



Office of the Director

# INDIRA GANDHI INSTITUTE OF MEDICAL SCIENCES,

SHEIKHPURA, PATNA - 800 014 (Bihar, India)

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**(Tender Notice No: Engg 18 / EW / E-Tender 2022-23)**

Memo No. .... ..EC/EW/2022

Date .....

## TENDER NOTIFICATION

Percentage rate for Schedule items and rates of non-schedule items in two bid systems (Technical and Price Bid) are invited through e-tendering process from eligible and experienced firms registered under, CPWD, BCD, Energy Department, Railway, autonomous bodies, PSUs or in any government organization under which similar nature of works are carried out. Intending bidders must be registered with e-procurement cell on [www.eproc.bihar.gov.in](http://www.eproc.bihar.gov.in). After registration bidders will get user ID, password and digital signature which will provide an opportunity and eligibility to take part in e-tendering process.

Sl No.	Name of work	Estimated cost ₹	Tender Processing fee ₹	Cost of blank tender /BOQ ₹	Earnest Money Deposit ₹	Completion period of the work
1	Annual Comprehensive maintenance of VRV/VRF air-conditioners, Air handling units, Package Air conditioner installed in IGIMS, Patna-14	Rs.79,24,225.00	As per generated by <a href="http://www.eproc.bihar.gov.in">www.eproc.bihar.gov.in</a>	Rs.10,000.00	Rs.1,58,500.00	12 months
2	Comprehensive annual maintenance contract of 11 KV old Sub-station at IGIMS, Patna-14	Rs.49,00,000.00	As per generated by <a href="http://www.eproc.bihar.gov.in">www.eproc.bihar.gov.in</a>	Rs. 5,000.00	Rs.98,000.00	12 months
<b>Date &amp; Time for obtaining BOQ</b> (Only on <a href="http://www.eproc.bihar.gov.in">www.eproc.bihar.gov.in</a> )			08 / 11 / 2022 to 28 / 11 / 2022 up to 11:00 PM			
<b>Last Date &amp; Time for uploading of complete tender Document</b> (on <a href="http://www.eproc.bihar.gov.in">www.eproc.bihar.gov.in</a> )			29 / 11 / 2022 up to 05:00 PM			
<b>Last Date &amp; Time for submission of complete tender Document Hard copy</b> at Director's Office IGIMS through Regd. /speed post/courier.			01 / 12 / 2022 up to 3:00 PM			
<b>Date &amp; Place of opening of Tender</b> (Technical bid only on <a href="http://www.eproc.bihar.gov.in">www.eproc.bihar.gov.in</a> )			Conference Hall, 02 / 12 / 2022 at 04:00 PM			
<b>Date &amp; Place of Opening of Tender</b> (Price bid only on <a href="http://www.eproc.bihar.gov.in">www.eproc.bihar.gov.in</a> )			Date of opening of Price bid of Technically viable tender shall be intimated only through <a href="http://www.eproc.bihar.gov.in">www.eproc.bihar.gov.in</a> and on Institute web site <a href="http://www.igims.org">www.igims.org</a>			

The details can be viewed on Institute website: [www.igims.org](http://www.igims.org) and [www.eproc.bihar.gov.in](http://www.eproc.bihar.gov.in).

IGIMS reserves the right to accept or reject any application without assigning any reason or incurring any liability whatsoever.

Prospective bidders are advised to regularly visit [www.igims.org](http://www.igims.org) and [www.eproc.bihar.gov.in](http://www.eproc.bihar.gov.in) Portal, as corrigendum or any amendments etc. if any will be notified on this portal only and no separate advertisement in newspaper will be made.

## **Terms & Conditions:**

1. Estimated cost may increase or decrease.
2. Tender paper shall be down loaded from Institute Website [www.igims.org](http://www.igims.org). by the eligible experienced contractors / firms registered under, CPWD, BCD, Energy Department, PESU, Railway or in any government organization under which similar nature of work has been carried having PAN NO., GST NO., Character certificate, and experience certificate of work done not less than 80% value of single work or two work of 50% value or three work of 40% value of estimated amount and IT Return in the last three years.
3. Tenderers are required to deposit Cost of BOQ & Earnest Money for the said work as mentioned above in the shape of Demand Draft, in favour of the Director, IGIMS, Patna along with the required documents in technical bid failing which tender will be rejected.
4. No material shall be supplied by the Institute to the contractor for above noted work.
5. One of the authorized representatives of the tenderer may participate at the time of opening of Tender.
6. The Director, IGIMS, Patna – 14 reserves right to cancel any or all tender without assigning any reason thereof.
7. All documents mentioned in clause (2) should be submitted along with terms & conditions specified of tender duly signed ,self attested and notarized by tenderer in technical bid.
8. Tenderers participating in this tender must fulfill the clause (2) (3) & (7) of terms & condition failing which tender will be rejected.
9. The Bidder should submit original Notarized certificate on Rs.1000.00 non-judicial stamp that it has not been blacklisted, debarred, declared non-performer or expelled by Union Govt. /State Govt. / PSU's during the last 5 years, and in case any ambiguity is noticed in the documents submitted at any stage, we shall be entirely responsible and liable for any action as deemed fit under the law" shall be submitted by the Firm/Agency with Technical. the absence of Certificate, the Bid is liable to be rejected.
10. (11) Note= Contractors are requested to quote their rates % above / % below / at estimated rate for Schedule Items and Item wise rate for non-schedule item.

