TENDER

NATIONAL HEALTH SYSTEMS RESOURCE CENTRE

SUMMARY OF TENDER

Name of Work	**Supply, Installation, Testing and Commissioning of 11KV Compact Substation with 500 KVA Transformer at NHSRC, NIHFW Campus, Munirka, New Delhi -110067**
Notice Inviting Tender	**06.09.2016**
Date of issue of tender documents.	**From 06.09-2016 to 16-09-2016 till 1700 Hrs, can be downloaded from the website of NHSRC or issued from NHSRC office, New Delhi**
Date of submission of Tender	**The sealed Tender so as to reach this office on or before 19-09-2016 latest by 1500 hrs**
Date of opening of Tender	**On 19-09-2016 at 1530 hrs in presence of party who may be present.**
Pre Bid Meeting	**On 14.09.2016 at 1530 Hrs at The Theatre-NHSRC, Munirka**
Estimate cost	**Rs.32,05,918.00**
EMD	**Rs.64,200.00 (Refundable)- Rupees Sixty four Thousand two hundred only.**
Performance Guarantee	**5% of Contract Amount**
Tender Cost	**Rs.1000.00 (Non-Refundable) Rupees One Thousand only.**
Completion time	**Three Months**
Envelope-1 **Envelope-2** **Envelope-3**	**EMD & Tender Cost** **Pre qualifications Documents with Tender Document** **Financial Bid Only**

Dr.Uddipan Dutta
Principal Administrative Officer (NHSRC)

NATIONAL HEALTH SYSTEMS RESOURCE CENTRE

NOTICE INVITING TENDER

Ref:-NHSRC/Admin/16-17/Electrical Sub -Stn/01 Dated:-06-09-2016

Name of the work: Supply, Installation, Testing and Commissioning of 11KV Compact Substation with 500 KVA Transformer at NHSRC, NIHFW Campus, Munirka, New Delhi -110067.

Sealed Tenders are invited on behalf of **National Health Systems Resource Centre, New Delhi for Supply, Installation, Testing and Commissioning of 11KV Compact Substation with 500 KVA Transformer at NHSRC, NIHFW Campus, Munirka, New Delhi -110067**.

1. The work is estimated to cost **Rs.32, 05,918.00**. This estimate, however, is given merely as a rough guide.

1. The tender shall be submitted in prescribed form.

2. The works are to be completed in **Three Months** from the 7th day after the day on which the department issues the written order to commence the work or from the date of handing over the site, whichever is later.

3. Application for issue of tender documents shall be submitted to **Principal Administrative Officer NHSRC**, New Delhi so as to reach his office not later than **16-09-2016** and same will be issued only those firms who fulfil following criteria and submit following documents: **(From 4.1 to 4.13)**

4.1 Annually prequalified contractors in appropriate class/ Tendering limit or above of CPWD/PWD/BRO/MES in the category of sub-station or composite work. The proof of registration/Enlistment should be enclosed of any of these organizations. **The following documents are also required to submit by contractor.**

4.2 The contractor/agency should have satisfactory completed the works as mentioned below during the last Three years ending last day of the month previous to the one in which tenders are invited as follows: **The contractor shall enclose work order with Bill of quantity and Performance certificate for same.**

a) Two similar works of substation with Transformer capacity not less than 400 KVA and each costing not less than 60% of the estimated cost.

OR

b) One similar work of substation with Transformer capacity not less than 400 KVA and each costing not less than 80% of the estimated cost

"Similar work shall mean works of "SITC of Compact Substation/Substation works with or without HT Panel / MV Panel / Cable laying".

4.3. A tenderer shall enclose a copy of valid PAN Card.

4.4. Proof of registration with EPF.

4.5. Proof of registration with ESI.

4.6. Proof of registration with VAT/Sales Tax of Delhi State.

4.7. Proof of registration with Service Tax.

4.8. Charted Accountant Certificate of Turnover for last three years ending March 2015 The turnover should not be less than 32 Lacs in each year.

4.9. History & structure of firm, name of director/partners/proprietor/with Technical staff.

4.10. List of machinery/tools plants and equipment.

4.11. Valid copy of Electrical License.

4.12. All the above certified documents shall be submitted by the firm duly signed and stamped by Notary Public/gazetted officer and self attested with seal of the company and original shall be duly produced for verification as required.

4.13 An affidavit duly notarized on stamp paper of Rs.100/- non-judicial stating that "In case of any ambiguity found in the documents submitted (Listed out) at any stage, we shall be entirely responsible and liable for any action as deemed fit under the Law"

5. The tender document can be down loaded from our website www.nhsrcindia.org. In such case Bidder should fulfil prequalification criteria as per para **"4.1 to 4.13"** and submit the documents in a sealed envelopes super scribed Envelop No.2-Technical Bid for pre-qualification for "**Supply, Installation, Testing and Commissioning of 11KV Compact Substation with 500 KVA Transformer at NHSRC, NIHFW Campus, Munirka, New Delhi -110067**".

a) Envelope II marked as Technical bid shall contain all the **pre-qualification documents along with tender documents** downloaded from the web site duly signed and stamped as mark of acceptance of all terms and conditions. Any deviation from terms and conditions shall be notified separately.

b) If all the required documents are not complete as per Para 4 (a) above, Envelope III containing financial bid will not be opened.

6. Tender documents consisting of plans, specifications, schedules(s) of quantities of the various classes of work to be done, the conditions of contract and other documents will be open for inspection and issued/sold on payment of Rs.1000/-(Non refundable) on or after **06-09-2016 and up to 16-09-2016**.

a) In case tender documents downloaded from the web site, the tenderers should enclosed tender cost (Rs 1000.00 (Rupee One Thousand only) in form of banker's cheque / demand draft in a separate sealed envelope. Super scribed ENVELOPE-1 for the work of "**Supply, Installation, Testing and Commissioning of 11KV Compact**

Substation with 500 KVA Transformer at NHSRC, NIHFW Campus, Munirka, New Delhi -110067".

b). The tender shall be accompanied by earnest money **of Rs.64,200.00 (Rupee Sixty Four thousand Two Hundred only)** through a Bank Draft issued in favour of **National Health Systems Resource Centre, New Delhi** from State Bank of India or a Nationalized Bank or any Scheduled Bank. Tenders without the earnest money and Tender cost if any will be summarily rejected

7. Copies of other drawings and documents pertaining to the works signed for the purpose of identification by the accepting authority of his accredited represent representatives and samples of materials to be arranged by the contractor will be open for inspection by tenderers at the NHSRC office, New Delhi during working hours between the dates mentioned in clause 6 above.

8. Tenderer are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tender to the nature of the ground and sub-soil, the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to the risk, contingencies and other circumstances which may influence or effect their tender. A tenderer shall be deemed to have full knowledge of the site, whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed.

9. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of the conditions and rates at which stores, tools, plant etc. will be issued to him by the NHSRC and local conditions and other factors bearing on the execution of the work.

