



# Bharat Sanchar Nigam Limited

(Electrical Wing)

**O/o The Executive Engineer (E)**  
**BSNL Electrical Division-III**

No.22, Kellys Road,  
Chennai - 600010.

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## **E-TENDER DOCUMENT**

**Name of work: SITC of 1no. 62.5 KVA Trolley mounted EA set in acoustic enclosure for Chrompet External, Chennai.**

**NIT No: 87 / EEE/ED-III/CH/2017-18**

This tender document contains 38 pages (thirty eight) pages only

For E Tender Help Desk of M/s ITI Limited.Tel.No.011 49424365; or Shri. Dinesh , (Mobile: 9894191904), Shri Kirubakaran (Mobile No9962676264), Representatives of M/s ITI Limited & Mail Id : twhelpdesk680@gmail.com, bsnltwhelpdesk@gmail.com

## INDEX

<b>SL.No</b>	<b>Description</b>	<b>Page no.</b>
1	Front cover and Index	2
2	Eligibility condition	4
3	Notice Inviting Tender form - BSNL EW 6	5
4	General Instructions to the Bidders	9
5	Undertaking to abide by EW 6 & EW 8 (Form 'A')	12
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')	14
9	Model form of Bank Guarantee for EMD (Annexure-I)	15
10	Model form of Performance security Guarantee bond (Annexure-II)	16
11	Schedule of Quantities	18
12	DATA sheet for EA SET	22
13	Specification for EA set	23
14	Specification for Trolley	30
15	List of BSNL Approved make	33
16	List of Relevant Indian Standards	35
17	Proforma Schedules	36
18	BSNL EW – 8 form	37

**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>SITC of 1no. 62.5 KVA Trolley mounted EA set in acoustic Enclosure for Chrompet External, Chennai.</b>
2	Estimated cost put to tender	<b>Rs. 11,20,364/-</b>
3	Earnest Money	<b>Rs.22,407/-</b>
4	Period of completion	<b>One month</b>
5	Tender Fee(Non-refundable)	<b>Rs 500/- +18% GST=Rs 590/-</b>
6	Last date & time for downloading of tender document by bidder	<b>Up to 14:55 Hrs. on 25-09-2017</b>
7	Last date & time for online submission of tender	<b>Up to 15:00 Hrs. on 25-09-2017</b>
8	Last date & time for submission of original EMD& Tender cost	<b>Up to 15:00 Hrs. on 25-09-2017</b>
9	Date and time for opening of tender	<b>15:30 Hrs. on 25-09-2017</b>
10	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 Rs.3,36,109/-.

(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

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 Rs.4,48,146/- with DG set capacity not less than 50 KVA of individual capacity of the DG set proposed in NIT.

OR

- Two similar successfully completed works costing not less than the amount equal to Rs.6,72,218/- with DG set capacity not less than 50 KVA of individual capacity of the DG set proposed in NIT.

OR

- One similar successfully completed work costing not less than the amount equal to Rs.8,96,291/- with DG set capacity not less than 50 KVA of individual capacity of the DG set proposed in NIT.

Note:-Similar work means "Supply, installing, testing and commissioning of DGs 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 authorisation letter is to be scanned and uploaded)
- e. Enlistment certificate issued by BSNL (for BSNL enlisted contractors)
- f. ~~Electrical license issued by TN Govt. if applicable~~

Name of work: SITC of 1no. 62.5 KVA Trolley mounted EA set in acoustic enclosure for Chrompet External, Chennai.

- 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 if applicable the original authorisation letter by the manufacturer, (the scanned copies of which are uploaded) shall be deposited in the tender box available in the office of tender opening authority, by all the bidders before 3:00 PM on the tender opening date, failing which the tender shall not be opened.

**BSNL EW-6**  
Bharat Sanchar Nigam Limited  
Electrical Wing

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

Sub Division:

1. Item rate tenders on single bid system are invited on behalf of CMD, BSNL for the work "**SITC of 1no. 62.5 KVA Trolley mounted EA set in acoustic Enclosure for Chrompet External, Chennai.**" 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.11,20,364/-**
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 validity of Rate contract will be 6 months from the date of award of rate contract and the time allowed for carrying out the work will be one month for individual agreement 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 **Rs.500/-+18% GST** in the form of Demand Draft issued by the Nationalized / Scheduled bank authorized by the Reserve Bank of India, drawn in favour of **BSNL, CHENNAI TELPHONES** 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)for **Rs.22,407/-**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 **BSNL, CHENNAI**

**TELEPHONES 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 **25.09.2017 up to 3:00 PM** and the bid submitted shall be opened at 03:30 PM 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, for AMC works; and One year from the date of actual completion of work for all other works. **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 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, for AMC works; and One year from the date of actual completion of work for all other works.**
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 Net 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.

