

**BHARAT HEAVY ELECTRICALS LIMITED  
TRANSMISSION BUSINESS GROUP  
SUBCONTRACTS MANAGEMENT  
SECTOR-142, EXPRESSWAY NOIDA-201305**



**TENDER DOCUMENTS**

**FOR**

**RECEIPT OF EQUIPMENT/ MATERIAL AT SITE, UNLOADING,  
INSPECTION, VERIFICATION, STORAGE, UP-KEEPING DURING  
STORAGE, ERECTION, TESTING, COMMISSIONING AND HANDING  
OVER OF 400kV GIS SWITCHYARD AT ENNORE TPP**

**CUSTOMER**

**TENGEDCO**

**TENDER SPEC. NO.: TBSM/ENNORE/ETC/TENDER**

**DATE: 08.06.2018**

**TRANSMISSION BUSINESS GROUP  
SUBCONTRACTS MANAGEMENT**

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# BHARAT HEAVY ELECTRICALS LIMITED

TRANSMISSION BUSINESS GROUP  
SECTOR-142, EXPRESSWAY NOIDA, NOIDA-201305

e-mail:-krishna.singh@bhel.in

## NOTICE INVITING TENDER

REF.: TBSM/ENNORE/ETC/TENDER

DATE: 08.06.2018

**SUB: TENDER FOR "RECEIPT OF EQUIPMENT/ MATERIAL AT SITE, UNLOADING, INSPECTION, VERIFICATION, STORAGE, UP-KEEPING DURING STORAGE, ERECTION, TESTING, COMMISSIONING AND HANDING OVER OF 400kV GIS SWITCHYARD AT ENNORE TPP"**

Dear Sirs,

1. Sealed tenders are invited for the following:

NAME OF WORK	TIME OF COMPLETION	EARNEST MONEY DEPOSIT (Rs.)	TENDER SUBMISSION DATE AND TIME	TENDER OPENING DATE & TIME
Receipt of equipment/ material at site, unloading, inspection, verification, storage, up-keeping during storage, erection, testing, commissioning and handing over of 400kV GIS & 400kV substation extension at Wanakbori in Gujarat	09 months from date of issue of LOI	Rs. 5,83,131/- As per Annexure to conditions of contract for erection works	29.06.2018 14.30 hrs.	29.06.2018 15.30 hrs. (Technical bid only) and Price bid opening/RA date will be intimated later to Techno commercially acceptable parties

2. The sealed bid should be dropped in the TBSM Tender Box kept at lobby area in BHEL, TBG office located at 5<sup>th</sup> floor, Advant Navis IT Business Park, Plot No-7, Sector-142, Expressway Noida, Noida -201305 (UP). In case of bid documents are bulky and cannot be dropped in the TBSM tender box, the same can be handed over to Sh. Krishna Swaroop Singh, DGM (TBSM) or Sh. Virendra K Ubnare, Manager (TBSM).

3. Offers can also be sent by courier/ registered post at the below address:

<b>TENDER SPEC. NO.: TBSM/ENNORE/ETC/TENDER,</b>	<b>DATE: 08.06.2018</b>
<b>TO,</b>	
<b>KRISHNA SWAROOP SINGH</b>	
<b>DGM (TBSM)</b>	
<b>BHARAT HEAVY ELECTRICALS LIMITED,</b>	
<b>TRANSMISSION BUSINESS GROUP,</b>	
<b>5TH FLOOR, ADVANT NAVIS IT BUSINESS PARK,</b>	
<b>PLOT No-7, SECTOR-142, EXPRESSWAY NOIDA,</b>	
<b>NOIDA-201305</b>	
<b>DISTT- G.B.NAGAR (UTTAR PRADESH)</b>	
<b>TELEPHONE: 0120-6748454, 6748440 FAX: 0120-6748579</b>	
<b>E-mail: <a href="mailto:tbsm@bhel.in">tbsm@bhel.in</a></b>	

4. The prospective bidders who have downloaded the tender documents from our website are requested to send their acknowledgement and willingness to participate in the tender to the undersigned, through fax or email.
5. Offers should be strictly in accordance with the Tender Specifications and General Instructions to Tenderer enclosed herewith.
6. "BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on [www.bhel.com](http://www.bhel.com)) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on [www.bhel.com](http://www.bhel.com)).

The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. **The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.**

If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on [www.bhel.com](http://www.bhel.com)).

7. The contractor shall give his explicit confirmation without any deviations to the HSE (Health, Safety and Environment) requirements as per enclosed specification No. TBSM-HSE-SPES, Rev-00 Dtd. 28.10.2003. Contractors are also required to furnish details as per Annexure (HSE) to NIT along with their offer. Offers received without compliance & data about HSE requirements are liable to be rejected.
8. All documents submitted with the offer shall be signed and stamped in each page by authorized representative of the bidder.
9. Clarifications, if any, can be obtained from the undersigned but such requests should be submitted well before the due date for submission of tenders. Due date for submission and opening of tenders will not be extended on such grounds.
10. Please note that wherever there is a contradiction between the 'Annexure to conditions of contract for erection works' and 'Conditions of contract for erection works', the 'Annexure to conditions of contract for erection works' clauses shall be governing and binding on the contractor.
11. **Drawings & FQP enclosed with the NIT (if provided) are for tender purpose only. Drawings & FQP may get change during execution stage and work to be carried as per latest RFC drawings & Field Quality Plan (FQP).**

12. Construction/ RFC drawing shall be furnished progressively as per project requirement and no claim towards idling charges/ project overheads etc. borne by the contractor on account of non availability of drawings shall be entertained.
13. Completion period of the work has been envisaged under best possible conditions. Any changes/ deviation during execution shall be dealt as per relevant clauses mentioned in general/ special conditions of contract for erection works.
14. The Bidders are advised to visit Site to have better understanding of job.
15. ***“In case the above work is awarded to first time bidder (first time bidder: who have not been awarded any ETC works by BHEL, TBG in last 5 years from date of this NIT), then the bidder shall be eligible to qualify for the other NITs for ETC work only after successful executing of the above work for at least three months and on satisfactory performance feedback by BHEL site In charge.”***
16. The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site [www.bhel.com](http://www.bhel.com).
- 1.0 Integrity commitment, performance of the contract and punitive action thereof:
- 1.1. Commitment by BHEL:  
BHEL commits to take all measures necessary to prevent corruption in connection with the tender process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.
- 1.2. Commitment by Bidder/ Supplier/ Contractor:
- 1.2.1. The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India.
- 1.2.2. The bidder/ supplier/ contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL.
- 1.2.3. The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL.
- If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ contractor as per extant guidelines of the company available on [www.bhel.com](http://www.bhel.com) and/or under applicable legal provisions”.
17. Also, offer of the bidders who are suspended (under hold/ delist) for business dealings by BHEL, TBG shall not be considered. Please note that lifting/ restoration of suspension (Ban/ Hold/ De-list) of business dealing is not automatic after expiry of specified suspension period. Hence, vendor shall be considered as suspended for business till suspension is lifted by BHEL in writing on specific request of the vendor as per extant guidelines.
18. BHEL 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."

19. Technical Bid will be opened in the office of undersigned. If required, technical discussions will be held with only those bidders who have taken any deviations. Bidders representative may be present during technical bid opening for technical discussion, if required. The price bids will be opened subsequently, after Technical Bids of all the bidders have been evaluated and frozen. Bidders should quote their most competitive rates as there will not be any price negotiation. However if felt necessary by BHEL, price negotiation will be held with lowest bidder (L-1) only. IT WOULD BE PREFERRED THAT YOUR OFFER IS WITHOUT ANY DEVIATION w.r.t. TENDER SPECIFICATIONS AND THE SAME MAY BE CLEARLY MENTIONED ON THE COVERING LETTER ACCOMPANYING THE TECHNICAL BID. Offers with deviations are likely to be rejected. However if the bidder insists on any technical or commercial deviations, from the specification and/or tender conditions, the price implication if any, of withdrawing the deviations must be submitted along with the price bid in a separate sealed envelope superscribed "Price Implication for withdrawal of deviations".
20. Offers will be scrutinized based on the qualifying requirements and only those who are technically and financially capable to execute the Job and who fulfil the Pre-Qualifying Requirements (PQR) are eligible to quote against the above NIT. However, final acceptance of the bidder/ offer shall be subject to acceptance of our customer.
21. In case any adverse information is received concerning performance, capability or conduct of the bidder after issue of tender enquiry, BHEL reserves the right to reject the offer at any stage as deemed fit.
22. Any materials (if required) for erection works have to be procured from Customer approved sources only. It will be the bidder's responsibility to get the approval of materials and vendors for materials.
23. The purchase preference for central P.S.U.s shall be given as per the prevailing Government policy.
24. Work schedule and the deployment of manpower and T&P resources committed by the contractor in their offer, to match the scheduled completion, shall be submitted by contractor and mutually agreed with site In-charge immediately after the award of work. Further, the contractor shall mobilise at site within two weeks of award of work.
25. In case an offer is not being submitted by the prospective bidders against this tender, they may send their "regret" letter to this office, for information.
26. Details of qualifying work(s) executed by the bidder will be forwarded to the principal employer for verification of the work with respect to completion, commencement & completion date and value of the work executed. Performance feedback of the bidder will also be sought from the principal employer.
27. The bidder representative may be called for discussion with the committee. His originals may be verified by the committee. In addition to above their organisation chart and detail list of manpower, tools & plants and technical capability will be discussed and ascertained by the committee.

Thanking you,

Yours faithfully,  
For and on behalf of BHEL,

**(Krishna Swaroop Singh)**  
**DGM /TBSM**

**TO BE FILLED BY TENDERER**

Certified that General Instructions and Information for tenderer have been read/ complied/ agreed to and each page of tender offer has been initialled and stamped.

(Signature of Tenderer)

Name and Designation of Authorised person (s)  
Signing the tender on behalf of the tenderer

**Authorization of representative who will participate in the on line Reverse Auction Process:**

1	NAME & DESIGNATION OF OFFICIAL	
2	POSTAL ADDRESS (COMPLETE)	
3	TELEPHONE NOS. (LAND LINE & MOBILE BOTH)	
4	FAX NO.	
5	E-MAIL ADDRESS	
6	NAME OF PLACE / STATE / COUNTRY, WHEREFROM S/HE WILL PARTICIPATE IN THE REVERSE AUCTION	

# **BHARAT HEAVY ELECTRICALS LIMITED**

## **TRANSMISSION BUSINESS GROUP, NOIDA**

### **PRE-QUALIFYING REQUIREMENTS**

Tender Ref. No.: TBSM/ENNORE/ETC/TENDER

Date: 08.06.2018

**SUB: TENDER FOR RECEIPT OF EQUIPMENT/ MATERIAL AT SITE, UNLOADING, INSPECTION, VERIFICATION, STORAGE, UP-KEEPING DURING STORAGE, ERECTION, TESTING, COMMISSIONING AND HANDING OVER OF 400kV GIS SWITCHYARD AT ENNORE TPP**

:

Only those bidders who are technically and financially capable to execute the Job and who fulfil the Pre-Qualifying Requirements [PQR] given under are eligible to quote against the above NIT. Tenderers should submit their offer along with credentials in a sealed envelope as per the procedure specified in tender documents.

The PQR for subject tender shall be as under:

Sl. No.	Criteria	Description
A	Turn Over	Vendors should have a minimum average annual turnover of <b>Rs. 87 Lacs</b> for last three fin. years (2013-14, 2014-15 & 2015-16 OR 2014-15, 2015-16 & 2016-17) and should submit audited balance sheet and Profit & Loss Account Sheet of these years. In case audited balance sheet is not available due to turnover being less than statutory requirement of audit, bidder should furnish self-certified copies of Balance Sheet, Profit & Loss account along with income tax returns and form 26AS of these years.
B	Profit	Vendor should have earned profit in at least one year during last three financial years as mentioned in A above.
C	Similar Work	Vendor should have successfully executed ETC works of 220 kV or above GIS/AIS (ref note below) during last seven years ending 31.03.2018 and should be either of the following: i. <b>Three similar jobs executed costing (except service tax/GST) not less than Rs. 117 lacs each.</b> OR ii. <b>Two similar jobs executed costing (except service tax/GST) not less than Rs. 146 lacs each.</b> OR iii. <b>One similar job executed costing (except service tax/ GST) not less than Rs. 233 lacs.</b>

#### **NOTES:**

1. In case bidder meeting criteria of execution of similar work based on experience of AIS only, the bidder should also have experience of successful execution of erection and testing works of 220kV or above Transformer/Reactor. This work may be included in similar work or separate work of any value.
2. ETC means erection testing and commissioning/ pre-commissioning.

3. The word 'executed' means the bidder should have achieved the criteria specified in the PQR even if the total contract has not been completed or closed. Executed value of ETC portion of work order shall be considered for evaluation against PQR.
4. In order to technically qualify in this tender, bidder should meet all criteria i.e. A, B & C mentioned above.
5. If the job is executed in the last seven years period, as specified above (job mentioned at Sl. No. C and Note 1), even if it has been started earlier, the same will also be considered meeting the qualifying requirements.
6. The bidder shall submit the Contract Agreement/ Work Order/LOI, BOQ and performance/ completion/ execution certificate issued by Customer/ Contractor along with technical bid in support of qualification.
7. Consortium/ JV bidding is not allowed.
8. BHEL reserves the right to:
  - (a) Accept or reject any bid received at its discretion without assigning any reasons whatsoever.
  - (b) Postpone the above mentioned date, split and distribute the work among more than one bidder without assigning any reason whatsoever.
  - (c) May ask for further qualification during techno commercial scrutiny of bids received.
  - (d) May ask for further proofs including TDS certificates/ Final bill/Form 26AS/ payment detail for the said job for cross- verification.
9. BHEL shall not be responsible for any delay, loss, damage for bids sent by post.
10. BHEL shall not be liable for any expenses incurred by bidder in preparation of bid irrespective of whether it is accepted or not.
11. Quotations received from bidders who do not fulfil the PQR shall be summarily rejected without any further evaluation and information to bidders.
12. Canvassing i.e. soliciting favour, seeking advantage etc. in any form is strictly prohibited and any bidder found to have engaged in canvassing shall be liable to have his bid rejected summarily.
13. If the bidder deliberately gives any wrong information in his tender to create in circumstances for the acceptance to his bid, BHEL reserves the right to reject such application.
14. Bidder's selection is subject to approval of BHEL's customer for this work.
15. All corrigenda, addenda, amendments and clarifications to this Tender will be hosted in web page, [www.bhel.com](http://www.bhel.com) and not in the newspaper. Bidders shall keep themselves updated with all such amendments.

**PROCEDURE FOR SUBMISSION OF SEALED TENDERS AND**  
**DOCUMENT TO BE ENCLOSED WITH THE OFFER**

The tenderer must submit their tenders as required in two parts in separate sealed covers prominently superscribed as Part-I, Technical Bid Part-II, Price bid and also indicating on each of the covers the tender specification number and due date and time as mentioned in the tender enquiry.

These two separate covers I and II (Part – I and Part-II) shall together be enclosed in third envelope (Cover-III) along with EMD and this sealed cover shall be superscribed and submitted.

**PART-I (TECHNICAL BID) COVER-I:**

The following documents shall be kept in technical bid envelope:

- 1) Your covering letter for submission of offer.
- 2) EMD in the form of DD for the amount as mentioned in NIT.
- 3) Complete set of tender documents duly signed on each page including unpriced 'BOQ cum price schedule', as your acceptance of the tender conditions & NIT in toto.
- 4) Documents related to credentials as mentioned below under "important note"

**PART-II (PRICE BID) COVER – II :**

Rate / Price schedule only shall be given in this part-II "Price Bid" envelope. The price bid of different works (Package/Annexure wise), if applicable, shall be kept in separate envelope duly sealed and super scribed name of the particular price schedule.

**IMPORTANT NOTE**

***Following documents as already specified in the tender terms & conditions must be enclosed along with other documents in technical bid envelope.***

- 1) *Solvency certificate. The solvency certificate should not be more than 12 months old as on date of tender opening.*
- 2) *PAN & Copy of IT returns filed with IT authority (letter).*
- 3) *List & Details of similar works executed and under execution (As per PQR & NIT format)*
- 4) *List of available Technical Manpower (As per NIT format)*
- 5) *List of Tools and Plants available for deploying at Site for the present scope (As per NIT format)*
- 6) *Audited Balance sheets for last three years (As per PQR).*
- 7) *Commitment of Compliance to HSE requirements during contract execution as per V Annexure (HSE) enclosed.*

***Offers without the above documents are liable to be rejected as "Techno Commercially Non Complying Offers:***

## **ANNEXURE (HSE)**

The Contractors submitting their offer against this tender are required to furnish the following & commit compliance to Health, Safety and Environment [HSE] requirements during contract execution.

- 1) Organisational Structure and position of Safety.
- 2) Submission of Site Safety Plan documented which is followed by the organisation.
- 3) No. of qualified Safety officers permanently employed.
- 4) Competence to executed the work as per the regulatory requirement.
- 5) Record of valid licenses to do such works.
- 6) ESI Registration of the organisation.
- 7) HSE performance for the last three years.
- 8) Accident/ Incidence record for the last three years.
- 9) Amount of compensation paid for the last three years.
- 10) Any legal case pending against the organisation.
- 11) Any HSE awards received during last three years.
- 12) Provision of PPEs (personal protective eqpt) and status, list of items stocked.
- 13) First Aid measures / facility / Trained persons with the organisation.
- 14) Emergency Fire Fighting system available.

## **PROJECT INFORMATION**

### **1.0 CUSTOMER:**

**TENGEDCO**

### **2.0 PROJECT LOCATION AND DETAILS:**

RECEIPT OF EQUIPMENT/ MATERIAL AT SITE, UNLOADING, INSPECTION, VERIFICATION, STORAGE, UP-KEEPING DURING STORAGE, ERECTION, TESTING, COMMISSIONING AND HANDING OVER OF 400kV GIS SWITCHYARD AT ENNORE TPP

### **3.0 CONTACT PERSON: FOR CONTRACTUAL ISSUES**

KRISHNA SWAROOP SINGH,  
DGM (TBSM)  
SUBCONTRACTS MANAGEMENT,  
TRANSMISSION BUSINESS GROUP,  
5TH FLOOR, ADVANT NAVIS IT BUSINESS PARK,  
PLOT No-7, SECTOR-142, EXPRESSWAY NOIDA,  
NOIDA-201305  
DISTT- G.B.NAGAR (UTTAR PRADESH)

PHONE: 0120-6748454

E-mail: [krishna.singh@bhel.in](mailto:krishna.singh@bhel.in)

### **CONTACT PERSON: FOR ENGINEERING ISSUES**

JAI KUMAR SONI  
MANAGER (TBEM)  
TRANSMISSION BUSINESS GROUP,  
5TH FLOOR, ADVANT NAVIS IT BUSINESS PARK,  
PLOT No-7, SECTOR-142, EXPRESSWAY NOIDA,  
NOIDA-201305  
DISTT- G.B.NAGAR (UTTAR PRADESH)

PHONE: 0120-6748534

E-mail: [jaik@bhel.in](mailto:jaik@bhel.in)

### **CONTACT PERSON: FOR CONTRACT EXECUTION ISSUES**

V.J. RAJA SUNDER  
GM (TBGSS) SECTOR HEAD  
TRANSMISSION BUSINESS GROUP- SOUTHERN SECTOR  
R & D COMPLEX, VIKAS NAGAR  
HYDERABAD - 500093

PHONE: 040-23774981

FAX: 040-23774533

E-mail: [raja@bhel.in](mailto:raja@bhel.in)



Doc No.	: TBSM-HSE-SPECS	
Rev.	: 00	Dt.: 28.10.03
Page No.	: 1	No. of Pages: 6

**SPECIFICATION**  
**FOR**  
**HEALTH, SAFETY AND ENVIRONMENT (HSE)**

**1.0 SCOPE**

This specification establishes the Health, Safety and Environment (HSE) management requirement to be complied with by the Contractors during construction.

Requirements stipulated in this specification shall supplement the requirement of HSE Management given in relevant Act(s)/ legislations, General Condition Contract (GCC). Special Conditions of Contract (SCC) and job specification where different documents and requirements are specified. In case of contradictions, the more stringent of the requirements shall automatically be binding and adopted by the contractors for compliance.

**2.0 REFERENCES**

This document should be read in conjunction with following.

- General Conditions of Contract (GCC)
- Special Condition of Contract (SCC)
- Scope of work.
- Relevant IS Codes (refer annexure-I)
- HSE plan format.

**3.0 REQUIREMENTS OF HEALTH, SAFETY & ENVIRONMENT (HSE) MANAGEMENT SYSTEM TO BE COMPLIED BY CONTRACTORS.**

**3.1 MANAGEMENT RESPONSIBILITY**

3.1.1 The Contractor to comply with HSE requirement at Construction sites as enclosed to cover commitment of their organization to ensure health, safety and environment aspects in their line of operations.

3.1.2 The HSE management system shall cover the HSE requirements including but not limited to what is specified under Para 1.0 and para 2.0 above.



<b>Doc No. : TBSM-HSE-SPECS</b>	
<b>Rev. : 00</b>	<b>Dt.: 28.10.03</b>
<b>Page No. : 2</b>	<b>No. of Pages: 6</b>

3.1.3 Contractor shall be fully responsible for planning and implementing HSE requirements. Contractor as a minimum requirement shall designate / deploy one safety Supervisor.

