



**Bharat Heavy Electricals Limited**  
Electronics Division  
Mysore Road, Bangalore – 560 026

## **Tender Document for Energy Audit at BHEL EDN**

Opening date: 30.10.2017  
This Tender document contains 13 Pages

TENDERER

1

ISSUING OFFICER

ಕೆ.ಪ್ರವೀಣ್ ಕುಮಾರ್, ಉಪ ನಿರ್ದೇಶಕರು/ಇ.ಎ.ಇ.  
के.प्रवीण कुमार, उप निबंधक/फै.से.  
K.PRAVEEN KUMAR, DY. MANAGER/FS  
BHEL-EDN, MYSORE ROAD, BANGALORE-560026



**Bharat Heavy Electricals Limited**  
Electronics Division  
Mysore Road, Bangalore – 560 026

Phone: 080-26998123

**NOTICE INVITING TENDER**

1. Tender Reference : ET/452
2. Name of the work : Energy Audit at BHEL-EDN
3. Completion Period : Eight weeks
4. Estimated Cost : Rs.3.5 Lakhs (Including all taxes and duties)
5. Earnest Money Deposit : Rs. 7,000/-
6. Last date and time for the receipt of completed tender : 30.10.2017, 01:30 P.M
7. Date and time for tender opening : 30.10.2017, 01:45 P.M
8. Place of submission of completed tender : **Tender Box marked as “FS&T” located in Reception Area of Electronics Division, BHEL Mysore Road, Bangalore – 560 026**

This tender document contains **13** pages including Instructions to tenderers, Scope of work, Price schedule etc. as follows.

**Part-1:**

1. Instructions to tenderers, Scope Of Audit and Terms & conditions - Page 1 to 9
2. Techno-Commercial bid (Annexure-I) – Page No. 10 to 12

**Part-2:**

3. Price bid (Annexure-II) – Page No. 13

**Note:**

1. The tenderer shall read the tender documents carefully and fill all the columns neatly. Incomplete tenders may be rejected.
2. The tenderer shall return the duly filled in tender document after affixing signature on all pages.
3. The Tenderer shall ensure and put **“Technical cum Commercial bid (Part – I)” & “Instructions to Tenderers” together in one cover and “Schedule of Work / Price bid (Part – II)” in a separate cover. Both these covers shall be separately sealed and then put together in a single cover and sealed.** All the sealed covers shall be properly identified with necessary information such as Tender reference, type of document put inside, date of tender opening to enable to open the correct document cover only.

**Issued to:**

TENDERER

2

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## Bharat Heavy Electricals Limited

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### PART- I

### INSTRUCTIONS TO TENDERERS

Name of work: **Energy Audit at BHEL EDN**

1. The offer shall be submitted in sealed envelopes enclosing Page 1 to 13 including Annexure-I & Annexure-II as detailed in the first page of the NIT.

**The sealed envelopes shall be super scribed with tender reference and tender opening date.**

2. Tenders should be addressed to the Issuing Officer, Factory Services Electronics Division, Bharat Heavy Electricals Limited, Mysore Road, Bangalore-560026. The full name and address of the tenderer, the name of the work and date of opening should be indicated on the cover.

The local address of the Bidder, the name of the person to whom all the correspondence are to be addressed should be indicated with telephone number (both office and residence) and FAX / E-mail address.

3. All entries in the tender documents should be in one ink. Erasures and over writing are not permitted. All cancellations and insertions should be duly signed by the tenderer concerned with proper indication of the name, designation and address of the person signing.
4. Tenderers shall fill in all the required particulars in the blank spaces provided for this purpose in the tender documents and also sign each and every page of the tender document.
5. The rates to be quoted by the tenderer shall be firm. Unit rates should be quoted in figures as well as in words in Indian currency only. The tenderer should have GST registration number and GST amount shall be shown separately and shall not be included in the rates quoted.
6. In case the rate quoted in figures differ from those quoted in words, the rate quoted in words will be taken as the tendered rate. In case of arithmetical errors between Rate and Amount or any summation error, Rate (which will also be written in words) will be considered as the basis for computing the Total Offered Value and shall be binding on the tenderers.
7. (a) The rates quoted in the tender shall remain valid for a period of '**THREE MONTHS**' from the date of opening of tender.  
(b) Tenderer shall not increase their quoted rates, once the tenderer has submitted his quotation and during execution of the entire contract period in case his tender is accepted.
8. Before tendering, the tenderers are advised to inspect the site of work and its environments and be well acquainted with the actual working and other prevailing conditions, position of materials and labour. They should be well versed with Instructions to tenderers and all other documents.