10. A tenderer shall quote in figures as well as in words for rate(s) tendered. The amount for each item should be worked out and requisites total given. Special care shall be taken to write rates in figures as well as words and the amounts in figures only in such a way that interpolation is not possible. The total amount shall be written both in figures and in words. In case of figures, the words 'Rs' should be written before the figure of rupees and the work 'Paisa' after the decimal figures e.g. Rs. 2.15 P and in case of words 'Rupees' should be precede and the word 'Paisa' should be written at the end. Unless the rate is in whole rupees followed by the word 'only' it should invariably be up to two places of decimal.

11. (a) All rates shall be quoted on the financial bid form and shall include material, labour, transportation all taxes & duties , supervision, tools, plants, wastage, sundries, scaffolding as required mobilization, demobilization, transportation etc. and nothing extra shall be payable on this account. **However shall not include the service tax, which will be reimbursed on submission of challan duly certified.**

(b) Sales tax or any other tax on materials/ labour in respect of this contract shall be payable by the contractor and the NHSRC will not entertain any claim whatever in this respect.

(c) As per law of land, statuary deduction like income tax / work contract tax etc shall be made from the contractor's bill as applicable.

(d) The rates of the contractor shall be inclusive of labour cess @ 1% or as applicable and necessary recovery of labour cess shall be made from each RA bill by the NHSRC to be deposited with the labour board of the concerned state. In case the labour board is not established in the state, recovery made by NHSRC on account of labour cess shall be retained under suspense and will be deposited with the labour board and the later date as and when the labour board is established in the state.

12. In case of item rate tenders, only rates quoted shall be considered. Any tender containing percentage below/above the rates quoted will be rejected.

13. Tender complete in all respect shall be put in the Tender Box placed at Security Gate NHSRC, Baba Gangnath Marg, Munirka New Delhi up to **1500 hours on or before 19.09.2016**.The tenders received shall be opened on same day at 1530 Hrs in the presence of tenderers who may be present. The submission of tender shall be as under:

13.1 **Sealed Envelope No.1-supersrcibed"EMD &Tender cost**" consisting of draft for Tender cost (Non-refundable) and Earnest money deposit (Refundable) of subject work. It should be superscripted Envelop-1.alongwith name of work-Tender cost & EMD.

13.2 **Sealed Envelop No.2-superscribed "Technical bid"** along with name of work shall contain complete Tender documents and pre-qualification documents as required as listed **4.1 to 4.13** each page duly signed and stamped.

13.3 **A separate sealed envelope No.3 should contain only Financial Bid** each page duly signed and stamped with prices in the manner specified in this NIT. The envelop shall be super scribed as Envelop-3-Financial bid for "**Supply, Installation, Testing and Commissioning of 11KV Compact Substation with 500 KVA Transformer at NHSRC, NIHFW Campus, Munirka, New Delhi -110067**".

14. All the three sealed envelopes should be put in separate sealed cover super scribed as Tender document for the work of "**Supply, Installation, Testing and Commissioning of 11KV Compact Substation with 500 KVA Transformer at NHSRC, NIHFW Campus, Munirka, New Delhi -110067.**

15. On acceptance of tender, the earnest money will be treated as part of the Security Deposit.

16. **SECURITY DEPOSIT**

(i) The security deposit shall be collected by deductions from the running bills of the contractor at the rate mentioned below and the earnest money deposited at the time of submission of tender, shall be treated as part of the security deposit. The security deposit can also be accepted in the form of Government Securities, Fixed Deposit Receipts etc.

(ii) A sum @ 5% of the gross amount of the bill shall be deducted from each running bill of the contractor, till the sum along with the sum already deposited as earnest money amounts to security deposit @ 5% of the tendered amount of the work. Such

deductions shall be made unless the contractor has deposited the amount of security at the rate mentioned in cash or Government securities or Fixed Deposit Receipts. This is in addition to the performance guarantee that the contractor is required to deposit as per tender. Income tax, VAT, work contract tax, labour cess & other statutory deductions etc.shall be made at source as per the prevalent laws of the Govt. of India

17. NHSRC will return the earnest money, where applicable to every unsuccessful tenderer.

18. NHSRC reserve to themselves the right of accepting the whole or any part of the tender and tenderer shall be bound to perform the same at his quoted rates.

19. The validity of the tender(s) shall be up to **90 (Ninety) days** from the date of opening of tender(s).

20. The use of whitener/ eraser in this tender is prohibited. If any correction becomes necessary, the same should be done by SCORING OFF originally written rates/figures etc. and then rewriting should be done under initials of person filling the tender.

21. An undertaking by the agency shall be given to the effect that "they will engage staff and labour of good moral character only at site and will ensure watch and ward and discipline of his employees". Suitable action will be taken against the agency if any deviation is noticed on this account.

22. For consumption of water and Electricity at site, if requested by the agency, the same shall be arranged by NHSRC (subject to their existence at working site) at one mutually convenient point. Necessary extension of this supply will have to be got extended by the agency at their own cost. For this supply of water & Electricity, recovery @ ½% (half percent) for each (total to ONE percent) of the value of actual work done shall be made progressively from the running as well as final bill if used.

23. The contractor whose bid is accepted will be required to furnish **performance guarantee of 5% (Five Percent)** of the bid amount within the 15 days after award of work. This guarantee shall be in the form of Banker's cheque/Demand Draft/ Pay order/ Bank Guarantee/ FDR of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within 15 days after award of work, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee.

24. In case it is found during evolution or at any time before signing of contract or after its execution and during the period of subsistence there of that one or more of the eligibility conditions have not been met by the applicant, or the applicant has made maternal misrepresentation or has given any maternally incorrect or false information, the applicant shall be disqualified forthwith, if not, yet appointed as the contractor/supplier and if the applicant has already been issued the LOA or has entered into the contract, as the case may be, the same shall, not withstanding anything to the contrary contained therein be liable to be terminated along with forfeiter of earnest money deposit (EMD)/ performance security by a communication in writing By the

NHSRC to the applicant without the corporation being liable in any matter whatsoever to the applicant and without prejudice to any other right or remedy with the NHSRC may have under the bidding documents the contract or under applicable law.

25. **The Pre- bid conference shall be held at The Theatre- NHSRC, Munirka New Delhi 110067 on 14.09.2016 at 1500 Hrs** to clear the doubt of intending bidders, if any. During this pre-bid meeting itself all relevant technical matters shall be discussed and concluded. Hence, bidders are requested to make suggestion of technical points during the meeting itself. The decision on these points shall be communicated through the Minutes of the meeting, and also uploaded. These shall form part of the bid document. No technical or commercial deviation shall be acceptable thereafter.

For & On Behalf of the National Health Systems Resource Centre

Dr.Uddipan Dutta
Principle Administrative Officer
NHSRC

Schedule 'F'

Reference to General Conditions of Contract (To be signed by the Contractor(s) at the time of signing the agreement)

1(a) Accepting Authority	National Health Systems Resource Centre
1(i) Market Rate - percentage addition To cover profit, overheads and supervision	- 15%
2. (a) Estimated cost of the Works put to tender	- **Rs.32, 05,918.00**
(b) Earnest money (2% of the estimated cost)	- Rs.64,200.00
(c) Security deposit	- as per NIT
3(ii) Schedule of rates applicable:	CPWD DSR 2014 & Market Rate
4. Time allowed for execution of work	90 days (To be reckoned from the SEVENTH Day after the date of work order or handing over of Site)

5. Compensation for delay: Compensation for Delay: 1% (one per cent) of the contract amount subject to a maximum of Rs. 50,000/- PER WEEK or a part thereof for first 4 weeks of delay for subsequent delay. The Compensation should be 2% (Two Percent) of the contact amount subject to maximum Rs. 1.00 lac per week or a part there of. The total compensation for delay shall further be subject to an overall maximum or 10% (Ten per cent) of the contract amount as awarded. The decision of the competent officer of the Accepting Authority shall be final and binding.

