

Name of work:- Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months (i/c 24 Months warranty))



**BHARAT SANCHAR NIGAM LIMITED**

(A Govt of India Enterprise)

(Electrical Wing)

**O/o The Executive Engineer (E)**

**BSNL Electrical Division-III**

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**E-TENDER DOCUMENT**

**Name of work: - Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months (i/c 24 Months warranty))**

**NIT No : 35 / EEE/ED-III/CH/2019-20**

This tender document contains 45 **(Forty five)** pages only.

**For E Tender Helpdesk Pls Contact M/s ITI LTD :Ph:91-80-40482000 &**

**Mail Id : [twhelpdesk399@gmail.com](mailto:twhelpdesk399@gmail.com), [bsnlthelpdesk@gmail.com](mailto:bsnlthelpdesk@gmail.com)**

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## **INDEX**

<b>SL.No</b>	<b>Description</b>	<b>Page no.</b>
1	Front cover and Index	2
2	Eligibility Criteria	4
3	Notice Inviting Tender form - BSNL EW6	5
4	General Instructions to the Bidders	9
5	Undertaking to abide by EW 6 & EW 8 (Form 'A')	11
6	Undertaking regarding EPF& ESI provisions (Form 'B')	12
7	Performance report of works (Form 'C')	13
8	No Near relative working certificate (Form 'D')	13
9	Model form of Bank Guarantee for EMD (Annexure-I)	14
10	Model form of Performance security Guarantee bond (Annexure-II)	15
11	Schedule of Quantities --- Un-priced schedule	16
12	Data sheet [To be downloaded, filled up, scanned & uploaded]	20
13	Specification for Engine alternator set with acoustic enclosure	21
14	Comprehensive Maintenance Contract	30
15	Special conditions of the tender	32
15	List of Approved Makes	38
16	Proforma Schedules	41
17	BSNL EW – 8 form	42

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## **INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR E-TENDERING FORMING PART OF NIT AND TO BE POSTED ON WEBSITE**

The Executive Engineer (Elect), BSNL, **Electrical Division-III, Chennai** on behalf of the CMD, Bharat Sanchar Nigam Limited, invites online Item rate bids from eligible bidders in Single bid system for the following work:

1	Name of work	<b>Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months(i/c 24 Months warranty ))</b>
2	Estimated cost put to tender	<b>Rs. 29,58,402/- (Excluding GST)</b>
3	Earnest Money	<b>Rs.59,168/-</b>
4	Period of completion	86 months( SITC-2months,AMC-84 months after completion of SITC )
5	Last date & time for online submission of tender	Up to 11:00 Hrs. on 30-07-2019
6	Last date & time for submission of original Tender cost and EMD	Up to 11:00 Hrs. on 30 -07 -2019
7	Date and time for opening of tender	11:30 Hrs. on 30 - 07 -2019
8	Tender cost (Non refundable)	<b>Rs.500/- (+) GST 18%</b>
9	E-tender Processing fee (Non-refundable)	0.05% of estimate cost subject to the minimum of Rs.500/- and Maximum of Rs. 5000/- plus GST as applicable.

### **ELIGIBILITY CRITERIA**

**a) Financial Norms:**

Average annual turnover during the last 3 years, ending 31st March of the previous financial year, should be at least 30% of the estimated cost put to tender.

**AND**

**(b) Physical Norms:**

1) BSNL enlisted contractors in Electrical category of respective class as per their tendering limits.

OR

2) BSNL CO (Electrical) approved Engine manufacturer with the approved capacity of engine not less than the DG set capacity proposed in the NIT.

OR

3) OEM authorized by BSNL CO (Electrical) approved Engine manufacturer with the approved capacity of engine not less than the DG set capacity proposed in the NIT. The letter of Authorization in Original from the Engine manufacturer will have to be produced by the OEMs.

OR

Experience of having successfully completed \*similar works in Central Government /State government /Central Autonomous Body/Central Public sector Undertaking during last 7 years ending last day of month previous to the one in which applications are invited should be either of the following :-

- Three similar successfully completed works costing not less than the amount equal to 40% of the estimated cost put to tender with DG set capacity not less than 80% of individual capacity of the DG set proposed in NIT.

OR

- Two similar successfully completed works costing not less than the amount equal to 60% of the estimated cost put to tender with DG set capacity not less than 80% of individual capacity of the DG set proposed in NIT.

OR

- One similar successfully completed work costing not less than the amount equal to 80% of the estimated cost put to tender with DG set capacity not less than 80 % of individual capacity of the DG set proposed in NIT.

\*Note:-Similar work means "Supply, installing, testing and commissioning of DG sets with acoustic enclosure"

**IMPORTANT NOTE:**

1. The self-attested copies of the following documents shall be scanned and uploaded to the e-tendering website within the period of tender submission. Online bid documents submitted by intending bidders shall be opened only of those bidders, who have scanned and uploaded the following documents (and whose uploaded documents are found to be in order), otherwise the bid will not be opened and shall lead to disqualification.
  - a. Tender Fee in the prescribed format
  - b. EMD in the prescribed format
  - c. Certificate of Financial Turnover from Chartered Accountant if applicable
  - d. Documents fulfilling Eligibility criteria (Please note that in case the bidder is authorised by the manufacturer, the original authorization letter is to be scanned and uploaded)
  - e. Enlistment certificate issued by BSNL (for BSNL enlisted contractors)
  - f. Valid Electrical license. if applicable.(Required in case of BSNL enlisted contractors)
  - g. GST Registration Number details.
  - h. PAN Card
  - i. EPF and ESI Registration certificate (if applicable)
  - j. Undertaking to abide by EW-6 and EW-8 (Form 'A')
  - k. Undertaking regarding EPF and ESI provisions (Form 'B')
  - l. Certificate of work experience issued by client department (Form 'C') if applicable
  - m. Undertaking regarding No Near relative working certificate (Form 'D')

**Not uploading the above documents, (even if the documents are submitted physically) shall lead to disqualification.**

2. The Physical Tender Fee, EMD and the original authorization letter by the manufacturer (if applicable), which were scanned and uploaded, **shall be deposited in the tender box available in the office of tender opening authority**, by all the bidders before **11:00 AM** on the tender opening date, **failing which the tender shall not be opened.**

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### **BSNL EW-6**

Bharat Sanchar Nigam Limited  
Electrical Wing

Electrical Division: **ED-III, Chennai**

Sub Division: **CANI Project, Chennai**

1. Item rate tenders on single bid system are invited on behalf of CMD, BSNL for the work "Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months (i/c 24 Months warranty))" from the eligible bidders as per NIT notification. The enlistment of the bidders should be valid on the opening date of tender. In case the date of opening of tender is extended, the enlistment of bidder should be valid on the original date of opening of tender.
2. Intending bidder is eligible to submit the bid provided that he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority as per the eligibility conditions mentioned in the NIT notification page.
3. The work is estimated to cost **Rs. 29,58,402/- (Excluding GST)**
4. Agreement shall be drawn with the successful bidder on prescribed form as amended up to the date of opening of tender. Bidder shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
5. The time allowed for carrying out the work will be **86 months (SITC-2months, AMC-84 months after completion of SITC)** from the 10<sup>th</sup> day after the date of written order to commence the work.
6. The site for the work is available / or the site for the works shall be made available in parts. The successful bidder shall execute the work in coordination with other agencies working in the campus.
7. The bid documents consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website [www.tenderwizard.com/BSNL](http://www.tenderwizard.com/BSNL) at free of cost. The BSNL EW-8 document can be seen from the web site [www.chennai.bsnl.co.in](http://www.chennai.bsnl.co.in) at free of cost.
8. After submission of the bid, the bidder can re-submit revised bid any number of times but before last time and date of submission of tender as notified. While submitting the revised bid, bidder can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of tender as notified.
9. The Tender Fee as applicable in the form of Demand Draft issued by the Nationalized / Scheduled bank authorized by the Reserve Bank of India, drawn in favour of **ACCOUNTS OFFICER(Cash), BSNL, STP, CHENNAI-28** payable at **CHENNAI** shall be scanned & uploaded in the e-tendering website within the period of tender submission. The validity of the tender cost in the form of DD shall be **60 days** from the date of opening.
10. The Earnest money deposit (EMD) in the form of Demand Draft / FDR / BG (BG is only for Air Conditioning, Diesel Engine Alternator, Lifts, and Sub Station works wherever the amount of EMD is more than Rs.20,000)/ CDR of a nationalized / scheduled bank authorized by the Reserve Bank of India, drawn in favour of **ACCOUNTS OFFICER(Cash), BSNL, STP, CHENNAI-28** payable

at **CHENNAI** shall be scanned & uploaded in the e-tendering website within the period of tender submission. The validity of the EMD in the form of DD shall be **60 days** from the date of opening. If the EMD is in the form of CDR/FDR/BG, the validity shall be **180 days** from the date of opening. In case of L1 bidder, the validity of CDR/FDR/BG is to be extended up to the observation period as that of the Performance guarantee / Security deposit. Exemption from payment of Tender Fee, Earnest Money and Security Deposit by any other unit/ department shall not hold good for BSNL.

11. Interested bidder who wishes to participate in the bid shall pay the e-tender processing fee to M/s. ITI Limited through their e-gateway by credit/debit card/ internet banking/ RTGS/NEFT facility.
12. All the documents as specified in the tender document shall be scanned and uploaded to the e-Tendering website within the period of bid submission.
13. The last date for online submission of bid is **30 .07 .2019** up to **11:00 AM** and the bid submitted shall be opened at **11:30 AM** on the same day. If a holiday is declared on the tender opening day, the tender will be opened on the next working day.
14. The e-Tender processing fee and tender cost are non-refundable
15. **Performance Guarantee:** The bidder is required to furnish Performance guarantee for an amount equal to 5% of the contract value in the form of bank guarantee/CDR/FDR/DD (of a Nationalized/ Scheduled Bank in a standard format) within two weeks from the date of issue of acceptance letter. This period can be further extended by the Engineer-in-charge up to a maximum period of two weeks on written request of Bidder. **The validity period of the performance security in the form of performance bank guarantee shall be three Months from the date of actual completion of work. Date of Actual completion of work will be completion of AMC period. In case the bidder fails to deposit the said performance guarantee within the stipulated period, including the extended period if any, the Earnest Money deposited by the bidder shall be forfeited automatically without any notice to the bidder and the bidder will not be allowed to participate in the re tendering for the same work.**
16. **Security Deposit:** In addition to Performance guarantee stated above, a sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum will be deducted with the sum already deposited as earnest money, will amount to security deposit of 5% of the contract value of the work. **The security deposit shall be released after an observation period as follows: Three Months from the date of actual completion of work.**
17. In case any discrepancy is noticed in the documents as uploaded at the time of submission of the bid online, then the bid submitted shall become invalid and the BSNL shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further, the bidder shall not be allowed to participate in the retendering process of the work.
18. Intending bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders, 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 risks, contingencies and other circumstances which may influence or affect their tender. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidder shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract

documents. Submission of a tender by a bidder 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 conditions and rates at which stores, tools and plant, etc. will be issued to him by the BSNL and local conditions and other factors having a bearing on the execution of the work.