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3

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9. In the event of tender being submitted by a firm the tender must be signed separately and legibly by each partner or member of the firm or in their absence, by the person holding the power of Attorney on behalf of the firm concerned. In the later case, a copy of the power of attorney duly attested by a Gazetted Officer must accompany the tender.
10. If in any case, the date of tender opening falls on Holiday, the tender will be opened on the next working day.
11. The BHARAT HEAVY ELECTRICALS LIMITED reserve the right to reject any or all the tenders received or accept any tender or part thereof without assigning any reason thereof. In case of acceptance of a part of tender, the time for completion may also be reduced to the extent considered appropriate by the accepting authority.
12. Conditional and unsigned tenders. Tenders containing absurd rates and amounts, tenders which are incomplete or otherwise considered defective, tenders which are not in accordance with the tender conditions laid down by the Accepting Officer and tenders not submitted in the prescribed forms are liable to be rejected.
13. Tenders submitted by post should be sent by "Registered Post with Acknowledgement Due". These should be posted with due consideration for any delay in postal delivery. Tenders received after the due date of opening of tenders are liable to be rejected.
14. The Successful bidder's responsibility under this contract shall commence from the date of receipt of the order or acceptance of his tender.
15. If the tenderer deliberately gives wrong information in his tender, BHEL reserve the right to reject such tender at any stage. Further the tender will be liable for any damage caused.
16. Any damage caused to our machinery or any other assets inside our premises by your staff shall be made good or replaced at your cost.
17. Your service staff shall abide by our security rules in obtaining gate pass for personnel and material, so that same could be regularized suitably. Tools and materials brought inside our premises shall be properly entered at security check post to enable you to take them back after use.
18. Adequate safety precautions and safety equipment have to be provided to your service personnel by you.
19. **Payment Terms:** 100% payment shall be made after satisfactory completion of audit, submission of Report and acceptance by BHEL.

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4

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**20. Earnest Money Deposit:** Every tender must be accompanied by deposit receipt for the amount mentioned as Earnest Money Deposit. This earnest money will be refunded to the unsuccessful tenderers after award of contract. In the case of successful tenderer, the earnest money will be retained as part of the Security Deposit for satisfactory completion of the contract in accordance with Clause – 16 of the BHEL GCC. **Tenders without Earnest Money Deposit receipts shall be rejected.** No interest will be paid on the earnest money deposits.

**21. The Earnest Money Deposit is to be submitted along with Technical bid** and may be furnished in any of the following forms:

- (i) Cash deposit as permissible under the extant Income Tax Act (before tender opening).
- (ii) Electronic Fund Transfer credited in BHEL account (before tender opening).
- (iii) Banker's cheque/ Pay order/ Demand draft, in favour of BHEL (along with offer).

In case total EMD amount is more than Rs.20 Lakh, the amount in excess of Rs.20 lakh may be accepted in the form of Bank Guarantee from scheduled bank. The Bank Guarantee in such cases shall be valid for at least six months.

## 22. SECURITY DEPOSIT

The successful tenderer shall deposit the Security deposit before start of the work. The rate of Security deposit will be 5% of the contract value. Security deposit may be furnished in any one of the following forms:

- i) Cash (as permissible under the extant Income Tax Act).
- ii) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favor of BHEL.
- iii) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL.
- iv) Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL).
- v) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL).

### Note:

- 1. At least 50% of the required Security Deposit, including the EMD, should be deposited before start of the work. Balance of the Security Deposit can be made up by deducting 10% of the gross amount progressively from each of the running bills of the Contractor till the total amount of the required Security Deposit is made up.
- 2. BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith).
- 3. The Security Deposit shall be refunded after completion of the contract period

## 23. FRAUD PREVENTION POLICY:

The bidder along with its associate / collaborators / sub-contractors / sub-vendors / consultants / service providers shall strictly adhere to BHEL Fraud prevention policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL management about any fraud or suspected fraud as soon as it comes to their notice.