The Details can be viewed on Institute web site. [www.igims.org](http://www.igims.org). Prospective bidders are advised to regularly scan through, as corrigendum / amendments etc. if any will be notified on this web site. [www.igims.org](http://www.igims.org) only and separate advertisement will not be made.

## **INSTRUCTION TO TENDERER**

1. Cost of B.O.Q (nonrefundable) and Earnest Money Deposit (Refundable) shall be acceptable in the form of Demand Draft of any nationalized bank in favour of Director IGIMS Patna payable at Patna, of any nationalized bank having branch at Patna, with hard copy of technical bid being submitted in the office of the Director IGIMS Patna-14.
2. Bidders also has to submit hard copy of tender in sealed envelopes containing all related documents (hard copy) of Technical bid super scribed as "Technical Bid" and Price bid super scribed as "Price Bid" in two separate envelopes , both containing in third envelope super scribed as "Bid for **Tender notice Engg 18/EW/E-Tender (2022-23)**". This must reach to the office of the undersigned through Registered post/ Speed post/Courier Services only on or before the last submission day and time of tender as mentioned in Tender Notice . IGIMS takes no responsibility for the delay or loss in transit of any document related to this Tender.
3. IGIMS reserves the right to accept or reject any application without assigning any reason or incurring any liability whatsoever.
4. Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders on his own cost, to acquaint themselves from the nature of the work and nature of the ground and sub-soil, the form and nature of the site, the means of access to the site, the volume of work involved, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their work tender. The bidder shall be deemed to have full knowledge of the site, nature of work etc, whether he inspects it or not. It is to note that and no extra charges for complete work either in civil electrical or mechanical work, etc will be paid to the contractor. Any misunderstanding or otherwise shall be allowed.
5. The work to be awarded by this tender shall be treated as indivisible works contract.
6. IGIMS reserves the right to inspect the works intimated to have been completed by the applicant and reject any prospective application without assigning any reason.
7. The tender for the works shall remain open for acceptance for a period of 120 days from the date of opening of tenders.
8. **Completion period**  
The completion period indicated in the tender documents is for the entire work of planning, designing, supplying, installation, testing, commission and handing over of the entire job to the satisfaction of the Engineer - in – charge or his authorized representative.
9. **Warranty**  
All the items covered in the BOQ, shall carry minimum twelve months Onsite Comprehensive Warranty, commencing from the date of completion of entire job. The after sales service support / warranty services have to be provided at IGIMS, Patna-14. The repairing / rectification, if any of the items under warranty must be done at site only within 24 hours.
10. The bidder should submit along with the technical bid, the detailed plan for providing installation and warranty services at site. Prompt and efficient after sales service must be free within the warranty period.
11. The bidders must have name, signature , date & seal should appear on each page of the Tender Document which is required to be submitted with technical bid in the form of hard copy.
12. The bidder shall be responsible for the delivery of the spare/material/ equipment to site and shall include in his bid all the necessary arrangements for transport, loading and off-loading (including cranes, lifting tackles, wire rope, winches, slings, etc.

All the necessary arrangement along with material for installation, testing and commissioning to complete the work will be contractor's responsibility. IGIMS will not accept any claims for additional costs in this regard.

13. If the contractor or his workmen or employees shall break, deface, injure, or destroy any part of a building, road kerb, fence, enclosure, water pipes, cables, drains, electric or telephone posts, wires, etc. The contractor shall make the same good at his own expenses. IGIMS may cause the same to be made good by other workmen and deduct the expenses of which IGIMS decision is final.

**14. Safety**

The successful bidder shall follow the Safety Code and Model Rules for the Protection of health and sanitary arrangement for Workers.

15. The quality of all the materials to be utilized by the successful bidder must be get approved by the Executive Engineer Electrical before utilizing it.
16. The successful bidder has to submit daily progress report of the work to the Executive Engineer Electrical or his authorized representative while execution of the work.