19. The competent authority on behalf of the CMD does not bind himself to accept the lowest or any other tender and reserves to himself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidder shall be summarily rejected. The competent authority on behalf of CMD reserves to himself the right of accepting the whole or any part of the tender and the bidder shall be bound to perform the same at the rate quoted.
20. Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the bidders who resort to canvassing will be liable to rejection.
21. Agreement shall be drawn with the successful bidder on prescribed form. Bidder shall quote his rates as per various terms and conditions of the said form, which will form part of the agreement.
22. The bidder should give a certificate as per the following that none of his/her relative is employed in BSNL units as per **Form 'D'**. In case of proprietorship firm, certificate will be given by the proprietor and for partnership firm certificate will be given by all the Directors of the company.
  - a. Near relatives of all BSNL employees either directly recruited or on deputation are prohibited from participation in tenders and execution of works in the different units of BSNL. The near relatives for this purpose are defined as:
    - i. Members of a Hindu Undivided family.
    - ii. They are husband and wife.
    - iii. The one is related to the other in the manner as father, mother, son(s) & son's wife(daughter-in-law), Daughter(s) & daughter's husband(son-in-law), brother(s) & brother's wife, sister(s) & sister's husband(brother -in-law).
  - b. The company or firm or any other person is not permitted to tender for works in BSNL unit in which his near relative(s) is(are) posted. The unit is defined as SSA/Circle/Chief Engineer/Chief Archt./Corporate office for non-executive employees and all SSA in a circle including circle office/Chief Eng./Chief Archt./Corporate office for executive employees (including those called as Gazetted officers at present). The bidder should give a certificate that none of his/her such near relative is working in the units as defined above where he is going to apply for tender/work, for proprietorship, partnership firms and limited company certificate shall be given by the authorized signatory of the firm. Any breach of these conditions by the company or firm or any other person, the tender/work will be cancelled and earnest money/performance guarantee will be forfeited at any stage whenever it is so noticed. BSNL will not pay any damages to the company or firm or the concerned person. The company or firm or the person will also be debarred for further participation in the concerned unit.
  - c. No employee in BSNL/ Govt. of India is allowed to work as a contractor for a period of two years of his retirement from service without the prior permission. The contract is liable to be cancelled if either the bidder or any of his employees is found at any time to be such a person who had not obtained the permission as aforesaid before submission of tender and engagement in the bidders service.
23. The tender for the work shall remain open for acceptance for a period of **Ninety (90)** days from the date of opening of tenders. If any bidder withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms

and conditions of the tender which are not acceptable to the BSNL, then the BSNL shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the tenderer shall not be allowed to participate in the retendering process of the work.

24. The agency has to comply with the provisions of EPF and miscellaneous provisions Act-1952 and employees provident fund scheme-1952 as amended up to date in respect of labours/employees engaged by them for this work. Any consequence arising due to non-complying of provisions as specified above shall be the sole responsibility of the firm only. The agency shall give an undertaking to this effect as per **Form 'B'**.
25. **Extension of Validity of tender:** In case, where the letter of award of work cannot be placed within the validity period of the tender, the BSNL can request the bidder to extend the validity of their respective tenders and the Earnest Money deposit by a reasonable period. In such cases, extension of validity of Earnest Money deposit by 30 days beyond the extended validity date of tender should also be asked for. While BSNL can make the request for extension, the tenderer is free to either extend the validity or refuse the request to extend the validity.
26. Rates quoted by the contractor shall be firm and shall be valid for the currency of contract. No cost escalation shall be permitted during the currency of contract.
27. This notice inviting tender shall form a part of the contract document. The successful bidder, on acceptance of his tender by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-
  - a. The Notice Inviting Tender, all the documents including additional conditions, specifications and drawings, if any, forming part of the tender as uploaded at the time of invitation of tender, subsequent amendments issued and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
  - b. Standard BSNL EW-8 form



### **General Instructions to the Bidders**

1. The intending bidder must read the terms and conditions of BSNL-EW 6 carefully. He should only submit his bid, if he considers himself eligible and he is in possession of all the documents required.
2. Information and instructions for bidders posted on website shall form part of bid document.
3. Applicants are advised to keep visiting the above mentioned website from time to time (till the deadline for bid submission) for any updates in respect of the tender documents, if any. Failure to do so shall not absolve the applicant of his liabilities to submit the applications complete in all respect including updates thereof, if any. An incomplete application may be liable for rejection.
4. Those bidders not registered on the website mentioned above, are required to get registered themselves beforehand. The intending bidder must have valid class-III digital signature to submit the bid.
5. On opening date, the bidder can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
6. Bidder can upload documents in the form of JPG format or / and PDF format.
7. Bidder must ensure to quote rate of each item. The column meant for quoting rate in figures appears in yellow colour. In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as "0". Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as "0" (ZERO)
8. Even though any bidder may satisfy the above requirements, he would be liable to disqualification if he has:
  - a. Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the eligibility criteria document.
  - b. Record of poor performance such as abandoning work, not properly completing the contract, or financial failures / weaknesses etc.
9. If any information furnished by the bidder is found incorrect at a later stage, he shall be liable to be debarred from tendering/taking up of works in BSNL. The BSNL reserves the right to verify the particulars furnished by the applicant independently.
10. GST and any other tax applicable in respect of this contract shall be borne by the bidder himself. The bidder shall quote his rates considering all such taxes. The TDS as per the Govt. regulations will be recovered from the contractor.
11. **Tender Evaluation :**
  - (a) The evaluation and comparison of responsive bids shall be done on the basis of Nett cost to BSNL on the prices offered inclusive of packing, forwarding, freight and insurance charges etc., but excluding GST. The bid with lowest net cost as elaborated above will be the L1 bidder.
  - (b) Vendors should furnish the correct GST Rate in the price schedule. If the Input Tax Credit is found to be not admissible at any stage subsequently owing to wrong furnishing of GST Rate, then the vendors will be liable to refund such non-admissible amount, if already paid, along with penalty if charged by the concerned authority.
12. However, pursuant to the constitution (Forty-sixth amendment) act, 1982, if any further tax or levy is imposed by statute, after the last date of receipt of tenders, and the contractors there

upon necessarily and properly pays such taxes/ levies, the contractor shall be reimbursed the amount so paid, provided such payment, if any, is not in the opinion of Superintending engineer (whose decision shall be final and binding) be attributable to delay in execution of work within the control of contractor.

13. The Contractor shall, within a period of 30 days of imposition of any further tax or levy in pursuant to the constitution of (Forty sixth amendment) act 1982 give a written notice thereof to the Engineer-in-charge that the same is given pursuant to this condition, together with all necessary information relating thereto.

**14. Bye laws Indemnity against liabilities:**

- a. The bidder shall comply with all bylaws and regulations of the local and statutory authorities having jurisdiction over the works and shall be responsible for payment of all fees and other charges and giving and receiving all necessary notices and keep the Engineer –in-charge informed about the notices issued and received.
- b. The bidder shall indemnify the department against all claims in respect of patent rights design, trademark or name of other protected rights in respect of any plant, machine, work or materials used for or in connection with the works or temporary works and from and against all claims demands, proceedings, costs, charges and expenses whatsoever in respect of or in relation thereto.
- c. The bidder shall defend all actions arising from such claims and shall himself pay all royalties, License fees, damages, costs and charges of all and every sort that may be legally incurred in respect hereof shall be borne by the bidder.
- d. All liabilities / penal recoveries on matters arising out of tax /levies such as incorrect deductions, discrepancies in the filing of returns, revised assessments by the concerned authorities etc., shall be borne by the bidder.

**15. Termination of contract on death of contractor :**

Without prejudice of any of the rights or remedies under this contract, if the contractor dies, the Engineer in charge on behalf of the BSNL shall have the option of terminating the contract without compensation to the contractor.

**16. Indulging of contractor in criminal /antisocial activities and cases under investigation/charge sheeted by CBI or any other government agencies etc. :**

If the CBI/Independent External Monitor (IEM) /Income tax/ Sales Tax /GST/ Central Excise/Custom Departments recommend such a course - Action will be taken as per the directions of CBI or concerned department.

17. As a general notion, the terms and conditions/instructions contained in various pages of this document are addressed assuming the bidder as 'Male'. However, the same shall remain and assumed to be addressed in case of 'Female' bidder also, except for the gender centric words, which shall be 'female' centric at appropriate places.

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**FORM 'A'**

**Undertaking to abide by EW 6 & EW 8**

"I.....Son/Daughter of .....  
.....Resident of ..... hereby  
give an undertaking that I have read the complete bid document and I am aware of all the clauses  
and sub clauses of BSNL EW 6 & 8 forms and I confirm that I will abide by all the terms and conditions  
available in BSNL EW 6 & 8 forms.

(Seal of the firm)

(Signature of Bidder)

**FORM 'B'**

**Undertaking regarding EPF provisions**

"I..... Son/daughter of .....  
.....Resident of ..... hereby give an undertaking that

\* I/We have employed only ----- persons in our establishment and hence the EPF and Miscellaneous provisions Act, 1952 are not applicable to my / our establishment.

\* I/ We have registered as per the EPF and Miscellaneous provisions Act, 1952 and our registration no.\*\* is ----- . We undertake to keep it valid during the currency of contract.

In case at any stage, it is found that the information given by me is false / incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me".

\* Strike out whichever is not applicable

\*\*Attach a self-attested photo copy of the above said EPF registration certificate.

(Seal of the firm)

(Signature of Bidder)

**Undertaking regarding ESI provisions**

"I..... Son of .....  
.....Resident of ..... hereby give an undertaking that

\* I/We have employed only ----- persons in our establishment and hence the ESI and Miscellaneous provisions Act, 1948 are not applicable to my / our establishment.