Contractor shall indemnify & hold harmless Owner/ BHEL & their representatives free from any and all liabilities arising out of non- fulfillment of HSE requirements.

3.1.4 The Contractor shall ensure that the Health, Safety and Environments (HSE) requirements are clearly understood & faithfully implemented at all levels at site through HSE plan.

3.1.5 The Contractor shall arrange suitable first aid measures such as First Aid Box, trained personnel to give First Aid and install fire protection measures such as adequate number of steel buckets with sand and water to the satisfaction of BHEL/Owner.

3.1.6 Non-Conformance on HSE by Contractor (including his Sub-Contractors) as brought out during review / audit by BHEL / Owner representative shall be resolved forthwith by Contractor. Compliance report shall be provide to BHEL.

3.1.7 The Contractor shall ensure participation of his Resident Engineer/ Site-In-Charge in the Safety Committee/ HSE Committees meetings arranged by BHEL / Owner. The compliance of any observations shall be arranged urgently. He shall assist BHEL/ Owner to achieve the targets set by them on HSE during the project implementation.

3.1.8 The Contractor shall adhere consistently to all provisions of HSE requirements. In case of non-compliance or continuous failure in implementation of any of HSE provisions; BHEL/Owner may impose stoppage of work without any Cost & Time implication to BHEL/ Owner and / or impose a suitable penalty for non-compliance with a notice of suitable period, upto a cumulative limit of 1.0% ( one percent ) of Contract value. This penalty shall be in addition to all other penalties specified else where in the contract. The decision of imposing stoppage of work, its extent & minority penalty shall rest with BHEL/ Owner & binding on the Contractor.



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3.1.9 Fatal accidents if any and all other personnel accidents shall be investigated by a team of Contractor's senior personnel for root cause & recommended corrective and preventive actions. Findings shall be documented and suitable actions taken to avoid recurrences shall be communicated to BHEL/Owner. BHEL/ Owner shall have the liberty to independently investigate such occurrences and Contractor shall extend all necessary help and co-operation in this regard.

### 3.2 **HOUSE KEEPING**

3.2.1 Contractor shall ensure that a high degree of house keeping is maintained and shall ensure interalia; the following.:

- a) All surplus earth and debris are removed/ disposed off from the working areas to identified locations (s).
- b) Unused /Surplus Cables, Steel items and steel scrap laying scattered at different places within the working areas are removed to identified location(s).
- c) All wooden scrap, empty wooden cable drums and other combustible packing materials, shall be removed from work place to identified location(s).
- d) Roads shall be kept clear and materials like: pipes, steel sand boulders, concrete, chips and brick etc., shall not be allowed on the roads to obstruct free movement of men & machineries.
- e) Fabricated steel structurals, pipes & piping materials shall be stacked properly for erection.
- f) Water logging on roads shall not be allowed.
- g) No parking of trucks/ trolleys, cranes and trailers etc., shall be allowed on roads which may obstruct the traffic movement.
- h) Utmost care shall be taken to ensure over all cleanliness and proper upkeep of the working areas.
- i) Trucks carrying sand, earth and pulverized materials etc. shall be covered while moving within the plant area.

In case of non-compliance of any of above, BHEL shall have the liberty to get it done from some other agency at their risk and cost.



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### **3.3 HEALTH, SAFETY AND ENVIRONMENT**

- 3.3.1 The Contractor shall provide safe means of access to any working place including provisions of suitable and sufficient scaffolding at various stages during all operations of the work for the safety of his workmen, and BHEL/ Owner. Contractor shall ensure deployment of appropriate equipment and appliances for adequate safety and health of the workmen and protection of surrounding areas.
- 3.3.2 The contractor shall ensure that all their staff and workers wear Safety Helmet and Safety shoes. Contractor shall also ensure use of safety belt, protective goggles, gloves etc. by the personnel as per job requirements. All these gadgets shall conform to relevant IS specifications equivalent.
- 3.3.3 The Contractor shall assign to his workmen, tasks commensurate with their qualification, experience and state of health for driving of vehicles, handling and erection of materials and equipments. All lifting equipments shall be tested certified for its capacity before use. Adequate and suitable lighting at every work place and approach there to, shall be provided by the Contractor before starting the actual operations at night. It is mandatory for contractor to get his workmen medically examined/ checked for fitness of work assigned once a year and furnish the certificate to that effect from a RMP / Govt. Hospital.
- 3.3.4 Hazardous and / or toxic materials such as solvent, coating or thinners shall be stored in appropriate containers.
- 3.3.5 All hazardous materials shall be labeled with the name of the materials the hazards associated with its use and necessary precautions to be taken.
- 3.3.6 Contactor shall ensure that during the performance of the work, all hazards of the health of personnel, have been identified, assessed and eliminated.
- 3.3.7 Chemical spills shall be contained & cleaned up immediately to prevent further contamination.
- 3.3.8 All personnel exposed to physical agents such as ionizing or non- ionizing radiation, ultraviolet rays or similar other physical agents shall be provided with adequate shielding or protection commensurate with the type of exposure involved.
- 3.3.9 Where contact or exposure of hazardous materials could exceed limits or could otherwise have harmful effects, appropriate personnel protective



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equipments such as gloves, goggles, aprons, chemicals resistant clothing and respirator shall be used.

3.3.10 All persons deployed at site shall be knowledgeable of and comply with the environmental laws, rules & regulations relating to the hazardous materials substances and wastes. Contractor shall not dump, release or otherwise discharge or dispose off any such materials without the express authorization of BHEL/Owner.

#### 4.0 **DURING JOB EXECUTION**

Implement Health, Safety and Environment requirements including but not limited to as brought out under para 3.0. Contractor shall ensure to:

- (i) Arrange workmen compensation insurance, registration under ESI Act. third party liability insurance etc. as applicable.
- (ii) Arrange all HSE permits before start of activities (as applicable) like hot work, confined space, work at heights, storage of chemical/ explosive materials and its use and implements all precautions mentioned therein.
- (iii) Submit timely the complete checklist on HSE activities, Monthly HSE report, accident reports, investigation reports etc. as per BHEL/ Owner requirements. Compliance of instructions on HSE shall be done by Contractor and informed urgently to BHEL/Owner.
- (iv) Ensure the Resident Engineer/ Site-Incharge of the Contractor shall attend all the Safety Committee/ HSE meeting arranged by BHEL/ Owner. In case of his absence from site that a second senior most person shall be nominated by him in advance and communicated to BHEL/ Owner.
- (v) Display at site office and work locations caution boards, list of hospital, emergency services available.
- (vi) Display posters, banners made available by BHEL for safe working to promote safety consciousness.
- (vii) Assist in HSE audits by BHEL/ Owner and submit compliance report.
- (viii) Generate & submit HSE records / report as per HSE plan.
- (ix) Appraise BHEL/ Owner on HSE activities at site.



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## **ANNEXURE-I**

### **RELEVANT IS – CODES FOR PERSONAL PROTECTION**

IS:2925-1984	Industrial Safety Helmets.
IS:4770-1968	Rubber gloves for electrical purposes.
IS:6994, 1973(Part-I)	Industrial Safety Gloves (Leather & Cotton Gloves)
IS: 1989-1986(Part-I & III)	Leather safety boots and shoes.
IS: 3738-1975	Rubber knee boots.
IS:5557-1969	Industrial and Safety rubber knee boots.
IS:6519-1971	Code of practice for selections, care and repair of Safety footwear.
IS:11226-1985	Leather Safety footwear having direct moulding sole.
IS:5983-1978	Eye Protectors
IS:9167-1979	Ear Protectors
IS:3521-1983	Industrial Safety belts and harness.

**BHARAT HEAVY ELECTRICALS LIMITED**  
**TRANSMISSION BUSINESS GROUP,**  
**NEW DELHI**



**CONDITIONS OF CONTRACT**

**FOR**

**ERECTION WORKS**

DOC. NO. – TB-ETC-GCC,REV.-02  
20<sup>th</sup> JUNE, 2005

**BHARAT HEAVY ELECTRICALS LTD.**  
**TRANSMISSION BUSINESS GROUP, NEW DELHI.**  
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**SECTION- A**

**GENERAL**

**INSTRUCTIONS TO**

**TENDERERS**

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**SECTION - A**

**GENERAL INSTRUCTIONS AND INFORMATION FOR TENDERER**

**A.1.0 : PROCEDURE FOR SUBMISSION OF SEALED TENDERS**

The tenderer must submit their tenders as required in two parts in separate sealed covers prominently superscribed as Part-I, Technical Bid and Part-II, Price Bid and also indicating on each of the covers the tender specification number and due date and time as mentioned in the tender enquiry.

These two separate covers I and II (Part - I and Part - II) shall together be enclosed in third envelope (Cover - III) along with EMD and this sealed cover shall be superscribed and submitted.

**PART - I (TECHNICAL -BID) COVER - I:**

Excepting rate schedule, all other schedules, data sheets and other details called for in the specifications including offer letter containing techno commercial conditions, if any, shall be enclosed in Part - I Technical Bid only.

**PART - II (PRICE - BID) COVER - II:**

Rate/Price Schedule only shall be given in this part - II "Price Bid".

**A.2.0 : PROCEDURE FOR EVALUATION OF PRICE BID**

The following shall be Evaluation Procedure of the prices offered :-

**PAYMENT TERMS:**

To be as per Tender Specifications and no deviations acceptable.

Any other conditions put forth by the tenderer which is not as per Tender Specifications, if considered, shall be suitably loaded.

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The offers of new vendors may not be considered even after opening of price bid if the vendor is not found suitable on final assessment for registration.

- A.3.0 This tender specification as whole, furnishing all the details and other documents as required in the following pages, shall be duly signed and stamped and sent in a sealed cover superscribing the name of work as given in the tender enquiry.
- A.4.0 The tender shall be addressed to **OFFICER INVITING THE TENDER AS INDICATED IN THE TENDER ENQUIRY.**
- A.5.0 Tenders submitted by post shall be sent as **“REGISTERED POST ACKNOWLEDGEMENT DUE”** and shall be posted with due allowance for any postal delay. The tenders received after the due date and time of opening are liable to be rejected. Telegraphic offers and offers received by Telex/Fax may not be considered.
- A.6.0 Tenders shall be opened by the concerned officers of BHEL at the time, date and venue as specified in the tender notice.
- A.7.0 The tenderer shall closely pursue all the clauses, specifications and drawings indicated in the Tender Documents before quoting. Should the tenderer have any doubt about the meaning of any portion of the Tender Specifications or find discrepancies/omission in the drawings or the tender documents issued are incomplete or shall require clarification on any of the technical aspect, scope of work etc., he shall at once contact the authority inviting the tender for clarification before submission of the tender.
- A.8.0 Before tendering, the tenderer are advised to inspect the site of work and the environments and be acquainted with the actual working and other prevalent conditions, facilities available, position of material and labour. No claim will be entertained later on the grounds of lack of knowledge.
- A.9.0 Tenderer must fill up all the schedules and furnish all the required information as per the instructions given in various sections of the tender specification. Each and every page of the Tender Specification must be **SIGNED AND STAMPED AND SUBMITTED ALONG WITH THE OFFER** by the tenderer in token of complete acceptance thereof. The information furnished shall be complete by itself.

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- A.10.0 The tenderer shall quote the rates in English Language and international numerals. Total price offered should be entered in figures as well as in words. In case of difference in price between words and figures, the price in words will be treated as valid price. For the purpose of the tender, the metric system of units shall be used.
- A.11.0 All entries in the tender shall be typed or be written in ink. Erasers and overwriting are not permitted and may render such tender liable to summary rejection. All cancellations and insertions shall be duly attested by the tenderer.
- A.12.0 **DATA TO BE ENCLOSED:**
- A.12.1 An attested copy of the Power of Attorney, in case the tender is signed by an individual other than the sole proprietor, shall be attached.
- A.12.2 IN CASE OF INDIVIDUAL : His full name, experience, address and nature of business.

**or**

IN CASE OF PARTNERSHIP FIRMS : The names of all the partners with address and their experience. A copy of the partnership deed / instrument of partnership duly certified by the Notary Public shall be enclosed.

**or**

IN CASE OF COMPANIES : Date and place of registration including date of commencement certificate in case of Public Companies and the nature of business carried on by the company. Certified copies of Memorandum and Articles of Association are also to be furnished. Also indicate names, addresses and experience of the Directors.

- A.12.3 Three years financial turn over (certified), present commitments with all orders in hand, value of total order, value completed, and balance with completion dates as per Annexure-A.

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**A.12.4 ORGANISATION CHART & MANPOWER DEPLOYMENT:**

The organisation pattern and the manpower that are totally available with him & that will be deployed by the tenderer for this work in the form of month wise and category wise deployment plan duly indicating the number of Engineers, Supervisors, Skilled and Unskilled Workers etc. as per proforma at Annexure-B shall be submitted.

A.12.5 A list of machines, tools and plant that the tenderer is having and those that will be deployed on this job giving proof of ownership or any tie-up of equipment as per proforma enclosed at Annexure-C.

A.12.6 Analysis of unit rate quoted as per proforma enclosed at Annexure-D.

A.12.7 Declaration sheet as per proforma enclosed at Annexure-E.

A.12.8 Checklist as per proforma enclosed at Annexure-F.

A.12.9 Certificate from schedule Bank to prove his financial capacity to undertake the work or solvency certificate from the concerned Government Authority.

A.12.10 A certificate of Income Tax/Sales Tax verification from the appropriate authority in the forms prescribed duly indicating annual turnover. These certificates shall be valid for one year from the date of issue or for the period prescribed therein for all tenders submitted during the period.

A.12.11 In addition to the above, the particulars required elsewhere in the tender documents.

A.12.12 NOTE: In terms of clauses A.12.1 to A.12.11 above, all the data required to be enclosed with the tender need to be furnished neatly typed, signed & stamped in the given formats only (in the form of separate sheets) failing which the tender may be considered as incomplete and is liable for rejection. Documentary proof wherever necessary also need to be enclosed.

**A.13.0 EARNEST MONEY DEPOSIT**

A.13.1 ~~"Every Tender must be accompanied by the Earnest Money Deposit as specified in NIT in cash (as permissible under Income Tax Act), Pay order or Demand Draft only"~~

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- A.13.2 CASH: The amount should be remitted by the party to the cashier of Bharat Heavy Electricals Limited, Industry Sector, Integrated Office Complex Lodhi Road, New Delhi and "Cash Receipt" issued shall be enclosed along with the tender.
- A.13.3 Demand Draft or Pay order : The Pay order or Demand Draft should be in favour of Bharat Heavy Electricals Limited, payable at New Delhi.
- A.13.4 Deleted
- A.13.5 Tenders received without Earnest Money in full or in the manner prescribed above will not be considered.
- A.13.6 EMD of the successful tenderer can be converted and adjusted against the security deposit.
- A.13.7 In the case of unsuccessful tenderer the Earnest Money will be refunded to them after acceptance of award of work by the successful tenderer.
- A.13.8 BHEL reserves the right of forfeiture of Earnest Money Deposit in case the successful tenderer:
- (a) After opening of tender, revokes / withdraw his tender within the validity period revises / alters his earlier quoted rates / conditions.
  - (b) Fails to communicate unqualified acceptance of Letter of Intent within fifteen days from the date of issue of Letter of Intent.

Above clause No. A.13.0 stands deleted. Please refer Annexure to conditions of contract for ETC works.

**A.14.0 AUTHORISATION AND ATTESTATION:**

- A.14.1 Tenders shall be signed by persons duly authorised / empowered to do so. Certified copies of such authority and relevant documents shall be submitted along with the tenders.

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**A.15.0 VALIDITY OF OFFER:**

A.15.1 THE OFFER SHALL BE KEPT OPEN FOR ACCEPTANCE FOR A MINIMUM PERIOD OF FOUR MONTHS FROM THE DATE OF OPENING OF TENDERS. In case the BHEL calls for negotiations, such negotiations shall not amount to cancellation or withdrawal of the original offer which shall be binding on the tenderer.

**A.16.0 EXECUTION OF CONTRACT :**

A.16.1 The successful tenderer's responsibility under this contract commences from the date of issue of the Letter of Intent by BHEL. The successful tenderer shall be required to execute an agreement in the prescribed form as per Annexure-H with BHEL within a reasonable time after the acceptance of his tender and in any case before submitting the first bill for payment. The expenses for completion, stamping and registration of the agreement with prescribed authority if necessary, shall be borne by the contractor.

**A.17.0 SECURITY DEPOSIT:**

~~Upon acceptance of tender, the successful tenderer must deposit the Security Deposit before commencement of work. The rate of Security Deposit will be as below :~~

Work upto Rs. 10 Lakhs	: 10%
Above Rs. 10 Lakhs upto Rs. 50 Lakhs	: Rs.1Lakh+7.5% of the amount exceeding Rs. 10 Lakh
Above Rs. 50 Lakhs	: Rs. 4 Lakh + 5 % of the amount exceeding Rs. 50 Lakh

A.17.1 The successful bidder shall deposit the Security Deposit of requisite value to BHEL on award of the work in line with the clause no. A.17.0 of GCC before start of work:

- b) Cash (as permissible under the Income Tax Act).
- c) Pay Order, Demand Draft in favour of BHEL.
- d) Local cheques of scheduled banks, subject to realization.

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- e) Securities available from Post Offices such as National Savings Certificates, Kisan Vikas Patras etc.

(Certificates should be held in the name of Contractor furnishing the security and duly pledged in favour of BHEL and discharged on the back).

- f) Bank Guarantee from scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should be as per prescribed proforma Annexure-I.

Please refer Annexure to conditions of contract for ETC works for terms & conditions regarding acceptance of Bank Guarantees by BHEL

- g) Fixed Deposit receipt issued by Scheduled Bank / Public Financial Institutions as defined in the Companies Act. The FDR should be in the name of the contractor, A/C BHEL, duly discharged on the back.
- h) Security deposit can also be recovered at the rate of 10% from the running bills. However in such cases at least 50% of the Security Deposit should be collected before start of the work and the balance 50% may be recovered from the running bills.
- i) EMD of the successful tenderer shall be converted and adjusted against the security deposit.
- j) The security deposit shall not carry any interest.
- k) Security deposit shall not be refunded to the contractor except in accordance with the terms of the contract.
- l) The Head of Unit may waive the Security Deposit in respect of Public Sector Undertaking particularly on a reciprocal basis.

**Note :** 1) Acceptance of Security Deposit against Sl. No. (iv) and (vi) above will be subject to hypothecation or endorsement on the documents in favour of BHEL. However, 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.

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- 2) The BG shall be submitted only through the Banker and direct submission by the party will not be accepted. Along with the BG, the Bank shall also furnish a letter of confirmation (format as per Annexure –L for the BG issued).
- 3) The validity of the Bank Guarantee furnished towards Security Deposit shall be up to three months more than the period of completion of work as stipulated in the LOI/WO and the same will be kept valid by proper renewal till the completion of the work.

A.17.2 If the value of the work done at any time exceeds the accepted agreement value, Security Deposit shall be correspondingly enhanced and the extra Security Deposit shall be immediately deposited by the contractor or recovered from the payments due to him.

A.17.3 Adjustment of EMD towards part of Security Deposit shall be done as per Clause A.13.6.

A.17.4 The successful bidder shall submit unconditional acceptance to the LOI within 15 days of the issue of the same. In case the bidder fails to convey unconditional acceptance or to initiate work as per site requirement, it may lead to forfeiture of EMD and cancellation of the award of work. However, the work order shall be issued only after submission of security deposit as per clause A.17.0 of GCC.

A.17.5 Deleted.

A.17.6 BHEL reserves the right of forfeiture of Security Deposit in addition to other claims and penalties in the event of the contractor's failure to fulfil any of the contractual obligations or in the event of termination of contract as per terms and conditions of the contract. BHEL reserves the right to set off the Security Deposit, against any claims of any other contracts with BHEL.

A.17.7 **RETURN OF SECURITY DEPOSIT:**

If the contractor duly performs and completes the work in all respects to the entire satisfaction of BHEL and presents an absolute "No demand Certificate" in the prescribed form, returns properties belonging to BHEL/its Customer, taken, borrowed or hired by him for carrying out the said works, Security Deposit will be released to the contractor after deducting all costs, expenses and other amounts that are to be paid to BHEL/its Customer under this contract or other contracts entered into with the contractor. It may be noted that in no case the Security Deposit shall be refunded/released prior to passing of final bill.

Above clause No. A.17.0 stands deleted. Please refer Annexure to conditions of contract for ETC works.

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**A.19.0 REJECTION OF TENDER & OTHER CONDITIONS:**

- A.19.1 The decision of acceptance of tender will rest with BHEL, which does not bind itself to accept the lowest tender or any tender and reserves to itself full rights for the following without assigning any reasons whatsoever:
- a) To reject any or all of the tenders.
  - b) To split up the work amongst two or more Tenderer.
  - c) To award the work in part.
  - d) Negotiate with L2 for award of part OR full work when BHEL feels that L1 will not be able to meet the contractual obligation including completion schedule to the satisfaction of BHEL.
  - e) In either of the contingencies stated in (b) and (c) above to modify the time for completion suitably.
- A.19.2 Conditional and unwitnessed tenders, tenders containing absurd or unworkable rates and amounts, tenders which are incomplete or otherwise considered defective and tenders not in accordance with the tender conditions, specifications etc. are liable to be rejected.
- A.19.3 In case of any adverse information is received concerning performance, capability or conduct of the tenderer after issue of tender enquiry, BHEL reserves the right to reject the offer at any stage as deemed fit.
- A.19.4 Offers with inadequate Tools & Plants, Manpower Deployment Plan, Method Statement are liable for rejection.
- A.19.5 In case the present commitments of the tenderer is such that award of further work is likely to affect performance in the work under this tender, its offer is liable for rejection.