**17. Eligibility Criteria:**

- a. Experience certificate of work done not less than 80% value of single work or two work of 50% value or three work of 40% value of estimated amount and IT Return in the last three years ending march 2021.
  - b. Bidder should be having all the necessary documents like eligible experienced contractors / firms registered under , CPWD , BCD, Energy Department, PESU, Railway or in any government organization under which similar nature of work has been carried ,GST, PAN, Registration, experience etc. He must enclose the Self attested photocopies with notarized of these documents.
  - c. Notarized copy of Valid Electrical License in the name of the bidder or its associate, issued from the Competent government licensing authority.
18. This Notice Inviting Tender (NIT) shall form a part of the contract document. The successful bidder/contractor, on acceptance of his tender by the Accepting Authority, shall, sign the contract agreement within 15 days from the stipulated date of start of the work.
  19. The contractor shall submit the program for execution of work, get it approved from the Electrical Executive Engineer and strictly adhere the same for the timely completion of the maintenance work before start of the work.
  20. The rate for all items of work shall include the cost of all labour, materials and all other inputs involved in the execution of the complete work and nothing extra on any account will be paid to the agency other than his quoted rates.
  21. While installing or commissioning the contractor or his authorized representative should always be available at the site of work to take instructions from department officers and ensure proper execution of work.
  22. The contractor shall maintain in good condition all work executed till the completion of entire work allotted to the contractor. No payment will be made to the contractor for damages caused by rains, floods or any other natural calamity, whatsoever during the execution of the work. The contractor shall be fully responsible for any damage to the Owners property and to the work for which the payment has been advanced to him under the contract during the execution of the works.
  23. The malba /garbage, removed from the site shall be disposed off by the contractor at any suitable place as directed by the Engineer-In-Charge.
  24. Material must be properly packed against any damage and insured up to the destination. The material should be directly dispatched to the installation site at IGIMS, Patna -14.
  25. All the expenses involved in delivering, unloading etc. the equipment at our site, shall be borne by the Bidder. All aspects of safe delivery shall be the exclusive responsibility of the Bidder. IGIMS will have the right to reject the component/equipment supplied, if it does not comply with the specifications at any point of installation, inspection and testing, EMD is liable to be forfeited and bid is liable to be rejected, if the bidder withdraws or amends impairs or derogates from the tender in any respect within the validity period of the tender.
  26. If any equipment/material or part thereof is lost or rendered defective during transit, the supplier shall immediately arrange for the replacement of damaged equipment or part thereof, as the case may be, at no extra cost.
  27. Rates should be quoted towards Supply at site, Unloading, Erection, Commissioning, Testing and Maintenance of Supplies / Materials given under BOQ, accordingly by giving the basic price, GST, Service Tax, etc. wherever applicable.
  28. Along with standered deduction, 1% labour cess will be deducted of the completed work as per prevailing Bihar state government rules.
  29. IGIMS shall have the sole right to assess the performance of the tendered equipment(s) /components, primary / intermediate and or final, and reject the same without assigning any reason / explanation to the bidder if the performance is found to be unsatisfactory. The decision of IGIMS will be final and binding on the contractor.
  30. Price basis should be FOR IGIMS Patna only. The quoted price will be considered firm and no price escalation will be permitted.

**31. SECURITY DEPOSIT**

The amount of Security Money shall be 10% (Ten Percent) of the work order Value- and deduction/deposit shall be made in following manner.

Earnest money deposit and Initial Security Deposit of (Five Percent) of the accepted/agreed value, which has to be deposited by the contractor through D. D. payable to Director IGIMS Patna and remain with IGIMS till expiry of warranty period.

- a) Balance 5% (Five Percent) Security Money shall be deducted from each running account bill of work done under this work order.
32. Security deposit shall be refunded after expiry of warranty period (12 months from the date of completion of work order) and satisfactory performance provided there are no defects in work and removed all surplus material, rubbish and scrap from site. The Security deposit shall be totally non-interest bearing and the bank guarantee, if furnished, shall also not entail any liability towards bank interest, money or bank charges etc. on IGIMS.

**33. Payment**

The payment will be released on quarterly basis for CAMC after submitting the logbook with three months schedule maintenance works mentioned in Annexure-1 and rectification of all the compliance satisfactorily as per agreement through Measurement book. All the payment shall be made on actual measurement basis.

**34. Compensation for Delayed Services**

In the event of the contractor failing to comply to complete work within the completion period shown against the each work in the tender and which starts from the day of handing over the written order to the contractor he shall be liable to pay as compensation an amount equal to 0.5% on the amount of the estimated cost of the whole work per day that the due quantity work remains incomplete provided that the entire amount of compensation to be paid under this provisions of this clause shall not exceed 10% of total order value for the work.

35. The contractor shall clear the site thoroughly of all scaffolding materials, rubbish and scrap etc. left out of his work and dress the site around the building to the satisfaction of the Engineer before the work is considered as complete.
36. The quoted rate shall be complete in all respects including the cost of all materials, labour, tools & plants, machinery etc. IGIMS shall not be supplying any material, labour, plant etc.
37. The contractor has to ensure co-ordination with Institute authorities to maintain the smooth functioning / operation of existing Institute timing without disruption during the execution of work. This may require working rescheduling the normal working hours, working in restricted period etc. Nothing extra shall be payable on this account.
38. Stacking of materials and excavated earth including its disposal shall be done as per the directions of the Electrical Executive Engineer. Double handling of materials or excavated earth if required shall have to be done by the contractor at his own cost.
39. In the case of any tender where unit rate of any item/ items appear unrealistic, such tender will be considered as unbalanced and in case the bidder is unable to provide satisfactory explanation such a tender is liable to be disqualified and rejected.
40. On account of security consideration, some restrictions may be imposed by the security staff on the working and movement of men and materials etc. The contractor shall be bound to follow all such restrictions/ instructions and he shall organize his work accordingly. No claim on this account, whatsoever, shall be payable.
41. The contractor shall be responsible for completing the work and for satisfying all terms and conditions of the Contract without any extra payment over his quoted rates unless otherwise specified. The contractor shall quote his rates for various items of work accordingly and no claim whatsoever shall be entertained for any incidental or extra work involved in the execution of the work as per nomenclature of the item and the specifications indicated in the tender documents.