6. Defects liability Period -Electrical works, Substation works and machinery etc. - ONE YEAR from the date of Commissioning.

7. For Extra Item/Substitute Item/Deduction Item etc- Latest CPWD Manual shall be followed.

Special Conditions of contract

1. CONFORMITY WITH STATUTORY ACTS, RULES, REGULATIONS, STANDARDS AND SAFETY CODES

a) Indian Electricity Act and Rules All electrical works in connection with installation of electric sub-stations shall be carried out in accordance with the provisions of Indian Electricity Act, 2003 and the Indian Electricity Rules, 1956 amended upto date. Wherever I.E. rule numbers have been indicated, they are based on I.E. Rules, 1956 amended upto date.

b) **CPWD Specifications**:- The electrical works shall also conform to CPWD General Specifications for Electrical Works Part I (Internal) 2013 and Part II (External)1994, Part-IV substation 2013 as amended upto date wherever relevant I.E. Rules, BIS/IEC and as per directions of In-charge. These additional specifications/ conditions are to be read in conjunction with above and in case of variations; specifications given in the in the contract shall apply. However, nothing extra shall be paid on account of these additional specifications and conditions, as the same are to be read along with schedule of quantities for the work.

c) **Indian Standards**:- The sub-station equipments and their installation shall conform to relevant Indian standards.

d) **Other Acts and Rules**:- The installation shall also comply with the following:-

(i) Factories Act wherever applicable.

(ii) Any other Act or Rules in force

e) **Safety Codes and Labour Regulations:-** In respect of all labor employed directly or indirectly on the work, the tenderer, here in after called the contractor, at his own expense will arrange for the safety provision of these specifications to comply with the statuary regulations, ISI recommendations and CPWD codes. In case of default, the department shall be at liberty to make arrangements and provide facilities as aforesaid and recover the cost from the contractor. The contractor shall provide necessary barriers warning signals and other safety measures to avoid accidents. He shall also indemnify department against claims for compensation arising out of negligence in this respect. Nothing in these specifications shall be construed to relieve the contractor of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with applicable statutory regulations and safety codes in force from the safety angle.

2. INFORMATIONS AND DRAWINGS TO BE SUPPLIED BY THE DEPTT

a) Specification Drawing:- The tender specifications shall indicate, for a particular job, the reference drawings to help the contractor to work out the tender. The drawings shall also indicate the schematic of main connections and shall form part of the specifications. All the drawings specified and issued with the tender are for purpose of tendering only and shall be deemed to be specification drawings.

3. **WORKS TO BE DONE BY THE CONTRACTOR**:-

In addition to supply, installation, testing and commissioning of all equipments as per schedule of work. The following work shall be deemed to be included within the scope of work, to be executed by the contractor.

a) All minor building works, such as equipments foundation if required cutting and making good holes, grouting of channels belts as required. Cutting and making good damages etc.

b) Provision of supports / clamps for equipments, cables etc. wherever required.

c) Small wiring, inter-connection etc. inclusive of all materials and accessories, necessary to comply with the regulations as well as proper and trouble free operation of the equipment.

d) Closing of the cable entry points in sub-station against seepage of water, rodents etc.

e) Tools and tackles required for handling and installation.

f) Necessary testing equipments for commissioning.

g) Watch and Ward of materials and/or installation and equipments till their handing over to the department.

4. **SITE CONDITIONS**:- All the equipments and their installation shall be suitable for the environmental conditions encountered at the location.

5. **INSPECTION OF SITE AND COLLECTION OF DATA:-** The contractor shall be deemed to have examined the tender documents, detailed specification, data etc. and to have visited the site or ascertained all relevant details for offering suitable equipments/ installation.

6. **INTERFERENCE WITH COMMUNICATION EQUIPMENT:-** Suppressors or other protection devices shall be provided, if required as per schedule of quantities, wherever the sub-station installation is likely to interfere during the operation with any other electric or electronic equipment.

7. **EXTENT OF WORK**: - The scope of work shall consist of cost of all materials, labour i/c supervision, installation, calibration, adjustments as required for commissioning of the sub-station. The term complete installation shall mean, not only, major item of the plant and the equipments covered by these specifications, but also, incidental sundry components necessary for complete execution and satisfactory performance of installation with all labour charges, whether or not specifically mentioned in the tender documents, which shall be provided by the contractor at no extra cost.

8. **COMPLETENESS OF TENDER: -** All fittings, unit assemblies accessories, hardware foundation bolts, terminals blocks for connections, cable glands and miscellaneous materials and accessories of items of work which are useful and necessary for efficient assembly and working of the equipment shall be deemed to have been included within the scope of the work in the tender and within the overall details for complete item whether they have been specifically mentioned or not.

9. **DATA MANUALS AND DRAWINGS TO BE FURNISHED BY CONTRACTOR After Award of Work**

a) The contractor shall submit the following drawing within a fortnight of the award of the work or as specified in tender document which shall prevail, for approval by the department.

(i) General arrangement or location drawing of the equipment complete with dimensions and clearances.

(ii) General arrangement drawing of H.V. Panel, Transformers, M.V. panels, Earthing, Cable route etc. including details of grouting of channels / bolts of various equipments.

(iii) All panels' schematics & wiring diagram including control wiring.

(iv) Bar chart indicating general programme for supply, installation, testing and commissioning and handing over.

(v) Any other drawing or data that may be necessary for the job

b) **Before Commencement of Installation:-**

The contractor shall also furnish 3 copies of detailed installation, operation and maintenance manuals of manufacturers for all items of equipment together with all relevant data sheet, spare parts catalogues, repairs, assembly and adjustment procedure etc., in triplicate.

10. **QUALITY OF MATERIALS AND WORKMANSHIP**

All parts of equipment shall be of such design, size and material so as to function satisfactorily under all rated conditions of loading and operation. All components of the equipment shall have adequate factors of safety. Materials/components which are not conforming to standards laid down by Bureau of Indian Standards (BIS) shall be got approved from the department before use on the work. The entire work of fabrication, assembly and installation shall conform to sound engineering practice and on the basis of "fail safe" design. The mechanical parts subject to wear and tear shall be of easily replaceable type. The construction shall be such as to facilitate ease of operation, inspection, maintenance and repairs. All apparatus shall also be designed to ensure satisfactory operation under working conditions as specified.

11. **INSPECTION, TESTING AT MANUFACTURERS WORKS**

The contractor will be required to furnish such facilities as will be necessary for inspection of the equipment before dispatch at the manufacturer's works and also for witnessing such tests, at the works, if so required by the NHSRC. The contractor shall furnish information for this purpose and will also give sufficient notice regarding the dates proposed for such test to Inspection agency.