**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)

**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

Name of work: SITC of 1no. 62.5 KVA Trolley mounted EA set in acoustic enclosure for Chrompet External, Chennai.

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: SITC of 1no. 62.5 KVA Trolley mounted EA set in acoustic enclosure for Chrompet External, Chennai.

**SCHEDULE OF WORK**

**Name of work:- SITC of 1no. 62.5 KVA Trolley Mounted EA set in Acoustic Enclosure for Chrompet External, Chennai.**

S No	Description of Items	Qty	Unit	Rate per Unit excluding GST	CGST		SGST		IGST		Rate per unit Including GST	Total Amount Excluding GST (Net cost)	Total Amount including GST	HSN/SAC code	
					%	Rate per unit	%	Rate per unit	%	Rate per unit					
1	2	3	4	5	6	7=Col. (6 x 5)	8	9=col.(8 x 5)	10	11=col. (10 x 5)	12=[col. 5+(7+9)] or (Col. 5+11)	13=col. (3 x 5)	14=col. (3 x 12)	15	
1	<p><b>PART-A : Supply of DG SET &amp; Trolley</b>                      Supply of factory assembled, factory tested diesel engine alternator set with CRCA sheet acoustic canopy having CPCB type approval, capable of delivering not less than 62.5KVA / 50KW at typical site conditions including all accessories like common base frame, AVMs, Batteries suitable for cranking duty and capacity not less than 120AH for 12V DC system with leads and terminals, including battery charging dynamo, residential type silencer and suitable Exhaust piping up to silencer with supports, fuel tanks, with GI braided flexible fuel piping and MS piping (B-class) wherever required of suitable size etc with valves and other fittings for supply and return lines, hand fuel transfer pump with suitable hose pipes and clips, with suitable manual control panel, 4nos. spike earthings (2nos. for neutral and 2nos. for body), 2nos. earth bus bar, 3core, 1.5 mm<sup>2</sup> un-armoured copper conductor cable of 25mtrs long fitted with 3pin 5amp top at one end and other end connected through copper lugs to the battery charger terminals, Static battery charger, interconnection etc. and comprising the following as per the detailed specifications attached as required.</p>														

Name of work: SITC of 1no. 62.5 KVA Trolley mounted EA set in acoustic enclosure for Chrompet External, Chennai.

	<p><b>A) Engine:</b> Water cooled continuous rated engine Diesel engine 4 stroke electric start, of suitable BHP at 1500 RPM suitable for above output of alternator at site condition of DB-45°C, RH-65% and Altitude-7mtrs, and conforming to relevant BS/IS standards capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be fitted complete with all the required accessories. The Engine shall be of any of the BSNL approved make as per product list and as per detailed specifications attached and suitable for coupling with alternator having single bearing.</p> <p><b>B) Alternator :</b> Alternator of any of the following BSNL approved make as per product list and capable of generating 62.5KVA (Corresponding to typical site condition as enumerated above) 415V, 3 Ph, 50HZ, AC system while operating at 1500 RPM and suitable for direct coupling with the above diesel engine capable of handling at least 40% nonlinear loads along with linear loads.(Make:-BSNL approved make) The alternator shall be having Screen Protected Drip Proof enclosure, brushless, continuous duty, self-excited and self-regulated through AVR conforming to relevant BS/IS standards suitable for tropical conditions and with class -F/H insulation.</p>											
2	<p>Supply of trolley suitable for the following DG set with acoustic enclosure with 4wheel low bed suitable for any towing vehicle. The trolley with the EA set shall be statically as well as dynamically balanced. The trolley shall be suitable to accommodate the EA set with the acoustic enclosure as per CPCB norms with all the accessories like fuel tank, control panel, battery charger, battery, etc. i/c all the non current carrying metal parts shall be earthed as per IE rules and as per specifications</p> <p><b>Note :- The EA set in S.no.1 shall be mounted in the trolley and supplied at site.</b></p>											
<b>Part-B- ITC of EA set</b>												

Name of work: SITC of 1no. 62.5 KVA Trolley mounted EA set in acoustic enclosure for Chrompet External, Chennai.