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5

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Annexure-A

### HEALTH, SAFETY & ENVIRONMENTAL POLICY

The Management is committed to be an environmentally sound company in its activities, products, services and to provide safe and healthy working environment covering its employees, products & services as an integral part of business performance through:

- ★ Compliance with applicable Legislation and Regulations
- ★ Setting objectives and targets to eliminate / control / minimise environmental pollution, risks due to Occupational Health and Safety Hazards
- ★ Promotion of activities for conservation of resources by environmental management with focus on oil, electrical energy and chemicals
- ★ Enhancement of Environmental, Safety and Occupational Health awareness amongst employees, customers, suppliers, contractors by pro-active communication.
- ★ Regular evaluation and pro-active measures for prevention & control of environmental pollution/accidents / occupational diseases.
- ★ Appropriate training of employees and interested parties on Health, Safety & Environmental (HSE) aspects.
- ★ Formulation and maintenance of HSE Management Programs for continual improvement.
- ★ Periodic review & audit of HSE Management System to ensure its continuing suitability, adequacy and effectiveness.
- ★ Communication of HSE Policy to all employees and interested parties.
- ★ Co-operation with concerned agencies / regulatory bodies engaged in HSE activities.

S/d.

**EXECUTIVE DIRECTOR  
BHEL (EDN)  
BANGALORE**

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6

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### SCOPE OF AUDIT, TERMS & CONDITIONS

#### 1. Scope of AUDIT:

The Scope of audit shall be as detailed below:

- To make a detailed study including testing of required parameters of the various processes, systems and equipment in the factory and suggest viable suggestions to improve the efficiency.
- Harmonic analysis wherever required.
- Analysis of payback period on the investments.
- To support all suggestions with specifications, Data sheets, Vendor sources, Costing data with quotations/ list prices from manufacturers/ dealers.

The load details of the factory are as detailed below:

#### a) Power distribution system:

The factory is fed through 01 no 11 KV line from BESCO and the same is distributed to 03 substations at 11 KV through Ring main system. Various individual load centers are fed at 415 V from Sub stations through step down transformers. Supply is transmitted to TWO load centers at 11 KV and further distributed to various loads at 415V through localized step down transformers.

The following are the major equipment involved in power distribution system

- 5000 KVA OLTC Transformer-01no
- 2500 KVA 11KV/415 V transformer-01 No.
- 1250 KVA 11KV/415 V transformer-01 No
- 500 KVA 11KV/415 V transformer-01 No
- 500 KVA 11KV/415 V transformer-01 No
- 1000 KVA 11KV/415 V transformer-02 No
- 800KVA 11KV/415V transforem-02nos

#### b) Captive Power Generation system

The factory is backed up by the following gensets

- 4\*1000 KVA LT Gensets
- 2\*1010KVA HT Gensets
- 1\* 2000 KVA HT Genset

#### c) Energy Consumption details:

Total energy consumption in the factory for 2016-17 -82 Lakh units

Total energy consumption from utility source-74.2 Lakh units

Total energy consumption from captive generation- 8.27 Lakh units

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7

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**d) Connected load:**

The following is the approximate connected load in the factory

1. Motor Load -14409 KW
2. Lighting load-500 KW
3. Furnace Load-2061 KW
4. Rectifier Load-3.92 KW
5. Others- 2328 KW

**e) Air Conditioning systems:**

1. Central AC plants-12 NOS OF Total OF 2288 HP
2. Split/window/tower/Multi Split AC of total Of 1632 HP
3. VRF Power-676 HP
4. Compressor Power-408 HP