12. **TEST CERTIFICATE**

Copies of all documents for routine, acceptance and type test certificates of the equipment carried out at the manufacturers premise shall be furnished to the department along with supply of the equipment.

13. **DISPATCH OF MATERIALS AND STORAGE**

The contractor shall commence work as soon as the drawings submitted by him are approved. The contractor should dispatch all materials to site in consultation with the department where suitable storage accommodation may be made available to him temporarily. For this purpose the programme of dispatches of materials shall be framed keeping in view the building progress so that suitable

storage accommodation could be made available to the contractor. Safe custody of all machinery and equipment supplied by the contractor shall be his own responsibility till the final taking over by the NHSRC.

14. **COORDINATION WITH OTHER AGENCIES**

The contractor shall coordinate his work and cooperate with other agencies by exchange of all technical information like details of foundation if required, weight, over all dimensions, clearance and other technical data required for successful and proper completion of his portion of the work in relation to the work of others without any reservation. No remuneration should be claimed from the department for such technical cooperation. If any unreasonable hindrance is caused to other agencies and any completed portion of the works has to be dismantled and redone for want of the cooperation and coordination by the contractor during the course of work, such expenditure incurred will be recovered from the contractor during the course of work, if the restoration work to the original condition of Specification of the dismantled portion of the work was not under taken by the contractor.

15. **CARE OF BUILDINGS**:- Care shall be taken, while handling/ installing the equipment to avoid damage to the building. On completion of the installation, the contractor shall arrange to repair all damages to the building caused during plant installation so as to bring to the original condition. He shall also arrange to remove all unwanted waste materials from substation room and other areas used by him.

16. **PAINTING AND PROTECTION: -** All damages to painting during transport and installation shall be set right to the satisfaction of the department before handing over. All structural frame work for support of various items of equipment shall be given the final coat of paint of approved shade at site after erection is complete. Additional protection measures against corrosion shall be provided when installed in special environment.

17. **TRAINING OF DEPARTMENTAL PERSONNEL:-** The operation and maintenance staff of the NHSRC shall be associated with the contractor's personnel during the installation, testing and commissioning of the equipments.

18. **COMPLETION DRAWING** :- Three sets of completion drawings comprising the following shall be submitted by the contractor while handing over the installation:

a) Equipments layout drawing(s) giving complete details of the entire equipments.
b) Electrical drawings for the entire electrical equipments showing cable sizes, equipment capacities, switch-gear's ratings, control components, control wiring etc.
c) Schematic diagram of the entire sub-station installation.

19. **FINAL INSPECTION AND TESTING: -** When the installation is complete, the contractor shall arrange for inspection and testing of the installation. Test results obtained shall be recorded. The installation shall not be accepted until it complies with the requirement of these Specifications. The Sub

Station installation shall be got inspected by the contractor from local licensee and/or Electrical Inspector and their clearance taken before energizing the Sub Station. All the observations/ deficiencies pointed out by the inspecting authorities shall be complied with by the contractor on priority. The department shall render all help and pay mandatory charges to Electrical Inspector and local licensee, if any, in this regard.

20. **DATE OF ACCEPTANCE: -** The contractor shall operate the substation for a period of fifteen days after it is energized. The date of taking over of the substation shall be reckoned after its trouble free operation during the running in period.

21. **GUARANTEE**

The contractor shall guarantee the entire sub-station installation as per specifications. All equipments shall be guaranteed for one year from the date of acceptance against unsatisfactory performance or break down due to defective design, manufacture and installation. The installation shall be covered by the conditions that whole installation or any part thereof found defective within one year from the date of taking over shall be replaced or repaired by the contractor free of charge as decided by the department. The warranty shall cover the following:-

a) Quality, strength and performance of materials used.
b) Safe mechanical and electrical stress on all parts under all specified conditions of operation.
c) Satisfactory operation during the maintenance period.
d) Performance figures and other particulars as specified by the tenderer under schedule of guaranteed technical particulars.

22. **AFTER SALES SERVICES:-** The contractor shall ensure adequate and prompt after sales services in the form of maintenance personnel and spares as and when required with a view to minimizing the break down period. Particular attention shall be given to ensure that all spares are easily available during the normal life of installation.

23. **Requirement of Technical Representative(s) and recovery Rate**

S.no	Minimum Qualification of Technical Representative	Discipline	Minimum Experience	No's	Rate at which recovery shall be made from the contractor in the event of not full filling provisionof clause 23
1	Graduate or Diploma Engineer	Electrical /Mechanical	**2 Year for Graduate** **5 year for Diploma**	**1**	**Rs.15000.00 Per Month**

Assistant Engineer retired from Government services that are holding Diploma will be treated at par with Graduate Engineers.

24. TABLE OF MILSTONE(S)

S.no	Description of Milestone (Physical)	Time allowed in days (from date of start)	Amount to be withheld in case of non achievement
1	Submission of Drawings for Approval	15	0.5% of tender amount
2	Inspection of material / Equipments	45	0.5% of tender amount
3	Delivery of material / equipments at site	60	2% of tender amount
4	Installation of equipments in all respect	75	1% of tender amount
5	Testing & commissioning of entire installation	3 Months	1% of tender amount

25. **TERMS OF PAYMENTS**

The following percentage of contract rates for the various items included in the contract shall be payable against the stage of work shown herein.

i) 80% after initial inspection (wherever specified) & delivery at site in good condition on pro-rata basis.

ii) 10% after completion of installation in all respects.

iii) Balance 10% will be paid after testing, commissioning and handing over to the department for beneficial use

Integrity Pact

To be signed by the bidder and same signatory competent / authorised to sign the relevant contract on behalf of NHSRC.

INTEGRITY AGREEMENT

This Integrity Agreement is made at ..... on this ..... day of ..... 20.....

BETWEEN

NHSRC, NIHFW Campus Munirka, New Delhi-110067

'**Principal/Owner**', which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

.....

(Name and Address of the Individual/firm/Company)

through ..... (Hereinafter referred to as the

(Details of duly authorized signatory)

"**Bidder/Contractor**" and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

Preamble

WHEREAS the Principal / Owner has floated the Tender. (hereinafter referred to as "**Tender/Bid**") and intends to award,under laid down organizational procedure, contract for **Supply, Installation, Testing and Commissioning of 11KV Compact Substation with 500 KVA Transformer at NHSRC, NIHFW Campus, Munirka, New Delhi - 110067.** Herein after referred to as the "**Contract**".

AND WHEREAS the Principal/Owner values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as "**Integrity Pact**" or "**Pact**"), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

Article 1: Commitment of the Principal/Owner

1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:

(a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

(b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.

(c) The Principal/Owner shall endeavour to exclude from the Tender process any person, whose conduct in the past has been of biased nature.

2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption

Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s)/Contractor(s)

1) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Government / Department all suspected acts of **fraud or corruption or Coercion or Collusion** of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.

2) The Bidder(s)/Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:

a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.

b) The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.

c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/Contract(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

d) The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India, if any. Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.

e) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.

3) The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

4) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice **means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Government interests.**

5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or

indirectly, where potential or actual injury may befall upon a person, his/ her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/ Contractor accepts and undertakes to respect and uphold the Principal/Owner's absolute right:

1) Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. **Such exclusion may be forever or for a limited period as decided by the Principal/Owner.**

2) **Forfeiture of EMD/Performance Guarantee/Security Deposit**: If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/Contractor.