1	Testing and commissioning of the above E/A set with acoustic enclosure, manual control panel (Item no.1 in part-A) and Trolley (Item no.2 in Part-A) with all equipments, accessories and associated items including supplying consumables like lub 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 lub. oil upto full mark and filling of extra fuel up to a level suitable for 2 hours full load working etc. as per specifications as required.																			
2	Supply of 4core, <b>50 Sq.mm</b> unarmoured, PVC insulated and FR PVC sheathed 1.1KV, multicore copper flexible conductor industrial cable of <b>50metres</b> long complete i/c end termination with copper lugs with compression gland at one end and copper lugs at other end, interconnection etc as reqd. (for interconnection between Trolley EA set to load point)																			
<b>Grand Total amount excluding GST (Nett cost)</b>																				
<b>Grand Total amount including GST</b>																				

**IMPORTANT NOTE:**

1. 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".
2. Invoice /Bill should be pre-printed as per the GST format.
3. The evaluation and comparison of responsive bids shall be done on the basis of **Net cost to BSNL** on the prices offered inclusive of packing, forwarding, freight and insurance charges etc., **but excluding GST**
4. 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.
5. 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.

**Contractor**

**Executive Engineer(E)**

<b>DATA – SHEET</b>					
FOR ENGINE ALTERNATOR SET 62.5 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)				
		<b>Make (Only BSNL approved makes)</b>	<b>Model</b>	<b>BHP</b>	OFFERED BY AGENCY
	a)	Ashok Leyland			
	b)	Cummins Ltd			
	c)	Caterpillar			
	d)	Kirloskar Oil Engine Limited			
	e)	Volvo Penta			
	f)	Mahindra & Mahindra			
	g)	Any other BSNL approved Make			
<p><b>Note : For the above item No. 1(A), the make mentioned above and any subsequent approval by the Corporate office of BSNL for 750 KVA 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></p>					
B.	<b>ALTERNATOR</b>			<b>OFFERED BY AGENCY</b>	
	Alternator (Suitable for 62.5 KVA) approved by BSNL till the last date of sale of tender may be supplied.				

**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 electronic governor of **class A1** accuracy and all standard fittings, flexible pipe, 12Volt 120 AH sealed maintenance free lead acid automotive / cranking duty battery fixed between base frame, one fuel tank of minimum 120 litres inside canopy, with braided fuel pipe, silencer, MS exhaust pipe of suitable size and length as per site requirement, 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 including required length of cable 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 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 of Chennai site condition -7mtrs Altitude, 45 deg. centigrade and 65% Relative Humidity.

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 24hour at a time.

- The set shall be capable of taking 10% overload for a period of one hour during every 12hours 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 415Volt with  $\pm 5\%$  manual adjustment at all conditions of the load. Frequency shall be 50 cycle per second +3 % in output waveform.

**6. DIESEL ENGINE**

Engine shall be multi cylinder; reciprocating compression ignition engine as per manufacturer standard design and conforming to relevant IS specifications.

**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. Lubrication oil shall conform 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. **Lub.oil sump shall be topped up to full level after successful completion of the acceptance testing.**

**8. a) FUEL TANK**

Fuel tank with capacity of minimum 120 litres inside the canopy of E/A set, made up of minimum 2mm thickness MS sheet, shall be suitably installed inside the canopy and connected to the Engine through steel wire braided fuel pipe line for easy maintenance. The tank shall have a pipe level indicators marked in liters, filling inlet with removable screen, fuel out let located at minimum of 25mm above the bottom, drain plug, air vent and necessary piping, hand fuel pump etc. The outlet of the hand fuel pump supplied shall be provided with 3- meter long reinforced hosepipe.

**9. FUEL PIPING**

Braided pipe with hydraulically compressed banjo of superior quality shall be provided for fuel piping.

**10. SPEED AND GOVERNING `A1`**

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 electronic governor of Class A1 accuracy.