\* I/ We have registered as per the ESI and Miscellaneous provisions Act, 1948 and our registration no. \*\* is ----- . We undertake to keep it valid during the currency of contract.

In case at any stage, it is found that the information given by me is false / incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me".

\* Strike out whichever is not applicable

\*\*Attach a self-attested photo copy of the above said ESI registration certificate.

(Seal of the firm)

(Signature of Bidder)

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**FORM 'C'**

**Performance report of works**

1. Name of Agency
2. Name of work
3. Agreement no.
4. Final Value of Work Done
5. Date of start of work
6. Actual date of completion
7. Performance: Satisfactory / Not Satisfactory

Dated:

Executive Engineer or Equivalent

**FORM 'D'**

**No Near relative working certificate**

I..... Son /daughter of Shri/ Smt.....Resident of..... hereby certify that none of my relative(s) as defined in the tender document is/are employed in BSNL unit as per details given in tender document. In case at any stage, it is found that the information given by me is false/incorrect, BSNL shall have the absolute right to take any action as deemed fit/without any prior intimation to me.

(Seal of the firm)

(Signature of Bidder)

**Annexure I**  
**MODEL FORM OF BANK GUARANTEE FOR EMD**  
**(For submitting EMD for Air Conditioning, Diesel Engine Alternator, Lifts, and Sub Station Works wherever the amount of EMD is more than Rs.20,000/-)**

Whereas \_\_\_\_\_ (hereinafter called "the bidder(s)") has submitted its Tender dated \_\_\_\_\_ for the work \_\_\_\_\_  
\_\_\_\_\_ KNOW ALL MEN  
by these presents that WE \_\_\_\_\_ OF  
\_\_\_\_\_ having our registered office at \_\_\_\_\_  
(hereinafter called "the Bank") are bound unto \_\_\_\_\_ (hereinafter called "the BSNL") in the sum of \_\_\_\_\_ for which payment will and truly to be made of the said BSNL, the Bank binds itself, its successors and assigns by these presents.

THE CONDITIONS of the obligation are:

1. If the Bidder(s) withdraws its Tender during the period of Tender validity specified on the Tender Form: or
2. If the Bidder(s) having been notified of the acceptance of its Tender by the BSNL during the period of Tender validity.
  - (a) Fails or refuses to execute the Contract.
  - (b) Fails or refuses to furnish security Deposit in accordance with the conditions of Tender document.

We undertake to pay to the BSNL up to the above amount upon receipt of its first written demand, without the BSNL having to substantiate its demand, provided that in its demand, the BSNL will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force as specified in the Tender Document up to and including Thirty (30) days after the period of the Tender validity and any demand in respect thereof should reach the Bank not later than the specified date/dates.

**Signature of the Bank**

**Signature of the Witness**  
**Name of Witness**

**Address of Witness:**

## **ANNEXURE II**

### **PERFORMANCE SECURITY GUARANTEE BOND**

In consideration of the CMD, BSNL (hereinafter called 'BSNL') having agreed to exempt \_\_\_\_\_ (hereinafter called 'the said bidder(s)') from the demand under the terms and conditions of an agreement/Advance Purchase Order No \_\_\_\_\_ dated \_\_\_\_\_ made between \_\_\_\_\_ and \_\_\_\_\_ for the supply of \_\_\_\_\_ (hereinafter called "the said agreement"), of security deposit for the due fulfilment by the said bidder (s) of the terms and conditions contained in the said Agreement, on production of the bank guarantee for \_\_\_\_\_ we, (name of the bank) \_\_\_\_\_ (hereinafter refer to as "the bank") at the request of \_\_\_\_\_ (bidder(s)) do hereby undertake to pay to the BSNL an amount not exceeding \_\_\_\_\_ against any loss or damage caused to or suffered or would be caused to or suffered by BSNL by reason of any breach by the said Bidder(s) of any of the terms or conditions contained in the said Agreement.

2. We (name of the bank) \_\_\_\_\_ do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the BSNL by reason of breach by the said bidder(s)' of any of the terms or conditions contained in the said Agreement or by reason of the bidders(s)' failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee where the decision of BSNL in these counts shall be final and binding on the bank. However, our liability under this guarantee shall be restricted to an amount not exceeding \_\_\_\_\_.

3. We undertake to pay to the BSNL any money so demanded notwithstanding any dispute or disputes raised by the bidder(s)/supplier(s) in any suit or proceeding pending before any court or tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the bidder(s)/supplier(s) shall have no claim against us for making such payment.

4. We(name of the bank)\_\_\_\_\_ further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the BSNL under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till \_\_\_\_\_ (office/BSNL) BSNL certifies that the terms and conditions of the said Agreement have been fully or properly carried out by the said bidder(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the expiry of TWO/TWO AND HALF/THREE YEARS (as specified in P.O) from the date hereof, we shall be discharged from all liabilities under this guarantee thereafter.

5. We (name of the bank)\_\_\_\_\_ further agree with the BSNL that the BSNL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said bidder(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the BSNL against the said Bidder(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Bidder(s) or for any forbearance, act or omission on the part of the BSNL or any indulgence by the BSNL to the said Bidder(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Bidder(s)/supplier(s).

7. We (name of the bank) \_\_\_\_\_ lastly undertake not to revoke this guarantee during its currency except with the previous consent of the BSNL in writing.

Dated the \_\_\_\_\_ day of \_\_\_\_\_

for \_\_\_\_\_ (indicate the name of bank)

Name of work:- Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months (i/c 24 Months warranty))

### Schedule of Quantities

NAME OF WORK:- Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months(i/c 24 Months warranty))														
S. N	Description of Items	Qty	Unit	Rate / unit excluding GST	CGST		SGST		IGST		Rate /unit including GST	Total Amount excluding GST	Total Amount including GST	HSN/ SAC Code
					% Rate	Rate per unit	% Rate	Rate per unit	% Rate	Rate per unit				
1	2	3	4	5	6	7=6x5	8	9=8x5	10	11=10x5	12=5+(7+9)or 11	13=3x5	14=3x12	15
1)	Supply of Multi cylinder Electric start/close coupled ready to use (RTU) type, water cooled diesel EA set in an acoustic enclosure conforming to the latest CPCB Norms along with AMF control panel capable of generating three phase, 415 V, 50 HZ, full load capacity of 160KVA / 128 KW at site conditions with diesel engine of 1500 RPM complete with all accessories as required as per attached specifications. 1) The make of Engine/Alternator shall be BSNL approved as per product list attached.	2nos	Each											

UNPRICED SCHEDULE



Name of work:- Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months (i/c 24 Months warranty))

S. N	Description of Items	Qty	Unit	Rate /unit excluding GST	CGST		SGST		IGST		Rate /unit including GST	Total Amount excluding GST	Total Amount including GST	HS N/ SAC Code
					% Rate	Rate per unit	% Rate	Rate per unit	% Rate	Rate per unit				
2	<p>Installation, testing and commissioning of the above E/A set with acoustic enclosure and AMF control panel (Item no.1 ) with all equipments, accessories and associated items on the existing elevated plinth/elevated structure including supplying consumables like lube oil, fuel and providing artificial resistive load with cabling, switching arrangements. etc. for pre acceptance testing (i.e., 2 hours full load, 1 hour 10% overload and 1 hour at no load) and final Acceptance Testing of E/A set (i.e. running of E/A set on full load for 6 hours and running on 10% overload for 1 hour) including topping up of lube oil up to full mark and filling of extra fuel up to a level suitable for 2 hours full load working etc. as per specifications as required.</p> <p>Note: Minor civil works such as cutting of floor or breaking of wall for laying of fuel pipes / making supports to exhaust pipes shall be within the scope of the contractor without any extra cost.</p>	2 Jobs	Job											

Contactor

Executive Engineer

Name of work:- Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months (i/c 24 Months warranty))

3	Comprehensive/ Preventive/ Breakdown Maintenance of above 2x160 KVA EA set with all its associated items by deploying specialized man power, supplying & fixing required spares, tools and plant etc., to keep all the equipments healthy & operational including scheduled maintenance as per manufacturer's recommendations as per the specification attached. <b>Note: - The Rate Quoted shall be for 2Nos 160KVA sets together.</b>													
a	1st Year - for consumables only (under warranty)	12 Months	Month											
b	2nd Year - for consumables only (under warranty)	12 Months	Month											
c	3 <sup>rd</sup> year	12 Months	Month											
d	4 <sup>th</sup> year	12 Months	Month											
e	5 <sup>th</sup> year	12 Months	Month											
f	6 <sup>th</sup> year	12 Months	Month											
g	7 <sup>th</sup> year	12 Months	Month											
	<b>Total for item nos 1 – 3</b>													

Name of work:- Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months (i/c 24 Months warranty))

<b>Important Note:</b>
<b>AMC Charges are calculated considering 2 oil services per set per annum. In case the oil services required , based on the actual run hours/manufacturers recommendations, is more than two per annum , decision will be taken by the Engineer-in-Charge for reimbursement as per the actual.(material cost)</b>
The firm shall be responsible to ensure that GST shown in the above columns is correct & Input Tax Credit for the amount shown above is admissible as per GST Act as amended up to date.
Tax Invoice /Bill of supply should be pre-printed with all the details as per the requirement under GST Act.
The evaluation and comparison of responsive bids shall be done on the basis <b>of Nett cost to BSNL</b> on the prices offered inclusive of packing, forwarding, freight and insurance charges etc., <b>but excluding GST.</b>
The rates for all items of work shall, unless clearly specified otherwise, include cost of all labour, materials and other inputs involved in the execution of the terms as specified in the scope of work.
No advance payments can be made. Stipulations like levy of interest if payment is not made in a specified time are also not acceptable and the payment is governed by the normal BSNL practice.
Bidder must mandatorily quote for all GST components ( CGST,SGST,IGST) as applicable.
Bidder must mandatorily mention correct HSN/SAC codes.