3) **Criminal Liability:** If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.

2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.

3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

Article 5: Equal Treatment of all Bidders/Contractors/Subcontractors

1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Subcontractors/ sub-vendors.

2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.

3) The Principal/Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6- Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority.

Article 7- Other Provisions

1) This Pact is subject to Indian Law, place of performance and jurisdiction is the **Head quarters of the Division** of the Principal/Owner, who has floated the Tender.

2) Changes and supplements need to be made in writing. Side agreements have not been made.

3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.

4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.

5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this **Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.**

Article 8- LEGAL AND PRIOR RIGHTS

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

.....
(For and on behalf of Principal/Owner)

.....
(For and on behalf of Bidder/Contractor)

WITNESSES:

1. .....
(signature, name and address)

2. .....
(signature, name and address)

Place:

Dated :

Technical Specification for Package Substation

1.0.0 **CODE & STANDARDS**:

1.1.0 All equipment and material shall be designed manufactured and tested in accordance with the latest applicable IEC standards. The 11KV Package Substation Design must be as per IEC 62271-202 .

1.2.0 The Package Sub-station offered shall in general comply with the latest issues including amendments of the following standards.

Title	**Standards**
High Voltage Low Voltage Pre-Fabricated Substation	IEC:61330/IEC 62271-202
High Voltage Switches	IEC 60265
Metal Enclosed High Voltage Switchgear	IEC 60298
High Voltage Switchgear	IEC 60694
Low Voltage Switchgear and Control gear	IEC 60439
Power Transformers	IEC 60076

2.0.0 DESIGN CRITERIA

2.1.0 Package Sub-station consisting of **11KV Non-Extensible SF6/VCB Module Insulated Compact Switchgear + Transformer + Low Voltage Switchgear** with all connection accessories, fitting & auxiliary equipment in an Enclosure to supply Low-voltage energy from high-voltage system as detailed in this specification. The complete unit shall be installed on a substation plinth (base) as **Outdoor substation** located at very congested places. 11KV Isolators controls incoming-outgoing feeder cables of the 11KV distribution system. The Vacuum Circuit Breaker shall be used to control and isolate the 11kV/433V Distribution transformer. The transformer Low Voltage side shall be connected to Low Voltage switchgear. The connection cables to consumer shall be taken out from the Low Voltage switchgear.

2.2.0 The prefabricated-package substation shall be designed for a) Compactness, b) fast installation, c) maintenance free operation, d) safety for worker/operator & public.

2.3.0 The Switchgear and component thereof shall be capable of withstanding the mechanical and thermal stresses of short circuit listed in ratings and requirements clause without any damage or deterioration of the materials.

2.4.0 For continues operation at specified ratings temperature rise of the various switchgear components shall be limited to permissible values stipulated in the relevant standard and / or this specification.

2.5.0 **Service Conditions**:

The Package substation shall be suitable for continuous operation under the basic service conditions indicated below

Ambient Temperature: 40 Deg C

The temperature rise shall not exceed 90 Deg C over ambient

Relative Humidity upto 95%

Altitude of Installation upto 1000m

The Enclosure of High Voltage switchgear-control gear, Low Voltage switchgear-control gear & Transformer of the package substation shall be designed to be used under **normal outdoor service condition** as mentioned. The enclosure should take minimum space for the installation including the space required for approaching various doors & equipment inside.

3.0.0 SPECIFIC REQUIREMENT

3.1.0 The main components of a prefabricated- package substation are Transformer, High-voltage switchgear-control gear, Low-voltage switchgear-control gear and corresponding interconnections (cable, flexible , bus bars) & auxiliary equipment. The components shall be enclosed, by either common enclosure or by an assembly of enclosure. All the components shall comply with their relevant IEC standards.

3.1.1 **Ratings**:

Description	**Unit**	**Value**
Rated Voltage / Operating Voltage	kV rms	11
Rated frequency & Number of phases	Hz & nos.	50 & 3
Rated maximum power of substation	KVA	500 kVA
Rated Ingress protection class of Enclosure	IP:	IP-23 for substation enclosure and IP:54 for LT Switchgear & HT Switchgear enclosure
Rated temp Class of Transformer Compartment		K10
HV Insulation Level		
Rated withstand voltage at power frequency of 50 Hz	kV rms	28
Rated Impulse withstand Voltage	kV peak	75
HV Network & Busbar		
Rated current	Amp	630A
Rated short time withstand current	kA rms / 1sec	12.5
Making capacity for switch-disconnector & earthing	kA peak	52.5kA

switches		
Breaking capacity of Isolators (rated full load)	A	630A
LV Network		**As per BOQ**

OUTDOOR ENCLOSURE

3.2.0 **Outdoor enclosure**:

3.2.1 The enclosure shall be made of Sheet Steel tropicalised to local whether conditions.

3.2.2 The metal base shall ensure rigidity for easy transport & installation.

3.2.3 The protection degree of the Enclosure shall be **IP54 for LT & HT switchgear compartment & IP23 for Transformer compartment.** Proper / adequate ventilation aperture shall be provided for natural ventilation by way of Louvers etc.

3.2.4 The doors shall be provided with proper interlocking arrangement for safety of operator.

3.2.5 The H.V. & L.V. outgoing of the transformer are to be connected to Vacuum Circuit Breaker of RMU & incomer of the Low Voltage Switchgear by means of Copper Cables / Flexible Busbars.

3.2.6 **Internal Fault** : Failure within the package substation due either to a defect, an exceptional service condition or mal-operation may initiate an internal arc. Such an event may lead to the risk of injury, if persons are present. It is desirable that the highest practicable degree of protection to persons shall be provided. The Design shall be tested as per IEC 61330.

3.2.7 **Covers & Doors** : Covers & doors are part of the enclosure. When they are closed, they shall provide the degree of protection specified for the enclosure. Ventilation openings shall be so arranged or shielded that same degree of protection as specified for enclosure is obtained. Additional wire mesh may be used with proper Danger board for safety of the operator. All covers, doors or roof shall be provided with locking facility or it shall not be possible to open or remove them before doors used for normal operation have been opened. The doors shall open outward at an angle of at least 90^0 & be equipped with a device able to maintain them in an open position.

3.2.8 **Earthing** : All metallic components shall be earthed to a common earthing point. It shall be terminated by an adequate terminal intended for connection to the earth system of the installation, by way of flexible jumpers/strips & Lug arrangement. The continuity of the earth system shall be ensured taking into account the thermal & mechanical stresses caused by the current it may have to carry. The components to be connected to the earth system shall include :

a) The enclosure of Package substation,

b) The enclosure of High voltage switchgear & control gear from the terminal provided for the purpose,

c) The metal screen & the high voltage cable earth conductor,

d) The transformer tank or metal frame of transformer,

e) The frame &/or enclosure of low voltage switchgear,

3.2.9 There shall be an arrangement for internal lighting activated by associated switch for HV , Transformer & LV compartments separately.

3.2.10 **Labels**: Labels for warning, manufacturer's operating instructions etc. shall be durable & clearly legible.