### **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 battery charger provided in Auto Mains Fail Control Panel.

### **13. The Engine shall have following accessories: -(as per manufacturer standards)**

- (i) Fly wheel.
- (ii) Coupling with guard.
- (iii) Fuel Pump.
- (iv) Governor.
- (v) Pre filter.
- (vi) Fuel Filter.
- (vii) Lubricating oil filter.
- (viii) Residential exhaust silencer.
- (ix) Starter.
- (x) Radiator with Blower fan (in case of water cooled engine)
- (xi) Battery charging Alternator.
- (xii) Mechanical / Electronic type hour meter cum RPM indicator. (or As per Engine manufacturer standards)

### **14. ENGINE INSTRUMENT PANEL:-**

It shall comprise of the following: -

- (i) Starting switch with key.
- (ii) Lubricating oil temperature gauge for air cooled engine and water temp gauge for water cooled engines
- (iii) Lubricating oil pressure gauge.
- (iv) Emergency STOP push button

The above items are indicative only. Also acceptable as per Engine manufacturer standards.

### **15. ALTERNATOR**

- a) The alternator shall be copper wound and totally enclosed for screen protected class-F/H insulation, designed and constructed to withstand tropical condition. Voltage regulation shall be  $\pm 1\%$ . And shall be conforming to relevant IS specifications
- b) The winding shall be star connected and neutral shall be brought out to the terminal box for earth with 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. MANUAL CONTROL PANEL:**

a) Control panel shall be cubical type made of 16 gauge (1.6 mm) CRCA sheet with hinged type openable covers mounted above base frame at suitable location of E/A set and supported on both sides on base frame. Rubber pads of 6mm. thickness shall be provided between the base frame and control panel supports. HRC fuse for instruments and control circuit shall be provided. The control wiring shall be done with not less than 1 Sq mm Copper conductor cable. Panel shall have sufficient working space and the terminals shall be easily accessible for making connections of cables etc. Necessary Cable gland plates for incoming and outgoing cable and a tinned copper earth stud of adequate dimension shall be provided. The panel shall be consisting of: -

- i) 1 No. 4 Pole, 100A MCCB having breaking capacity not less than 35 KA at 415 V shall be fitted with under voltage relay and overload protection device.
- ii). Multi display Digital meter provided with RS485 communication port for measuring following electrical parameters including supplying and fixing of suitable ratio CTs shall be provided.
  - a. AC voltage 3 Phase up to 500V.
  - b. AC current
  - c. Frequency from 45 to 55 Hz.
  - d. Power factor.
  - e. Active Power in KW.
  - f. Active energy consumption in KWH
- (iii) Necessary protective fuses
- (iv) Pilot LED lamp with 'red' for set running and 'green' for set with load on. (or as per manufacturer standards)
- (v) Suitable knockouts for receiving Bus bars/cables of required size.
- (vi) Audio / visual alarm for LLOP, HWT and over speed (or as per manufacturer standards)
- (vii) Earth bus bar of 25x5 mm size minimum connected on both sides of the panel.
- (viii) Start and Stop push button with necessary solenoid switches, wiring etc. (or as per manufacturer standards)
- (ix) Push button for reset, test, Acknowledge. (or as per manufacturer standards)
- (x) Recess type Hooter.
- (xi) R-Y-B phase LED indication lamps.
- (xii) Battery Charger: Automatic trickle /boost battery charger of SCR or SMPS type to charge the starting battery of DEA set. This charging shall be done through main supply for which a suitable incomer shall be provided in the panel with protective fuses.
- (xiii) AC and DC wiring shall be separated distinctly.
- (xiv) Connections of control wiring shall be done with suitable connector strips and ferrules for identification on both ends

## **17. SAFETY CONTROL TRIP**

- (i) Low lubricating oil pressure.
  - (ii) High water temp.
  - (iii) Over speed.
- (or all the above as per manufacturer standards)

## 18. SOUND PROOF ENCLOSURE

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. ,

- (i) The canopy shall be of 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.
- (ii) 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.
- (iii) Temperature rise inside the enclosure should not be more than 5°C for maximum ambient above 40°C and it should be below 10°C for ambient below 40°C. Adequate ventilation shall be provided to meet the air requirement for combustion & also to expel heat to maintain temperature inside the enclosure within aforementioned limit seven at 10% overload with tripping arrangement between (50 – 60) degree Celsius.
- (iv) Lighting inside the canopy shall be provided with minimum 2 nos.1 x 11 W CFL 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.
- (v) Separate door with locking arrangement for easy access to D.G. set during operation & maintenance should be provided.
- (vi) Small see through window for reading meters etc. made of transparent polymer sheet of thickness not less than 5mm shall be provided.
- (vii) Radiator bellows/sealing arrangement to be provided in cases of water cooled engines to avoid hot air leakage inside canopy.
- (viii) Fuel Tank and Control Panel shall be incorporated inside the canopy. All fuel piping connections, electrical connections etc. shall be done as per standards.
- (ix) Two point lifting arrangement.
- (x) Main base frame size and thickness of MS sheet welded for bolting arrangement will be as per manufacturer's recommendation complete as required.
- (xi) The bottom portion of the canopy shall be covered with 2mm thick MS plate i/c welding, painting etc complete around foundation 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.)
- (xv) Fuel gauge with sensing arrangement. (or as per manufacturer standards)
- (xvi) The enclosure shall be guaranteed for a period of 12 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.