**42. Technical Bid shall contain:**

- a) Non-Refundable cost of B.O.Q. amounting to the respective Column and work of this NIT in the form of crossed DD drawn on any nationalized bank in favour of "Director IGIMS" payable at Patna.
- b) Refundable Earnest Money Deposit (EMD) amounting to the respective Column and work of this NIT in the form of crossed DD drawn on any Nationalized bank in favor of "Director IGIMS" payable at Patna. Tenders without cost of BOQ & EMD shall be rejected without any notice. In addition to above the following documents are to be uploaded and hard copy should be submitted in the Technical bid.
  - (a) Forwarding letter clearly indicating the documents attached therein submitted in the first cover
  - (b) (i) Notarize copy of experienced contractors / firms registered under, CPWD, BCD, Energy Department, PESU, Railway or in any government organization under which similar nature of work has been carried.  
(ii) Notarize copy of Registered Partnership deed if the tenderer is a partnership firm and power of attorney.
  - (c) Notarize copy Permanent Account Number
  - (d) Notarized copy of Annual Turnover certificate issued from the registered Chartered Accountant for last three financial Years.
  - (e) Notarize copy of valid GST Certificate with updated challan.
  - (f) Notarize copy of Valid Electrical Contractor License/ supervisor licence of the suitable class in the name of the bidder or its associate, issued from the competent government licensing authority, for electrical work. In case of bidder's associate holds the licence, the contractor has to submit a separate notarize certificate that all the electrical work will be carried out under supervision of electrical license holder.
  - (g) Notarize copy of experience certificate/s of similar nature and magnitude of work carried out by the Contractor in Last 5 Years **in any government department only.**
  - (h) Notarize copy Details of technical personnel available with contractor.
  - (i) Notarize copy of List of Tools, Plant and Machinery Immediately available with the Tenderer for use on the respective work for which prospective bidder is submitting the tender.
  - (j) Notarize copy of Character certificate issued from Govt. department.
  - (k) Notarized copy of P.F and E.S.I registration Certificate with updated challan.
  - (l) The Bidder should submit original Notarized certificate on Rs.1000.00 non-judicial stamp that it has not been blacklisted, debarred, declared non-performer or expelled by Union Govt/State Govt / PSU's during the last 5 years, and in case any ambiguity is noticed in the documents submitted at any stage, we shall be entirely responsible and liable for any action as deemed fit under the law" shall be submitted by the Firm/Agency with Technical bid. The absence of Certificate, the Bid is liable to be rejected.

**Note:**

**For work mentioned in Sl. no-01**

- 1) For the work namely "Annual Comprehensive maintenance of VRV/VRF air-conditioners, Air handling units , Package Air conditioner etc. installed in IGIMS , Patna-14" agency must have maintenance experience in the brands like Carrier, Hitachi, Mitsubishi, Daikin etc. and service centre in Patna and a site visit will be done before opening the technical bid.

Quoted rate by the agency must include all complete works including deputing of 5 technicians and 5 helpers with one supervisor in all three shifts (working not more than 8 hours) along with supply and installation of spare parts , taxes ,freight, contractor profit etc all inclusive. If extra manpower/s is/are required as per the instruction of engineer-in-charge then the agency will have to make available depending upon the work loads. The interested agency is advised to visit the site at IGIMS, Patna before quoting their rate, so that to understood the scope of work at site. Accommodations for Electrician, technician and helpers will be the responsibility of contractor and Institute will not provide these facilities. A storage facility will be provided for storing tools, equipment and spares

- 2)
- 3) Details of Scope of work are enclosed at Annexure -1. Plants, Tools and spares necessarily to be deployed at site by the agency is enclosed at Annexure-2.
- 4) Similar nature of work means "Comprehensive maintenance or SITC of concerned works".

**For work mentioned in Sl. no -02**

- 1) For the work namely "Comprehensive annual maintenance contract of 11 KV old Substation with Transformer main LT panels cum AMF panels, 11 KV VCB, ACB, rising mains, & MCCBS, HT/LT cables all other electrical installations etc. all inclusive at IGIMS, Patna" agency must have factory with in Patna district where spare transformer, VCB and ACB are stored and a factory visit will be done before opening the technical bid.
- 2) Quoted rate by the agency must include all complete works including deputing of 1 Senior electrician having experience for more than 15 years at working in 11KV/33KV or above substation switchyard, 1 technician of more than 10 years experience of handling HT/LT panels, AMF Panels, Capacitor panels ,control system and with one Supervisor to co-ordinate with their electrician and technician and two experienced helpers in all the three shifts (working not more than 8 hours), supply and installation of spare parts, freight taxes, contractor profit etc. all inclusive. The interested agency is advised to visit the site at IGIMS, Patna before quoting their rate, so that to understood the scope of work at site. Accommodations for Electrician, technician and helpers will be the responsibility of contractor and Institute will not provide these facilities. A storage facility will be provided for storing tools, equipment and spares
- 3) Details of electrical installations at 11KV old substation and Scope of work is enclosed at Annexure -3. Plant, tools and spares parts necessarily to be deployed at site by the agency is enclosed at Annexure-4

• **Special terms and condition**

- a) FR wiring shall be used everywhere inside/outside all panels/equipment/building.
- b) Copper material (strip, plate, etc.) shall have conductivity greater than 95% in all applications.
- c) Each Earth conductor (for earthing) shall not left bare it will be through ISI mark PVC pipes to avoid corrosion & mechanical injuries.
- d) Failure on the part of the client to inspect or to reject after inspection any work, which later proves to be defective, shall not relieve the Contractor from warranties, commitments and obligations, which he undertakes under this contract. The Contractor is solely responsible for the accuracy, quality and completeness of his work and supply.
- e) The Contractor shall include and provide for securely protecting and packing the equipment in accordance with the best established practices so as to protect the contents from damage during transit, storage, exposure to heat, moisture or rain. Notwithstanding the above, the Contractor shall be entirely responsible for loss, damage or deterioration to the materials occasioned by faulty, defective or insecure packing.