3.2.11 **Cleaning & Painting :**
The paints shall be carefully selected to withstand tropical heat and rain. The paint shall not scale off or crinkle or be removed by abrasion due to normal handling.

11KV Non-Ext SF6 INSULATED Vacuum Circuit Breaker

3.3.0 **11KV Non-Ext SF6 RMU with VCB:** The requirement of 11kv Ring Main Unit is as under.

3.3.1 SF6 Gas filled Non-extensible Ring Main Units with Vacuum Circuit Breaker comprising of 3 panels as indicated below:

3.3.2 **Module No.1** : Dummy Module with direct incoming at one cable box accessible from the front.

3.3.3 **Module No.2 – Vacuum Circuit Breaker** complete with operating mechanism, protection system and One Number of cable box accessible from the front.

3.3.4 **The above breaker, Busbars should be mounted inside a robotically welded sealed for life , stainless steel tank of 3 mm thick sheet metal. The tank should be filled with SF6 gas at adequate pressure. The degree of protection for gas tank should be IP67.**

3.3.5 The Vacuum Circuit Breaker is required to control 11 kV/433 volts distribution Transformer of rating 630 KVA and relay settings shall be selected accordingly.

3.3.6 **General Finish**: Totally enclosed, metal clad, vermin and dust proof suitable for tropical climate use as detailed in the specification.

3.3.7 **Ratings**: The busbars shall have continuous rating of 400 Amps. The isolator shall have a continuous rating of 400 Amps, Vacuum Circuit Breaker shall have a continuous rating of 200 Amps. in accordance with relevant IEC standard

3.3.8 **Breaking & Making Capacity**: The isolators shall be capable for breaking rated full load current. Vacuum Circuit Breaker shall be capable of having rupturing capacity of 12.5kA symmetrical at 11KV.

3.3.9 **Busbar**: Switchgear shall be complete with all connection, bus-bars etc. Copper busbars continuous rating shall be 400 Amps. The busbars should be fully encapsulated by SF6 gas inside the steel tank.

3.3.10 **Remote Operation**: Remote operation of the RMU's Isolators & Breaker CB shall be possible using Motors fitted to the operating mechanism (Optional if asked). It shall be possible to fit the motors either directly in manufacturing plant or on site as & when required. Installation on site shall be possible

3.4.0 **Isolator** :
The Isolators offered shall conform to IEC60129. The isolator shall be triple pole, spring assisted, hand operated, non-automatic type with quick break contacts. The operating handle shall have three positions 'ON', 'OFF' and 'EARTH' which shall be clearly marked with suitable arrangement to padlock

in any position. A safety arrangement for locking shall be provided by which the isolator operation shall be prevented from 'ON' position to 'EARTH' position or vice versa in a single operation.

3.6.1 Switchgear:

3.6.1.1 The SF6 RMU shall be Sealed for life, the enclosure shall meet the "sealed pressure system" criteria in accordance with IEC: 298 (a system for which no handling of gas is required through out service life of approximate 25 years.) There shall be no requirement to 'top up' the SF6 gas. In addition, manufacturer shall confirm that maximum leakage rate is lower than 0.1% per year. It shall provide full insulation, making the switchgear insensitive to the environment. Thus assembled, the active parts of the switchgear unit shall be maintenance free.

3.6.1.2 The switchgear & switchboard shall be designed so that the position of different devices is visible to the operator on the front of the switchboard & operations are visible as well. The switchboard shall be designed so as to prevent access to all live parts during operation without the use of tools.

3.6.1.3 RMU should be tested for internal arc fault test.

3.6.2 **Vacuum Circuit Breaker**:

3.6.2.1 The Unit shall consist 400/ 630A Tee-off spring assisted three positions, three pole Vacuum circuit breaker, with integral fault making / dead breaking earth switch. The function shall be naturally interlocked to prevent the main & earth switch from being switched 'ON' at the same time & the CB not allowed to trip in 'Earth On' position. The selection of the main/earth switch lever on the panel, which is allowed to move only if the main or earth switches in the off position. The lever shall be able to pad locked in either the main or earth position.

3.6.2.2 The manual operation of the circuit breaker shall not have an effect on the trip spring. This should only be discharged under a fault (electrical) trip condition; the following manual reset operation should recharge the trip spring & reset the CB mechanism in 'main off' position.

3.6.3 **Protection** : **Protection Relays**: The CB shall be fitted with microprocessor based self powered relay inside the front cover to avoid any tampering. The relay should be 2 Over Current + 1 Earth Fault, self powered type, fed by protection CTs mounted in the cable box.

3.7.0 **Cable Box**:

3.7.1 Every isolator shall be provided with suitable and identical cable boxes in front for connecting 3 core, 11kV cable from vertically below. The cable boxes shall be so located at convenient height to facilitate easy cable jointing work. The height available for cable termination should be minimum **500 mm The Cable termination shall be done by Heat shrinkable Termination method** so adequate clearances shall be maintained between phases for Termination.

3.7.2 **Locking Arrangement** : Suitable padlocking arrangements shall be provided as stated below

a) CB manual operating handle in the "OFF" position.
b) Each feeder Panel operating handle in 'Closed' 'Open" or 'Earth' position.
c) Each isolator operating handle in 'Closed', ' Open', or 'Earth' position.

3.5.0 **Ratings** :

		Non-Extensible ring main unit with VCB
3.8.1	***Switchgear Data***	
a)	Service	Outdoor but inside Enclosure
b)	Type	Metal clad
c)	Number of phases	3
d)	Voltage	11000V
e)	Rated Frequency	50 Hz
f)	Rated Current	630 Amp (isolator)
g)	Short Circuit rating	
	i) Breaking	12.5 kA rms for Breaker
	ii) Short time withstand for 3 Sec.	12.5 KA rms
	iii) Rated S/c making	52.5 kA peak for Breaker
h)	Short duration pwer freq.	28 kV
i)	Insulation Level	75 KV peak
j)	System earthing	Solidly earthed at substation
3.8.2	**Breaker**	
a)	Type	VCB in SF6 tank
b)	Rated voltage	11kV

c)	Breaking current	
	i) Load breaking	12.5 KA rms.
d)	Making current	52.5 KA peak
e)	Rated current	630 Amps.
f)	No. of poles	3
g)	Operating mechanism.	Trip free & free handle type with mechanically operated indication & pad locking.
3.8.3	***Isolators***	
a)	Type	*load breaking and fault making in SF6 tank*
b)	*Rated current*	400 Amps.
d)	Rated breaking capacity	400 Amps.
e)	*Fault making capacity*	52.5 KA peak
f)	*No. of poles*	3
g)	*Operating mechanism*	Operating handle with ON, OFF, Earth positions with arrangement for padlocking in each position.
3.8.4	**Busbars: (If any)**	
a)	Material	Copper
b)	Type	SF6 insulated
c)	Rated Current	630 Amps
d)	Short time rating for 3 Sec.	-

3.6.0 **Tests For RMU**: Each type of 11kV Switchgear shall be completely assembled, wired, adjusted and tested at the factory as per IEC:265, IEC:298.

3.7.0 **Routine Tests :** The tests shall include but not necessarily limited to the following.…

a) Operation under simulated service condition to ensure accuracy of wiring, correctness of control scheme and proper functioning of the equipment.

b) All wiring and current carrying part shall be given appropriate High Voltage test.