## **19. GENERAL REQUIREMENT**

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.

- (i) The set shall be fitted with radio interference suppressers in case of slip ring type alternator.
- (ii) The size of EA Set base frame channels shall be as per manufacturer's recommendations.
- (iii) Control wiring shall be done with not less than 1 Sq.mm multi strand PVC insulated copper conductor cable.
- (iv) Earthing provision should be made for earthing all current carrying metal parts of the equipment. Earth lugs of suitable size shall be provided.
- (v) All the exposed moving parts like coupling etc. shall be provided with suitable guards covering.
- (vi) All exposed metal parts shall be suitably finished to prohibit corrosion.
- (vii) 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 inside the control panel.

### **viii) 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 8 hours successful Acceptance testing of the set. The necessary artificial load and any other necessary manpower material consumables etc. will be provided free of cost 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 megger.

### **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.

## **SPECIFICATIONS FOR TROLLEY**

### **1) General:**

The trolley is meant for mounting above specified 62.5KVA DG set with acoustic enclosure with all accessories. This specification covers the requirements of trolley with 4 wheel low bed suitable for any towing vehicle.

### **2) Design Features:**

#### **i) Construction:**

The trolley with the EA set shall be statically as well as dynamically balanced. The trolley shall be suitable to accommodate full load at running conditions of the EA set with the acoustic enclosure as per CPCB norms with all the accessories like fuel tank, control panel, battery charger, battery, etc.

#### **ii) Chassis:**

The base bed shall be of low bed type. It shall be of rolled / pressed sections / welded Construction not less than 150mm x 75mm channels. Adequate supporting arrangement with suitable MS channel capable of withstanding the weight of 62.5KVA EA set, control panel, fuel tank, battery, with acoustic enclosure etc. on running condition shall be provided. Cross members shall be minimum 150mmx75mm size.

#### **iii) Suspension:**

Suitable suspension arrangement by two semi elliptic leaf spring on each axle shall be provided. These springs shall be made out of silica manganese steel. All leaves shall be shot peened on tension side.

#### **iv) Axle:**

Front axle shall have Ackerman type steering while the rear shall be rigid type. These axles shall have heavy-duty precision taper roller bearing with proper dust covering.

#### **v) Tyre:**

Minimum 4Nos. of adequate size of LCV tyre of 8ply rating or tubeless type should be provided. These shall not be more than 2months old at the time of acceptance of the trolley. (The agency should produce purchase bill with guarantee card along with supply of trolley).

#### **vi) Tow bar:**

Tow bar shall be sturdy triangle type with forged twin eye with ball joints from draw bar to steering levers. Necessary stoppers to be provided to limit the steering angle. The diameter of the towing eye shall be suitable for tow hooks fitted in towing vehicles commonly used by the BSNL.

#### **vii) Steering:**

The front wheel of the trolley shall be connected to the Tow Bar by means of steering rod and tie rod. Steering on either side is to be limited by means of steering locks. Proper alignment of the front wheels shall be maintained to ensure ease of steering and satisfactory tyre life.

#### **viii) Brake system:**

A hand parking brake for rear wheels shall be provided. The control shall be by hand wheel/lever at rear end of the trolley, so positioned that the operator can handle the brake controls standing on ground. Suitable break adjusting provision shall be made.

ix) Mud guard shall be fixed for all the wheels with a clearance of 25mm all around.

x) The trailer shall have tail lamps with park and brake lights.

xi) **Acoustic Canopy:**

The Acoustic canopy shall be of as per the specification given in the DG set specification & shall not have vibration or swing while the trolley is moving at the required speed. There shall be adequate access all around for maintenance of engine, alternator, etc. The engine instrument panel shall be visible from outside.