**Contractor**

**Executive Engineer(E)**

Name of work:- Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months (i/c 24 Months warranty))

<b>DATA – SHEET (To be filled and uploaded along with the tender)</b>					
FOR ENGINE ALTERNATOR SET 160 KVA					
Items covered under schedule of work:					
Quantity required for One E/A Set.					
ITEM NO. (1)					
A.	Engine with standard scope of supply (1500 RPM)				
OFFERED BY THE AGENCY					
		<b>Make (Only BSNL approved makes)</b>	<b>Model</b>	<b>BHP</b>	<b>ANY OTHER INFORMATION</b>
	a)	Ashok Leyland			
	b)	Cummins Ltd			
	c)	Cater pillar			
	d)	Kirloskar Oil Engine Limited			
	e)	Volvo Penta			
	f)	Mahindra & Mahindra			
	g)	Any other BSNL approved Make			
<b>Note : For the above item No. 1, the make mentioned above and any subsequent approval by the Corporate office of BSNL for 160KVA at site condition till the last date of sale of tender shall be accepted. If approval for the above model is not available on date of tender opening, the same model will not be accepted.</b>					
B.	<b>ALTERNATOR</b>			<b>OFFERED BY AGENCY</b>	
	Alternator (Suitable for 160 KVA) approved by BSNL till the last date of sale of tender may be supplied.				
C	<b>BATTERY</b>				
	Battery Make & Capacity				
D	<b>AMF Controller MAKE</b>				

## **SPECIFICATION FOR ENGINE ALTERNATOR SET WITH ACOUSTIC ENCLOSURE**

1. **SCOPE :** The offer should cover complete supply, installation, testing, and commissioning of ready to use diesel engine alternator sets in acoustic enclosure. All minor civil works, electrical and other works associated with installation and commissioning of the set shall be carried out by the tenderer. The tenderer would quote for complete lot to be executed under works contract.
2. **REQUIREMENT:** The Engine Alternator supplied should be of ready –to –use type (RTU), the BHP of engine may be suitably enhanced as per site conditions in order to deliver the minimum required KVA at site, in case of water cooled engine it should be supplied with first filling of coolant and water mixture as per the manufacturer recommendation. The Engine shall be equipped with all standard fittings, flexible pipe, suitable capacity of low maintenance lead acid battery for automotive / cranking duty fixed between base frame as per manufacturer's recommendation, one fuel tank of minimum **285** litres inside canopy with fuel pipe, silencer, MS exhaust pipe of suitable size and length as per original manufacturer's standard, instrument panel equipped with necessary instruments, directly coupled with alternator of suitable capacity on a suitable length of common base frame, channel fixed on necessary AVM pads required length of suitable size of copper conductor cable with glands and lugs for inter connection between alternator and control panel, providing tools for normal maintenance and all other accessories complete as required and as per detailed specifications attached. The Engine and the Enclosure shall conform to the Environment (Protection) Act 1986 (29 of 1986), and Environment (Protection) Rules, 1986, latest as amended from time to time, of Ministry of Environment and forest, and the agency shall provide all the relevant certification (including, but not exclusively, certificate of adhering to latest applicable noise limit; and certificate for type approval and COP (Conformity of Production) as per the latest applicable emission norms) to establish conformance of the DG Set as required by this act, and these rules, latest as amended from time to time. The make and model no. of Engine and alternator shall be as per BSNL approved product directory. The battery shall be fixed between the base frame on a suitable angle iron frame / MS sheet including providing suitable rubber pads below the battery.

### **3. OPERATING CONDITIONS**

The engine alternator shall be capable of working at any ambient temperature between 0°C to 50° C and relative humidity up to 95% condition. However for calculation of the capacity these operating conditions will not apply. For calculation of the capacity the condition shall be **chennai**.

### **4. PERFORMANCE REQUIREMENT**

- The working KVA rating at site condition after accounting for de-rating shall be obtained at 0.8 power factor.
- When there is an electrical main supply failure it will be required to work continuously for a period which may even exceed 24 hour at a time.
- The set shall be capable of taking 10% overload for a period of one hour during every 12 hours period while operating continuously at full load.
- The set may be idle for a long period except for routine test periodically.

### **5. OUT PUT VOLTAGE FREQUENCY AND WAVE FORM**

Nominal output voltage shall be 415 volt with  $\pm 5\%$  manual adjustment at all conditions of the load. Frequency shall be 50 cycle per second  $\pm 3\%$  in output waveform.

## **6. DIESEL ENGINE**

The Engine shall be multi cylinder, reciprocating compression ignition engine as per manufacturer standard design and conforming to relevant IS specifications. **The emission limits for diesel engine up to 800 kW generator set shall be as per the new emission norms released by the Ministry of Environment and forest notification with effect from 1st July , 2014 and amended up to date.**

## **7. LUBRICATION**

Lubrication shall be positive pressure type lubricating all moving parts. No moving parts shall require lubrication by hand either prior to the starting of the engine or while it is in operation. Temperature and pressure gauge shall be fitted to the lubrication system. Lubrication oil shall confirm to relevant IS amended up to date. Necessary lubricating oil filter shall be provided for operation at normal conditions for a period of 250 hours.

## **8. FUEL TANK**

Fuel tank shall be suitably provided between base frames or separately installed in case of installation in a canopy. Tank shall be made of CRCA sheet steel. The tank shall have fuel level indicators, filling inlet, drain plug, air vent and necessary piping, hand pump for pumping the fuel into the service tank with necessary pipe or tube shall be provided. The outlet of the hand pump shall be provided with 3-meter long reinforced hosepipe with suitable filters.

## **9. FUEL PIPING**

Fuel pipe shall be hydraulically compressed type of superior quality.

## **10. SPEED AND GOVERNING**

The engine shall operate on 1500 RPM, and be able to meet site conditions with regard to Voltage, Speed, Frequency and regulation and shall be equipped with governor suitably to give the desired output.

## **11. ENGINE START**

Engine shall be cold and self-starting type. The starter battery shall have suitable copper connecting lead, sufficient to meet engine starting and control gear requirement as per manufacturer specification.

## **12. BATTERY CHARGING**

The battery charging shall be done through alternator in running condition and through battery charger when EA set is in off condition. The changeover from battery charger to alternator and vice-versa shall be automatic. The solid state 24V/12V, suitable capacity/rating of battery charger provided in Control Panel.

## **13. The Engine shall have following accessories: -**

- (i) Fly wheel.
- (ii) Coupling with guard.
- (iii) Fuel Pump suitable for lifting the fuel from fuel tank provided below E/A sets.
- (iv) Governor.
- (v) Pre filter.
- (vi) Fuel Filter.
- (vii) Pre-filter in lift pump/button filter.
- (viii) Lubricating oil filter.
- (ix) Residential exhaust silencer.
- (x) Starter.
- (xi) Blower fan / radiator fan
- (xii) Battery charging Alternator.
- (xiii) Electronic / Mechanical type hour meter and RPM meter (As per manufacturer's standards )

**14. The control panel shall comprise of the following: -**

- (i) Starting switch with key/push button. (As per manufacturer's standards )
- (ii) Lubricating oil temperature gauge for air cooled engine and water temp gauge for water cooled engines
- (iii) Lubricating oil pressure gauge.
- (iv) Battery charging ammeter.
- (v) Emergency STOP push button.

**15. ALTERNATOR**

- a) The alternator shall be three phase copper wound brushless and totally enclosed for screen protected class-F/H insulation, designed and constructed to with stand tropical condition. Voltage regulation shall be  $\pm 1\%$  and shall be conforming to relevant IS specifications.
- b) The winding shall be of standard and neutral shall be brought out to the terminal box suitable for earth connection to two independent earths. The terminal of the alternator output shall be enclosed in the terminal box. The AC/DC wiring shall be separated from each other.

**16. AMF CONTROL PANEL**

16.1 Cubicle type, compartmentalized, free standing, front operated, totally enclosed vermin proof, Control panel shall be fabricated out of minimum 1.6 mm thick CRCA M.S sheet steel, powder coated with easy accessibility to all control wiring from front. Panel shall have provision for termination of UG cable for incoming/ outgoing and necessary gland plates shall be provided at bottom of the panel, suitable for 415V, 3 phase, 50Hz, 4 wire system including installation, testing and commissioning. The interconnecting bus bars shall be minimum 300 Amps capacity and shall be aluminium bus bars of adequate dimensions (current density not exceeding 130A/sq.cm) with superior quality epoxy insulators. MCBs shall be provided for instrument and control circuits.

16.2 Control wiring shall be provided using 1.5 Sq.mm multi-strand PVC insulated copper conductor cable, screw less type connectors and identification ferrules on both ends. AC and DC wiring shall be separated and clearly identified. Necessary wiring shall be provided for power and control circuits. Earth studs shall be provided at both sides of the panel and shall be interconnected with tinned copper earth bus of 20 x 5 mm size.

16.3 The panel shall have necessary sign writing/labeling of important parts and provided with metallic danger notice board. The panel shall have base frame and shall be mounted inside the canopy with suitable mounting arrangements and anti vibration pads.

16.4 Each module (cubicle) shall have sufficient working space for making connections and shall be with individual dust proof hinged door provided with insulated thumb screw at two ends.

16.5 The interconnection between alternator terminals and AMF panel shall be with suitable size copper conductor flexible cable shall be provided.

16. 6 Each AMF Control panel consists of the following items:

- 2Nos 250 A, 4 pole 50 KA MCCB (100% Icu = 100% Ics) with suitable thermal overload range, SC and Shunt trip and door interlock for Engine alternator set supply.
- 2 No 250 A, 4 pole Power contactor with contactor coil for E/A set supply( Electrically interlocked with E B Supply).

- Standard factory built generator controller and monitoring module with the following functions. The microprocessor controlled AMF logic unit shall be suitable for automatic as well as manual controlled operation of the Engine alternator set with suitable audio visual alarms and indicators.
- Engine mode selection switches for AUTO/ MANUAL/ TEST/ OFF.

16.7 The following features shall be provided in AMF panel:

a) Two EA sets are to be provided, so there shall be co-ordination in operation of both the EA AMF control panels. One Engine will be on Auto mode and other will be on manual mode and will be interchanged every fortnight.

As there are two AMF panels (one for each EA) provision shall be available either with timer arrangement or any other controller to set EA I or EA II on priority for starting and incase priority EA fails to start the second EA should start after time delay.

b) AMF relay should have facility for integrating with BMS provided for the building with necessary RS485 or better communication interface with Modbus / BACnet / LON / DDC (Direct Digital Control) protocol Interface, which shall be initially got approved from the Engineer-In-Charge so as to be compatible with the BMS.

c) DG Set supplied by vendor should have provision of integration with IBMS and should provide with ModBus over RS-485 of BACnet/IP, BACnet/Lontalk or any standard industrial open protocol.

d) The following audio visual alarms, acknowledgement and reset push buttons with EA contactor trip and engine shutdown are to be made available in AMF control panel /controller through LED/LCD display:

- (i) LLOP
- (ii) High cylinder /Water Temperature.
- (iii) Over/Under speed
- (iv) Lack of fuel.

a. Audio visual alarm, acknowledgement and reset push buttons for

- (i) Engine fails to start.
- (ii) Engine fails to stop.
- (iii) Low fuel level
- (iv) Battery charger failure.