Distribution Transformer

Oil Type Transformer :

4.1.1 **Requirement**: 11000/433 Volt Oil Type, 500KVA, OAN cooled transformer suitable for installation at outdoor in Enclosure for ground mounting.

4.1.2 **Voltage Ratio:** No load voltage 11000/433 volt within tolerance as stipulated in IS.

4.1.3 **Rating:** The transformer shall have a continuous rating as specified at any of the specified tapping position and with the maximum temperature rise specified.

4.1.4 **Magnetic Core:** The Core will be made from Laminations of grain oriented silicon steel, insulated with mineral oxide and will be protected against corrosion with coat of varnish.

The choice and grade of steel and the cutting pattern and method of assembly minimizes the loss level and the no load current with the effect of a very low noise level.

4.1.5 Transformer Losses shall be as per latest IS1180.

4.2.0 **FITTINGS / ACCESSORIES**

1) 2 nos. earthing terminals
2) Rating and diagram plate
3) 1 no. Winding Scanner
4) Off circuit tapping links
5) 4 nos. flat bi-directional rollers
6) Lifting lugs

L.T. Panel

5.1.0 **System**:-

a) **Declared voltage** :– 3 Phase,400V (±6%) 50 Hz,
b) **Neutral** :– Solidly earthed at substation.

5.2.0 **General finish**:- Tropical, totally enclosed, metal-clad, weather-proof, vermin and dust proof.

5.3.0 **Construction :**

Enclosure:- Dead Front type of enclosure shall be able to provide the degree of Protection IP:4X.

5.4.0 **Circuit Ways:**

For 500 KVA -

AS per Tender BOQ.

5.5.0 **Earthing**:

5.5.1 Earthing arrangement shall be provided for earthing each cable, PVC cable gland, neutral busbar, chassis and frame work of the cubicle with separate earthing terminals at two ends. The main earthing terminals shall be suitably

marked .The earthing terminals shall be of adequate size, protected against corrosion, and readily accessible. These shall be identified by means of sign marked in a legible manner on or adjacent to terminals.

5.5.2 Neutral bus bar strip shall be connected to Earthing terminal with help of GI strip of suitable capacity & nut-bolt arrangement.

TYPE / ROUTINE TEST ON PACKAGE SUBSTATION:

6.0.0 TYPE TESTS FOR THE PACKAGE SUBSTATION COMPLETELY ASSEMBLED:

6.1.0 The Package Substations offered must be type tested as per IEC 61330/IEC 62271-202. The copy of type test summary should be submitted along with the tender.

6.2.0 **Routine Tests**: The routine tests shall be made on each complete prefabricated substation.

a) Voltage tests on auxiliary circuit.

b) Functional test.

c) Verification of complete wiring.

6.3.0 **Test Witness:** Routine test shall be performed in presence of Owner's representative if so desired by the Owner at factory before dispatch. The cost for inspection shall be bear by the contractor. The Contractor shall give at least fifteen (15) days advance notice of the date when the tests are to be carried out.

6.4.0 Test Certificates:

Certified reports of all the tests carried out at the works shall be furnished in three (3) copies for approval of the Owner.

ACCEPTABLE MAKES

S.No	Item	Makes
1.	Transformer	Kotsons/Danish/Cahors(Pristine)/ABB/C&S/Schneider / Kriloskar
2.	H.T.VCB Panel	Cahors (Pristine) /ABB/C&S/Schneider / Kriloskar
3.	Microprocessor Relay	Shall be of same make as of HT VCB
4.	Main L.T Panel	C&S/PRISTINE /ABB / L&T / Schneider / TRICOLITE
5.	Sandwich type Bus Duct / Rising Main	L&T /C & S / G.E / ABB / Schneider / Godrej.
6.	Air Circuit Breaker	L&T /Schneider/ Siemens / ABB / C&S
7.	MCCB	L&T /Schneider /Siemens/ ABB / C&S
8.	MCB	L&T /Schneider / Siemens / ABB / C&S
9.	Capacitor Panel	C&S/PRISTINE / Schneider / ABB / L&T / TRICOLITE/ AVS
10.	Intelligent APFC Relay	Pristine /L&T /Ashida/ABB/Enercon/Siemens/ EPCOS/ /Trinity / BCH
11.	Thyristor Switch	Pristine /Schneider/Siemens/ ABB/ /Trinity / BCH
12.	Selector Switches	Kaycee / L&T / AE / GE / Rishab / C&S
13.	Voltmeter / Ammeter	AE / L&T / Rishab / IMP / MECO / Enercon.
14.	Multi Function meter	L&T / Schneider Enercon / /Secure / Trinity.
15.	L.E.D.	L&T /BCH / Telemecanique / GE / C&S
16.	Push Buttons	L&T / Siemens / Rass control./C&S
17.	11 KV End Joints	Raychem / Denson / M-Seal / Safe Kit / 3M
18.	LT current transformer	AE / KAPPA/ Schneider / Siemens / L&T/Meco/IMP

19.	Power Capacitors – ISI marked	Pristine / Schneider /Asian /C&S / L&T / ABB .
20.	11 KV XLPE cables ISI Marked.	Havells / Universal /CCI / RPG / KEI / Polycab
21.	LT Cable	Havells / Universal /CCI / RPG / KEI / Polycab
22.	LT Current Transformers	AE /Kappa / Siemens / Crompton/MECO
23.	Cable Lugs	Dowells / Johnsons / Lotus / Wago/Action
24.	Cable Glands	Commet / Gripwel / Dowells / Metro
25.	Control fuses	L&T / Siemens / ABB / C&S / GE
26.	Fire Extinguisher	Any ISI marked.
27.	Rubber Mat	Any ISI marked.
28.	First Aid Box	St. Johan Ambulance Brigade/Indian Red Cross society.
29.	Compact Sub Station	C&S/Cahors(Pristine)/ABB/Compton Greaves / Kriloskar .

Name of the work:- Supply, Installation, Testing and Commissioning of 11KV Compact Substation with 500 KVA Transformer at NHSRC, NIHFW Campus, Munirka, New Delhi - 110067

FINANCIAL BID

Name of the work:- Supply, Installation, Testing and Commissioning of 11KV Compact Substation with 500 KVA Transformer at NHSRC, NIHFW Campus, Munirka, New Delhi -110067