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- A.19.6 Offers from tenderer not registered with Transmission Business Group of BHEL are liable for rejection if request for registration along with relevant information for registration in prescribed format is not submitted prior to or along with Technical Bid or the tenderer is not found suitable after preliminary/final assessment by BHEL.
- A.19.7 If a tenderer expires after the submission of his tender or after the acceptance of his tender, BHEL may at its discretion, cancel such tender. If a partner of a firm expires after the submission of the tender or after the acceptance of the tender, BHEL may cancel such tender at its discretion unless the firm retains its character.
- A.19.8 BHEL will not be bound by any Power of Attorney granted by the tenderer or by changes in the composition of the firm made subsequent to the execution of the contract. BHEL may, however, recognise such Power of Attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the contractor concerned.
- A.19.9 If the tenderer deliberately gives wrong information in his tender, BHEL reserves the right to reject such tender at any stage or to cancel the contract, if awarded, and forfeit the Earnest Money/Security Deposit/ any other money due.
- A.19.10 Canvassing in any form in connection with the tender is strictly prohibited and the tenders submitted by the contractors who resorts to canvassing are liable to be rejected.
- A.19.11 Should a tenderer or contractor or in the case of a firm or company of contractors/one or more of its Partners/ share holders/Directors have a relation or relations employed in BHEL, the authority inviting tender shall be informed to the fact along with the offer, failing this, BHEL may, at its sole discretion reject the tender or cancel the contract and forfeit the Earnest Money/Security Deposit.
- A.19.12 The successful tenderer should not sub-contract the part of complete work detailed in the tender specifications without written permission of BHEL. The tenderer is solely responsible to BHEL for the work awarded to him.

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- A.19.13 The tenderers must go through Annexure 'Q' of Section-B which details out the List of Tools, Tackles & Calibrated Test Equipments to be arranged by ETC contractor together with special purpose instruments which can be provided by BHEL free of cost for execution of work provided the same is informed to BHEL on award of contract.

Also, Annexure 'Q' gives the details of specialised Services which can be provided by BHEL for system commissioning on NO CHARGE basis with advance intimation to 'ENGINEER' in this regard. The tenderer must also see Clause E.4.2 & E.6.3 of Section E for more details.

- A.19.14 IT WOULD BE PREFERRED THAT YOUR OFFER IS WITHOUT ANY DEVIATION w.r.t. TENDER SPECIFICATIONS AND THE SAME MAY BE CLEARLY MENTIONED ON THE COVERING LETTER ACCOMPANYING THE TECHNICAL BID. Offers with deviations are likely to be rejected. However if the bidder insists on any technical or commercial deviations, from the specification and/or tender conditions, the price implication if any, of withdrawing the deviations must be submitted along with the price bid in a separate sealed envelope superscribed "Price Implication for withdrawal of deviations". No price implication for withdrawal of deviation shall be accepted at a later date, after the opening of technical bid.

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**ANNEXURE - A**

**DETAILS OF WORK EXECUTED / BEING EXECUTED**

**A) WORK EXECUTED**

SL. NO.	FINANCIAL YEAR	CUSTOMER	DESCRIPTION OF WORK	TOTAL ORDER VALUE	REMARKS

**B) WORK BEING EXECUTED**

SL. NO.	CUSTOMER	DESCRIPTION OF WORK	TOTAL VALUE	VALUE OF THE PORTION COMPLETED	ACTUAL START DATE	EXPECTED COMPLETION DATE	REMARKS

**(SIGNATURE OF TENDERER)  
WITH STAMP**

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**ANNEXURE - B**

**(A) PROPOSED MANPOWER (ENGINEERS / SUPERVISORS) RESOURCES  
FOR EXECUTION OF WORK**

SL. NO.	NAME OF STAFF	QUALIFICATION	EXPERIENCE IN YEARS	REMARKS

**(B) MONTH WISE MANPOWER DEPLOYMENT PLAN**

SL. NO.	CATEGORY	INDICATE NO. OF PERSONS TO BE DEPLOYED IN EACH MONTH								
		1st	2nd	3rd	4th	5th	6th	7th	8th	AND SO ON

(C) Total Man-days planned to be deployed for the work : .....Man-days  
 Plus man-days for unskilled labour as per site requirement.

**(SIGNATURE OF TENDERER)  
WITH STAMP**

**BHARAT HEAVY ELECTRICALS LTD.**  
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**ANNEXURE - C**

**(A) STATUS OF TOOLS, PLANTS & INSTRUMENTS**

Sl. No.	Name of Eqpt.	Quantity owned	Registration No. wherever applicable	Documents enclosed for proof of Ownership/Tie-up	Present Location	Quantity proposed to be deployed for this job

**(B) MONTH WISE TOOLS, PLANTS & INSTRUMENTS DEPLOYMENT PLAN**

Sl. No.	Description of Tools, Plants and Instruments	(Indicate No. to be deployed in each month)							
		1st	2nd	3rd	4th	5th	6th	7th	and so on

**(SIGNATURE OF TENDERER)  
WITH STAMP**

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**ANNEXURE - D**

**ANALYSIS OF UNIT RATE**

Sl. No.	DESCRIPTION	PERCENTAGE OF THE UNIT RATE	REMARKS
01	Salary & Wages for staff & workers		
02	Materials (a) ..... ) (b) ..... ) (c) ..... ) (d) ..... )		
03	Depreciation & maintenance for T & P		
04	Depreciation & maintenance for other items		
05	Establishment & Admn. expenses of site		
06	Overheads		
07	Profit		

**(SIGNATURE OF TENDERER)  
WITH STAMP**

**BHARAT HEAVY ELECTRICALS LTD.**  
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**ANNEXURE -E**

**DECLARATION SHEET**

I ..... hereby certify that all the information and data furnished by me with regard to this Tender Specification No. .... are true and complete to the best of my knowledge. I have gone through the specification, conditions and stipulations in detail and agree to comply with the requirements and intent of specifications.

**( SIGNATURE OF TENDERER )**  
**WITH STAMP**

**BHARAT HEAVY ELECTRICALS LTD.**  
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**ANNEXURE - F**

**CHECKLIST & SCHEDULE OF GENERAL PARTICULARS**

**NOTE:** Tenderers are requested to fill in the following details and no column should be left blank.

1. Name & Address of the Tenderer :
2. Telegraphic/telex address :
3. Phone/Fax No. (Office) :
4. Name & designation of the official of the tenderer to whom all the references shall be made :
5. Tenderer's Proposal No. & date :
6. Whether EMD submitted (by cash/ Bank Guarantee/Bank Draft) : By.....
7. Validity of offer/rates quoted for six months from the date of opening of tender : Yes/No
8. Attested copy of power of attorney as per Clause-A.12.1 : Yes/No
9. Solvency Certificate submitted as per Clause-A.12.9 : Yes/No
10. Income Tax/Sales Tax Certificate submitted as per Clause-A.12.10 : Yes/No
11. Details of work executed/being executed as per Annexure-A : Yes/No
12. Monthwise & Category wise manpower deployment plan as per Annexure-B : Yes/No
13. Status of Tools, Plants and Instruments & their month wise deployment plan as per Annexure-C : Yes/No
14. Analysis of unit rate quoted as per Annexure-D : Yes/No
15. Declaration sheet as per Annexure-E : Yes/No
16. Request for registration (for new tenderers) submitted : Yes/No

Date .....

(SIGNATURE OF TENDERER)  
WITH STAMP

WITNESS : (Signature with full particulars)

- 1.
- 2.

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**ANNEXURE - H**

**CONTRACT AGREEMENT**

CONTRACT NO. :  
LETTER OF INTENT NO. :  
WORK ORDER NO. :

1. The Contract Agreement entered into the day of ....., 20... (..... day of ....two thousand and..... ..) at New Delhi between M/S BHARAT HEAVY ELECTRICALS LIMITED, TRANSMISSION BUSINESS GROUP, New Delhi, having it's Registered Office at BHEL House, Siri Fort, New Delhi - 110 049 (hereinafter called the FIRST PARTY which expression shall include their executors, administrators, successors and permitted assigns)

AND

M/S ..... (hereinafter called the SECOND PARTY which expression shall include their executors, administrators, successors and permitted assigns).

2. And whereas the FIRST PARTY called for the offer for the work of..... as per approved specifications, drawings and quality plan at ..... as per Tender Specification No..... , dated .....
3. Whereas the SECOND PARTY submitted their offer No. .... dated ..... against above.
4. Whereas the FIRST PARTY has accepted the offer referred to above & issued Letter of Intent No....., dt..... and also detailed Work Order No..... dt .....
5. Whereas the SECOND PARTY has agreed to work as Sub-Contractor of the FIRST PARTY on the conditions specified in the Tender Specifications at a contract price of Rs.....(Rupees.....)
6. Now, therefore it is hereby mutually agreed to by and between the parties hereto as under :
  - a) The SECOND PARTY shall execute the works of ..... at ..... on the conditions specified in Tender Specifications of FIRST PARTY and Letter of Intent referred to herein before at a total contract price of Rs..... (Rupees .....
  - b) That the SECOND PARTY shall organise all activities and mobilisation of facilities so that the work specified herein before is completed by .....as per the time bound programme mentioned in the Tender Specifications.

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- c) That all disputes arising out of or relating to this agreement shall be referred to the sole Arbitrator as per arbitration clause mentioned in the Tender Specifications. The Arbitrator from time to time with the consent of the parties enlarge the time for making and publishing award without reference to the court for the purpose.
  - d) That the jurisdiction in all suits or claims arising out of this agreement shall be of New Delhi Courts only.
  - e) The Following documents shall form part of this agreement :-
    - i)
    - ii)
    - iii)
    - iv)
    - v)
    - vi)
7. Deviation Limit : The contract value is subject to deviations depending upon the actual requirement within plus or minus 30%. Quantities of individual items may vary to any extent or may get deleted.
8. Terms of Payment : The terms of payment applicable to this contract shall be those covered under Point No.... of Work Order dt. .... and as per Tender Specifications.
9. Abandoning the work : In the event of the SECOND PARTY abandoning the work, FIRST PARTY reserves the right to get the unfinished work done at the risk and cost of the SECOND PARTY.
10. All other terms and conditions shall be as stipulated in the Tender Documents.
11. This contract agreement consists.... pages.

IT WITNESS WHEREOF, the parties have signed this agreement on the date, month and year first above written in presence of:

For and on Behalf of  
(FIRST PARTY)

WITNESS (WITH ADDRESS)

For and on Behalf of  
(SECOND PARTY)

- 1.
- 2.

**BHARAT HEAVY ELECTRICALS LTD.**  
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**ANNEXURE - I**

**MODEL FORM OF BANK GUARANTEE (FOR SECURITY DEPOSIT)**

1. In consideration of the Bharat Heavy Electricals Limited, having its Registered Office at BHEL House, Siri Fort, New Delhi-110 049 through its Unit/Division at Industry Sector-TBG, New Delhi hereinafter called BHEL, having agreed to exempt.... (hereinafter called "the said contractor(s)") from the demand, under the terms and conditions of the LOI/WO, dated ... made between BHEL and M/s..... for the work ..... of (Name of work) (hereinafter called "the said Agreement") of Security Deposit / mobilisation advance for the due fulfilment by the said contractor(s) of the terms and conditions contained in the said Agreement, on production of Bank Guarantee for Rs.... (Rupees..... only). We, .... (indicate the name of the Bank) (hereinafter referred to as "Bank") at the request of the contractor(s) do hereby undertake to pay to BHEL an amount not exceeding Rs..... against any loss or damage caused to or suffered or would be caused to or suffered by BHEL, by reason of a breach by the said contractor(s), of any of the terms of conditions contained in the said agreement.
2. We, ..... (indicate the 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 BHEL, stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by BHEL by reason of breach by the said contractor(s) of any of the terms or condition(s) failure to perform the said agreement or by reason of the contractor(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 Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.....
  - b) We, ..... (indicate the name of the Bank) undertake to pay BHEL any money so demanded not withstanding any dispute or disputes raised by the Contractor(s) in any suit or proceeding pending before any court or Tribunal relating there to, our liability under these presents being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.
  - c) We, .....(indicate the name of the Bank) further agree that the guarantee herein after contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement & that it shall continue to be enforceable till all the dues of BHEL under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till BHEL certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor(s) & accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before..... we shall be discharged from all liability under this guarantee thereafter.

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5. We,.....(indicate the name of the Bank) further agree with BHEL that BHEL shall have the fullest liberty without our consent & without affecting in any manner our obligations hereunder to vary any of the terms & conditions of the said agreement or to extend time performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by BHEL against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement & we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said contractor(s) or for any forbearance, act or omission on the part of BHEL or any indulgence by BHEL to said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effected of so relieving us.
6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).
7. We, .....(indicate the name of the Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of BHEL in writing.

Dated the ..... Day of .....20...

For .....(indicate the name of the Bank)

WITNESS : 1)  
2)

**(SIGNATURE OF BANK REPRESENTATIVE WITH SEAL)**

**NOTE**

1. The above format is drawn upon the model form jointly evolved by the Reserve Bank of India, the Indian Banks Association and the Ministry of Finance, Government of India as circulated by Indian Banks Association, Bombay vide their letter No. LA/14-61/808, dated 01.05.1980.
2. As such no deviations are acceptable.

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**ANNEXURE - J**

**PROFORMA FOR PERFORMANCE GUARANTEE**  
**(to be used in appropriate value non - judicial stamp paper)**

1. This deed of guarantee made this ..... day of ..... 20... by ..... Bank Limited ..... in favour of Bharat Heavy Electricals Limited, having their registered office at BHEL House, Siri Fort, New Delhi - 110 049.
2. Whereas M/s ..... (hereinafter called the CONTRACTOR / SELLER have entered into a Contract bearing No. .... dated..... (hereinafter called the CONTRACT) for supply / civil works /erection, testing and commissioning of M/s Bharat Heavy Electricals Limited (hereinafter called the COMPANY).
3. And whereas the said CONTRACT Inter - alia provides that the CONTRACTOR / SELLER shall pay to the COMPANY a sum of Rs. .... only towards Performance Guarantee in the form and manner therein specified.
4. And whereas the SELLER / CONTRACTOR have approached ..... Bank Limited (hereinafter referred to as the GUARANTOR) and at their request and in consideration of the arrangement arrived at between the CONTRACTOR and the GUARANTOR, the GUARANTOR has agreed to give the Guarantee as hereinafter mentioned in favour of the COMPANY.

**NOW THIS DEED WITNESSES AS FOLLOWS:**

5. The GUARANTOR by the hand of Mr. .... and its lawfully and fully constituted attorney and do hereby guarantee the due and faithful performance of the said CONTRACT and do hereby irrevocably undertake and promise to pay the COMPANY without any demur merely on demand made by them a sum not exceeding Rs. .... only in case the COMPANY sustains any loss or damage by reason of any breach, default by the CONTRACTOR / SELLER of any of the terms, conditions, stipulations or undertakings or any one of them contained in the said CONTRACT and the tender documents attached hereto and for payment of any moneys payable by the CONTRACTOR / SELLER to the COMPANY under the terms and conditions of the said CONTRACT. The decision of the COMPANY regarding the breach, default, loss, damage and payment shall be conclusive and binding in the GUARANTOR, irrespective of the fact whether the CONTRACTOR / SELLER admits or denies such claims or questions its correctness in any court, tribunal or arbitration proceedings or before any other authority.

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6. The COMPANY shall have the fullest liberty without effecting in any way the liability of the GUARANTOR under this guarantee, from time to time to vary any of the terms and conditions of the CONTRACT or extend time by the SELLER / CONTRACTOR or to postpone for any time and from time to time any of the powers exercisable by its against the SELLER / CONTRACTOR and either to enforce or forbear from enforcing any of terms and conditions governing the CONTRACT or securities available to the COMPANY and the GUARANTOR shall not be released from its liability under these presents by any exercise by the COMPANY of the liberty with reference to the matters aforesaid or by reason of time being given to the SELLER or any other forbearance, act or omission on the part of the COMPANY or any indulgence by the COMPANY to the SELLER / CONTRACTOR or of any other matter or thing whatsoever which under the law relating to sureties, would but for this provision have the effect of so releasing the GUARANTOR / CONTRACTOR from its liability under this Guarantee.
7. This Guarantee shall remain in full force and effect and the GUARANTOR shall be liable under the same irrespective of any concession or time being granted by the COMPANY to the CONTRACTOR in or for fulfilling the said CONTRACT and this Guarantee shall remain in full force irrespective of any change in terms and conditions, stipulations or any variations in the terms of CONTRACT irrespective of whether notice of such change and / or variation is given to the GUARANTOR or not and the claim to receive such notice of any change and or variation of the terms / or conditions of the CONTRACT is hereby specially waived by the GUARANTOR.
8. The GUARANTEE herein contained shall not be determined, prejudiced or effected by the liquidation or winding up or insolvency of or change in the constitution of the CONTRACTOR but shall in all respects and for all purposes be binding and operative until all payments or all moneys due or that may hereafter become payable to the COMPANY are paid in respect of any liability or obligation of the CONTRACTOR under the CONTRACT.
  - b) The GUARANTOR further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the commencement of the CONTRACT till end of the CONTRACT and its claim satisfied or discharged and till the COMPANY certified that the terms and conditions of the CONTRACT have been fully and properly carried out by the SELLER and accordingly discharges this guarantee, subject, however, that the COMPANY shall have no claim under this Guarantee after ..... months from the date of completion of the Guarantee has been served on the GUARANTOR before the expiry of the said period in which case the same shall be enforceable against GUARANTOR notwithstanding the fact that the same is enforced after expiry of said period.

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The GUARANTOR undertake not to revoke this Guarantee during the period it is in force except with the previous consent of the COMPANY in writing and agree that any liquidation or winding up or insolvency or dissolution or any change in the constitution of the SELLER or the GUARANTOR shall not discharge the GUARANTOR's liability here under.

It shall not be necessary for the COMPANY to proceed against the SELLER before proceeding against the GUARANTOR and the Guarantee herein contained shall be enforceable against them notwithstanding any security which the company may have obtained or obtained from the SELLER shall at the time when proceedings are taken against the GUARANTOR here under be outstanding or unrealized.

The GUARANTOR hereby declares that it has power to execute this Guarantee and the executant has full powers to do so on its behalf under the proper authorities granted to him / them by of the guarantor.

10. Notwithstanding anything herein before contained, our liability under this Guarantee is restricted to Rs. .... (Rupees ..... only) and will expire on ..... and unless a claim in writing is presented to us or an action or suit to enforce the claim is filed against us, within six months from the date, all our rights shall be forfeited and we shall be relieved and discharged from all our liabilities thereunder.

IN WITNESS whereof the ..... (Bank) have hereunto set and subscribed their hands the day, month and year first above written.

**SIGNED FOR AND ON  
BEHALF OF THE BANK**

**WITNESS:**

**NAME AND ADDRESS**

**SIGNATURE**

1.

2.

**BHARAT HEAVY ELECTRICALS LTD.**  
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**ANNEXURE - K**

**REVISED PRICE OFFER IN LIEU OF WITHDRAWAL OF DEVIATIONS/  
CLARIFICATIONS OFFERED BY BHEL DURING TECHNICAL DISCUSSION**

Sl. No.	Clause Ref.	Description of Deviation/ Clarification	Whether Increase/ Decrease in Price	Unit Rate (if applicable)	Total Increase/ Decrease	Remarks

NOTE: Total increase or decrease in total price shall be indicated either in percentage or in value (Rs.).

**(SIGNATURE OF TENDERER)  
WITH STAMP**

**BHARAT HEAVY ELECTRICALS LTD.**  
**TRANSMISSION BUSINESS GROUP, NEW DELHI.**  
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**ANNEXURE -L**

( On Bank's Letter Head)

To,  
AGM(Finance)  
Transmission Business Group,  
Block-VI, Central Annexe, IInd Floor,  
Bharat Heavy Electricals Ltd.  
Bhopal – 462 022

Ref & Date

**Sub : Confirmation of Bank Guarantee no. <<BG No.>>**

We are a Scheduled Bank other than Co-operative sector Bank under the RBI Act 1934. The aforesaid << BG No.>> for Rs. <<BG Amount>>/ (In Words Also) and valid up to <<validity date>> is issued by us on behalf of M/s << Beneficiary's Name>> in favour of BHARAT HEAVY ELECTRICALS LTD.

The format of the Bank guarantee is strictly as per the format prescribed by M/s BHEL and the stamp papers forming part of the BG are as per the state rules extant.

The signatures to the Bank Guarantee are duly authorised.