16.8 The following shall also be provided.

- (i) Engine Start push button on manual mode.
- (ii) Stop push button on manual mode.
- (iii) SP MCB of suitable rating for AC control circuit
- (iv) SP/DP MCB of suitable rating for DC control circuit.

16.9 Metering Devices

- (i) AC Digital type intelligent multifunction meter with CT of suitable rating for measurement of Voltage, Current, Frequency, KVA, KW, KWH with RS 485 or better port facility.
- (ii) DC Ammeter for measuring battery charging of suitable range.
- (iii) DC Voltmeter for measuring battery charging of suitable range.



#### 16.10 Indicating Lamps (Series resistance type LED lamp)

- (i) DG set ON
- (ii) Load on DG
- (iii) Mains ON
- (iv) Load on Mains
- (v) Battery Charger ON

#### 16.11 Functional Requirements:-

All the functional requirements in Auto mode are to be achieved through microprocessor based AMF Controller. The AMF panel should be able to be integrated with the IBMS, selection of EA set starting through IBMS shall be made available. The logic for starting & stopping shall be:-

1. If the mains fail, or one or more phase of mains is not available.
2. If any phase voltage of mains is out of preset limits however there should be a provision to set the limits of higher and lower phase voltages as per the site requirement. The mains supply within this range shall be considered as healthy so as to avoid continuous running of Engine Alternator Set.
3. The system should measure 48V battery of the telecom equipment. In case the battery voltage is above a settable limit & server room temperature as measured in the BMS system logic is below a preset max room temperature, the engine should not start unless one of the conditions fails.
4. Two level sensor for fuel should be provided at 50% & 25% respectively.

#### 16.12. System should provide following settable features:-

- (a) Mains failure time - to initiate automatic EA start after 0 to 300 seconds of mains failure.
- (b) Mains restore time - to initiate automatic stop of EA after 0 to 300 seconds of mains in stable conditions.
- (c) Low oil pressure delay time - 0 to 99 seconds delay of the low pressure oil input alarm from engine start.
- (d) Stop solenoid time - 10 to 99 seconds enabling time for "stop solenoid".
- (e) Cranking up time - 0 to 99 seconds enabling time for starter. The Timer is reset if the engine starts before the programmed time.
- (f) Start attempts - 1 to 3 numbers of automatic attempts during automatic start cycle.
- (g) Attempts interval - 1 to 99 seconds time interval between starting pulse attempts.
- (h) Cooling down time - 0 to 300 seconds engine cooling time before stopping. During this time the engine runs without load.
- (i) Generator voltage time - time of stable generator voltage to close EA contactor to load (0 to 300 seconds).

NOTE : The AMF logic should be compatible with the IBMS system being provided by BSNL separately. For the same, contractor has to submit details & seek approval before manufacturing/ supplying the EA set.

(SOFT INTEGRATION with IBMS)

Status monitoring ON, OFF, Voltage, Current, KW and Other required parameters etc.:-

- DG Set supplied by vendor should have provision of integration with IBMS and should provide with ModBus over RS-485 of BACnet/IP, BACnet/Lontalk or any standard industrial open protocol.

(HARDWIRED INTEGRATION)

- i) Diesel level monitoring – tanks
  - a) Minimum level.
  - b) 50% level.
  - c) Maximum level.
- ii) External Breaker –MCCB/ACB -  
DG control-  
On/off/trip

- (Suitable potential free contact should be provided by vendor at one common point. Further extension to DDC/BMS PC by BMS vendor. )

### 16.13 Battery charger

SCR/SMPS controlled type Static Battery charger of suitable rating shall be provided for charging the battery from mains. The Battery charger shall have automatic trickle and boost charging facility, means to avoid over charging, short circuit, reverse polarity protection and auto cut off facility. It is provided in addition to the Battery charging alternator supplied as standard accessory with the engine.

(HARDWIRED INTEGRATION)

BATTERY CHARGER - Mains on/ DC supply on/fails  
BATTERY VOLTAGE -THROUGH PULSE OUTPUT METER

Suitable potential free contact should be provided by vendor at one common point of Main panel. All internal wiring to be done by vendor. Further extension to DDC/BMS PC by BMS. vendor.

## 17. SAFETY CONTROL TRIP

- (i) Low lubricating oil pressure.
- (ii) High cylinder / water temp.
- (iii) Lack of Fuel
- (iv) Over speed/ Over frequency tripping device.

## 18. SOUND PROOF ENCLOSURE

- (i) The canopy should be sound proof, weather proof & environment friendly. The Engine and the Enclosure shall conform to the Environment (Protection) Act 1986 (29 of 1986), and Environment (Protection) Rules, 1986, latest as amended from time to time, of Ministry of Environment and forest, and the agency shall provide all the relevant certification (including, but not exclusively, certificate of adhering to latest applicable noise limit; and certificate for type approval and COP (Conformity of Production) as per the latest applicable emission norms) to establish conformance of the DG Set as required by this act, and these rules, latest as amended from time to time.
- (ii) The canopy shall be in modular construction with the provision of assembly at site. The acoustic panels shall be fabricated by not less than 1.6 mm thick CRCA sheet. The finished

sheet metal component shall undergo seven tank treatment process for degreasing, derusting, Phosphatising etc. for longer life and should Polly polyester based coated inside & outside. The nuts bolts and other hardware shall be Zinc coated. The door shall be provided with high quality EPDM gaskets to avoid leakage of sound. The door handles and hinges shall be Zinc plated & lockable type.

- (iii) The Radiator fan of the water cooled Engine shall be used for ventilation. A pusher fan (for air cooled Engines) or in addition to Radiator fan, if required shall also be provided. The motor of this fan shall be of BSNL approved make.
- (iv) Adequate ventilation shall be provided to meet the air requirement for combustion & also to expel heat to maintain temperature inside the enclosure within 7 degree Celsius above ambient at 10% overload with tripping arrangement between (50 – 60) degree Celsius.
- (v) Lighting inside the canopy shall be provided with minimum 2 nos. 1 x 11 W LED fitting including lamp. 5 Amps switch & socket outlet for connecting battery charger inside the enclosure shall be provided. The lighting and 5 Amps socket shall be powered from the control panel by suitable wiring / cabling arrangement.
- (vi) Separate door with locking arrangement for easy access to D.G. set during operation & maintenance should be provided.
- (vii) Small see through window for reading meters etc. made of transparent polymer sheet of suitable thickness shall be provided.
- (viii) Radiator bellows/sealing arrangement to be provided in cases of water cooled engines to avoid hot air leakage inside canopy.
- (ix) Fuel Tank and Control Panel shall be incorporated inside the canopy. If it is / they are kept outside, the same may be installed in a kiosk. The kiosk shall be of the material of same specifications as used for canopy but without acoustic treatment. The colour of the kiosk shall match with the colour of the canopy. All fuel piping connections, electrical connections etc. shall be done as per standards,
- (x) Four point lifting arrangement.
- (xi) Main base frame size and thickness of MS sheet welded for bolting arrangement will be as per manufacturer's recommendation complete as required.
- (xii) Insulation on enclosure will be provided & fixed of Mineral rock wool Slabs of density not less than 96 kg/M<sup>3</sup> of 75mm thickness, covered with 22 gauge GI sheet having 3mm perforation fitted with strips of AL by hydraulic riveting to support the whole insulation rigidly complete as required (OR) Polyurethane foam / PUF of minimum 26Kg / m<sup>3</sup> density acoustic foam of dark grey / black colour, fire retardant and not less than 20 mm thickness.
- (xiii) The canopy shall be provided with emergency stop button easily approachable from outside.
- (xiv) The canopy shall be provided with following meters (visible from outside):
  - (a) Lub. Oil pressure gauge. (When part of controller of engine, not reqd.)
  - (b) Water temperature gauge (for water cooled engines only). (when part of controller of engine, not reqd.)
  - © Fuel gauge with sensing arrangement. (or as per manufacturer standards)
- (xv) The enclosure shall be guaranteed for a period of **24 months** from the date of completion of work against defective materials & rust, welding, painting, smooth functioning of doors, inspection window etc. minor civil work is to be carried out without any extra cost. However the bidder has maintained the entire system for period of seven years (including guarantee period).

## 19. GENERAL REQUIREMENT

- (i) The set shall have minimum vibration and noise under all conditions of load. The set shall be properly dynamically balanced. Anti vibration mounting shall be provided for supporting the set.
- (ii) The set shall be fitted with radio interference suppressers in case of slip ring type alternator.
- (iii) The size of EA Set base frame channels shall be as per manufacturer's recommendations.
- (iv) Control wiring shall be done with not less than 1.5 Sq.mm multi strand PVC insulated copper conductor cable.
- (v) Earthing provision should be made for earthing all current carrying metal parts of the equipment. Earth lugs of suitable size shall be provided.
- (vi) All the exposed moving parts like coupling etc. shall be provided with suitable guards covering.
- (vii) All exposed metal parts shall be suitably finished to prohibit corrosion.
- (viii) All the important and major parts should bear their catalogue number make of the parts etc. All the control wiring shall be provided with letter number ferules at both ends. Three sets of manual giving the details about design, specifications, special features of the equipment schematic and wiring diagram instructions regarding installation and maintenance etc. should be supplied. A laminated control wiring diagram should be pasted in side the control panel.

ix) OVERLOAD

The set shall be capable of taking 10% overload for a period of one hour during every 12 hours period while operating continuously at full rated load. In case of marginal deficit in overloading, allowable up to maximum of 5% load). Pro Rata recovery based on originally declared KVA rating shall be levied.

## 20. TESTING AND A/T

The firm shall test the set itself as per the BSNL schedule and practice before offering for acceptance test by B.S.N.L. All the relevant tests to check the performance of the set shall be conducted (A/T) by T&D Circle at site after installation as per the decision of the Engineer-in-charge. Diesel and lubricant oil shall be supplied by the contractor for Initial testing and successful Acceptance testing of the set. The necessary artificial load and any other necessary manpower, material, consumables etc. shall be provided by the contractor at the time of testing/A/T.