xii) 3core x 1.5Sqmm un-armoured flexible copper conductor cable of length 25mtr with 3 pin 5A plug top shall be supplied for extending input power supply to battery charger, to charge battery during idle condition, connected to a 6A MCB in the control panel. The firm shall take this into account while quoting the tender & nothing extra shall be paid on this account.

xiii) Provision for coiling the above cables shall be made inside the box.

xiv) Minimum 4 nos. suitable size mechanical lifting jacks shall be provided along with trolley for long stay use. Necessary tools for using the jack shall also be supplied.

xv) **Other fittings:**

Equilateral triangular reflex reflectors shall be provided, two each in front and rear of the trolley. 1No. reflector type "T" sign plate at the rear end of the trolley shall be provided. An engraved metallic lubrication chart of suitable size shall be provided at an appropriate place giving the details of the lubrication, like lubrication points, periodicity, lubricants, etc. Tool box, Number plate and tail lamp etc, shall also be provided.

**3. Earthing:**

All the non-current carrying metal parts shall be earthed as per IE rules at least 4nos. hammering type earthing pegs made up of 20mm MS/GI rod & length 1.2 metres along with 4nos. PVC insulated, 10SqmmCopper conductor flexible earth extension wire of length 10metres each shall be provided. (2nos. for Neutral & 2nos. for Body). The firm shall take this into account while quoting the tender & nothing extra shall be paid on this account..

**4. Painting:**

All exposed metal parts of the chassis body and canopy (both interior and exterior) i/c GI sheets shall be with Automobile paint to prevent corrosion under severe climatic conditions at site, asper the procedure given below

a) Clean thoroughly to remove all trace of rust and grease.

b) Apply one coat of red oxide / zinc chromate primer and allow it to dry.

c) Apply two coats of Automobile paint of Grey colour 2nd coat shall be applied only after the 1st coat is dried.

**5. Approval from RTO Authority:** Valid approval for trailer from State Road Transport Authority, issued after inspection and test conducted to prove roadworthiness shall be submitted.

**6. Name Plate:** Name plate showing the Sl. No., Year of Manufacturing, rating and other relevant details shall be displayed on suitable location in the trolley.

7. Copy of the RTO Approval shall be displayed in a suitable location.

**8. Testing:** The trolley will be tested with a speed of at least 30kmphr for 5kms. The vehicle for this has to be arranged by the firm.

9. Signal "ON BSNL USE ONLY" with BSNL LOGO as per Direction of site-in-charge.

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

The contractor after successful installation, testing and commissioning of the Engine Alternator sets including all the accessories like Manual 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.
- j. RTO approval of Trolley

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

- I. The entire installation system shall be guaranteed against any inherent defect of faulty workmanship and for its perfect functioning for a period of **one year** from the date of successful AT of entire system.
- II. Free services as per manufacturer's standard practice and norms will be provided free of cost.
- III. The contractor shall impart training to the operator deputed by the department for operation and attending the minor fault free of cost.
- IV. **All work will be executed as per the latest CPWD (Internal / External) specification, CPWD General Specifications for Electrical Works (DG Sets), relevant IE rules.**



LIST OF APPROVED MAKES- BSNL ELECTRICAL WING

S. No.	Item	Makes
1	Engine	Ashok Leyland /Cummins/ Cater pillar / KOEL/ Volvo Penta / Mahindra & Mahindra (up to 40 KVA) /Escorts (up to 30 KVA)/ Eicher (up to 20 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)	ABB / Schneider Electric /Andrew Yule / Bharat Bijlee / Crompton / EMCO / Kirloskar / Siemens
	a) Above 400 KVA	
	b) Up to 400 KVA	In addition to above makes, Uttam/Automatic Electric Gear(AEG)/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
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/ C&S/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
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
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

- a. Any other approved makes as approved till the date of opening of tender shall be included in the approved make.

Contractor

Executive Engineer(E)

**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 ISO 3046-1	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

<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 <b>3</b>
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	Executive Engineer (E) Electrical Division-III Chennai
2(x) Percentage on cost of materials and labour to cover all over heads and profits	10% (TEN)
<b>CLAUSE 5</b>	
Time allowed for execution	<b>One month</b>
Authority to give fair and 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: VIII, Chennai**

1. I/we have read and examined the notice inviting tender, schedule, specifications applicable, Drawings & Designs, General Rules and Directi
2. ons, 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 there from 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.

<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>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 :