**f) Production systems:**

Sl. No.	Name of the Product/ Process	Building No
1	Photo Voltaic Cell Line Manufacturing Consisting of Machines(M/c) like for Firing Furnace, LP POC Diffusion, PECV deposition , Inoxide , Intex	16, 18
2	Semi-Conductors and Devices Manufacturing consisting of Diffusion furnace, Oxidation Furnace.	16, 17
3	Photovoltaic Module Assembly line consisting of Laminators	13
4	Power Module Assembly	13
5	Automatic SMT Line consisting of Automatic and semi automatic filters, Reflow oven, Auto optical inspection system, SMT pick and place machines, In-Circuit Testers, Automatic Screen Printer, Loader, De-stacker, conveyor, X –ray inspection system, Solder Paste Inspection system.	14
6	Wave Soldering line consisting of Lacquering equipment, selective soldering machines.	14
7	Environmental Chambers	47
8	Traction Testing Lab	15
9	CE-Fabrication shop consisting of hydraulic Vertical Shearing M/c, hydraulic bending M/c, CNC Turret Punch, Arc welding M/c, Spot welding M/c, CNC Milling M/c. CNC Lathe M/c, Band Saw, Max Cutting M/c, Engraving M/c. Bus bar Bending M/c.	10
10	CE-Assembly shop consisting of Over Head Cranes and pressing M/c.	7,11,12
11	CE-Testing	7,9
12	STP (Capacity : 300 (Kilo Litres per day)KLD)& ETP (100 KLD)	26, 30
13	Industrial Canteen consisting boilers and other equipment	

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8

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14	Water Supply System : Daily consumption of 3.5-4.0 Lakh litres per day of which 70 % is from GLRS-03 NOS of 2.0-2.5 lakh litre capacity and 30 % is from BWSSB. The water supply system comprises of 03 Over head tanks of 1.0, 2.0 and 0.25 Lakh litre storage capacity respectively.	
15	DM Water Plant	

### Note

1. The above list is only a tentative scope of Audit which is subject to have amendments during execution as per requirement.
2. All tools and equipment required for the purpose of the audit should be arranged by the auditing agency.
3. Any shutdown of process/ equipment required for the purpose of audit will be provided subject to availability after getting clearance from the concerned department.
4. No travel, lodging and boarding charges will be paid by BHEL, the same has to be taken care of by the auditing agency.

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9

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TECHNO COMMERCIAL BID

Annexure – I

## a)Information :

<u>Sln.</u>	<u>Particulars</u>	
1	Name of the Bidder	
2	Address (Office)	
3	Address (Residence)	
4	Telephone	
5	Office	
6	Residence	
7	Mobile No.	
8	Email id.	
9	Technical Staff Details (Use separate sheet if reqd.)	
10	Working Staff Details (Use separate sheet if reqd.)	
11	Details of Plant & Equipment (Use separate sheet if reqd.)	

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10

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## b) Essential criteria for Techno Commercial acceptance of the Bid

Sl. No.	Description	Compliance
1	Experience Certificate for successfully completed Energy Audits during immediate last 7 years as mentioned below:	
A	One work not less than 80% of the estimated cost of this NIT or	
B	Two works not less than 50% of the estimated cost of this NIT or	
C	Three works not less than 40% of the estimated cost of this NIT	
D	(Copy of Experience certificate from the organization where the audit is done is to be enclosed. Submission of Work Order copy is not adequate.)	
2	Average turnover of the last three years(not less than 30% of the estimated cost in this NIT	
A	Turnover -Previous year	
B	Turnover -1 year before previous year	
C	Turnover -2 years before previous year	
3	Whether Empanelled as Energy Service Companies (ESCO) by Bureau of Energy Efficiency, Govt. of India. (Letter Issued by the BEE shall be enclosed)	
4	Engineers who are likely to be working on this project should be certified Energy Auditors from BEE. (Enclose copy of certificate of BEE & proof that Engineer is working with your agency)	

TENDERER

11

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### C) Other Conditions:

Sl. no.	Particulars	Remarks
1	Form of EMD furnished (Cheque is not acceptable)	
1.1	Cash (receipt No. and Date)	
1.2	DD Particulars	
2	Coverage of Audit as per Scope of Audit defined in NIT	
3	Completion period mentioned in NIT	
4	Payment Terms defined in NIT	
5	Security Deposit Clause as per NIT	
6	GSTIN	

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12

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## PART-II- PRICE BID

## Annexure-II

Sl. No.	Description	Unit	Quantity	Amount (In Rupees)
<u>1</u>	Carrying out Energy Audit at BHEL EDN as described in Schedule of Audit.	Lump sum	01	
GST				
Total Amount (In Rupees)				

Total (in words) Rupees( \_\_\_\_\_

\_\_\_\_\_ Only)

TENDERER

13

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