- (i) Initial testing for 2 hours at full load, one hour at 10% overload and one hour at no load prior to fixing up of regular A/T.
- (ii) A/T in presence of representative of T&D circle as per A/T Schedule ie. For 6 Hours on full load and One hour on 10% over load.
- (iii) Resistive load, Fuel and lube oil for testing shall be arranged by the firm without any extra cost. The test shall be with artificial resistive load only and non-linear load will not be arranged for A/T purpose. Lub. oil sump shall be topped up to full level after successful completion of the acceptance testing. Extra fuel sufficient for the operation of the set on full load for 2 hours shall be left in the fuel tank after the successful completion of the Acceptance testing.

Nothing extra will be paid for the subsequent A/Ts in case of failure of first A/T.

### 20.1 INSULATION TEST:

Immediately after the load test, the insulation resistance between stationary coil and the frame is tested with 500 Volts meggar.

### 20.2 ACCURACY OF METERS

The accuracy of meters shall confirm to relevant IS.

### **20.3 FUNCTIONAL TEST:**

Performance of incoming switch/circuit breaker, starting arrangement for the engine, safety features, instruments and control panel etc shall be verified. The battery shall be tested as per the general method.

### **20.4. Completion Reports:**

The contractor after successful installation, testing and commissioning of the Engine Alternator sets including all the accessories like AMF control panel, shall submit a self certification to the BSNL that the work has been completed successfully as per specifications drawings and other terms and conditions of the agreement and tender document.

The following details should be submitted along with the above certificate.

#### **Self Certification details of Engine Alternator**

- a. Rated capacity of Engine Alternator
- b. Make of Engine/Alternator
- c. Serial number of Engine/Alternator
- d. Year of Manufacture
- e. Supplied by:
- f. Proof of purchase(Invoice/Bill)
- g. Details of other components provided
- h. Testing and commissioning report
- i. Date of commissioning.

### **21. GUARANTEE ETC:**

- 17** The entire installation system shall be guaranteed against any inherent defect of faulty workmanship and for its perfect functioning for a period of two years(24months) from the date of successful AT of entire system. . However the bidder has to maintain the entire system for a period of 7 years.(including guarantee period)
- 18** Free services as per manufacturer's standard practice and norms will be provided free of cost.
- 19** The contractor shall impart training to the operator deputed by the department for operation and attending the minor fault free of cost.
- 20** All work will be executed as per CPWD (Internal / External) specification, relevant IE rules.

## **Comprehensive Maintenance ENGINE ALTERNATOR SETS**

### **Part I- Scope of Maintenance**

1. Ensuring that the EA set(s), AMF panel along with all its accessories and the acoustic enclosure are well maintained in healthy working condition and any fault arising in these is attended promptly.
2. Performing various tests/ checks as per manufacturer's recommendations.
3. Periodical checks/ servicing as stated in Part-III.

### **Part – II : Tasks to be performed within first 30 days.**

1. Familiarize with the EA Set(s) and their responsibility in consultation with Maintenance-in-charge.
2. Inspect the set(s) for proper functioning and healthiness. Any shortcoming noticed should be recorded and brought to the notice of Engineer-in-charge.

### **Part – III : Maintenance schedule to be followed.**

1. Periodical servicing of EA set(s) like A/ B/ C/ D checks at equal intervals on the basis of run hours or at the fixed time schedule complete as per the recommendations of the OEM including all material with the exceptions of : (a) Replacement of complete set of Engine, Alternator, Canopy and AMF control panel. (b) Top overhaul and Major overhaul respectively after 7000 and 10000 hours of run (or as recommended by the manufacturer). However, the responsibility of arranging this service with the dealer rests with the maintenance contractor.

### **Part IV- Materials**

Following items shall be taken care of by the Department.

1. Diesel for EA sets.
2. Replacement of Engine & Alternator as a whole
3. Battery for the EA set(necessity for replacement shall be certified by the concerned authority)

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### **MAINTENANCE SCHEDULE – EA SET**

#### **FREQUENCY – Monthly**

<b>Location</b>	<b>Description of Item</b>	<b>Work done</b>	<b>Sign of JTO</b>	<b>Sign of SDE</b>	<b>Remarks</b>
1.	<b>a) Check and correct cooling water level</b>  <b>b) Check and correct belt tension</b>  <b>c) Check and correct lube oil level</b>  <b>d) Check battery terminal and Connections for proper tightness-top- up electrolyte if reqd.</b>				
2	<b>e) Check and correct leakage if any.</b> <b>AFTER STARTING THE ENGINE</b>  a) Check lube oil pressure b) Check and correct leakage, if any c) Check all meters, engine noise etc. and correct abnormalities, if any d) Check engine protection system				
3	<b>Checking and cleaning control panel</b>  <b>Checking protection devices and alarms</b>  <b>Checking of EA canopy lights and ventilation</b>  <b>Checking of battery charge</b>  <b>Clean radiator fins by blowing air in the opposite direction</b>  <b>clean air cleaner</b>  <b>Check and correct loose clamps</b>				

**Note: Oil changes and filters changes are to be done as per the manufacturer's Recommendation.**

### **SPECIAL CONDITIONS OF THE TENDER**

**[In case of any difference between any clause of any section of NIT and that of the “special conditions of contract,” then the “special conditions of contract” shall prevail]**

The firm shall read carefully the following conditions and shall quote accordingly confirming all the points in their offer.

### **GENERAL CONDITIONS**

Please note that the offers, which do not comply with the following, will not be considered and will be totally rejected. These instructions supersede the BSNL / EW6 and EW 8 clauses, or any other clauses/conditions appearing elsewhere in the tender, in case of any Disparity.

- 1) Tenders with any condition including that of conditional rebates shall be rejected forthwith summarily.
- 2) Insurance, loading, unloading, transportation etc. should be included on works contract basis. The rates shall be firm and final.
- 3) The price shall be firm and fixed during the currency of the contract. No cost escalation is permitted. Clause10CC is not applicable.
- 4) The Extension of time for completion of the works is governed by clause 2 of EW8.
- 5) No advance payments can be made. The payment is governed by the normal department practice and stipulations like levy of interest if payment is not made in a specified time are not acceptable.
- 6) The firm should deposit EMD before submission of their offer. The EMD of other works returnable to them cannot be adjusted against this work. The firm's offer shall be liable for rejection without fresh EMD for this particular work.

#### **1. Terms of Payment:**

Payment to the Contractors is regulated as below:

#### **For Supply items**

a) 95% of the price shall be paid on the receipt of goods at site by the consignee. For claiming this payment the following documents are to be submitted to the paying authority:

i) invoice or equivalent document

ii) Delivery Challan, Consignee receipt etc as applicable

b) The balance 5% payment shall be released after satisfactory commissioning of equipment

c) In cases where shortages/ damages are intimated to the supplier in writing, the balance payment shall be released only after the cases are settled in accordance with the provision of the P.O.

d) 100% payment (in place of 95%) may be made on delivery, provided that an additional Bank Guarantee for an amount equivalent to 5% of the value of supplies valid for a minimum period of one year is furnished by the supplier along with an undertaking that the shortages/ damages as are intimated to the supplier in writing shall be made good.

e) No payment will be made for goods rejected at the site on testing. Payment, if made, for such items shall be recovered from subsequent bills or other bills.

#### **For ITC items**

The payment terms will be as under:

(i) 50% on Installation & Trial Testing

(ii) 50% on successful completion of Acceptance final testing.



### **For AMC**

i) Payments shall be made once in three month subjected to submission of maintenance report signed by concerned in charge.

### **1(i) INCREASE /DECREASE OF TENDERED QUANTITY**

a) BSNL will have the right to increase or decrease up to 50% of the quantity of goods and services specified in the schedule of items without any change in the unit price or other terms and conditions at the time of award of contract.

b) In exceptional and unavoidable cases BSNL can increase the quantity of goods and services beyond 50% of the tendered quantity without any change in tendered and accepted unit price and also other terms and conditions as applicable at the time of award of contract.

### **1(ii) CURTAILMENT OF QUANTITY:-**

BSNL reserves the right to enforce curtailment in the assigned quantum of work for any contractor on the grounds of defaults/delay in regard to execution of the individual work assigned.

## **2. COMPLETION OF WORK:-**

At the time of issuing NIT for a particular work, the time allowed for completion of work consistent with magnitude and urgency of work is specified. The time allowed for carrying out the work as entered in the contract is reckoned from the tenth day after the date on which the orders to commence the work are given to the Contractor. To ensure good progress of the work during the execution, the contractor is bound in all cases in which the time allowed for any work exceeds one month (except special jobs) to complete 1/8<sup>th</sup> of the whole of the work before 1/8<sup>th</sup> of the time allowed under the contract has elapsed, 3/8<sup>th</sup> of the work before half of the time has elapsed and 3/4<sup>th</sup> of the work before 3/4<sup>th</sup> of such time has elapsed. However, for special jobs, if a time schedule has been submitted by the Contractor and the same has been accepted by the Engineer-in-charge, the contractor shall comply with such time schedule.

For EA sets work, the work is deemed to have been completed after successful acceptance test by the BSNL.

**Date of completion:** Date of successful Acceptance testing [performance testing] of the EA set shall be taken as date of completion of the work **(SITC)**.

## **3) EPF PROVISIONS:-**

The agency has to comply with the provisions of EPF and miscellaneous provisions Act-1952 and employees provident fund scheme-1952 as amended up to date in respect of labours /employees engaged by them for this work. Any consequence arising due to non- complying of provisions as specified above shall be the sole responsibility of the firm only.

Agency has to observe all the labour rules & regulation in force. Agency shall be fully responsible for any violation observed at any time.

## **4) EARNEST MONEY DEPOSIT**

The firm should deposit EMD in proper form. The EMD of other works refundable to them cannot be adjusted against this work. The firm's offer shall be liable for rejection without EMD for this particular work. Firm has option to deposit earnest money in the form of Bank guarantee in BSNL' s attached format and manner.

## **5) PROGRAMME FOR EXECUTION**

The firm shall supply detailed programme to Engineer in charge for execution of contract within 15 days of award of work. The programme shall contain the details about submission of drawing, supply of materials including E/A set, Control panel, Cables etc., The tentative dates for installation, testing, commissioning and A/T of E/A set shall also be submitted.