Thanking you,

For & On behalf of  
Name of the Bank & Seal

(Please Sign here)

**BHARAT HEAVY ELECTRICALS LTD.**  
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Conditions of Contract for Erection Works, Rev-02

# **SECTION-B**

## **GENERAL TERMS AND** **CONDITIONS**

**BHARAT HEAVY ELECTRICALS LTD.**  
**TRANSMISSION BUSINESS GROUP, NEW DELHI.**  
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**SECTION - B**

**GENERAL TERMS AND CONDITIONS**

- B.1.0 The following terms shall have the meaning hereby assigned to them except where the context requires otherwise:-
- B.1.1 BHEL (or B.H.E. Ltd.) shall mean Bharat Heavy Electricals Limited, a Company registered under Indian Companies Act 1956, with its Registered Office at BHEL House, Siri Fort, New Delhi-110 049 or its Authorised Officers or its Engineer or other Employees authorised to deal with any matters with which these persons are concerned.
- B.1.2 "GENERAL MANAGER" shall mean the Officer in Administrative charge of the Contracting Unit of BHEL.
- B.1.3 "ENGINEER" OR "ENGINEER-IN-CHARGE" shall mean Engineer deputed by BHEL. The term includes "Deputy General Manager, Construction Manager, Resident Engineer, Assistant Site Engineer of BHEL/at the site as well as the officers in charge at Head Office.
- B.1.4 "SITE" shall mean the place or places at which the plants/equipments are to be erected and services are to be performed as per the specification of this tender.
- B.1.5 "CLIENTS OF BHEL" or "CUSTOMER/OWNER" shall mean the organisation to whom BHEL is responsible for this work.
- B.1.6 "CONTRACTOR" or "ETC CONTRACTOR" shall mean the individual, firm or Company who enters into this Contract with BHEL and shall include their executors, administrators, successors and assigns.
- B.1.7 "CONTRACT" or "CONTRACT DOCUMENT" shall mean and include the agreement, the work order, the accepted appendices of rates, Schedules of Quantities, if any, General Terms and Conditions of Contract, Special Conditions of Contract, Instructions to Tenderer, the drawings, the Technical Specifications, the Special Specifications, if any, the tender documents and the Letter of Intent/Accepting Letter issued by BHEL. Any conditions or terms stipulated by the tenderer in the tender documents or subsequent letters shall not form part of the Contract unless specifically accepted in writing by BHEL in the Letter of Intent and incorporated in the Agreement.
- B.1.8 "GENERAL CONDITIONS OR CONTRACT" shall mean the "Instructions and Information for Tenderer and General Terms and Conditions" pertaining to the work detailed.

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- B.1.9 "TENDER SPECIFICATIONS" shall mean the Special Conditions, Technical Specifications, Appendices, Site Information and drawings pertaining to the work for which the tenderer are required to submit their offer. Individual Specification Numbers will be assigned to each technical specifications.
- B.1.10 "TENDER DOCUMENTS" shall mean the General Terms and Conditions and Tender Specifications.
- B.1.11 "LETTER OF INTENT" shall mean the intimation by a letter/telegram/telex/ fax to the tenderer that the tender has been accepted in accordance with provisions contained in the letter. The responsibility of the contractor commences from the date of issue of this letter and all the terms and conditions of contract are applicable from this date.
- B.1.12 "COMPLETION TIME" shall mean the period by date specified in the Letter of Intent/Work Order or date mutually agreed upon for handing over of the erected equipment/plant which are found acceptable by the Engineer being of required standard and conforming to the specifications of the contract.
- B.1.13 "ZERO DATE" shall mean the planned commencement date of work under this tender and shall be date of issue of Letter of Intent.
- B.1.14 "PLANT OR PROJECT OR SWITCHYARD" shall mean and connote the entire assembly of the plant and equipments covered by the contract.
- B.1.15 "EQUIPMENT" shall mean all equipments, machineries, materials, structural, electrical and other components of the plant covered by the contract.
- B.1.16 "TESTS" shall mean and include such test or tests to be carried out by the contractor as are prescribed in the contract or considered necessary by BHEL, in order to ascertain the quality, workmanship, performance and efficiency of the contracted work or part thereof.
- B.1.17 "APPROVED" "DIRECTED" or "INSTRUCTED" shall mean approved, directed or instructed by BHEL.

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- B.1.18 "WORK OR CONTRACT WORK" shall mean and include supply of all categories of labour, specified consumables, tools and tackles required for complete and satisfactory site transportation, handling, stacking, storing, civil and electrical works, erection, testing & commissioning of the equipment to the entire satisfaction of BHEL.
- B.1.19 "SINGULAR AND PLURAL" etc. words carrying singular number shall also include plural and vice versa, where the context so requires. Words imparting masculine gender shall be taken to include the feminine gender and words imparting persons shall include any Company or Association or Body or Individuals, whether incorporated or not.
- B.1.20 "HEADINGS" The headings in these General Conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken into consideration in the interpretation of construction thereof or the contract.
- B.1.21 "MONTH" shall mean calendar month.
- B.1.22 "WRITING" shall include any manuscript typewritten or printed statement under the signature or seal as the case may be.

**B.2.0 LAW GOVERNING THE CONTRACT & COURT JURISDICTION:**

The Contract shall be governed by the Law for the time being enforce in the Republic of India. The Civil Court at New Delhi having ordinary Original Civil Jurisdiction shall alone have exclusive jurisdiction in regard to all claims in respect of this contract.

**B.3.0 ISSUE OF NOTICE:**

The contractor shall furnish to the Engineer, the name, designation and address of his authorised agent and all complaints, notices, communications and references shall be deemed to have been duly given to the Contractor, if delivered to the Contractor or his authorised agent and shall be deemed to have been so given in the case of posting on the day on which they would have reached such address in the ordinary course of post or at which they were so delivered or left.

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**B.4.0 USE OF LAND:**

No land belonging to BHEL or its customer under temporary possessions of BHEL shall be occupied by the contractor without the written permission of BHEL.

**B.5.0 COMMENCEMENT OF WORK:**

B.5.1 The contractor shall commence the work within fifteen days of Letter of Intent or the time indicated in the Letter of Intent/Work Order and shall proceed with the same with due expedition without delay.

The Contractor shall have to give programme of work in Annexure 'M' to the ENGINEER-IN-CHARGE after mobilisation at site. This will have to be regularly updated / revised so as to meet the Project completion schedule as per requirement of BHEL /Owner.

B.5.2 If the successful tenderer fails to commence the work within the stipulated time, BHEL, at its sole discretion will have the right to cancel the Letter of Intent/Contract. His Earnest Money and/or Security Deposit will stand forfeited without any further reference to him without prejudice to any and all of BHEL's other rights and remedies in this regard.

B.5.3 All the works shall be carried out under the direction and to the satisfaction of BHEL/Customer/Owner.

B.5.4 The transported equipment, erected/constructed plant or work performed under the contract, as the case may be, shall be taken over when it has been completed in all respect and/or satisfactorily put into operation at site.

**B.6.0 MEASUREMENT OF WORK AND MODE OF PAYMENT:**

B.6.1 All payments due to the contractor shall be made only by "Account Payee Cheques".

B.6.2 For progress/running bill payments, the contractor shall present detailed measurement sheets in duplicate duly indicating all relevant details based on technical documents, protocols & material test reports and connected drawings for the work done during the calendar month/period under different categories in line with terms of payment as per Letter of Intent. The basis of arriving at the quantities/ weights shall be the relevant documents and drawings released by BHEL.

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These measurement sheets shall be prepared jointly with Engineer and signed by both parties. Where required, joint measurement with Customer/Owner shall have to be taken.

- B.6.3 The measurement sheets will be checked by the Engineer and quantities and percentage eligible for payment under different groups shall be decided by him. The abstract of quantities and percentage so arrived at based on the terms of payment shall be entered in the Measurement Book & signed by both the parties. Where required counter signature of Customer/Owner shall have to be taken.
- B.6.4 Based on the above quantities, contractor shall prepare the bills in the prescribed proforma and work out the financial value. These will be entered in the Measurement Book and signed by both the parties. Payment shall be made by BHEL after effecting the recoveries due from the Contractor.
- B.6.5 All recoveries due from the contractor for the month/period shall be effected in full from corresponding running bills unless specific approval from Competent Authority is obtained to the contrary.
- B.6.6 Measurement shall be taken jointly by person duly authorised by BHEL and the Contractor.
- B.6.7 The Contractor shall bear the expenditure involved, if any, in taking the measurements and testing of materials to be used in the works. The Contractor shall without extra cost to BHEL, provide all the assistance with appliances and other things necessary for measurement.
- B.6.8 If at any time due to any reason whatsoever, it becomes necessary to remeasure the work done, in full or in part, the expenses towards such re-measurement shall be borne by contractor.
- B.6.9 Passing of bills covered by such measurement does not amount to acceptance by BHEL of the completion of the work measured. Any left out work has to be completed by the Contractor, as directed by BHEL.
- B.6.10 Final measurement bill shall be prepared in the proforma prescribed for the purpose, based on the certificate issued by the Engineer that the entire work as stipulated in the tender specification has been completed in all respects to the entire satisfaction of BHEL.

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The contractor shall give unqualified "No claim" and "No Demand" certificates. All the tools and tackles loaned to him should be returned in condition satisfactory to BHEL. The abstract of final quantities and financial values shall also be entered in the Measurement Book and signed by both the parties. The final bill shall be paid after completion of all the defects/deficiencies etc. pointed out by BHEL. The contractor should submit all the original documents such as material consumption, site order book etc. maintained at site. After payment of final bill only guarantee obligation, percentage value shall remain unpaid which shall be released in accordance with Clause A.15.0.

**B.7.0 RIGHTS OF BHEL:**

BHEL reserves to itself the following rights in respect of this Contract without entitling the Contractor for any compensation.

- B.7.1 To get the work done through another agency at the risk and cost of the Contractor, in the event of poor progress, or the contractor's inability to progress the work for completion as stipulated in the Contract, poor quality of work, persistent disregards of instructions of BHEL, assignment, transfer, subletting of the contracted work without written permission of BHEL, non fulfilment of any contractual obligations etc. and to claim/recover compensation for such losses from the contractor including BHEL's supervision charges and overheads from Security Deposit/other dues.
- B.7.2 To withdraw any portion of work and/or to restrict/alter quantum of work as indicated in the contract during the progress of construction and get it done through other agency and/or by departmental labour to suit BHEL's commitment to its customer or in case BHEL decides to advance the date of completion period due to other emergent reasons/BHEL's obligations to its customer.
- B.7.3 To terminate the contract after due notice and forfeit Security Deposit and recover the loss sustained in getting the balance work done through other agencies in addition to liquidated damages/penalty in the events of
- a) Contractor's continued poor progress.
  - b) Withdrawal from or abandonment of the work before completion of the work.

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- c) Corrupt or illegal act of the Contractor.
  - d) Insolvency of the Contractor.
  - e) Persistent disregard of the instructions of BHEL.
  - f) Assignment, transfer, subletting of the contract work without BHEL's written permission.
  - g) Non-fulfilment of any contractual obligations.
- B.7.4 To recover any moneys due from the Contractor, from any moneys due to the contractor under this or any other contract or from the Security Deposit.
- B.7.5 To claim compensation for losses sustained including BHEL's supervision charges & overheads in case of termination of Contract and to levy Liquidated Damage/Penalty for delay in completion of work, at the rate of  $\frac{1}{2}\%$  (Half percent) of the contract value per week of delay or part thereof subject to ceiling of 10 % of the contract value.
- B.7.6 To terminate the Contract or to restrict the quantum of work and pay only for the portion or work done in case BHEL's contract with its customer is terminated/alterred/deferred/disputed/frustrated for any reasons.
- B.7.7 To effect recoveries from any amounts due to the Contractor under this or any other contract or in any other form the moneys which BHEL is forced to pay to anybody due to contractor's failure to fulfil any of his obligations. Also, under this Clause BHEL can deduct a sum of up to 5% (Max.) of Contract Value if Contractor is unable to provide calibrated test & measuring instruments to the satisfaction of 'ENGINEER'. See. Cl. E.4.2 & E.6.3 of Section - E for more details.
- B.7.8 To restrict or increase the quantity and nature of work to suit site requirements, since the tender specification is based on preliminary documents and quantities furnished therein are indicative and approximate and the rates quoted shall not be subject to revision.

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- B.7.9 To deploy BHEL's skilled and unskilled workmen in case of emergency/poor progress/deficiency in skill on the part of the employees of the contractor and to recover the expenditure on account of the same from the moneys due to the contractor.
- B.7.10 While every endeavour will be made by BHEL to this end, BHEL can not guarantee uninterrupted work due to conditions beyond its control. The contractor will not be entitled to any compensation/extra payment on this account. No idle labour charges will be payable by BHEL in any case.
- B.7.11 In the event of any dispute of technical nature, the decision of BHEL shall be final and binding on the Contractor.

**B.8.0 RESPONSIBILITY OF THE CONTRACTOR IN RESPECT OF LOCAL LAWS, EMPLOYMENT OF WORKERS ETC:**

The following are the responsibilities of the Contractor in respect of observance of local laws, employment of personnel, payment of taxes etc.

- B.8.1 As far as possible, unskilled workers shall be engaged from the local areas in which the work is being executed. In case of any necessity is felt by the contractor to bring labourers from out side State, provisions of law governing such immigration by the concerned State are to be followed.
- B.8.2 The Contractor at all times during the currency of this contract, shall in all his dealings with the local labour for the time being employed on or in connection with the work, have due regard to all local festivals, religious and other customs.
- B.8.3 The contractor shall comply with all State and Central Laws, Statutory Rules, Regulations etc., such as : The payment of wages to, The Minimum Wages Act, The Workmen Compensation Act, The Employees Liability Act, The Industrial Dispute Act, The Employees Provident Fund and Miscellaneous Provisions Act 1952, Employees State Insurance Scheme, The Contract Labour (Regulations & Abolition) Act 1970 and other Acts, Rules and Regulations for labour as may be enacted by the Government during the tenure of the contract and having in force or jurisdiction at site. The Contractor shall give to the local Governing Body, Police and other concerned Authorities all such notice as may be required under law.

The contractor should have Provident Fund Code Number and shall ensure compliance of the EPF & MP Act, 1952 by the sub-contractors, if any engaged by the contractor for the said work,

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- B.8.4 The contractor, as required, will obtain independent license under the Contract Labour (Regulations and Abolition) Act 1970 from the concerned authorities based on the certificate (Form-V) issued by the Principal Employer/Customer.
- B.8.5 The Contractor shall pay all taxes, fees, license charges, deposits, duties, tolls, royalty, commissions or other charges which may be Leviable on account of any of his operations connected with this contract. The Contractor is responsible to furnish documentary evidence towards GST Registration of the State wherein the site is located and any other documents as per GST Act which may be required from time to time by BHEL. The contractor should have to get the contract registered immediately after award of works as per rules and regulations of the State Government. The contractor will file regular return as per statute of the State/ Centre and provide all information to BHEL as required for the assessment of the project concerned . In case BHEL is forced to make any of such payments, BHEL shall recover the same from the contractor either from moneys due to him or otherwise as deemed fit.
- B.8.6 Arrangements for the periodical visits of inspection agencies such as Electrical Inspector etc. to site, inspection certificates etc. will have to be made by the contractor at his cost. The contractor will also meet all expenses in connection with his welder's qualification/ re-qualification tests etc.
- B.8.7 The contractor shall be responsible for provision of health and sanitary arrangements {more particularly described in the Contract Labour (Regulation & Abolition) Act 1970} and safety precautions as may be required for safe and satisfactory execution of the contract.
- B.8.8 The Contractor shall be responsible for proper accommodation including adequate medical facilities for the personnel employed by him.
- B.8.9 The Contractor shall be responsible for the proper behaviour and observance of all regulations by the staff employed by him.
- B.8.10 The contractor shall ensure that no damage is caused to any person/property of other parties working at site. If any such damage is caused, it shall be the responsibility of the contractor to make good the losses or compensate them.

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- B.8.11 All the properties/equipment/components of BHEL/its customer loaned with or without deposit, to the contractor, shall remain the properties of BHEL/its customer. The contractor shall use such properties for the purpose of execution of this contract. All such properties/equipment/components shall be taken to in good condition unless notified to the contrary by the contractor within 48 Hrs. The Contractor shall return them in good conditions as and when required by BHEL/its customer. In case of non-return, loss, damage repairs etc., the cost thereof, as may be fixed by the Engineer, will be recovered from the contractor.
- B.8.12 It shall not be obligatory on the part of BHEL to supply any tools and tackles or materials other than those specifically agreed to be given by BHEL. However, depending upon availability/possibility, BHEL/its customer's equipment and other materials may be made available to the contractor on payment of the hire charges as fixed by them, subject to the conditions laid down by BHEL/its Customer from time to time. Unless paid in advance, such hire and other charges shall be recovered from out of dues to the contractor or Security Deposit in one instalment.
- B.8.13 The Contractor shall fully indemnify and keep indemnified BHEL/its customer against all claims of whatsoever nature arising during the course of execution of this contract.
- B.8.14 In case the contractor is required to undertake any work outside the scope of this contract, the amount payable shall be as may be mutually agreed upon.
- B.8.15 Any delay in completion of works or non-achievement of periodical targets, due to reasons attributable to the contractor, will have to be compensated by the contractor either by increased manpower and resources or by working extra hours or more than one shift at no extra cost to BHEL.
- B.8.16 The contractor shall execute the work under the conditions usual to such construction work and in conjunction with numerous other operations at site and proceed in a manner that shall help in the progress of work at site as a whole.
- B.8.17 The contractor will be directly responsible for payment of wages to his workmen. A pay roll sheet giving details of all payments made to the workmen duly signed by the contractor's representative should be furnished to BHEL, along with each Running Account Bill. Also, Contractor shall display wages paid by him as per The Minimum Wages Act.

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- B.8.18 In case of any class of work for which there is no specification laid down in the contract, such work shall be carried out in accordance with the instructions and requirements of the Engineer.
- B.8.19 No levy, payment or charges made or imposed shall be impeached by reason of any clerical error or by reason of any mistake in the amount levied, demanded or charged.
- B.8.20 No idle labour charges will be admissible in the event of any stoppage of work resulting in the contractor's workmen being rendered idle due to any reason any time.
- B.8.21 The contractor shall take all reasonable care to protect the materials and the work till such time the place/equipment has been taken over by BHEL/its customer.
- B.8.22 The contractor shall not stop work or abandon the site for whatsoever reason or dispute, excepting for force majeure conditions. All problems/disputes shall be separately discussed and settled without effecting the progress of work. Stoppage or abandonment of work, other than under force majeure conditions, shall be treated as breach of work of contract and dealt with accordingly.
- B.8.23 The contractor shall keep the area of work clean and shall remove debris etc. while executing day-to-day work. Upon completion of work, the contractor shall remove from the vicinity of works, all scrap, packing materials, rubbish, unused and other materials and deposit them in places specified by the Engineer. The contractor will also demolish all the hutments, sheds, offices etc. constructed and used by him and shall clean the debris. In the event of his failure to do so, the same will be arranged to be done by the Engineer and the expenses recovered from the contractor.
- B.8.24 The contractor shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and timely execution shall be the essence of this contract. The contractor shall be responsible to ensure that the quality, assembly and workmanship conform to the dimensions and clearance given in the drawings and/or as per instructions of the Engineers.
- B.8.25 The contractor shall furnish progress reports on work at regular intervals as required by the Engineer.

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**B.9.0 RESPONSIBILITIES OF CONTRACTOR IN RESPECT OF SAFETY OF MEN, EQUIPMENT, MATERIAL & ENVIRONMENT:**

- B.9.1 All safety rules and codes applied by BHEL/its customer at site shall be observed by the contractor and his workmen without exception. The contractor shall be responsible for the safety of the equipment/materials and work to be performed by him and shall maintain all lights, fencing guards, signs etc. or other protections necessary for the purpose. Contractor shall also take such additional precautions as may be indicated from time to time by the Engineer, with a view to prevent pilferage, accidents, fire hazards etc. and suitable number of clerical staff, watch and ward, store keepers to take care of equipment, materials and construction tools and tackles shall be posted at site by the contractor till the completion of the work under this contract. The contractor shall arrange for such safety devices as are necessary for this type of work and carry out the requisite site tests of handling equipment, lifting tools, tackles etc. as per usual standards and practices.
- B.9.2 The contractor shall provide to its work force and ensure the use of required personal protective equipment as found necessary & as directed by the authorised BHEL officials in line with latest Amendments / Revisions of various Indian Standards.
- i) Safety helmets conforming to IS-2925 : 1984.
  - ii) Safety belts conforming to IS-3521 : 1983.
  - iii) Safety shoes conforming to IS-1989 : 1978.
  - iv) Eye and face protection devices conforming to IS-8520 : 1977 and IS-8940 : 1978.
  - v) Hand and body protection devices conforming to IS-2573 : 1975, IS-6994 : 1973, IS-8807 : 1978 and IS-8519 : 1977.
- B.9.3 All tools, tackles, fitting appliances, material handling equipment, scaffolds, cradles, safety nets, ladders, equipment, etc. used by the contractor (as per Annexure 'N') shall be of safe design and construction and maintained in good condition. However BHEL officials shall have the right to ban use of any of them or get them tested at their discretion.

All test & measuring instruments to be pre-calibrated through certifying agency before use. Also, please see. Cl. E.4.2 & E.6.3 of section - E for more details.

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All electrical equipment, connections and wiring for construction power, its distribution and use shall conform to the relevant requirements of Indian Electricity Act and Rules. Only electricians licensed by the appropriate statutory authority shall be employed by the contractor to carry out electrical works.