- f) If required obtaining approvals from Electrical Inspector, Local Electricity Supply Authority and all other statutory authorities for the complete scope of work is contractor's responsibility. It is not the intent to specify completely here in all aspects of design constructional and maintenance features of equipment and details of the work to be carried out nevertheless, the equipment and work shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing and continuous commercial operation in a manner acceptable to the owner who are interpret the meaning of the specifications and drawing and shall have right to reject or accept any work or material which in his assessment is not complete to meetings requirement of these specifications and or applicable codes and standards mentioned elsewhere in these specifications.
- g) All sundry fittings, accessories, hardware items, foundation bolts, termination lugs for electrical connections as required, and all other sundry items is included in the quoted price. The materials/spares parts, tools and equipment required during the work are not in the BOQ that will have to be provided by the agency
- h) The Contractor shall arrange all the materials and labour required for inspection of equipment or for any testing to be carried out at his works or at site/Factory. Notice for such inspection/presence for testing shall be given to the Electrical Executive Engineer by the Contractor at least fifteen (15) days in advance.
- i) Notwithstanding approval of tests or equipment by the Electrical Executive Engineer the contractor shall be required to perform site tests and prove the correctness of ratings and performance of equipment/machinery and materials supplied and installed by the contractor as per the contract specifications and conditions. Engineer-in-Charge shall reserve the right to reject any equipment/machinery/material should it, on tests after erection, be found not to comply with contract specifications. Engineer-in-Charge shall have full power to order the material or work to be tested by an independent agency at the electrical Contractor's expense in order to prove soundness & adequacy.
- j) All quantities indicated in BOQ are tentative which may vary as per site conditions. Contractor has to verify quantities before procuring the material.
- k) All materials and equipment shall be brand new. On arrival of the materials at site they shall be inspected and tested by the Electrical Executive Engineer and his representative shall at all reasonable time have free access to the site of assembly. They shall have full powers to examine the materials and workmanship of the equipment at the contractor works or at any other place from where the material or equipment is obtained. The contractor shall give every facility to the engineer-in-charge and his representatives and necessary help for inspection, examination & testing of the materials. Original test certificates of the manufacturer's shall be submitted by the Contractor for all major equipment before they are accepted by the Engineer-in-Charge. Acceptance of any material or equipment shall in no way relieve the Contractor of his responsibility for meeting the requirements of the contract.
- l) Electrical work done under this contract shall be executed by licensed men under the supervision of licensed electrical supervisor as per the Indian Electricity act.
- m) Contractor shall obtain the approval of all electrical installation done under this contract from the appropriate competent authority before the installation and commissioning if required as per rules.
- n) All tools and tackles required for handling of equipment and materials at site of works as well as for their assembly, erection, commissioning and also necessary test instruments shall be the responsibility of the contractor.
- o) The Contractor shall provide for the tendered equipment comprehensive warranty for parts as well as labour for a period of 12 months from the date of successful installation & commissioning of the equipment at Purchaser's site at no extra charges against any manufacturing defect/faulty workmanship. In case any defect arises during warranty period, the Contractor should replace/rectify the same at its own cost at site/works.
- p) Bidder will quote and upload their lowest for schedule items in percentage and lowest item rate for non-schedule items in the format of BOQ attached rate in the separate envelope of Price bid.
- q) On satisfactory performance the CAMC period may be extended for further one more year after approval of competent authority and rate should be quoted for this in the price bid by the bidder.

## ANNEXURES-1

### **A) AHU units**

- 1) Cleaning AHUs whenever required.
- 2) The Housing of AHU should be cleaned properly whenever required
- 3) Drainage should be checked when condensate generation is high. It is recommended that visible rust is removed and surfaces repainted to return their appearance to new. Drain pipe should also be checked.

### **Components**

- 1) Defective electrical switches and sockets connections etc. has to be maintained.
- 2) Fix leaks in cabinet and supply ducts - Door maintenance, Gaskets, frames, hinges and latching handles tend to loosen and wear. It is to be maintained.
- 3) Clean heating and cooling coils.
- 4) Clean and adjust dampers.

### **Fans, bearings and belts:**

- 1) Motor exterior should be periodically cleaned.
- 2) Check for signs of corrosion
- 3) Lubricate the bearings, bush and replace if required.
- 4) Feel the motor frame and bearings for excessive heat or vibration. Listen for abnormal noise that may indicate a potential motor failure. Promptly identify and eliminate the source of the heat, noise, or vibration.
- 5) Verify that belt and motor drive guards are securely fastened so as not to cause vibration and noise and possible damage to equipment and personnel. Maintain proper belt tension and alignment.
- 6) Clean filters. Filter cleaning intervals should be every 15 days, depending on particulate loading from indoor and outdoor air. Filters should be changed as and when required.
- 7) Direct expansion (DX) coils. - Check for leakage of refrigerant should be done. Damage and wear and tear to coils should be checked.
- 8) Each jointing/coupling of duct/pipe should be check and repair so that air can't be leaked.