## **6) STORES AND SAFETY**

a) All the stores and materials required for the satisfactory completion of the work shall be arranged at work site by the contractor from his own source. Space for storing the same materials may be provided on request from the contractor. However safe custody of the material stores at site will be responsibility of the contractor.

## **7) CO-ORDINATION AT SITE**

At the site of work more than one agency may be working. Full cooperation shall be extended to other agencies during the progress of work. Further work shall be carried out in such a way so that it may not cause abnormal noise and hindrance to the officers of the BSNL engaged in erection as well as to normal routine work.

## **8). COMPLETION DRAWINGS**

The firm shall supply three sets of drawings/documents after completion of the work but before the proposed date of completion of work.

- Schematic diagram of control wiring.
- Operation and maintenance manual of Engine & Alternator with
  - Maintenance recommendations & procedures.
  - Maintenance intervals.
  - Generator running hours.
  - Logbooks.

## **9. GUARANTEE & DEFECT LIABILITY**

- (a) The Guarantee shall be valid for a period of **twenty four months** from the date of commissioning of E/A set. However the bidder has to maintain the Engine Alternator set for a period of 7 years. The contractor shall guarantee that all equipments shall be free from any defect due to the defective materials and bad workmanship and that equipment shall work satisfactory and that the performance and the efficiencies of the equipments shall be not less than guaranteed values. Any parts found defective during the guarantee period shall be replaced without any charge whatsoever. The services of the contractor's personnel, if requisitioned during this period for such work, shall be made available free of any cost to the department.
- (b) The contractor shall depute his representative to the site within **24hrs** of notification of defects by the department.
- (c) A joint inspection report will be made by the departmental representative and representative of the firm regarding the nature of defects and remedial action required in time schedule for the rectification/remedial action.
- (d) In case the contractor fails to depute his representative within **24hrs** of notification of defect(s) or fails to cause remedial action within a reasonable time as decided in the joint inspection, the Department may proceed to do so at the contractors' risk and expenses without prejudice to any other rights.
- (e) The following aspects are, however, not covered under the purview of guarantee:-
  - i) Consequential losses and damages.

## **10. CHANGES IN SPECIFICATIONS**

The BSNL reserves the right to make changes in respect of specifications of work if in its opinion same is found necessary. However such alterations shall be made after mutual discussions and agreement between the BSNL and the contractor. Any price implications in this regard shall be mutually discussed and agreed up on in terms of clause 12 of EW 8 form. The BSNL as matter of principle will not permit modifications by the contractor in design /specifications of any document /material. However the same can be agreed upon by the BSNL under exceptional circumstances where

- a) The same is necessitated due to non-availability of material / components of certain specifications / make.

Or

- b) Such alterations constitute an improvement in the opinion of BSNL.

Prior approval is necessary before undertaking any alteration/modification in the specifications of the equipment.

## **11. Packing, Forwarding, Storage at site.**

Before dispatch to the site, the equipment /components/materials shall be properly packed so as to afford protection against transit damages and damage against storage in open areas either at transporters premises or at work site. Special care shall be taken in respect of sensitive items. When storage in open areas is inevitable, proper water proof covering shall be provided to protect damages on account of rain water etc. However damaged items should be replaced as per the directions of the Engineer –in-charge.

## **12 Inspection Of Site & Contract Documents**

For the purpose of inspection of site and relevant documents, the contractor is required to contact E.E.(Elect) concerned who shall give reasonable facilities for inspection of the same. The contractor shall inspect and examine the site and its surroundings and shall satisfy himself commencement of work as to the form and nature of the site, the quantities and nature of work, materials necessary for completion of the works, the means of access to the site, the accommodation he may require and in general shall himself obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect his work. No extra charges consequent on any misunderstanding or otherwise shall be allowed.

### **13) I.S. Standards:**

The entire system shall conform to relevant BIS including safety standards as amended up to date. Where IS standards are not available the British standard(s) shall be followed. In case of conflict, the requirements of these specifications shall be given over-riding priority. The electrical and earthing work shall be carried out as per CPWD specifications for electrical works (internal) and electrical works (external) as amended up to date. A list of relevant standards, approved makes of equipment is furnished and forms part of the tender document.

## **14) SUFFICIENCY OF TENDER**

The contractor shall be deemed to have satisfied himself before entering into the contract as the correctness and sufficiency of his offer for the work and of the rates and prices quoted in the schedule of works and items/quantities or in bills of quantities for the contract period. These rates and prices shall except as otherwise provided, cover all his obligations under the contract and all matters and things necessary for proper completion of works.

**No additional conditions shall be stipulated by the tenderer.**

### **15) Test Certificate**

The firm shall submit following test certificates on supply of the material at site:

- Technical catalogues of Engine & alternator
  - Manufacturer's Original test certificates for Engine, Alternator, E/A set, control panel
  - Routine test certificates for individual items.
- Department may test each unit at factory without any extra payment.

**16) Inspection & Testing of EA set:**

The EA sets shall be tested at factory for routine /normal load before dispatch to site(s) and the necessary test certificate shall be furnished along with the EA set. However BSNL reserves the right to inspect the set at factory before dispatch.

**17. Set off clause:**

Only those payments due to Government against a particular contract agreement shall be deducted from the bills of the same work and not deductible from other works.

**18. Inspection at Contractor's Premises**

The Department's authorized representative shall have full powers to inspect drawings of any portion of the work or examine the materials and workmanship of the plant at the contractor's works or at any other place from where material of equipment is obtained. Acceptance of any materials or equipment shall in no way, relieve the contractor of his responsibility for meeting the requirement of the specifications but shall have to be replaced free of cost by the contractor in case the equipment of work is found defective or of inferior quality.

**19.** The Department / BSNL also reserve the right to enforce curtailment in the quantities of work, if the contractor defaults in regard to works contract execution.

**20. CURRENCY OF CONTRACT**

- 20.1 The currency of contract shall be 87 months. (3+84) (Supply, installation, testing & commissioning + Comp. AMC.
- 20.2 The BSNL reserves the right to terminate the contract by giving show cause notice of one-month duration at any time during the currency of the contract.

**21. Penalty Clause:**

- 21.1 Any accident or damage during maintenance /operation will be the responsibility of the agency & BSNL will not entertain any claim, compensation, penalty etc on this account or on account of non observance of law to his work
- 21.2 If the agency fails to rectify any fault within reasonable time, the BSNL reserves the right to carry out any work at the risk and cost of the agency. In case the fault is of emergency nature which may affect the normal functioning of services and the firm fails to take immediate necessary action, the work shall be carried out at the risk and cost of the firm without giving any notice. The decision of EE(E) shall be final.
- 21.3 The mechanic/ technician should attend the site immediately and minor faults may be cleared then and there.
- 21.4 However, in case of certain non-stocked spare parts not available locally or to be imported or for works beyond the control of the contractor, he can give technical justification and ask for extra time for approval of Engineer in charge who will have power to grant such extra time depending upon the correct technical justification and a reasonability of time scheduling for such extension.

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**In addition to the various penalty provisions mentioned, the following additional conditions shall also be applied.**

ACTIVITY	RECOVERY ON EACH DEFAULT	ACTION FOR RESTORATION BY CONTRACTOR/DEPTT.
E/A I faulty	Rs. 2000/- per day after 3 days.	Engineer-in –Charge shall make arrangement at the risk and cost of the contractor without any further notice.
Both EA sets faulty	Rs. 1000/- per hour after 8hours from breakdown	

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**CERTIFICATE TO BE SUBMITTED FOR MONTHLY SCHEDULED ACTIVITIES**

Name of contractor: \_\_\_\_\_.

Agreement No. : \_\_\_\_\_.

Site :

Certificated that Monthly/Quarterly/halfly/Yearly Maintenance for Month of -----  
 -- -----have been carried out properly as per Maintenance schedule (Annexure –IX) and as  
 per terms and condition of the agreement and i/c testing/drills etc. required during the period has  
 been performed. Except the following due to the reasons mentioned against the respective item:

Sl.No	ITEM/SERVICES	REASONS FOR NON OPERATION

**Contractor’s representative**

**Exchange In- Charge**

**JTO(E)**

**SDE(E)**

**CERTIFICATE TO BE SUBMITTED ALONG WITH EACH BILL**

1. CERTIFIED THAT WE HAVE CARRIED OUT THE PREVENTIVE MTCE. OF ALL THE SERVICES COVERED IN THE ABOVE CONTRACT SATISFACTORILY AND ALL THE SERVICES HAVE BEEN UNDER SATISFACTORY WORKING CONDITION EXCEPT THE FOLLOWING DUE TO THE REASONS MENTIONED AGAINST THE RESPECTIVE ITEM:

Sl.No	ITEM/SERVICES	REASONS FOR NON OPERATION

2. CERTIFIED THAT THE EQUIPMENTS FOR WHICH THE ENERGY EFFICIENCY PARAMETERS HAVE BEEN PRESCRIBED WERE MAINTAINED WITHIN THE PRESCRIBED BENCHMARK.
3. CERTIFIED THAT REQUIRED INVENTORY HAS BEEN REPLENISHED BY US.
4. CERTIFIED THAT EPF FOR THE EMPLOYEES ARE REMITTED.