- B.9.4 All electrical appliances including portable electric tools used by contractor shall have safe plugging system to source of power and be appropriately earthed.
- B.9.5 The contractor shall not use any hand lamp energised by electric power with supply voltage of more than 240 volts. For work in confined spaces, lighting shall be arranged with power source of not more than 240 volts.
- B.9.6 Where it becomes necessary to provide and/or store petroleum products, explosives, chemicals and liquid or gaseous fuel or any other substance that may cause fire or explosion, the contractor shall be responsible for carrying out such provision and/or storage in accordance with the rules and regulations laid down in the relevant Government Acts, such as Petroleum Act, Explosive Act, Petroleum and Carbides of Calcium Manual of the Chief Controller of Explosives, Government of India etc. Prior approval of the authorised BHEL official at the site shall also be taken by the contractor in all such matters.
- B.9.7 The contractor shall arrange at his cost appropriate illumination as required at all work spots for safe working, when natural day light may not be adequate for clear visibility.
- B.9.8 In case of a fatal or disabling injury/accident to any person at construction sites pertaining to this work, the victim and/or his/her dependents shall be compensated by the contractor as per statutory requirements. However, if considered necessary, BHEL shall have the right to impose appropriate financial penalty on the contractor & recover the same from payments due to the contractor for suitably compensating the victim and/or his/her dependents. Before imposing any such penalty, appropriate enquiry shall be held by BHEL giving opportunity to the contractor to present his case.
- B.9.9 In case of any damage to property due to lapse by the contractor, BHEL shall have the right to recover the cost of such damages from the payments due to the contractor.
- B.9.10 In case of any delay in the completion of a job due to mishaps attributable to lapses by the contractor, BHEL shall have the right to recover cost of such delay

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from the payments due to the contractor, after notifying the contractor suitably and giving him opportunity to present his case.

- B.9.11 If contractor fails to improve the standards of safety in its operation to the satisfaction of BHEL after being given reasonable opportunity to do so and/or if the contractor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instructions regarding safety issued by the authorised BHEL official, BHEL shall have the right to take the corrective steps at the risk and cost of the contractor after giving appropriate notice indicating the steps that would be taken by BHEL.
- B.9.12 The contractor shall submit report of all accidents, fires, property damaged & dangerous occurrences connected with his area of work or caused due to his action/ inaction, to the authorised BHEL official immediately after such occurrence, but in any case not later than 12 hours of the occurrence.
- B.9.13 During the course of construction, alteration or repairs scrap lumbers with protruding nails, sharp edges etc. and all other debris including combustibles scrap shall be kept cleared from working areas, passage ways and stairs in and around site.
- B.9.14 Cylinders shall be moved by tilting and rolling them on their bottom edges. They shall not be intentionally/ negligently dropped, struck or permitted to strike each other violently. When cylinders are transported by powered vehicles, they shall be secured in a vertical position.
- B.9.15 The contractor shall be responsible for the safe storage of his radioactive sources if same have been permitted to use.
- B.9.16 All contractor's supervisory personnel and sufficient number of workmen shall be trained for fire fighting and first aid duties and shall be assigned specific duties. Enough number of such trained personnel must be available during the tenure of the contract.

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- B.9.17 Contractor shall provide enough fire protecting equipment of the types & numbers at his office, stores, construction/erection site, other temporary structures, labour colony area etc. Access to such fire protection equipment shall be easy and kept open at all times. Compliance of the above requirement under fire protection system at project site shall in no way relieve the contractor of any of his responsibilities & liabilities to fire accident occurring. In the event of fire safety measures being not to BHEL's satisfaction, BHEL shall have option to provide the same and recover the cost plus incidentals from contractor's bills and/or impose penalty as deemed fit by the Engineer.
- B.9.18 Before commencing the work, the contractor shall appoint/nominate a responsible officer to supervise implementation of all safety measures and liaison with BHEL Engineer at site.
- B.9.19 If safety record of the contractor in execution of the awarded job is to the satisfaction of Safety Department of BHEL, issue of an appropriate certificate to recognise the safety performance of the contractor may be considered by BHEL after completion of the job.
- B.10.0 **CONSEQUENCES OF CANCELLATION:**
- B.10.1 Whenever BHEL exercises its authority to terminate the contract/withdraw a portion of work, the work may be got completed by any other means at the contractor's risk and cost provided that in the event of the cost of completion (as certified by the Engineer which shall be final and binding on the contractor) being less than the contract value, the advantage shall accrue to BHEL. If the cost of completion exceeds the money due to the Contractor under the Contract, the Contractor shall either pay the excess amount demanded by BHEL or the same shall be recovered from the contractor. This will be in addition to the forfeiture of Security Deposit and recovery of liquidated damages as per relevant clauses.
- B.10.2 In case BHEL completes the work under the provisions of this clause, the cost of such completion to be taken into account for determining the excess cost to be charged to the contractor shall consist of cost of materials purchased and/or labour provided by BHEL with an addition of such percentage to cover supervision and establishment charges as may be decided by BHEL.

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**B.11.0 INSURANCE:**

- B.11.1 BHEL/its customer shall arrange for insuring the project materials/properties of BHEL/its customer covering the risks during transit, storage, construction, erection and commissioning.
- B.11.2 It shall be the sole responsibility of the Contractor to insure his workmen against risks of accident and injury while at work as required by the relevant rules and to pay compensation, if any, to them as per Workmen's Compensation Act. The Contractor shall also insure his staff against accidents. The work will be carried out in a protected area and all the rules and regulations of BHEL/its client in the project area which are in force from time to time will have to be followed by the contractor.
- B.11.3 If due to negligence and/or non-observance of safety and other precautions any accident/injury occurs to any other person/public, the contractor shall pay necessary compensation and other expenses, if so decided by the appropriate authority.
- B.11.4 It shall be the responsibility of the contractor to provide security and insurance claim related information/reports, FIRs etc. for the equipment/material belonging to BHEL/its customer and handed over to the contractor for transportation/erection/ construction till these are taken over by BHEL after erection/construction or are returned to BHEL/its customer's store.
- B.11.5 If due to Contractor's carelessness, negligence, non-observance of safety precautions, improper security arrangements or due to non-compliance of paper work needed for lodging insurance claim, damage to BHEL/its Customer's property and/or personnel should occur, and if BHEL is unable to recover its claim from the Insurance Company, the deficit will be recovered from the Contractor. **All losses arising out of theft of material from the contractor's store/erection site shall be recovered from the contractor irrespective of the insurance claims.**

**B.12.0 STRIKES & LOCKOUTS:**

- B.12.1 The Contractor will be solely responsible for all disputes & other issues connected with his workmen. In the event of the contractor's workmen resorting to strike or the contractor resorting to lockout and if the strike or the lockout so declared is not settled within a period of one month, BHEL shall have the right to get the work executed by employing its own men or through other agencies or both. The cost incurred by BHEL in this regard shall be recovered from the Contractor.

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B.12.2 For any purpose whatsoever, the employees of the contractor shall not be deemed to be in the employment of BHEL/its Customer.

**B.13.0 FORCE MAJEURE:**

B.13.1 The following shall amount to force majeure conditions:-

Acts of God, Act of any Government, war, Sabotage, riots, civil Commotion, Police Action, Revolution, Flood, Fire Cyclone, Earthquake, Epidemic and other similar causes over which the contractor has no control.

B.13.2 If the contractor suffers delay in the due execution of the contract, due to delays caused by force majeure conditions, as defined above, the agreed time of completion of the work covered by this contract may be extended by a reasonable period of time in consultation and after agreement of BHEL's clients / owner, provided that on the occurrence of any such contingency, the Contractor immediately reports to BHEL in writing the causes of delay. The Contractor shall not be eligible for any compensation on this account.

**B.14.0 GUARANTEE:**

B.14.1 Even though the work will be carried under the supervision of BHEL Engineers, the contractor will be responsible for the quality of the workmanship and shall guarantee the work done for a period of 12 months from the date of putting the complete system into commercial operation or 18 months from the date of system is declared completely erected duly tested and accepted by customer whichever is later and shall rectify free of cost all defects due to faulty erection detected during the guarantee period starting from the date of the completion of rectification. In the event of the contractor failing to repair the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs of such defective works at the contractor's risk and expense without prejudice to any other rights and recover the same from Security Deposit/other dues.

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**B.15.0 ARBITRATION:**

B.15.1 Except where otherwise provided for in the contract all questions & disputes relating to the meaning of the specification designs, drawings and instruction herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings specifications, estimates, instructions, orders of these conditions or otherwise concerning the works, of the execution or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof shall be referred to the sole arbitration of the General Manager BHEL, New Delhi and if the General Manager is unable or unwilling to act, to the sole arbitration of some other person \*appointed by the General Manager willing to act as such arbitrator.

There will be no objection if the arbitrator so appointed is an employee of BHEL, New Delhi and that he had to deal with the matters to which the contract relates and that in the course of his duties as such he had expressed views on all or any of the matters in dispute of difference. The arbitrator to whom the matter is originally referred being transferred or vacating his office or being unable to act for any reason such General Manager as aforesaid at the time of such transfer vacation of office or inability to act shall appoint (see note) another person to act as arbitrator in accordance with the terms of the contract such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor. It is also a term of this contract that no person other than a person appointed by such General Manager as aforesaid should act as arbitrator and if for any reason that is not possible the matter is not to be referred to arbitration at all, in all cases where the amount of the claim dispute is Rs.50,000/- (Rupees fifty thousand) and above the arbitrator shall give reasons for the award.

Subject as aforesaid the provisions of the arbitration Act,1940 or any statutory modification or re-enactment thereof and the rules made there under and the time being in force shall apply to the arbitration proceeding under this clause.

It is a term of the contract that the party involving arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amounts claimed in respect of each dispute.

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The arbitrator (s) may from time to time with consent of the parties enlarge the time for making and publishing the award.

The work under the contract shall, if reasonably possible, continue during the arbitration proceedings and no payment due or payable to the contractor shall be withheld on account of such proceedings.

The Arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties fixing the date of the first hearing.

The Arbitrator shall give a separate award in respect of each dispute or difference referred to him.

The Venue of arbitration shall be such place as may be fixed by the Arbitrator in his sole discretion.

The award of the arbitrator shall be final, conclusive and binding all parties to this contract.

Laws governing the Contract:

The contract shall be governed by the Indians Laws for the time being in force.

NOTE: The Authority appointing the arbitrator should not be lower in rank than the Authority accepting the Agreement.

Above clause No. B.15.0 stands deleted. Please refer Annexure to conditions of contract for ETC works.

**B.16.0 VARIATIONS AND VALUATIONS:**

**B.16.1 QUANTITIES:**

The quantities set out in the Bill of Quantities are the estimated quantities of the work but they are not to be taken as the actual and correct quantities of the works to be executed by the Contractor in fulfilment of his obligations under the Contract.

**B.16.2 VARIATIONS:**

B.16.2.1 The Engineer shall have power to make any variation of the form, quantity of the Works or any part thereof that may in his opinion be necessary and for that purpose or if for any other reason it shall in his opinion be desirable shall have power to order the Contractor to do and Contractor shall do any of the following:-

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- a) Increase or decrease the quantity of any work included in the contract.
- b) Omit any such work.
- c) Change the character or quality or kind of any such work.
- d) Execute additional work of any kind necessary for the completion of the works and no such variation shall in any way vitiate or invalidate the contract but the value (if any) of all such variation shall be taken into account in ascertaining the amount of the Contract Price.
- e) Restrict the extent of work of any item covered under Clause E.10.0 of Section - E "Schedule of Equipment".

B.16.2.2 Orders for Variations to be in writing. No such variation shall be made by the contractor without an order in writing of the Engineer provided that, no order in writing shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an order given under this clause but is the result of the quantities exceed in for being less than those stated in the Bill of Quantities. Provided also that if for any reason the Engineer shall consider it desirable to give any such order verbally the Contractor shall comply with such order and any confirmation in writing of such verbal order given by the Engineer whether before or after the carrying out of the order shall be deemed to be an order in writing within the meaning of this clause. Provided further that if the contractor shall confirm in writing to the Engineer any verbal order of the Engineer and such confirmation shall not be contradicted in writing by the Engineer, it shall be deemed to be an order in writing by the Engineer.

**B.16.3 VALUATION OF VARIATIONS:**

The Engineer shall determine the amount (if any) which in his opinion should be added to or deducted from the sum named in the Contract in respect of any extra or additional work done or work omitted by his order. All such work shall be valued at the rates set out in the Contract if in the opinion of the Engineer the same shall be applicable. If the contract shall not contain any rates applicable to the extra or additional work then suitable prices shall be derived from the nearest item of BOQ or arrived at from the actual cost of manpower utilised (the cost of T&P and testing equipment etc. are not to be taken into account for arriving at the rates of additional/extra works) plus 10% for contractor's OH and profit. The rates for manpower shall be as per the minimum wages applicable for the project area.

Above clause No.B.16.3 shall be read in conjunction with clause No.1.of of Annexure to conditions of contract for ETC works.

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**B.16.4 POWER OF ENGINEER TO FIX RATES:**

If the nature or amount of any omission or addition relative to the nature or amount of the whole of the contract work or to any part thereof shall be such that in the opinion of the Engineer the rate or price contained in the Contract for any item of the Work is by reason of such omission or addition rendered unreasonable or inapplicable then a suitable rate or price shall be agreed upon between the Engineer and the Contractor. In the event of disagreement the Engineer shall fix such other rate of price as shall in his opinion be reasonable and proper having regard to the circumstances and the same shall be binding on the contractor. But under no circumstance the contractor shall suspend the work on the plea of non-settlement of rates falling under the clause or claim any compensation on that account.

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**ANNEXURE - M**

**PROGRAMME OF WORK**

SL.NO.	ACTIVITY	DURAION
01.	Award of work.	Zero week
02.	Mobilisation & setting up of site office	..... weeks
03.	Start / finish of structure erection	..... weeks
04.	Start / finish of stringing of shielding wire and conductors	..... weeks
05.	Start / finish of Circuit Breaker erection	..... weeks
06.	Start / finish of other equipment erection	..... weeks
07.	Start / finish of testing and precommissioning	..... weeks
08.	Start / finish of commissioning	..... weeks
09.	Final Handing over	..... weeks

**(SIGNATURE OF TENDERER)  
WITH STAMP**

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**ANNEXURE - N**

**LIST OF TEST EQUIPMENTS TO BE ARRANGED BY ETC CONTRACTOR**

All measuring and testing instrument shall be pre-calibrated through a certifying agency before use. The certificate of calibration shall be submitted to BHEL Site Engineer for records. Also see clause E.4.2 & E.6.3 under Section E of the tender specification for more details.

<b><u>A -</u></b>	<b><u>General purpose</u></b>	<b><u>Qty.</u></b>
1.	Digital multimeter - 4½ digits Accuracy ± 1% (Any reputed make - preferably Fluke - make)	4 Nos.
2.	Megger 2.5 kV - 5kV, range 0.5 MΩ - 10,000 MΩ (Motorised/Electronic) (Any reputed make )	1 No.
3.	Megger having voltage multiplier 0-500V- 1000V, (Motorised / Electronic) Range 0.5 MΩ - 1000 MΩ (Any reputed make)	1 No.
4.	Single phase variac 8 A, 0.-250V, 50 HZ	2 No
5.	Three phase variac 15A, 0-440V, 50 HZ	1 No
6.	Single phase transformer 220V / 4000V, 500VA, 50HZ	1No
7.	Stop watch	1No
8.	Micro- ohm- meter (mV drop test kit) 0-200ADC, 0-2000 micro ohm with suitable calibrated cable leads for current injection and mV drop.	1 No
9.	Phase sequence meter	1 No
10.	Two way intercom set with 50 to 100 M cables for checking of cable continuity	2 sets
11.	Walkie - Talkie sets with battery charging sets Receiver + Transmitter, Type GP 300 - Motorola - make	1 set
12.	Variable D.C. power supply 0-220VDC, 10 A	2 Nos
13.	4 pole Miniature moulded case breaker 16 A	3 No
14.	Capacitance meter having range 20 PF- 100mfd ± 1%	1 No
15.	Isolation Transformer 1KVA, 240V AC, 1 phase, 50Hz	2 Nos

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<b><u>B</u></b>		
<b><u>For testing of current transformer</u></b>		
1.	Primary injection test kit, range 0-2000A with a pair of leads & C clamps for testing of CT's	1 No
2.	Secondary injection test kit suitable for 5A& 1A with banana plug cable leads.	1 No
3.	Digital Tongue tester 0-2000A, 600VAC, 50 Hz (Any reputed make).	1 No
4.	Digital Tongue tester 0-20A, 600V AC, 50 Hz (Any reputed make).	1 No
5.	Digital Tongue Tester, 0-1A, 600V AC, 50Hz	2 Nos.
<b><u>C -</u></b>		
<b><u>For testing of oil cooled transformer and AC reactor</u></b>		
1.	Transformer winding resistance meter or Kelvin's double bridge	1 No
2.	Transformer turns ratio meter	1 No
3.	PPM tester for transformer oil	1 No
4.	BDV tester for transformer oil	1 No
<b><u>D</u></b>		
<b><u>For testing of relays</u></b>		
	Single phase / 3 phase relay test kit having timer current source 5A, 1A, voltage source 0-220VDC, 0-110 VAC 50 HZ. (Any reputed make)	1set
<b><u>E-</u></b>		
<b><u>For time measurement of breaker</u></b>		
	Breaker closing and / opening time measurement timer	1 No
<b><u>F</u></b>		
<b><u>For testing of relays and distance protection</u></b>		
1.	CFB kit or equivalent - of any reputed make	1 Set
2.	ZFB kit or equivalent - of any reputed make	



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**ANNEXURE - P**

**ACTIVITIES FOR TESTING AND COMMISSIONING BY ETC CONTRACTOR**

1. Preparation of joint inspection records / observation by BHEL, BHEL customer and the contractor on the pending activities of erection holding for starting of testing and commissioning.
2. Issue of certificate for completion of erection activities to the satisfaction of BHEL customer.
3. Compilation of documents (scheme, cable schedules, FQP, technical literature, operation and maintenance manuals, technical reports, works test certificate for the equipments / components, and other relevant documents to expedite commissioning) in a systematic manner to present to customer/owner to meet the contractual requirement.
4. To expedite the testing activities contractor has to arrange the engineers and his staff and instruments at site for testing and commissioning of switchyard equipments as follows:
  - 4.1 Testing of individual relay, energy meter, transducer and meters for their satisfactory operation.
  - 4.2 Protection devices / relays will be tested with appropriate current and voltage injections.
  - 4.3 Individual control and protection panels testing for their satisfactory operation as per scheme.
  - 4.4 Individual CT, PT, CVT, Breaker, Transformer and Isolator LA, MB, Battery Charger etc. where ever possible to test them independently.
  - 4.5 Wiring check as per scheme and cable schedule preferably in the following sequences:
    - Between marshalling Kiosk in the yard to other yard equipments.
    - Between equipments in the yard.
    - Yard equipments to control room equipments.
    - Inter connection between control room equipments.
5. All cables to be properly glanded, identified and terminated suitably.
6. Cables should have proper / accurate cross reference ferruling and necessary cable tags for identifications as per recommendation by BHEL/ Customer.
7. Green marking in cable schedule and scheme after wiring check. Contractor to make also "As Built" scheme and cable schedule for submission to BHEL/Customer.
8. List of wiring mistakes, component damage and mal-operation of components.

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9. Successful completion of equipment level testing operative from local and remote and desired FQP filled up and approved by ultimate customer. Approval/acceptance on FQP results by customer has to be obtained by Contractor. For any technical clarifications, BHEL will only assist.
10. In case the contractor is finding difficulty to understand the technicalities to undertake testing and commissioning of a particular equipment, subsystem and system he has to inform BHEL in advance with in 2 months from the date of award of contract for necessary information and explanation.
11. For erection/commissioning of SF6 Circuit Breakers (If called for in BOQ), the services of experts +for supervision will be extended by BHEL free of cost. Contractor will provide adequate support by providing skilled manpower and tools & tackles. However the complete responsibility for erection and commissioning lies with subcontractor.
12. Contractor has to keep a senior and experienced person in the area of testing and commissioning associated with his skilled staff till charging and handing over of complete switchyard to the satisfaction of BHEL customer.
13. Contractor has to be well equipped at site with testing instruments and safety measures (like helmet and hand globes) while doing testing and commissioning.
14. Contractor will also carry out design validation tests as per BHEL / BHEL customer documents.
15. If the contractor fails to take up testing and commissioning work as per the requirement of contract or project requirement, then BHEL will be at liberty to hire services of third agency for this work at the risk and cost of subcontractor.
16. Testing of mandatory spares or any other spare (if required by customer / BHEL), cleaning and handing over to customer's stores is also included in the scope of this Tender Specification. The site Test Reports of these mandatory spares will also be generated by subcontractor in such a case.
17. In case contractor fails to arrange Test equipments as referred in Annexure 'N' (as per requirement of equipment covered in BOQ), BHEL will arrange the instruments at the risk and cost of contractor for providing such instruments.
18. Contractor has to repeat any tests free of cost, even if already conducted, whenever required to prove and check the healthiness of system before power flow, such tests could be primary injection and secondary injection in CT, CVT, meggering, and functional tests or any other tests as required by BHEL/customer.