### **Check that:**

- 1) Dampers are operating freely;
- 2) Linkages are properly lubricated;
- 3) Motors and pistons are working and responding to control signals;
- 4) Temperature and humidity sensors are working and properly calibrated.
- 5) Tune-up AHU and other controls. Controls should be checked frequently for proper operation.
- 6) All wiring connections both internal and external should be checked.
- 7) To make sure that all the equipment is running properly.

### **For Outdoor unit connected to AHUs**

- 1) Check condition and operation of unit.
- 2) Check fixings are secure
- 3) Check fan blade for vibration and noise, and clean and tighten it if necessary.
- 4) Check condenser coil and clean if necessary.
- 5) Check refrigerant system for leaks, operating pressure.
- 6) Motor exterior should be periodically cleaned.
- 7) Check fan motor for signs of corrosion
- 8) Lubricate the bearings if required.
- 9) Feel the motor frame and bearings for excessive heat or vibration. Listen for abnormal noise that may indicate a potential motor failure. Promptly identify and eliminate the source of the heat, noise, or vibration.
- 10) Check compressor and fan motors, record motors current draw at full operating load and compare with rated output.
- 11) To make sure that all the equipment is running properly.

### **B) PACKAGE units:**

#### **Outdoor unit**

- 1) Check condition and operation of unit.

- 2) Check fan blade for vibration and noise, and clean and tighten it if necessary.
- 3) Check condenser coil and clean if necessary.
- 4) Check refrigerant system for leaks, operating pressure.
- 5) Motor exterior should be periodically cleaned.
- 6) Check fan motor for signs of corrosion
- 7) Lubricate the bearings of motor if required.
- 8) Feel the motor frame and bearings for excessive heat or vibration. Listen for abnormal noise that may indicate a potential motor failure. Promptly identify and eliminate the source of the heat, noise, or vibration.
- 9) To make sure that all the equipment is running properly.

#### **Indoor unit**

- 1) Check air filter and clean if necessary.
- 2) Check cooling coils and clean if necessary.
- 3) Inspect PCB and remote is functioning properly or not, if malfunctioning, get it repaired or replaced.
- 4) Check Drain tray for garbage and clean it if necessary.
- 5) Check drain pipe and clean it if necessary.
- 6) All wiring connections both internal and external should be checked.
- 7) Checks for any loose joints/connection of any component/part of AC.
- 8) Tune up package AC settings/controls: Control setting and sensor calibration should be checked.
- 8) Check compressor and fan motors, record current draw at full operating load and compare with rated output.
- 9) To make sure that all the equipment is running properly.

**These preventive measures/activities must be carried out minimum 4 times or as and when required in one year.**

#### **C) VRV/VRF UNITS** **INDOOR UNITS**

- 1) Check condition and operation of units.
- 2) Check controls including thermostats, set points, safety controls and devices.
- 3) Check air filters and cooling coils of indoor unit and clean it if necessary.
- 4) Check Drain tray for garbage and clean it if necessary.
- 5) To make sure that all the equipment is running properly.

**NOTE:** The outdoor unit services multiple indoor units, ensure they are all serviced and record quantity serviced in service sheet.

#### **OUTDOOR UNIT**

- 1) Check condition and operation of unit.
- 2) Check fixings are secure including pipe work system.
- 3) Check fan for vibration and noise and clean if necessary.
- 4) Check heat exchanger coil and clean if necessary.
- 5) Check refrigerant system for leaks, operating pressure.
- 6) To make sure that all the equipment is running properly.

#### **ELECTRICAL WORKS**

- 1) Check condition and operation of all electrical components including:-
- 2) All safety devices all connections for security, tightness, contact and corrosion
- 3) Relays and contactors all overloads and circuit breakers
- 4) All indicator lights
- 5) Check compressor and fan motors, record current draw at full operating load and compare with rated output.
- 6) To make sure that all the equipment is running properly.



## ANNEXURES-2

### Plant , tools , spares and manpower necessarily to be deployed at site by the agency:

1) Megger-500 volts	-	1 No
2) Digital multi meter	-	1 No
3) Digital Tong tester	-	1 No
4) Earth Resistance Tester	-	1 No
5) Wrench set/plumbing set of wrenches/Plier	-	1 set
6) Insulated rubber gloves (11000V)	-	02 Nos.
7) 500 V insulated Pliers	-	03 Nos.
8) Drilling machine (hammer type) with drill sets	-	01 Set
9) Aluminum Ladder (8 step)	-	01 No.
10) Torch & batteries	-	03 No.
11) Blower for cleaning of Outdoors	-	01 No.
12) Wire rope	-	50 Mt
13) Jute rope	-	100 M
14) Welding Machine	-	01 Set
15) Digital thermometer	-	04
16) Torch	-	02
17) Folding ladder	-	02
18) 'L' end key set	-	01 set
19) Pressure gauge	-	01 set
20) Multifunction Tong tester	-	02
21) Screw Driver, Line tester, Insulation tape etc.	-	1 set, with each operator
22) Contactless thermometer	-	2
23) Refrigerant	-	410A (4 cylinders-as usable)
24) Condensor fan motor	-	05
25) Condensor fan blade	-	05
26) PCB - ODU	-	05 AS PER RATING
27) PCB - IDU	-	05 AS PER RATING
28) 1.0 TR	-	03
29) 1.2-1.4 TR	-	03
30) 1.6 TR	-	02
31) 2.0 TR	-	02
32) 3.3 TR	-	02
33) 4.10 TR	-	01
34) 4.0 TR ductable	-	01
35) 8.0 TR ductable	-	01
36) 11 TR ductable	-	01
37) Connecting plate	-	05
38) MCB	-	63A
39) Contactor	-	05
40) Inverter compressor	-	04 as per rating
41) Normal Compressor	-	02 as per rating
42) Water pump for IDU	-	05 each type
43) Water level sensor	-	02 each type
44) Capacitors ODU/IDU	-	05 each type
45) IDU motor	-	2 motor each for 4TR & 8 TR Ductable
46) IDU display	-	02 each type
47) AC Supervisor	-	01 person
48) Ac technicians	-	05 persons
49) Helpers	-	05 persons