SIGNATURE OF CONTRACTOR

JTO (E)

SDE (E)

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**LIST OF APPROVED MAKES-BSNLELECTRICAL WING  
(AS ON 29.02.2016)**

S. No.	Item	Makes
1	Engine	Ashok Leyland /Cummins/ Cater pillar /KOEL/ Volvo Penta / Mahindra & Mahindra (up to 200 KVA) /Escorts (up to 30 KVA)/ Eicher (up to 35 KVA)
2	Alternator(Brushless)	Crompton Greaves (AL. series) / KEC / Leroy Somer / Stamford/Jyoti Ltd
3	Battery (Lead Acid / Mntc. Free)	Amara Raja / AMCO / Farukawa / Hitachi / Exide/ Prestolite / Standard
4	HV Switchgear (Vacuum Circuit Breaker/SF6 )	Biecco Lawrie / Crompton / Kirloskar / MEI / Jyoti Ltd
5	Transformer (Oil filled / Dry type) a) Above 400 KVA	ABB / Schneider Electric /Andrew Yule / Bharat Bijlee / Crompton / EMCO /Kirloskar / Siemens
	b) Up to 400 KVA	In addition to above makes, Uttam/ Patson /Rajasthan Transformer and Switchgear
6	Air Circuit Breaker	L&T/ Schneider Electric / Siemens
7	MCCB(Ics=Icu)	L&T/ Schneider Electric / Siemens
8	SDF units	L&T/ Schneider Electric / Siemens/HPL/Havells
9	Power Contactors	L&T/ Schneider Electric / Siemens/ Lakshmi(LECS)
10	Change Over Switch	HPL / Havells / H-H Elcon
11	Intelligent APFC Relay	L&T/EPCOS(Siemens)/ Schneider Electric / Neptune Ducati/Syntron/ABB
12	Bus Bar Trunking/ Sandwiched Bus Duct	Moeller/L&T/Schneider Electric/ABB/ Legrand /Zeta
13	Power Capacitors (MPP/APP)	L&T/EPCOS(Siemens)/ABB/Crompton/ Schneider Electric / Neptune Ducati
14	Digital/ KWHr meter	Schneider Electric/ AE/ Digitron / IMP/Meco / Rishabh /Universal/HPL/L&T/ABB/Yokins
15	Cold shrink HT/LT Cable Joint	Denson / 3M(M-Seal )/ Raychem
16	Rubber Matting	ISI mark
17	MCB/ Isolator /ELCB/RCCB/ Distribution Board	Crompton / Havells / Indokopp / MDS Legrand / L&T / Schneider Electric/ Siemens / Standard/ABB/HPL
18	MS/ PVC Conduit	ISI mark
19	Cable Tray	MEM/Bharti/Ratan/Slotco/Profab
20	HT/LT Cables	ISI mark
21	PVC insulated copper conductor wire	ISI mark
22	Centrifugal Pump	Amrut / BE / Beacon / Batliboi /Crompton / Jyoti / Kirloskar / KSB / Mather & platt / WASP/Grundfos
23	Submersible Pump	Crompton/Amrut / BE / Calama / Kirloskar / KSB
24	Motors	ABB/ Bharat Bijlee / Crompton Greaves / Schneider Electric / HBB / KEC / Siemens/Jyoti Ltd
25	Fresh Air Fans	GE / Khaitan/Almonard/Crompton
26	Starter	ABB / BCH / Schneider Electric / L&T / Siemens /
27	Single Phase Preventer	L&T / Minilec / Siemens / Zerotrip
28	GI/MS Pipe	ATC / ATL / BST / GSI / ITC / ITS / IIA / JST / Jindal /TTA / Tata/Zenith
29	Foot Valve	ISI mark



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30	Gate Valve	Advance/Audco/Johnson Controls / Zoloto /Annapurna / Fountain /Kirloskar / Leader / Sant / Trishul
31	Compressors	Carrier/Emerson copeland/York/Danfoss (for chillers only)
32	Resin Bonded Glass wool	Fibre Glass / Pilkington / UP Twiga
33	Expanded Polystyrene	BASF(India) Ltd.
34	Gauge	Feibig / H.Guru / Pricol
35	Controls	FLICA / Honeywell / Indfoss / Penn- Danfoss / Ranco / Ranutrol / Sporland
36	Fine Filters	Anfiltra Effluent / ARW / Athlete/ Airtake / Dyna / Kirsloskar/ Puromatic/ Purafill/ Purolator / Tenacity
37	GI Sheet	HSU Jindal / National / Nippon Denro / Sail / Tata
38	Heat Detector	Appollo / Chemtron/ Edward / Fenwal/ Hochiki / Nitton /System Sensor/ Wormald/Honeywell Essar/Notifier
39	Ionization Detector	Appollo / Cerebrus / Edward/ /Fenwal / Hochiki / Nitton / System Sensor /Wormald
40	Photo Electric Smoke Detector	Appollo / Cerebrus / Edward / Fenwal/ Hochiki / Nitton / Wormald /System Sensor
41	Fire Panel (Microprocessor based)	Agni Instruments / Agni Devices/ Aruna Agencies / Carmel Sensor / Ravel Elect. / Honeywell Essar / Notifier / Navin Systems
42	Sprinkler/ Hose Reel & Hose Pipe	ISI mark
43	Fire Extinguisher	ISI mark
44	Lift	OTIS, Kone, Mitsubishi , Schindler, Johnson, Thyssenkrupp Elevator(India)

**NOTE:**

1. In case of External / PMC works, the list of approved makes may be modified as per client's requirement.
2. The accessories such as CT/PT/measuring instrument/relays provided by approved make in respect of Transformer/HT Panel/DG /AC Package Units as supplied by approved manufacturer along with the equipments are also acceptable in addition.
3. Any additional makes may be approved by concerned PCEs/Sr CEs/CEs(Elect) for the work under his jurisdiction as already accorded vide letter no. 3-2-5/EW/VEP-1/2007 dated 05-07-2007.

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### **LIST OF RELEVANT INDIAN STANDARDS**

IS 10000 (Naturally Aspirated)	Part-I 1980	Method of tests for I.C. Engines Part-I Glossary of terms related of test method
	Part-II 1980	Standard reference conditions
	Part-III 1980	Measurements of testing units and limits of accuracy
	Part-IV 1980	Declaration of Power, Efficiency, fuel consumption, lubrication oil consumption
	Part-V 1980	Preparation of tests and measurement of wear
	Part-VI 1980	Recording of test results
	Part-VII 1980	Governing test for constant speed engines and selection of engines for use with electrical generators
	Part-VIII 1980	Performance test
	Part-IX 1980	Endurance test
	Part-X 1980	Test for smoke level, limit and correction for smoke level for variable speed
	Part-XI 1980	Information to be supplied by the purchaser to the manufacturer and information to be supplied by the manufacturer along with the engine.
	Part-XII 1980	Specimen test certificates
	Part-XIII 1980	Recommendations on nature of tests required for functional changes in critical components
IS 10002	Amended upto date	Performance Requirements for Constant Speed Compression Ignition (Diesel) Engines for General Purposes (Above 20 kW)
BS ISO3046-1	Amended upto date	Reciprocating Internal combustion engines
IS 4889/ BS 269		For declaring efficiency of electrical machines
IS 4722 - 1992		Capability of machine to withstand over current / overload
IS 13364	Part-I 1992	Alternator –Voltage Regulation upto 20KVA
IS 13364	Part-II 1992	Alternator –Voltage Regulation above 20KVA to 80KVA
IP 21	IS 4691/85	Alternator (degree of Protection)
IS 8183		Insulation material for sound absorption
IS 2147 1962		Degree of Protection
IS 4722		H.V Testing for panel

Executive Engineer(E)

Contractor

Name of work:- Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months (i/c 24 Months warranty))

<b>PROFORMA OF SCHEDULES</b> (Operative Schedules to be supplied separately to each intending tenderer)	
<u>SCHEDULE 'A'</u> Schedule of quantities :	Attached
<u>SCHEDULE 'B'</u> Schedule of materials to be issued to the bidder:	Nil
<u>SCHEDULE 'C'</u> Tools and plants to be hired to the bidder:	Nil
<u>SCHEDULE 'D'</u> Extra schedule for specific requirements/documents for the work, if any:	Nil
<u>SCHEDULE 'E'</u> Schedule of components of Materials, Labour etc. for escalation:	Nil
<u>SCHEDULE 'F'</u> Reference to General Conditions of contract :	
Name of work:	As per NIT notification page No 3
Estimated cost of work:	
Earnest money:	
Security Deposit and performance Guarantee	
General Rules & Directions: Officer inviting tender:	Executive Engineer (E) Electrical Division-III, Chennai
Definitions:	
2(v) Engineer-in-Charge	Executive Engineer (E) Electrical Division-III, Chennai
2(vi) Accepting Authority	Superintending Engineer(E), EC-II,Chennai
2(x) Percentage on cost of materialsand labour to cover allover heads and profits	10% (TEN)
CLAUSE 5	
Time allowed for execution	86 months( SITC-2months, AMC-84 months after completion of SITC )
Authority to give fairand reasonable extension of time for completion of work:	SE(E),EC-II,Chennai
Competent Authority for deciding reduced rates:	SE(E),EC-II,Chennai
Clause 25	
Competent authority for conciliation:	SE (E) not in-charge of the work.

**BSNL EW-8**  
**Bharat Sanchar Nigam Limited**  
**Electrical Wing**

Electrical Division: **III, Chennai**

Sub Division: CANI Project , **Chennai**

1. I/we have read and examined the notice inviting tender, schedule, specifications applicable, Drawings & Designs, General Rules and Direction
2. Conditions of Contract, clauses of contract, special conditions, Schedule of Rates and other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.
3. I/We hereby tender for the execution of the work specified for BSNL within the time specified, schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions and other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.
4. I/We agree to keep the tender open for **Ninety (90) days** from the due date of submission thereof and not to make any modifications in its terms and conditions.
5. If I/We, fail to commence the work specified, I/We agree that the said BSNL shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely and the same may at the option of the competent authority on behalf of BSNL be recovered without prejudice to any other right or remedy available in law out of the deposit in so far as the same may extend in terms of the said bond and in the event of deficiency out of any other money due to me/us under this contract or otherwise.
6. Should this tender be accepted, I/We agree to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered up to maximum of percentage mentioned in clause 12.3 of the tender form and those in excess of that limit at rates to be determined in accordance with provisions contained in clause 12.2.
7. I/we agree to furnish to BSNL, Deposit at Call receipt/FDR/ Bank guarantee of a Nationalized/ Scheduled Bank for an amount equal to 5% of the of the contract value in a standard format within two weeks from the date of issue of award letter. I/We agree to keep the performance bank guarantee valid as per the BSNL terms and conditions.
8. I/We hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived therefrom to any person other than to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety or interest of BSNL.

Name of work:- Providing Electrical Infrastructure for the proposed CLS Building at RK Mutt Road, Mandaveli, Chennai as part of CANI Submarine Project. (SW:-SITC of 2x160 KVA Engine Alternator set with acoustic enclosure including AMC for 84Months (i/c 24 Months warranty))

<p>Signature of Witness (required in the case of bidder's thumb impression is given by the bidder in place of signature) Occupation of Witness :</p>	<p>(Signature of bidder ) (Name &amp; Postal address)</p> <p style="text-align: center;">Seal of Bidder</p> <p>Date:</p>
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**Acceptance of Tender**

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of BSNL for a sum of Rs. \_\_\_\_\_ (Rupees\_\_\_\_\_ )

The letters referred to below shall form part of this contract Agreement

- a)
- b)

For & on behalf of BSNL

Dated

Signature :  
Designation :