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19. Oil processing/filtering in a transformer, CT and CVT shall also be repeated free of cost if required before charging and handing over of the switchyard to the owner in case BDV and PPM of oil is not satisfactory.
20. As isolator is a rotating equipment and its alignment is likely to get disturbed. Therefore contractor has to do alignment of isolators and measurement of contact resistance repeatedly free of cost as and when required till handing over of the station.
21. Commissioning means charging of total system in a sub-station and inter connected equipments by power flow. Accordingly the payment will be made to the contractor as per payment terms.
22. Contractor has to deploy adequate and experienced man power at site as per project requirement and advice of BHEL site in-charge. Non compliance of this requirement will be treated as indiscipline and non cooperation of the contractor. Accordingly BHEL will hire the man power as required at the risk and cost of the contractor after giving a single notice.
23. Based on site requirement, for the works not stipulated in the contract, the contractor has to provide assistance of skilled manpower with required tools and test instruments.
24. If any Expert services of manufacturer for commissioning supervision of special protection relays / numerical relays / equipment is felt necessary by the contractor, the same shall be arranged by the contractor themselves at their cost. Contractor shall provide testing & Commissioning, Engineer, electrician, other tools tackles and consumables for these equipments and for total system.  
  
Any delay in arranging special testing & commissioning equipment and expert supervisor shall not entitle the contractor to any claim (idle labour, additional time etc.) whatsoever.
25. Any idle days of the expert supervisor at site due to reasons attributable to the contractor, due to lack of readiness in erection, delay in arranging of manpower, tools etc. shall be to contractor's account.

**NOTES :-**

- (1) Above is only an indicative list. Contractor has to mobilise and keep adequate competent commissioning staff at site to ensure that all mile stones & events and relevant commissioning activities are completed successfully in a scheduled time.
- (2) In case contractor is not finding competent and adequate staff with him, he can hire the commissioning services from out side agencies approved and accepted by BHEL. Contractor will furnish the details (experience, qualification) of all commissioning staff and the commissioning tools and instruments available with the contractor OR obtained on loan basis with in 60 days from the date of award of the work.

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**ANNEXURE - Q**

**LIST OF TOOLS & TACKLES TO BE ARRANGED BY CONTRACTOR**

<b><u>Sl. No.</u></b>	<b><u>PARTICULARS</u></b>
01.	Electrical Drilling Machine & Hand drilling Machine.
02.	Hydraulic Bending Machine for Al. pipes.
03.	Gas Welding Set & Gas Cutting Set.
04.	Hand Operated Winches.
05.	Electric Welding machine.
06.	Jack with axle for lifting Cable Drum.
07.	Jointers Tool Box.
08.	Blow Lamps.
09.	Compression Tools suitable for Cables.
10.	Pull Lifts.
11.	Pulley Blocks.
12.	Hooks/Chains
13.	Cable Rollers.
14.	Hydraulic Jacks
15.	Aluminium Rollers.
16.	D- Shackles.
17.	Dynamometers.
18.	TIG, Welding machine (for Aluminium welding).
19.	High Vacuum 1000 GPH Oil Filtration Machine for Transformer / Reactor oil suitable for 760mm vacuum. In case 250 MVA / 315 MVA transformer ETC work is covered in the scope, Oil filtration equipment of 1500 GPH suitable for High Vacuum along with 30 kL capacity storage tank for oil storage and processing of oil should be provided.
20.	Hydraulic cranes including accessories (20 tonne or more and boom height of 15mts. Vertical or more) suitable for erection of transformer bushings accessories and other equipments.
21.	Hydraulic Crimping tools for conductor / Shield wire.
22.	Crimping tools for cable termination.
23.	Torque wrenches of different ranges in sufficient numbers.
24.	All general purpose hand tools in sufficient quantities.
25.	Shearing Machine for cutting of Earthing Flat.



- For cable laying.

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26. Tool Kit for fitters.
27. Tool Kit for Electrician.
28. Bench Vice.
29. 'A' type collapsible Al. ladder height 8M.
30. 'H' type Al. ladder height 5M.
31. Pressure Gauge 0-1kg/Sq.cm for measurement of N2 pressure.
32. Vacuum gauges for measuring fire vacuum of less than 1 torr in transformer.
33. Nylon slings for 4T capacity with different lengths.
34. Turper
35. Angle meter for measurement of bushing angle during erection.
36. Nylon hammer.
37. Wedge for cutting of 'O' rings/neoprene gaskets.
38. Die/Drill tool for making holes in gland plates (All sizes in sufficient numbers)
39. Phoenix screw drivers for handling of Terminal Blocks.

**IMPORTANT NOTE:**

1. The Contractor shall submit the copies of latest test certificate of lifting tackles, slings, pulleys etc. after mobilisation at site to the ENGINEER-IN-CHARGE.
2. Above is only a specimen/indicative list and any other Tools & Tackles as may be required by Owner/ BHEL at site during the execution of work will be arranged by the contractor promptly.
3. The status of tools, plants and instruments mentioned in annexure C of section - A does not relieve the subcontractor of his responsibility to make available all the test equipments and tools & tackles mentioned in the annexures of section B as per requirement of project.

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# **SECTION-C**

# **SPECIAL CONDITIONS OF** **CONTRACT**

## **SECTION - C**

### **SPECIAL CONDITIONS OF THE CONTRACT**

**C.1.0 QUALIFICATION OF THE CONTRACTOR :**

- C.1.1 The contractor must have the experience of execution of identical work in the past as specified in the tender documents and must have executed contracts of similar nature. The contractor must furnish enough evidence to establish his capacity in erection, testing and commissioning of similar equipments covered under this specification.
- C.1.2 The contractor should be able to obtain clearance from the Electrical Inspector/ State Authorities on completion of the installations. If required, the Contractor is supposed to obtain such clearances on part completion of the installation as required by BHEL / Owner time to time. Also, before the start of work the contractor should obtain the supervisory license from the concerned Electrical Authorities.
- C.1.3 The Contractor will have following certificates.
- a) Contractor electrical licence.
  - b) Supervisor competency certificates to deal with Electrical high voltage equipments for their installation and for their installation and testing.
- Such certificates from two persons of subcontractors representatives who will be posted at site will be required.
- C.1.4 The contractor should be aware of the local conditions and be well acquainted with the site.
- C.1.5 The contractor shall be preferred who has worked for State Electricity Boards/BHEL/Steel Authorities/Public Undertakings.
- C.1.6 The contractor should have a very good engineering background and capability of carrying out erection and commissioning work of large scale.

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~~C.2.0~~ **TERMS OF PAYMENT FOR ERECTION, TESTING AND COMMISSIONING :**

- ~~C.2.1~~ No Mobilisation Advance shall be paid.
- ~~C.2.2~~ 20% of the contract item price on the monthly progressive bills on pro rata basis for receipt, material including arranging crane for unloading, maintaining proper records of receipt & storage in Field Quality Plans (FQPs) and as certified by BHEL Engineer.
- ~~In case of power transformer, 10% amount shall be paid after unloading and 10% after dragging main tank in position on foundation.~~
- ~~C.2.3~~ 50% of the contract item price on the monthly progressive bills on pro rata basis after arranging necessary calibrated tools/tackles required for erection, submitting calibration reports, qualification/experience certificates of welder/Electrician/other staff, levelling, alignment, tightening and completion of erection including maintaining proper records of installation in FQPs and as certified by BHEL, Engineer.
- ~~C.2.4~~ 10% of the contract item price on the monthly progressive bills on pro rata basis on arranging calibrated testing equipment, submission of calibration reports, testing of equipment including maintaining proper records of testing in FQPs and as certified by BHEL, Engineer.
- ~~C.2.5~~ 10% of the contract item price after completion of satisfactory commissioning and submission of complete records of erection/testing/commissioning /charging protocol as per FQPs for the complete sub-station. If the contract is for more than one sub-station, then the same will be released after successful commissioning of each sub-station. If for any reason, the commissioning is delayed for reasons beyond the control of the contractor, in such case this payment will be released against commissioning certificate issued by the customer.
- ~~C.2.6~~ Last 10% of the contract item price after all test reports as per contract are jointly witnessed and signed by BHEL/customer, "As Built" changes are incorporated in relevant drawings, material reconciliation and substation is handed over to the Owner / Customer. If the contract is for more than one sub-station, then the same will be released after successful handing over of each sub-station. If for any reason, the handing over is delayed for reasons beyond the control of the contractor, in such case this payment will be released against commissioning certificate issued by the BHEL / customer and against submission of final bill of individual sub station.

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- C.2.7 The contractor shall furnish within 15 days after LOI, a detailed bar-chart indicating time schedule for the erection, testing, pre-commissioning and commissioning so as to achieve the contractual planned date as agreed.
- C.2.8 The quoted rates for various items are inclusive of receipt, storage, handling, inspection and handing over to customer at their stores of mandatory spares and nothing extra is payable on this account.

Above clause No. C.2.0 stands deleted. Please refer Annexure to conditions of contract for ETC works.

C.3.0 **SECURITY DEPOSIT:**

- C.3.1 The successful bidder shall deposit the calculated amount of security deposit based on the total contract value as detailed out in clause A.17.0.
- C.3.2 If the value of the work done at any time exceeds the accepted agreement value, the security deposit shall be correspondingly enhanced.
- C.3.3 Failure to deposit the Security within the stipulated time may lead to forfeiture of earnest money and cancellation of the award of work.
- C.3.4 BHEL reserves the right of forfeiture of Security Deposit in addition to other claims and penalties in the event of the Contractor's failure to fulfil any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract.

C.3.5 **RETURN OF SECURITY DEPOSIT:**

The contractor should refer the clause A.17.7.

No interest shall be payable by BHEL on Earnest Money/Security Deposit or on any money due to the contractor by BHEL.

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**C.4.0 PERFORMANCE GUARANTEE:**

C.4.1 The contractor shall be responsible for any defects in the execution of work noticed in guarantee period of 12 months reckoned from the date of putting the complete system into commercial operation/handing over to customer or 18 months from the date of system is declared completely erected, duly tested and accepted by BHEL and customer. The Contractor shall submit a bank guarantee worth 10% of the total contract value of erection, testing and commissioning of equipment in the prescribed proforma form of BHEL. If the contract is for more than one sub-station and the substations are completed and taken over by customer in stages, then the performance BG for the substation completed and handed over may be submitted based on the contract value of individual substation at the time of submitting the final bill, substation wise.

~~C.5.0 **LD/PENALTY FOR DELAY IN EXECUTION:**~~

~~C.5.1 In case the contractor fails to complete the project within the time specified in the tender specification or any extension thereof subject to force majeure condition, the contractor shall be liable to pay by way of LD/Penalty a sum equal to the half percent of the contract price, per calendar week or part thereof by which the commissioning of the project is delayed, subject to ceiling of 10 % of the contract price. Once the maximum limit of delay is reached (i.e. 20 week of delay) BHEL may consider termination of the contract and forfeit the Security deposit without prejudice to the other remedies under the contract. If the contract is for more than one sub-station and the substations are completed and taken over by customer in stages, then the delays if any by the contractor for the substation completed and handed over may be accounted for the individual substation and LD leviable shall be computed based on the contract value of individual substation.~~

Above clause No.C.5.0stands deleted. Please refer Annexure to conditions of contract for ETC works.

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**C.6.0 RECEIPT/ UNLOADING, HANDLING, TRANSPORTATION, SECURITY AND PRESERVATION OF EQUIPMENT AT SITE:**

- C.6.1 The contractor shall take the delivery of all the equipment, structures and materials etc. at site and their security shall be the responsibility of the contractor. Further transportation of materials to work place as per requirements will be in the scope of the contractor. For any delay, demurrage/wharfage/detention charges will be borne by the contractor.

In order to ensure timely completion of project, some of the equipment/material as covered under clause no. E.10.0 of Section-E (Schedule of equipment) may arrive at site and are unloaded and stacked/stored prior to mobilisation of ETC Contractor for the work covered under this Tender Specification. In such a case, the amount actually spent by BHEL on unloading and storage till the time of mobilisation by the ETC contractor shall be debited to their account. Immediately after mobilisation, the contractor shall take these into their custody and all the conditions as applicable for the material directly received by the contractor will be applicable for these material.

**C.7.0 FACILITIES TO BE PROVIDED AT SITE BY THE CONTRACTOR:**

- C.7.1 Watch and ward by authorised/licensed agency for the safe custody of the equipment shall be responsibility of the contractor.
- C.7.2 It is the responsibility of the contractor to dismantle and take away all the materials of his office accommodation as soon as the project is handed over to BHEL/Owner and clean the area off debris.

**C.8.0 TESTING AND COMMISSIONING:**

- C.8.1 All the electrical/mechanical test of the materials and equipment will be arranged by the contractor as per standard Specification/Field Quality Plan/ Erection Manual/Directive of the Site Engineer and Owner. The contractor shall have to fill the check list (site inspection record forms) for receipt, storage, erection, testing and commissioning of all the equipments as per BHEL systems to ensure proper quality of work.

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- C.8.2 All the testing equipment required to carry out the site test for all the equipment or the erected equipment shall be calibrated and shall be arranged by the contractor at his own cost. However, necessary instruction and the guidelines will be given by BHEL/owner.
- In case Contractor is unable to provide the calibrated measuring and test instruments to the satisfaction of 'ENGINEER' then as per his own wisdom/ judgement can recommend a deduction of maximum limit up to 5% from the Contractor's bill. But this in no way relieves the Contractor from arranging the test & measuring instruments / equipment as required for completion of the 'PROJECT' without affecting the quality of work and meeting any Contractual obligation whatsoever.
- C.8.3 The contractor shall be completely responsible for the satisfactory erection and providing Test Equipment and skilled manpower for testing, commissioning of all equipment, notwithstanding the fact that he may be assisted by BHEL or its authorised representative.
- C.8.4 The installation of all electrical equipment shall be carried out only by an electrical contractor holding a valid License for carrying out installation work of the voltage classes involved, under the direct supervision of and by persons holding valid certificates of competency for the same voltage classes, issued or recognised by the State Government. Contractor shall submit the particulars of the License held by him.
- C.8.5 The contractor shall furnish to BHEL the names and particulars of certificates of competency of the supervisors and workmen to be engaged for carrying out installation work against this specifications.
- C.8.6 The work shall be executed in a workman like manner in accordance with the requirements specified in the General Specification of Electrical Equipment installation, testing and commissioning specifications. Copy of such specifications/ drawings will be given to successful bidder before starting the work.

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- C.8.7 All electrical work shall also comply with standard norms and practices adopted by the State Electricity Board. Site test reports shall be prepared and submitted by the contractor.
- C.8.8 Before charging the installation in part or full, this shall have to be approved by Statutory Govt. Authorities like Electrical Inspector, other concerned agency and the contractor has to arrange approval for the same as and when required by BHEL/Owner.
- C.8.9 Any feasible modification in the equipment or installation that may be demanded by Electrical Inspector shall have to be carried out by the contractor at no extra charges to BHEL. The contractor shall take all necessary steps to enable BHEL/Owner to get the installation approved by the above authorities & shall render all necessary assistance to BHEL/Owner in the matter.
- C.9.0 **COMPLETION OF CONTRACT:**
- C.9.1 All equipment, mountings, fittings accessories or apparatus which may not have been specifically mentioned but which are usual or necessary for completing the erection and commissioning work of system, shall be done by the contractor without any extra charges.
- C.10.0 **TRIAL OPERATION AND HANDING OVER:**
- C.10.1 On completion of erection of the equipment and before pre-commissioning tests of the equipment, each of the equipment shall be inspected by the BHEL/Owner for the correctness and completeness of the installation. Thereafter commissioning engineers shall carry out all pre-commissioning tests. The results of such pre-commissioning tests shall be signed jointly by the contractor's representative and BHEL/Owner.
- C.10.2 On conclusion of satisfactory pre-commissioning tests, the trial operation of the equipments shall start. The equipment shall be on trial operations during which period all necessary adjustments shall be made.

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- C.10.3 After completion of trial operation, the plant will be handed over to the owner, after the period to be specified by BHEL. On taking over the plant, the owner shall issue a certificate to that effect.
- C.10.4 BHEL/Owner shall be at liberty from time to time or at any time before the completion of the works to take possession and use any part of the completed works and in such case the contractor shall completely finish the said uncompleted part or parts of the works as and when the engineer shall direct whether before or after the respective prescribed time or extended time (if any) for the completion of the works and if required by the engineer while the owner is in possession of the said part or parts, of the site or works.
- C.10.5 If due to reason of any default on the part of Contractor, a taking over certificate has not been issued in respect of any portion of the works, within one month after the time for completion or extended time as the case may be, the Owner/BHEL shall be at liberty to use the works or any portion thereof in respect of which a taking over certificate has not been issued, provided that the works or the portion so used as aforesaid shall be reasonably capable of being used and that the Contractor shall be afforded the earliest opportunity of taking such steps as may be necessary to permit the issue of the taking over certificate.

C.11.0 **ADDITIONAL EXPENDITURE:**

In case any additional expenditure is incurred in the works arising out of the faulty execution of the works by the contractor, such additional expenditure shall be borne by the contractor.

C.12.0 **SPLITTING THE WORK:**

BHEL reserves the right to split the work and award any part of the work to any agency without assigning any reason whatsoever.

C.13.0 **SUPPLY OF MATERIAL:**

- C.13.1 The Contractor shall in no case be entitled to any compensation or damage on account of any delay in supply or non-supply thereof for all or any such materials and stores but the contractor shall be entitled to suitable extension of time as may be determined by the Engineer whose decision shall be final and binding.

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C.13.2 The contractor shall satisfy himself of the quantity and quality of the materials at the time of taking delivery from the BHEL/Owner. No claim whatsoever will be entertained by the BHEL/Owner on account of quality or quantity after the materials are taken by the contractor from the BHEL/Owner.

C.14.0 **ELECTRICITY AND WATER:**

C.14.1 Electricity for construction work shall be provided at one point on chargeable basis at the rate prevailing at the time of drawal of power, unless specified otherwise. The contractor shall have to make their own arrangements, at their cost, for distribution to various locations for their works including proper switch/fuse units, distribution boards, cables, poles etc. to ensure safety of men and equipment. Where required the contractor shall employ diesel operative equipment in addition to electric operated ones to ensure timely completion of work.

In case BHEL is unable to provide Electricity on chargeable basis then the contractor has to arrange same at his end.

C.14.2 The contractor shall indicate in his offer the power load required by him along with the load details for which power is required.

C.14.3 The owner shall not be responsible for any inconvenience caused due to any failure of lighting and power supply and no compensation for delay in works can be claimed by the contractor due to such non-supply on the grounds of idle labour, machinery or any other grounds.

C.14.4 The contractor should ensure that the work in critical areas is not held up in the event of lighting and power breakdown and for the same he should have some standby arrangement at his cost. In the event of breakdown in the electric supply, if the progress of work is hampered, it will be the responsibility of the contractor to step up the progress after restoration of electric supply so that over all progress of work is not affected. The contractor shall make proper arrangement of illumination at work place while working in late hours or in darkness.

C.14.5 Unless stated otherwise in the scope of works, the contractor shall make his own adequate arrangement for procuring clear water to be used in the works.

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C.15.0 **INSURANCE :**

C.15.1 Contractor shall take insurance cover(s) to cover his Tools and Plants, Assets, workmen compensation and third party liability. The contractor shall make available the original insurance cover(s) to the Engineer for necessary verification before commencement of work.

C.16.0 **ESCALATION/PRICE VARIATION :**

C.16.1 Under this contract, **No escalation/ Price variation** is allowed. The quoted prices are FIRM till complete commissioning and handing over of the Project to Customer/Owner.

C.17.0 **OVERRUN CHARGES:**

C.17.1 **Above clause No.C-17.0 stands deleted. Please refer Annexure to conditions of contract for ETC works.**

C.18.0 **CONSTRUCTION SCHEDULE:**

C.18.1 While submitting the offer the contractor shall furnish Bar Chart detailing out all major activities, as to how he proposes to complete the work maintaining the completion schedule as given in Notice Inviting Tender. If the contractor fails to achieve any milestone indicated in the Bar Chart/completion schedule mentioned elsewhere, the contractor shall be levied penalty as per clause C.5.0.

C.19.0 **HEAVY MATERIAL HANDLING EQUIPMENT:**

The contractor must clearly indicate the details of all Heavy Materials Handling Equipment owned by him in Annexure-C of Section-A, General Instructions to the Tenderer. The boom length, capacity of handling load and other relevant details must also be given.

C.20.0 **CALIBRATED TEST INSTRUMENTS:**

Contractor is required to bring all the required testing equipments and instruments for conducting pre-commissioning test. All instruments should be calibrated as this is an ISO System requirement and the contractor should furnish test certificate for calibration. Also, please see clause E.4.2 and E.6.3 of Section-E for more details.

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- C.21.0 Contractor should maintain moisture free store.
- C.21.1 Illumination system in & around store should be maintained by the contractor.
- C.21.2 All the material stored in the open yard shall be covered by tarpaulins to be arranged by the contractor.
- C.22.0 **PROTECTION OF WORK :**
- C.22.1 Contractor shall effectively protect his work, equipment, material from theft, damage or tempering at his own expenses till the work is finally taken over by the BHEL/Owner.
- C.22.2 Finished work where required, shall be suitably covered to keep it clean and free from defacement or damage.
- C.22.3 Necessary fire protection arrangement is to be made by the contractor for store and place of work.
- C.23.0 **SAFETY MEASURES :**
- C.23.1 All safety rules and codes as applicable to work shall be followed without exception.
- C.23.2 All safety appliances and protective devices including safety belt, hand gloves, aprons, helmets, shield goggles etc. shall be provided by the contractor to his personnel. Also, the Contractor must follow BHEL Quality system to ensure safety in all activities of site work.
- C.24.0 **QUALITY RECORDS ( FQPs, MATERIAL MANAGEMENT ETC.)**
- C.24.1 Contractor should follow field quality plan furnished by BHEL to ensure quality in all activities of work performed at site.
- C.24.2 The contractor shall have to maintain records pertaining to Material Verification on receipt at site as well as Daily Receipt Register, Stock Register as per the various quality systems of BHEL.