**Note :** Agency is advised to visit the site at IGIMS, Patna before quoting their rate, so that to understood the scope of work at site and also to understand the deployment necessary tools, Plants, Spare parts which are not mentioned above.

## ANNEXURES-3

### Details of Installation

#### **1.0 Underground 11 KV HT line.1)**

- 1) Underground 11 KV grade HT Cables from Two pole structure to HT Panels.

#### **2.0 Sub-station Equipment's2)**

- 1) 11 K.V. H.T Panel (VCB) - 1 Set (1 no. incomer and 4 no.Outgoings (800 A)
- 2) 11 K.V. H.T Panel (VCB) - 1 Set (1 no. incomer and 1 no.Outgoing (800 A)
- 3) 11 KV/433 V, 500 KVA Transformers - 4 Nos.
- 4) 11 KV/433 V, 1000 KVA Transformers - 1 No
- 5) Bus ducts. and 1.1 KV aluminum conductor armored power cables from outgoing of LT Panels.
- 6) Main L.T Panels with ACBs, Buscouplers, MCCBS, Interlocking system, busbars, metering units etc. all complete.
- 7) AMF Panels
- 8) Any nos. of breakdown complaints must be attended immediately after locking complaints via telephone, e-mail or via any medium and get rectified as earliest.
- 9) Minimum qualification of Supervisor, senior electrician and technician must have ITI from electrician.
- 10) Annual comprehensive maintenance does not include the operational work, however Schedule of work as given below i.e work to be done on every day, weekly , monthly, three months, six months are all related to maintenance works which are to be done by agency by their deployed supervisor, Senior electrician, Technician and helper.
- 11) **If any such conditions arises in which the equipment (only for transformers, VCBs, ACBs) are beyond repairable and by replacing any parts it cannot be rectified then in such conditions, Institute will replace the damage equipment (only for transformers, VCBs, ACBs) on its own cost. However till the new equipment get installed, agency will make an alternative arrangement immediately.**

#### **WORK TO BE DONE ON EVERY DAY BASIS.**

- 1) To check the electrical and mechanical parts of all the electrical installations e.g. Transformers, Main LT panels, sub panels, AMF Panels Rising Mains, HT and LT Cables, etc. and rectify if found defective.
- 2) Checking the yard at periodic intervals and attend to any unusual observations, defects, sparks, loose contacts, red hot spots and loose bolts and nuts etc., and informing the concerned authority. The records of operational persons shall also be consulted for this purpose.
- 3) To monitor & record the incoming supply parameters, make necessary tap to in changing to maintain the voltage in limits, maintain the power factor at not less than 0.9 lagging by switching the capacitor banks, to keep the maximum demand within prescribed limits etc.
- 4) To check earth pits pertaining to all equipment's, systems and buildings etc. Watering them as and when required and testing their earth resistance etc.
- 5) Recording/Maintain a register for Parameters of all equipment installed at Substation daily with signature.
- 6) Maintain a register for Recording complaints and attending the same with date , time & signature
- 7) Any other work required for the equipment for proper functioning.
- 8) Supply of any spare parts as and when required for making it proper functional.

#### **WORK TO BE DONE ON WEEKLY BASIS**

- 1) Attend the equipment complaints which are not sorted out during daily maintenance.
- 2) To cleaning/tightening of loose contacts of transformers, HT and LT panels, AMF panels DBs etc. if so required.
- 3) Change/cleaning of power/control cables etc. as required.
- 4) Record all the major events in the history Register for Transformer, AMF panel, BUS BAR and Circuit breakers etc. for their maintenance, faults and other characteristics shown during their operation.
- 5) Any other work required for the equipment for proper functioning such checking of temperature/moisture time to time.
- 6) To check electrical circuits and rectify faults as and when necessary.
- 7) Supply of any spare parts as and when required for making it proper functional.

#### **WORK TO BE DONE ON QUARTERLY BASIS:**

- 1) To check Buclolz relay, Pressure release device, OLTC device, controls, leakage of oils etc. of Transformers and other electrical installation like VCBs as per their OEM schedule and taking necessary action.
- 2) To check the electrical load on each feeders and change over the load on other transformer or feeder periodically.
- 3) Lubricating / Greasing all moving parts of OLTC/VCB/ACB etc. mechanism.

- 4) Checking and recording or IR values of all cables with megger of suitable range if the concerned feeder cable is idle for more than one month.
- 5) To check the solenoid valve, safety controls Mechanical, Electrical / Electronics and inter – locking of the various equipment like VCBs ,ACBs etc.
- 6) Carryout the BDV of Transformer oils for five times and average it, if BDV is less than 45 KV,then carryout the filtration of oil also moisture content should be less than 10 ppm if not found do necessary

Supply of any spare parts as and when required for making it proper functional.

