Ltrs.
3	Contact Cleaner Spray	3 Ltrs	14	Hand Wash	10 Ltrs.
4	Carbon tetra chloride CTC)	3 Ltrs.	15	Dettol Liquid	1 Ltr
5	Rust Cleaner	3 Ltrs.	16	A4 Sheets	3 Rims
6	Rubber compound/Bitumen	4 KG	17	Harpic	20 Ltrs
7	PVC insulation Tape	30 Nos.	18	Moping stick	8 Nos
8	Emery Paper	20 Sheets	19	Sanitizer	6 Ltrs
9	Distilled Water	150 Ltrs	20	Broom	15 Nos
10	Cotton Waste	15 KG	21	Pesticide for Medowing/ weed cleaning liquid	10 Ltr.
11	Muslin Cloth	25 Mtr.			

List of PPE'S for all work men.

Sl.no.	Particulars	Model No	Sl.no.	Particulars	Model No
1.00	Safety Shoes -Karam	FS 210	5.00	Hand Gloves- Karam	HS 41- 4 sets
2.00	Helmet- Karam	PN 541	6.00	Eye Gear- Karam	ES005
3.00	Mask – Karam	RFH 11+	7.00	Electrical Protection - Hand gloves Karam	
4.00	Protective work wear- Karam	PW1101 and PW2101			

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