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- C.25.0 The contractor shall remove all scaffolding, ladders, temporary structures etc. erected by him during erection in order to leave place neat and clean to the satisfaction of the owner.
- C.26.0 All packing/items are to be checked immediately on receipt at site. Any shortages, damages are to be reported to BHEL within a week's time in writing.
- C.26.1 All parts shall be thoroughly cleaned, all rust removed and surface polished as required before erection of any equipment.
- C.26.2 Cleaned and polished parts shall be coated with anti-corrosive paints wherever necessary.
- C.27.0 After completion of work, reconciliation is to be done for all the material issued to the contractor. Balance materials are to be returned to BHEL/Owner.

C.28.0 **WORKING HOURS:**

If in the opinion of BHEL, the progress of the erection work by the contractor at any stage needs expediting so as to ensure completion of work within stipulated time, BHEL shall have the right to instruct the Contractor to increase the Contractor's manpower and working hours and the contractor shall comply with such instructions without any Extra Charges.

C.29.0 **DIVISION OF WORK:**

Prices are to be quoted for schedule of Equipment - E.10.0 of Section-E. Work can be split-up and awarded to more than one contractor as per requirement of BHEL/Owner for timely completion of Project.

C.30.0 **INCOME TAX / SALES TAX / WORKS TAX/VAT**

~~**The prices to be quoted by bidder should be EXCLUSIVE of service tax and VAT (Sales/ Works/ Commercial /Trade tax as applicable in the concerned state). However, the applicable rate of taxes should be indicated separately in the techno commercial offer itself for evaluation of price bids. The rates quoted shall remain firm during the execution of the contract upto the contractual completion date. Reimbursement of taxes will be at actuals limited to the tax rates quoted in the tender, unless agreed otherwise during the extended completion period.**~~

Above clause No.C-30.0 stands deleted.Please refer Annexure to conditions of contract for ETC works.

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C.31.0 **DISCREPANCIES AND ADJUSTMENT OF ERRORS**

- C.31.1 The several documents forming the contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawings & figures dimensions in preference to scale & special conditions in preference to general conditions.
- C.31.2 In case of discrepancies between schedule of quantities, the specification and/or the drawings the following order of preference shall be observed.
- a) Description in Schedule of Quantities.
  - b) Special Conditions.
  - c) Drawings
  - d) Technical Specifications.
  - e) General Conditions of Contract.
- C.31.3 If there are varying or conflicting provisions made in any one document forming part of the contract, the Engineer shall be deciding authority with regard to the document.
- C.31.4 Any error in the description, quantity in schedule of quantities or any omission there from shall not vitiate the contract or release the contractor from the execution of the whole or any part of the works comprised therein according to the drawings and specifications or from any of his obligations under the contract.
- C.31.5 If on check there are found to be differences between the rates given by the contractor in words and figures or in the amount worked out by him in the schedule of quantities and general summary, the same shall be adjusted in accordance with the following rules. :
- a) In the event of discrepancies between description in words and figures quoted by tenderer, the description in words shall prevail.
  - b) In event of an error occurring in the amount column of schedule of quantities as a result of wrong extension of the unit rate and the quantity, the unit rate shall be regarded as firm and extension shall be amended on the basis of the rates.
  - c) All errors in totalling in the amount column and in carrying forward totals shall be corrected.

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- d) The totals of sections of bill of quantities amended shall be carried over to the general summary and the tendered sum amended accordingly. The tendered sum so altered shall, for the purpose of tender be substituted for the sum originally tendered and considered for acceptance instead of the original sum quoted by the tenderer. Any rounding of quantities or in sections of bill of quantities or in general summary, by the tenderer, shall be ignored.

- C.31.6 If neither drawings nor specifications contain any mention of minor details of construction which in the opinion of the Engineer, whose decision shall be final and conclusive, are reasonable and obviously and fairly intended for satisfactory completion of work, such details shall be provided by the contractor without any extra cost, as if they were specially mentioned and shall be deemed to be included in the contract.

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# **SECTION-D**

# **ERECTION CONDITIONS** **OF CONTRACT**

## **SECTION - D**

### **ERECTION CONDITIONS OF CONTRACT**

**D.1.0 GENERAL:**

D.1.1 The following shall supplement the conditions already contained in the other parts of these specifications and documents and shall govern that portion of the work of this contract to be performed at site.

D.1.2 The contractor upon signing of the contract shall, in addition to a Project Coordinator, nominate another responsible officer as his representative at site suitably designated for the purposes of overall responsibility and co-ordination of the works to be performed at site. Such person shall function from the site office of the contractor during the pendency of the contract.

**D.2.0 REGULATION OF LOCAL AUTHORITIES AND STATUTES:**

D.2.1 The contractor shall comply with all the rules and regulations of local authorities during the performances of his field activities. He shall also comply with the **Minimum Wages Act, 1948 and the Payment of Wages Act** (Both of Government of India) and the rules made there under in respect of any employee or workman employed or engaged by him or his sub-contractor.

The Contractor should note that all instructions of Engineer shall be binding for example display of Minimum Wages paid to the workmen, construction of toilets etc. in the vicinity of working area from health and sanitation standpoint etc.

D.2.2 All registration and statutory inspection fees, if any in respect of his work pursuant to this contract shall be to the account of the contractor. However any registration, statutory inspection fees lawfully payable under the provision of the statutory laws and it's amendments from time to time during erection in respect of the plant equipment ultimately to be owned by the Owner/BHEL shall be to the account of the Owner/BHEL. Should any such inspection or registration need to be rearranged due to the fault of the Contractor or his sub-contractor, the additional fees for such inspection and/or registration shall be borne by the contractor.

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**D.3.0 OWNER'S LIEN ON EQUIPMENT :**

The owner/ BHEL shall have lien on all equipments including those of the contractor brought to the site for the purposes of erection, testing and commissioning of the plants. The Owner/ BHEL shall continue to hold the lien on all such equipments through out the period of contract. No material brought to the site shall be removed from the site by the contractor and/ or his Sub-contractors without the prior written permission of BHEL.

**D.4.0 RE-WORKS ETC. :**

In case Owner/BHEL/consultant during inspection at site rejects an item already agreed and the same is agreed to by BHEL and any re-execution of works of other contractors and/or his agencies, which might have got damaged or affected by the replacements will have to be attended to by the contractor free of cost.

**D.5.0 ACCESS TO SITE AND WORKS ON SITE :**

D.5.1 Suitable access to and possession of the site shall be provided to the contractor by Owner/ BHEL in reasonable time.

D.5.2 The works so far as it is carried out on the owner's premises shall be carried out at such time as the owner/BHEL may approve and the Owner/ BHEL shall give the contractor reasonable help/ facility for carrying out the works.

D.5.3 In the executions of the works, no persons other than the Contractor or his duly appointed representative, Sub- contractor and workmen shall be allowed to do work on the site except by the special permission in writing by BHEL.

**D.6.0 CONTRACTOR'S SITE OFFICE ESTABLISHMENT:**

The contractor shall establish site office at the site and keep posted an authorised representative for the purpose of contract. Any written order or instruction of BHEL or his duly authorised representative shall be communicated to the contractor at the site office and the same shall deemed to have been communicated to the contractor at his legal address.

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**D.7.0 CO-OPERATION WITH OTHER CONTRACTORS:**

D.7.1 The contractor shall co-operate with all other contractors or tradesmen of the owner/BHEL who may be performing other works on behalf of them and the workmen who may be employed by the owner/BHEL doing work in the vicinity of the works under the contract. The contractor shall also arrange to perform his work as to minimise to the maximum extent possible interference with the work of other contractors and his workmen. Any injury or damage that may be sustained to the employees of the other contractors, BHEL and the owner due to the contractor's work shall promptly be made good at contractor's own expenses. The owner/ BHEL shall determine the resolution of any difference or conflict that may arise between the contractor and other contractor's or between the contractor and workmen of the owner and BHEL in regard to their work. If the works of the contractor is delayed because of any acts or omission of another contractor, the contractor shall have no claim against the owner/ BHEL on that account other than an extension of time for completing his works.

D.7.2 BHEL shall be notified promptly by the contractor of any defects in the other contractor's works that could affect to the contractor's works. The owner/BHEL shall determine the corrective measures if any, required to rectify this situation which shall be binding on the contractor.

**D.8.0 DISCIPLINE OF WORKMEN:**

D.8.1 The contractor shall adhere to the disciplinary procedure set by the owner in respect of his employees & workman at site. The owner/BHEL shall be at liberty to object to the presence of any representatives or employee of the contractor at the site, if in the opinion of the owner/ BHEL such employee has misconducted himself or be incompetent or negligent or otherwise undesirable and then the contractor shall remove such a person objected to and provide in his place a competent replacement.

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**D.9.0 CONTRACTOR'S FIELD OPERATION:**

D.9.1 The contractor shall keep informed in advance regarding his field activity plans & schedule for carrying out such part of the works. Any review of such plan or schedule or method of work by the BHEL shall not relieve the contractor of any of his responsibilities towards the field activities and its schedule. Such reviews shall also not be considered as an assumption of any risk or liability by the owner/BHEL or consultant or any of his representatives and no claim of the contractor will be entertained because of the failure or inefficiency of any such plan or schedule or method or work reviewed. The contractor shall be solely responsible for the safety adequacy and efficiency of plant and equipments and his erection methods.

D.9.2 The contractor shall be completely responsible for the conditions of the work-site including the safety of all persons employed by him or his sub-contractor and all the properties under his custody during the performance of the work. This requirements shall apply continuously till the completion of contract and shall not be limited to normal working hours.

**D.10.0 PHOTOGRAPH AND PROGRESS REPORT:**

D.10.1 The Contractor shall furnish to BHEL photographs of the progress of work / work done at site. Photographs shall be taken as & when indicated by BHEL representative. Photograph shall be adequate in size & number to indicate various stages of erection. Each photograph shall contain the date, the name of the Contractor and the title of the Photograph. The cost of photographs is to be born by the Contractor.

D.10.2 The above Photographs along with the soft copy ( on floppy/CD) shall accompany the monthly progress report detailing out the progress achieved on all erection activities as compared to the schedules. The report shall also indicate the reasons for the variance between the scheduled and actual progress and action proposed for corrective measures wherever necessary.

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**D.11.0 MANPOWER REPORT:**

D.11.1 The Contractor shall submit to BHEL from the first working day of every month, a Manpower report of the previous month detailing the number of persons scheduled to have been employed and actually employed skill-wise and the areas of employment of such labour.

**D.12.0 PROTECTION OF WORK:**

The Contractor shall have total responsibility for protecting his works till it is finally taken over by the owner. No claim will be entertained by the BHEL for damage or loss to the Contractor's works & the contractor shall be responsible for the complete restoration of the damaged work to its original condition to comply with the specification & drawings. Should any such damage to the Contractor's works occur because of other party not under him directly, & if disagreement or

conflict or dispute develops between the contractor & the other party or parties concerns works the same will be resolved as per the provisions of the clause D.7.0 above entitled cooperation with other contractors. The contractor shall not cause any delay in the repair of such damaged works because of any delay in the resolution of such dispute. The contractor shall proceed to repair the work immediately & no cause thereof will be assigned pending resolution of such dispute.

**D.13.0 EMPLOYMENT OF LABOUR:**

D.13.1 The Contractor will be expected to employ on the work only his regular skilled employees with experience of his particular work. No female labour shall be employed after darkness. No person below the age of eighteen years shall be employed.

D.13.2 All travelling expenses including provision of all necessary transport to and fro for Site, lodging allowance and other payments to be Contractor's employees shall be the sole responsibility of the contractor.

D.13.3 The hours of work on the Site shall be decided by the owner/BHEL and the Contractor shall adhere to it. Working hours will normally be eight (8) hours per day Monday through Saturday or depending upon the situation/ requirement.

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D.13.4 Contractor's employees shall wear identification badges while on the work at site.

D.13.5 In the case of owner/BHEL become liable to pay any wages or dues to the labour or to any Government agency under any of the provisions of the Minimum Wages Act, Workmen Compensation Act, Contractor Labour Regulation Abolition Act or any other law due to act or omission of the Contractor, BHEL may make such payment and recover the same from the Contractor's bills or from any amount which is already under process of payment to the Contractor.

D.14.0 **FACILITIES TO BE PROVIDED BY OWNER:**

D.14.1 Space: The Contractor shall advise BHEL within Fifteen (15) days from the date of acceptance of the Letter of Intent about his exact requirement of space for his office, storage area. The above requirements shall be reviewed by the Owner/BHEL & space will be allotted to the Contractor for construction of his temporary structures like office and storage sheds.

D.14.2 Construction water and power (Electricity) (Refer Clause C.14.0).

D.15.0 **FACILITIES TO BE PROVIDED BY THE CONTRACTOR:**

D.15.1 **CONSTRUCTION EQUIPMENTS, TOOLS, TACKLES AND SCAFFOLDINGS:**

The Contractor shall provide all the construction equipments, tools, tackles and scaffoldings required for pre-assembly, erection, testing and commissioning of the equipments covered under the contract. He shall submit a list of all such materials to the BHEL before the commencement of work at Site. These tools and tackles shall not be removed from site without the written permission of the owner/BHEL.

D.15.2 **COMMUNICATION:**

The Contractor will make his own arrangement for all his communication needs such as telephone, fax etc., at his site office and his residential accommodation.

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**D.15.3 FIRST AID:**

The Contractor shall provide necessary first aid facilities for all the employees, representatives and workmen working at the Site. Enough number of contractor's personnel shall be trained in administering first aid.

**D.15.4 CLEANLINESS:**

D.15.4.1 The Contractor shall be responsible for keeping the entire area allotted to him clean and free from rubbish, debris, etc. during the period of contract. The Contractor shall employ enough number of special personnel to thoroughly clean his work-area at least once in a day. All such rubbish and scrap material shall be stacked or disposed in a place to be identified by the owner/BHEL. Materials and stores shall be so arranged to permit easy cleaning of the area. In areas where equipment might drip oil and cause damage to the floor surface, a suitable protective cover of the flame resistant, oil proof shield shall be provided to protect the floor from such damage.

D.15.4.2 Similarly the labour colony, the office & the residential areas of the Contractor's employees and workmen shall be kept clean & neat to the entire satisfaction of the Owner/BHEL. Proper sanitation arrangements shall be provided by the contractor in the workmen areas, office and residential areas of the contractor.

**D.16.0 LINES AND GRADES:**

All the works shall be performed to the lines, grades and elevations indicated on the drawings. The Contractor shall be responsible to locate the layout of the works. Basic horizontal and vertical control points as required will be established & marked by the Owner/BHEL at Site at suitable points.

These points shall be used as datum for the works under the contractor. The contractor shall inform the Engineer well in advance of the time and places at which he wishes to do work in the area allotted to him, so that suitable datum points may be established and checked by Owner/BHEL to enable the contractor to proceed with his works. Any work done without being properly located may be removed and/or dismantled by the Owner/BHEL at Contractor's expenses.

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**D.17.0 FIRE PROTECTION:**

- D.17.1 The work procedures that are to be used during erection shall be those which minimise fire hazards to the extent practicable. Combustible materials, combustible waste and rubbish shall be collected and removed from the site at least once each day. Fuels, oils and volatile or flammable materials shall be stored away from the construction and equipments and material storage and areas in safe containers. Untreated canvas paper, plastic or other flammable materials shall not at all be used at site for any other purpose unless otherwise specified, if any such materials are received with the equipment at the Site, the same shall be removed and replaced with acceptable materials before moving in to the construction area or storage.
- D.17.2 Similarly corrugated paper fabricated cartons etc., will not be permitted in the construction area either for storage or for handling of materials. All such materials used shall be of water proof and flame resistance type. All other materials such as working drawings, plants etc. which are combustible but are essential for the works to be executed shall be protected against combustion resulting from welding sparks, cutting flames and other similar fire sources.
- D.17.3 All the contractors supervisory personnel and sufficient number of workers shall be trained for fire-fighting and assigned specific fire protection duties. Enough of such trained personnel must be available at the Site during the entire period of the Contract.
- D.17.4 The contractor shall provide enough fire protection equipment of the types and number for the ware-houses, office, temporary structures, labour colony area etc., access to such fire protection equipment shall be easy and kept all times.

**D.18.0 SECURITY:**

The Contractor shall have total responsibility for all equipments & materials in his custody stored, loose, semi assembled and/or erected by him at site. The contractor shall make suitable security arrangements including employment of security personnel to ensure the protection of all materials, equipments and works from theft, fire, pilferage & other damages and losses. All materials belonging to the Contractors shall enter and leave the project site only with the written permission of the Owner/BHEL in the prescribed manner.

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**D.19.0 CONTRACTOR'S AREA LIMITS:**

The Owner will make out the boundary limits of access roads, parking spaces, storage and construction areas for the contractor and the contractor shall not trespass the areas not so marked out for him. The contractor shall be responsible to ensure that none of his personnel move out the areas marked out for his operations. In case of such a need for the contractor's personnel to work in the areas not marked out for him, the same shall be done only with written permission of the Owner/BHEL.

**D.20.0 CONTRACTOR'S COOPERATION WITH THE OWNER/ BHEL:**

In cases where the performances of the erection work by the contractor affects the operation of the system facilities of the Owner/BHEL such erection work of the contractor shall be scheduled to be performed only in the manner stipulated by the Owner/BHEL and the same shall be acceptable at all times to the contractor. The Owner/BHEL may impose such restriction on the facilities provided to the contractor such as electricity, water etc., as he may think fit in the interest of the Owner/BHEL and the contractor shall strictly adhere to such restrictions and cooperate with the Owner/BHEL. It will be responsibility of the contractor to provide all necessary temporary instrumentation and other measuring devices required during start up and operation of the equipment system which are erected by him. The contractor shall also be responsible for flushing and initial filling of all the oil and lubricant required for the equipment furnished and erected by him, so as to make such equipments ready for operation. The contractor shall be responsible for supplying such flushing oil & other lubricants unless otherwise specified elsewhere in these documents and specifications.

**D.21.0 PRE-COMMISSIONING TRIALS AND INITIAL OPERATIONS:**

The pre-commissioning trials and initial operations of the equipments furnished and erected by the contractor shall be the responsibility of the contractor as detailed in relevant clauses. The contractor shall provide in addition, test instruments calibrating devices etc. and the labour required for the successful performance of these trials. If it is anticipated that the above test may prolong for a long time, the Contractor's workmen required for the above test shall always be present at site during such trials.

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**D.22.0 MATERIAL HANDLING AND STORAGE:**

D.22.1 All the equipments furnished under this contract arriving at site shall be promptly received, unloaded, transported and stored in the storage spaces by the contractor.

D.22.2 Contractor shall be responsible for examining all the shipments immediately on receipt at site and notify BHEL immediately if any damage, shortage, discrepancy. Filling of material verification reports on receipt of materials shall be carried out by the Contractor as per the instructions of Engineer. For any shortages or damages in transit, handling and/or in storage and erection of the equipments at site shall be intimated to BHEL/ equipment supplier promptly to enable them lodge claim with the underwriters. Any financial and/or time loss happened due to contractor's negligence in this regard shall be to the account of the contractor. Any demurrage, wharfage and any other charges claimed by the Transporter or Railways due to any reason attributable to the contractor such as delay in taking delivery in time shall also be to the account of the contractor.

D.22.3 The Contractor shall maintain an accurate and exhaustive record detailing out the list of all equipments received and keep such record open for the inspection of the Owner/BHEL at any time.

BHEL is an ISO Company and the contractor shall extend all help in maintaining records of receipts, issue and stock in line with Material Management System issued by BHEL. Also, he shall assist in periodic inspection of equipment/materials in stores as per this system.

The Contractor shall carryout all field activities related with ETC work as per Field Quality Plans (FQPs) provided by Engineer to ensure Quality of work at site as well as meet the contractual obligation to BHEL/Owner.

D.22.4 All equipments shall be handled very carefully to prevent any damage or loss. No bare wire ropes, slings etc. shall be used for unloading and/or handling of the equipments without the specified written permission of BHEL. The equipment stores shall be properly protected to prevent damage either to the equipment or to the floor where they are stored. The equipment from the store shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at site.

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- D.22.5 All electrical panels, control gears, motors and such other devices shall be properly dried by heating before they are installed and energised. Motor bearings, slip rings, commutators and other exposed parts shall be protected against moisture ingress and corrosion during storage and periodically inspected. Heavy rotation parts if any, in assembled conditions shall be periodically rotated to prevent corrosion due to prolonged storage.
- D.22.6 All the electrical equipment, such as motors, transformers etc. shall be tested for insulation resistance at least once in three months from the date of receipt till the date of commissioning and record for such measured insulation values maintained by the contractor. Such records shall be open for inspection by the Owner/BHEL.
- D.22.7 The contractor shall ensure that all the packing materials and protection devices used for the various equipments during transit and storage are removed before the equipments are installed.
- D.22.8 The consumable and other supplies likely to deteriorate due to storage must be thoroughly protected and stored in a suitable manner to prevent damage or deterioration in quality by storage.
- D.22.9 All the materials stored in the open or dusty location must be covered with suitable weather proof & flame proof covering materials wherever applicable.
- D.22.10 If the materials belonging to the contractor are stored in areas other than these earmarked for him, the Owner/BHEL will have the right to get it removed to the area earmarked for the contractor at the contractor's cost.