S.no		Schedule of Items	Qty	Unit	Rate		Amount
					In words	In Figures	
1		**Design, Manufacturing & Supply of 11kV Outdoor type 500Kva Package Sub-Station consisting of 11/0.433KV, Oil type transformer, HT panel, LT panel inside GI sheet steel enclosure with all interconnections, fully type tested as per the IEC-1330 complete in all respect each consisting of following items & as per detailed technical specifications:**					
	A	**Outdoor Enclosure**					
		Outdoor type enclosure having modular construction of Galvanised Sheet Steel in corrugated/Louvered design type wall design for better heat dissipation and providing robust construction. The Enclosure shall have IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for Transformer compartment. The enclosure exterior shall be painted with epoxy based powder paint (colour RAL 7032)/Powder coated. Each compartment will be provided with the door and pad locking arrangement. Doors of transformer compartment are fitted with Arc reflectors from the inside for providing better safety. The Compartment illumination lamp with door operated switch shall be provided for each compartment. Dimensions of enclosure will be as per the components required and mentioned in BOQ. Final drawing to be get approved from competent authority. Packge Sub-Station is outdoor plinth mounted type	1	Set			
	B	**HT Switchgear**					
		11kV, 21kA for 3 sec. Non-Extinsible Compact switchgear (Type 1 VCB) consisting of 1No. Fixed Manually operated 630A VCB in SF6 insulated stainless steel enclosure along with below mentioned items. Interconnection between HT switchgear and transformer shall be using Al. unarmorured XLPE Cable	1	No.			
	i)	**Each VCB Feeder consists of following**	1	Set			
		Manual spring charging arrangement and manual close & open push buttons, ON / OFF indication.					
		Self powered relay O/C & E/F relay type with single protection core cast resin type CT with 2.5VA,CL-5P10.	1	Set			
		Manually operated 630A load breaker switch with built-in earth switch having full making capacity.	1	No.			
		Mechanical position indicator. Switch ON/OFF/EARTHED.	1	No.			
		Live Cable Indication.	1	No.			
		Outgoing Cable compartment cover interlocked with earth switch	1	No.			
		Cable termination bushings suitable for 3 no. 1CX300mm2 XLPE cable.	3	No.			
		Cable termination cover boots (Push on type)	1	Set			
	C	**Transformer**	1	no.			
		3 phase 50 Hz 500kVA, 11KV /433V, DYn11, core type double wound with copper conductor oil immersed ONAN cooled Distribution Transformer with hermatically sealed corrugated tank without conservator type arrangement having a no load voltage ratio of 11KV/433V with top HT & LT Bushings. Tappings +5% to –10% in steps of 2.5% shall be provided at line end of HV winding. Changing of taps shall be carried out by means off load tap changing. Losses are as per latest IS 1180,Energy Efficiency Level 1.	1	No.			

S.no		Schedule of Items	Qty	Unit	Rate		Amount
					In words	In Figures	
		Oil Temperature Indicator	1	No.			
		Winding Temperature Indicator	1	No.			
	D	**LT Switchgear 433V**					
		433V LT switchgear with 800A Aluminum busbars. Interconnection between Transformer and LT Switchgear shall be using Aluminium Busbar.					
		433V LT Incomer : 800A, 4P, 50 KA Manually Draw Out type Air Circuit Breaker with Microprocessor Based protection with O/C ,E/F & S/C release.	1	No.			
		Ammeter With ASS, CL-1	1	No.			
		Voltmeter With VSS, CL-1	1	No.			
		800/5A Resin Cast Metering CT, CL-1	3	No.			
		Outgoing 1: 400A TP, 50KA Manually Fixed Type MCCB With Thermal Magnetic Release for O/L & S/C Protection	2	No.			
		Outgoing 2: 200A TP, 25KA Manually Fixed Type MCCB With Thermal Magnetic Release for O/L & S/C Protection	2	No.			
		Outgoing 3: 125A TP, 16KA Manually Fixed Type MCCB With Thermal Magnetic Release for O/L & S/C Protection	2	No.			
		For Capacitor Feeder : 250A, 3P, 25 KA Manually Operated Fixed type MCCB with thermal Magnetic protection release	1	No.			
	E	**433V LT Capacitor Bank 150KVAR - 1No. APFC relay 8 stage (L&T make)**, capacitor banks(50KVAR X 2 , 20KVAR X 1, 15KVAR X 1, 10KVAR X 1 & 5KVAR X 1) with suitable rated capacitor duty contactors, MCCB for protection of capacitor bank (for 50KVAR -100A) & mcb for protection of capacitor bank (for 20 & 15KVAR – 50A and for 10 & 5KVAR - 25A), Auto manual selector switch,On/Off Push buttons & Indicating lamps	1	No.			
	F	**Interconnection & Earthing**	1	no.			
		Interconnection Between HT switchgear & Transformer using Al. Armoured XLPE Single core cable & Interconnection between Transformer & LT switchgear using Busbars. Internal earthing connections by 50 x 6mm GI strips	1	Set			
		500 kva Package Substation with LT Panel & APFC Panel	1	Set			
2		Supplying of following size of XLPE insulated and PVC outer sheathed aluminium conductor armoured UG cable of 1.1 KV grade confirming to IS:7098 (Part-I) 1988 with upto date amendments complete as required. 3.5 x 400 Sq.mm	64	Rmt			
3		Laying of One No. PVC insulated & PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering, and refilling the trench etc as required. Above 185 Sqmm and upto 400 Sqmm	64	Rmt			
4		Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed/XLPE aluminium conductor cable of 1.1. KV grade as required.					
		3.5 X 400 Sq.mm (82 mm)	8	Each			
5		Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	2	Set			

S.no		Schedule of Items	Qty	Unit	Rate		Amount
					In words	In Figures	
6		Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	2	Set			
7		Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.	10	Mtr			
8		Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	10	Mtr			
9		Providing and fixing 25mm x 5mm Copper strip on surface or in recess for connection etc. as required.	10	Mtr			
10		Providing and fixing 25mm x 5mm GI strip on surface or in recess for connection etc. as required.	10	Mtr			
11		Construction of foundation with Concrete/Brick masonary with plastering for the installation of Compact Substation of Size 2500mm X 3500mm including trench for the cabling work etc complete in all respect as per the direction of engineer in charge.	1	LS			
12		Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	2	Each			
13		Providing and fixing H.T. danger notice plate of 250 mm X 200 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	2	Each			
						Total	

Rates In Words……

Signature of Contractor with Seal of company.

Tender Pre-Qualification Checklist

S.no	Description	Remarks
a	EMD of Rs.64,200.00	
b	Tender Cost of Rs.1000.00	
1	Registration/Enlistment Certificate with CPWD/PWD/BRO/MES in the category of sub-station or composite work	
2	Similar Completed works as mentioned below during the last Three years ending last day of the month previous to the one in which tenders are invited as follows: The contractor shall enclose work order with Bill of quantity and Performance certificate for same	
a	a) Two similar works of substation with Transformer capacity not less than 400 KVA and each costing not less than 60% of the estimated cost OR	
b	b) One similar work of substation with Transformer capacity not less than 400 KVA and each costing not less than 80% of the estimated cost	
3	A tenderer shall enclose a copy of valid PAN Card	
4	Proof of registration with EPF	
5	Proof of registration with ESI	
6	Proof of registration with VAT/Sales Tax of Delhi State	
7	Proof of registration with Service Tax	
8	Charted Accountant Certificate of Turnover for last three years ending March 2015 The turnover should not be less than 32 Lacs in each year	
9	History & structure of firm, name of director/partners/proprietor/with Technical staff	
10	List of machinery/tools plants and equipment.	
11	Valid copy of Electrical License.	
12	All the above certified documents shall be submitted by the firm duly signed and stamped by Notary Public/gazetted officer and self attested with seal of the company and original shall be duly produced for verification as required	
13	An affidavit duly notarized on stamp paper of Rs.100/- non-judicial stating that “In case of any ambiguity found in the documents submitted (Listed out) at any stage, we shall be entirely responsible and liable for any action as deemed fit under the Law	