#### **WORK TO BE DONE ON HALF YEARLY BASIS.**

- 1) Maintenance of Transformer, VCB, ACB, SCADA Panels, DG sets and other electrical installation as per their OEM schedule.
- 2) To check and change if required Transformer Oil, Breather (silica gel and oil) and other accessories .
- 3) Carryout the BDV of Transformer oils for five times and average it, if BDV is less than 45 KV, then carryout the filtration of oil also moisture content should be less than 10 ppm if not found do necessary.
- 4) Check the I.R. value of each Current/Potential Transformer and keep record.
- 5) To check earthing resistance, insulation resistance and Breakdown voltage of all equipments including HT and LT cables, Transformer Oil etc. as applicable and Submit the test report/observation as per instruction or CPWD/CPRI norms.
- 6) Supply of any spare parts and spares as required for making it proper functional.

#### **MAJOR MAINTENANCE.**

- 1) To test the oil samples of transformers and to give suggestions for dehydration of oil if required.
- 2) Replacing of Buchholz relay, OTI, WTI, breather, HT or LT Bushing etc. if found malfunctioning.
- 3) Servicing of ACB, VCB, all relay, calibration of meters and providing report for the same.
- 4) Replacement of Lightning Arrestor pole.
- 5) Any other electrical works as assigned by the engineer in charge essentially required for keeping the equipment's in good healthy working conditions though not indicated above.
- 6) All the maintenance activities shall be carried out by following all the safety measures using required PPE equipment. The contractor will be only responsible for any mishap due to unsafe act / practice.
- 7) Transformer, AMF panel, BUS BAR and Circuit breakers etc. for their maintenance , faults and other characteristics shown during their operation .
- 8) All the equipment/installation shall always be kept in good and trouble free operating conditions.
- 9) All the required record for break-downs/repairs and maintenance etc. shall be maintained in the form of history books and logbooks etc. as per directions. All the maintenance works shall be carried out in accordance with the manufacturer's specifications and instructions of the engineer in charge.
- 10) Supply of any spare parts as and when required for making it proper functional..

#### **TOOLS & PLANTS**

All the general & special tools, tackles i/c 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.

#### **CONSUMABLES**

The rates shall be all inclusive of establishment as well as spares and consumables as per schedule of work. The contractor is required to assess the probable quantity of all types of spares and consumables likely to be required for replacement for keeping all the installations in good working conditions and include the cost of these spares & consumables.

Nothing extra on any account shall be payable above the agreed rate.

Scope of works also includes liaison with SBPDCL regarding 11KV Feeder Power connection to IGIMS Patna so as to ensure uniform power supply.

The work shall be generally carried out as per IS/CPWD/CPRI specifications for Electrical works and as per the norms set by the manufacturers of respective equipments, specifications and specific instructions as may be issued by the IGIMS Patna Engineer in charge..

Brief description of maintenance activities generally carried out as mentioned All the electrical equipment's/installations shall be always kept in working conditions.

The consumables and spares shall be of best standard quality purchased from the original manufactures or authorized dealers only and shall be shown to the Engineer in-charge of IGIMS Patna before use.

The dismantled/replaced parts whenever replaced shall be property of contractor and have to dispose off as early as possible.

All spares and consumables such insulation tape, washing detergent, cotton for cleaning etc. shall be arranged by the contractor for which nothing extra shall be payable.

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 Performa must be approved by IGIMS Patna Engineer- in- charge or his authorized representative.

To arrange for a well-equipped first-aid box and maintain it in a healthy condition to take care of first aid for any eventualities of their workman at site.

#### ANNEXURES-4

##### Plant , tools , spares and manpower necessarily to be deployed at site by the agency:

1) Hydraulic and Manual crimping tools	-	1 Set each
2) Megger-500 volts and 2000 volts	-	1 No each
3) Digital multi meter	-	1 No
4) Digital Tong tester	-	1 No
5) Earth Resistance Tester	-	1 No
6) Wrench set/plumbing set of wrenches/plier	-	1 set
7) Insulated rubber gloves (11000V)	-	02 Nos.
8) 500 V insulated Pliers	-	03 Nos.
9) Test lamp holders	-	03 Nos.
10) Drilling machine (hammer type) with drill sets	-	01 Set
11) Aluminum Ladder	-	02 No. s
12) Torch & batteries	-	03 No.
13) Blower for cleaning of panels	-	01 No.
14) Cable fault locator (LT )	-	1 No
15) Chain pulley block with Tripod	-	1 set
16) Wire rope	-	50 Mt
17) Jute rope	-	100 M
18) High Voltage testing unit	-	1 No.
19) Welding Machine	-	01 Set
20) 11kV HT Cable jointing KIT ( each size as installed)	-	2 set
21) Cable Cutter	-	1 set
22) Distance relay	-	1 set
23) Supervisor	-	1
24) Senior Electrician	-	1
25) Technician	-	1
26) Experienced helpers	-	2

**Note:** Agency is advised to visit the site at IGIMS, Patna before quoting their rate, so that to understood the scope of work at site and also to understand the deployment necessary tools, Plants, Spare parts not mentioned above.

(Tender Notice No: Engg 18 / EW / E-Tender 2022-23)

  
**DIRECTOR  
IGIMS, PATNA**