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**D.22.12 STORAGE INSTRUCTION FOR GAS FILLED EQUIPMENTS:**

- D.22.12.1 All transformers despatched to site are fitted with Nitrogen cylinder in the tank to maintain positive pressure. It will be the responsibility of the contractor to maintain the pressure and replace the empty Nitrogen cylinder with Nitrogen filled cylinder of required purity at his own cost whenever such cylinders are become empty. Contractor should also maintain the periodic record of the pressure of Nitrogen in the transformer in a register for this purpose.
- D.22.12.2 For all other gas filled equipments, like CTs, VTs, CVTs etc. the contractor should also maintain the gas pressure & if it falls below the required value, contractor should refill the leaked gas of required purity at his own cost.

**D.23.0 CONSTRUCTION AND ARRANGEMENTS:**

- D.23.1 The field activities of the contractors working at site, will be coordinated by BHEL and BHEL decision shall be final in resolving any dispute or conflicts between the contractor and other contractor's and tradesmen of the BHEL regarding scheduling and coordination of work. Such decisions shall not be cause for extra compensation for time to the contractor.
- D.23.2 The Owner/Consultant shall hold weekly meetings of all the contractors working at the site at a time and a place so designated. The contractor along with BHEL shall attend such meetings and take notes of discussions during the meeting and the decisions of the Owner/BHEL/Consultant shall be strictly adhered to in performing his works. In addition to the above weekly meetings, the Owner/Consultant/BHEL may call for other meetings either with individual contractors or with selected number of contractors and in such a case the contractor, if called will also attend such meetings with BHEL.
- D.23.3 Time is the essence of the contract & the contractor shall be responsible for performance of his work in accordance with the specified construction schedule. If at any time the contractor is falling behind the schedule, he shall take necessary action to make good for such delay by increasing his work force or by working overtime or otherwise accelerate the progress of the work to comply with the schedule and shall communicate such actions in writing to the BHEL satisfying them that his action will compensate for the delay. The contractor shall not be allowed any extra compensation for such action.

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D.23.4 BHEL shall however not be responsible for provision of additional labour and/or materials or supply or any other service to the contractor except for the coordination work between various contractors as set out earlier.

D.24.0 **FIELD QUALITY PLANS AND RECORDS:**

The contractor shall maintain at his Site Office upto date copies of all drawings, specifications, FQPs and other contract documents and any other supplementary data complete with all the latest information thereto. The contractor shall also maintain in addition the continuous record of all changes to the above contract documents, drawings, specifications, supplementary data etc. effected at the field and on completion of his total assignment under the contract, shall incorporate all such changes on the drawings and other engineering data to indicate as installed/build conditions of the equipments furnished and erected under the contract.

Such "AS BUILT DRAWINGS" and "ENGINEERING DATA" shall be submitted to BHEL in required number of copies.

D.25.0 **CONTRACTOR'S MATERIALS BROUGHT ON TO SITE:**

D.25.1 The contractor shall bring to site all equipments, components, parts, materials, including construction equipment, tools & tackles for the purpose of the works under intimation to the owner/BHEL. All such goods shall, from the time of there being brought to site but may be used for the purpose of the works only and shall not on any account be removed or taken away by the contractor without the written permission of the BHEL.

D.25.2 After the completion of the works the contractor shall remove from the site under the direction of the BHEL the material such as construction equipment, erection tools and tackles, scaffolding etc. with the written permission of BHEL. If the contractor fails to remove such materials within fifteen (15) days of issue of a notice by the BHEL to do so, then BHEL shall have the liberty to dispose/remove such materials and expanses incurred by BHEL in this regard will be recovered from the Contractor.

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**D.26.0 PROTECTION OF PROPERTY AND CONTRACTOR'S LIABILITY:**

D.26.1 The contractor shall be responsible for any damage resulting from his operation. He shall also be responsible for protection of all persons including members of public and employees of the Owner/BHEL and the employees of other contractors and subcontractors building, other plants and equipments and utilities either above or below the ground.

D.26.2 The contractor will ensure provisions of necessary safety equipments such as barriers, sign-boards, warning lights and alarm etc. to provide adequate protection to persons and property. The contractor shall be responsible to give reasonable notice to Owner/BHEL of public or private property and utilities when such property and utilities are likely to get damaged or injured during the performance of his work shall make all necessary arrangements with such owners related to removal and or replacement or protection of such property and utilities.

**D.27.0 PAINTING:**

All exposed metal parts of the equipment including pipings, structures, railings etc. wherever applicable shall be first painted with at least one coat of suitable primer after thoroughly cleaning all such parts off dirt and rust scales, greases, oil and other foreign materials by wire brushing, scraping or/and blasting and the same being inspected and approved by the Engineer for painting. After wards the above parts shall be finished with two coats of enamel paint. The quality of the finish paint shall be as per the standards of ISI equivalent and to be of the colour as approved by the Owner/BHEL.

**D.28.0 PROTECTION OF MONUMENTS AND REFERENCE POINTS:**

The contractor shall ensure that at points such as relic, antiquity, coins, fossils etc. which he may come across during the course of performance of his works either during excavation or elsewhere are properly protected & handed over to the owner under intimation to BHEL. Similarly the contractor shall ensure that the bench marks reference points etc. which are marked out either with the help of owner or by BHEL shall not be disturbed in any way during the performance of his works. If any work is to be performed which may disturb such references, the same shall be only after these are transferred to other suitable locations under the direction of BHEL. The contractor shall provide all necessary materials and assistant for such relocation of reference points etc.

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**D.29.0 WORK AND SAFETY REGULATIONS:**

- D.29.1 The contractor shall ensure the safety of all the workmen, materials, and equipment either belonging to him or to others working at site.
- D.29.2 The contractor will notify the BHEL office of his intention to bring on to site any equipment or any container with liquid or gases, fuel or other substances which may create hazards. BHEL shall have the right to prescribe the conditions under which such equipment or container may be handled and used during the performance of the works and the contractor shall strictly adhere to such instructions. BHEL shall have strictly the right to inspect any construction plant and to forbid its use, if in his opinion it is unsafe. No claim due to such prohibition shall be entertained by BHEL.
- D.29.3 Where it is necessary to provide and/or store petroleum products or petroleum mixtures & explosive, the contractor shall be responsible for carrying out such provision and/or storage in accordance with the rules and regulations laid down in Petroleum Act,1934. Explosively Act,1948 and petroleum and carbide of calcium manual published by the Chief Inspector Of Explosive of India. All such storage shall have prior approval of BHEL in case any approval are necessary from the Chief Inspector of Explosive of any statutory authorities, the contractor shall be responsible for obtaining the same.
- D.29.4 The contractor shall be responsible for the safe storage of his & his sub-contractor's radio-active source if any.

**D.30.0 ELECTRICAL SAFETY REGULATIONS:**

- D.30.1 In no circumstances will the contractor interfere with fuses and Electrical Equipment belonging to BHEL/Owner or to the other contractors.
- D.30.2 Before the contractor connects any electrical appliances to any plug or sockets belonging to the other contractor or Owner, he shall:
- (a) Satisfy the Owner/BHEL that the appliances are in good working conditions.
  - (b) Inform the Owner/BHEL of the maximum current, relating, voltage etc. of the appliances.
  - (c) Obtain permission of the Owner detailing the sockets to which the appliances may be connected.

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- D.30.3 The BHEL will not grant permission to the contractor until he satisfies that:
- (a) The appliance is in good conditions and fitted with suitable plug.
  - (b) The appliance is fitted with a suitable cable having proper earthing provisions.
- D.30.4 No cable in use will be disturbed by the contractor without prior permission. No weight of any description will be imposed on any such cable and no ladder or similar equipment will rest against or attached to it.
- D.30.5 No work shall be carried out on any live equipment. The equipment must be made safe by the BHEL/Owner and a permit to work issued before any work is carried out.
- D.30.6 The contractor shall employ the necessary number of qualified full time electrician to maintain his temporary electrical installation.
- D.31.0 **CONSUMABLES:**
- The contractor shall make arrangements for an adequate inventory at site of necessary consumable prior to erection so that the requirements of the same will not come in the way of timely completion of the works under the contract.
- D.32.0 **MILD STEEL AND ALUMINIUM WELDING & OTHER SPECIAL PROCESSES :**
- D.32.1 Only an approved and qualified welder shall be employed by the contractor. The welder will be subjected to pre-qualification test by Owner/BHEL.
- D.32.2 The Contractor shall ensure that personnel employed for doing other special processes like tube/pipe bending etc. are having proper experience and are qualified for doing such work.
- D.32.3 Erection of Aluminium tubular bus bar shall include cutting, bending, aluminium welding with sleeves (sleeves supplied by BHEL), Radiographic testing and D.P test of 100% welded joints, fixing corona end bells etc to complete.

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- D.32.4 For MS welding, red lead paint shall be applied followed by aluminium paint and bitumen after welding. For GS welding , two coats of cold galvanising anti-corrosive paint shall be applied after welding. In case any special process is indicated in customer's specification, then the same shall be applicable.
- D.32.5 10% welded joints in earthing shall be tested for Dye penetration test.

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# **SECTION – E**

## **SCOPE OF WORK AND** **COMPLETION** **SCHEDULE**

## **SECTION - E**

### **SCOPE OF WORK AND COMPLETION SCHEDULE**

#### **E.1.0 SCOPE OF WORK :**

The scope of work of the successful tenderer shall comprise but not limited to the following. The Tenderer shall read this scope of work in conjunction with all terms and conditions (Section -A,B,C & D) contained else where in this document. The quoted rates for various equipments/activities are deemed to include all the below mentioned activities and nothing extra is payable on account of these.

- E.1.1 For Contractor supplied materials:** It shall be prime responsibility of contractor to ensure safe storage of material supplied by him. The contractor may construct open/ covered store to ensure proper storage of the materials as per site requirement. Contractor will be permitted to dismantle and take back the stores after completion of the work. No additional payment shall be made/deducted on account of stores constructed by contractor for storing these materials.

**For BHEL supplied materials:** Contractor shall construct open/ covered store only if the same is mentioned in the Bill of Quantities.

If due to any reason the material can not be unloaded in designated store/open yard and it is unloaded at some nearby place on instructions of site Engineer then this material has to be shifted by subcontractor to designated store/open yard when it is ready without any additional claim. Any multiple handling of material within project premises is not payable by BHEL

Some items may get delivered at stores of other BHEL unit on account of convenience of despatch within the plant area. These material will be collected/shifted by subcontractor to switchyard store at no extra cost.

- E.1.2.1** Inspection / verification of equipment / materials received for any shortage / damage after opening the packing cases and intimating the same to BHEL/ Owner and underwriters within the time period specified by BHEL and to strictly follow the procedures specified. Storage of equipment indoor / open stores in line with the instructions of the manufacturer / BHEL.

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Conservation / maintenance / upkeep of the equipment in the store.

Temporary lighting in stores & construction area wherever required.

Safety / Security of equipments / materials.

E.1.2.2 **Watch and ward of Erected Equipment/Material** - Soon as the erection of switchyards are taken up, the watch and ward for the erected items will also be arranged by the subcontractor till the switchyards are taken by BHEL/customer

E.1.3 Erection, levelling and fixing of GI Structures of towers, beams including all the equipment support structures on their respective foundations in line with drawings to be furnished by BHEL. Final adjustment of foundation levels by chipping and dressing, checking location, elevation, etc., and checking position of foundations / anchor bolts and grouting/under pinning of anchor bolts and base plates wherever necessary for certain aux. equipment and accessories of main equipment. Materials such as M.S. packing shims of required thickness for levelling and alignment and civil material for final grouting with 1:1 cement mortar with approved make anti-shrinkage compound and finishing shall be arranged by contractor. *The grouting/underpinning of all tower and equipment foundation bolts as per specifications is in the scope of Contractor ie Bidder.*

Fixing and assembly including minor modification, where required, of all cable trench materials like cable tray racks, cable trays, coupler plates, 'T' and 'L' bends etc in line with drawings to be furnished by BHEL. The work shall also covers laying of all cables including glanding and termination for all the equipments covered under BOQ . At various crossing and wherever necessary the cables to pass through pipes laid underground in line with drawing to be furnished by BHEL. Pipes will be supplied by BHEL for cabling from trench to equipment and laying of the same including excavation and backfilling and making and finishing of holes in trench walls will be carried out by the contractor.

E.1.4 Transportation of equipment/material from stores to erection site, erection of equipment materials in line with the drawings/instructions to be furnished by BHEL including filtration of oil wherever required, testing and commissioning and handing over to owner/customer.

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- E.1.5 Earthing (if called for in BOQ) : laying of earth mat and risers including excavation, bending, cutting, welding, cleaning and painting of joints, backfilling and earth compaction etc. as per BHEL drawings/specifications.

Cutting, pointing and driving of MS rod electrode, installation of pipe electrode and construction of chambers as per drawings.

Earth connections from risers to equipment, structures etc. through GI flat including bending, cutting, welding, cleaning and painting of welded joints as per BHEL's drawings/specifications.

Welding electrode should be of reputed make company ISI certified, and as per BHEL's specifications.

- E.1.6 Providing for all consumables : It shall be noted by the tenderer that BHEL shall supply only the equipments/materials listed in schedule of equipments as free issue items. Any other sundry items required for completion of the job shall be procured by the contractor.

All Equipment fixing hardware shall be arranged by BHEL.

All cable glands shall be arranged by BHEL. However cable accessories like ferrules, lugs and markers, cable dressing and tying material etc. shall be in the scope of the contractor. The lugs shall be of reputed make company and as advised by BHEL site Incharge.

- E.1.7 Maintenance of switchyard and associated equipment till handing over to the owner, any other activity necessary for completion of the job but not specifically mentioned in this specification.
- E.1.8 Unloading, shifting, storing, verification, preservation during storage and handing over of spare items/maintenance equipment to Customer/Owner.
- E.1.9 Reconciliation and shifting of all the balance excess material and scrap material to BHEL store or handover in customer store, as the case may be.

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This excess material may include erection spares for various items of BOQ such as ACSR/AAC conductor, Al tube, Cable trench materials, Cables etc. Excess erection spare (except main equipment) supplied by purchaser upto 10% of the erected quantity shall be absorbed by the contractor & shall not be payable. Only as erected quantity of the various items of BOQ shall be payable as per the unit rates. However, any erection spares (excluding main equipment) handled in excess of 10% of the erected quantity shall be payable @ 10% of the unit rate ( to account for only unloading, storage and watch & ward. However, any additional quantity of main equipment, handled but not erected, shall be paid @ 10% of the item rate.

**E.2.0 ERECTION, TESTING & COMMISSIONING REQUIREMENTS :**

E.2.1 All the switchyard equipment shall be erected, installed, tested and commissioned by the contractor to the satisfaction of BHEL/Owner adhering to the latest national standard and codes. Some of the Reference standards are given below which are normally applicable for Switchyard work. ETC activity of all other equipment to be done as per relevant standards.

- a) IS : 10118-1982 Code of practice for selection, installation and maintenance of switchgear & control gear.
- b) IS : 10028-1985 Code of practice for installation and maintenance of transformer.
- c) IS : 732-1963 Code of practice for electrical wiring.
- d) IS : 3043-1963 Code of practice for earthing.
- e) IS : 2309-1989 Code of practice for the protection of building and allied structure against lightning.
- f) IS : 1646-1982 Code of practice for fire safety of building (General) Electrical installations.

E.2.2 All electrical equipment and installations shall also conform to the latest Indian Electricity rules as regards safety, earthing and other essential provisions specified therein for insulation and operation of electric plants.

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E.2.3 Earthing system, earth connections, testing of earthing system and connection, lightning protection system, electrical clearance and safety shall be strictly followed as per the national specifications which will be given to the successful bidder.

E.2.4 The schedule of equipment indicates the quantity of the equipment and these will be procured by BHEL and are to be erected by the contractor. The contractor has to erect, test all equipment for system commissioning and putting the same into operation. The trial run of individual equipment and final commissioning upto the handing over of the system to the customer of BHEL is the responsibility of the contractor.

Contractor will have to provide necessary support i.e.. suitable manpower, common tools, conventional testing instruments as per Annexure 'N' and other assistance as required by BHEL wherever expert services of any equipment are arranged by BHEL viz.. SF6 circuit breakers.

E.2.5 All equipments, material and accessories provided by the contractor shall conform to the requirements of the relevant Indian standard or International standard.

E.3.0 **METHOD OF WORKMANSHIP & QUALITY OF WORK:**

E.3.1 Workmanship will be in accordance with the best engineering practices to ensure satisfactory performances and service life.

E.3.2 All works shall be installed in a first class manner with technical skill in the trade involved to achieve quality of work of high standard. BHEL site supervisor's comments regarding quality of work should be taken care by the contractor.

E.3.3 The erection work shall be supervised by the competent supervisor holding supervisory license by the state or central Government or statutory licensing authority, as the case may be.

E.3.4 The installation shall be carried out in such a manner not to obstruct access to the other equipment installed or likely to be installed in the vicinity.

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E.3.5 The complete erection shall be performed in accordance with the modern practices for similar substation equipments.

E.4.0 **EQUIPMENT, MATERIAL & SERVICES TO BE FURNISHED**

E.4.1 The contractor shall employ sufficient labours, skilled, unskilled, supervisory and administrative personnel for timely and effective execution of the contract.

E.4.2 The contractor shall arrange as per Annexure - Q erection tools and tackles, mobile crane, all transport vehicles, measuring & testing equipments necessary for timely and effectively execution of the contract. All measuring & testing instruments shall be pre-calibrated through a certifying agency before use. The certificate of calibration shall be submitted to Engineer for records. In case Contractor is unable to provide the calibrated measuring and test instruments then 'ENGINEER' according to his own wisdom / judgement can recommend a deduction of maximum limit up to 5% from the Contractor's bill. But this in no way relieves the Contractor from arranging the test & measuring instruments / equipment as required for completion of work without affecting the quality of work and meeting any Contractual obligation whatsoever.

E.4.3 All equipment including individual component fittings and accessories shall be properly stored at site so as to obviate any deterioration of electrical properties and mechanical damages.

E.4.4 All equipment shall be thoroughly cleaned of packing materials, scales rust, oil grease etc. prior to commencement of the installation work.

E.4.5 All equipment shall be checked physically for the completeness of all components and devices before taking up installation.

E.4.6 The contractor shall repair all minor defects in equipment, free of charge, if required prior to installation in consultation with equipment manufacturer of BHEL, so that manufacturer's guarantee is not affected in any way. In case of any major damage to the equipments, the same shall be rectified or replaced by the manufacturer's representatives with the approval of BHEL / Owner.

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- E.4.7 All equipments and accessories shall be installed strictly in accordance with the manufacturer's instructions / drawings. Equipment supplied in sections or in dismantled conditions shall be re-assembled at site with all associated accessories as per manufacturer's instructions.
- E.4.8 If the services of BHEL engineers, suppliers, and / or of any equipment manufacturers are required by the contractor at any stage of work, it will be made available on chargeable basis at existing rates prevailing at that time.
- E.4.9 All consumable items required to carry out welding, brazing, soldering etc. for the erection and commissioning is included in the offer of contractor and shortages in hardware (due to careless / negligent handling at site) to be made up free of cost by the contractor. The quality of such replenishment shall be at par with main supply and to be acceptable to BHEL / Owner.
- E.4.10 The successful contractor should note that after execution of work they will send marked up drawings "as erected" drawings to Project Manager at site for preparation of firm "AS BUILT" drawings. "AS BUILT" drawings will bear the signature of Project Manager of BHEL and Contractor's representative.
- E.4.11 **OIL FILTRATION (IN CASE OF TRANSFORMERS COVERED IN BOQ):**

An extra high vacuum oil filtration plant with a minimum of thousand GPH capacity shall be employed by the contractor for oil filtration.

An empty oil tank of minimum of 12000 ltrs. capacity also shall be arranged by the contractor to prepare the oil before pushing it into the transformer.

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**E.5.0 TESTING AND COMMISSIONING OF EQUIPMENT:**

- E.5.1 The testing of all electrical equipment as well as the system as a whole shall be carried out to ensure that the equipment and its components are in satisfactory condition and will successfully perform its functional operation. All required tests shall be carried out by the contractor using his own instruments, testing equipments as well as qualified testing personnel. The tests on power transformer (if covered in BOQ) shall include winding resistance, tan-delta, PPM of moisture, acidity in oil. For SF-6 Circuit Breaker (if covered in BOQ) closing and tripping timing test shall also be carried out in addition to other routine tests.
- E.5.2 At site all equipments shall be energised only after certification by the personnel performing the test that the equipment is ready for energising and with the concurrence of BHEL / Owner.

**E.6.0 PREPARATION FOR COMMISSIONING:**

- E.6.1 After completion of the installation at site and for the preparation of system commissioning the contractor shall carry out checking and testing of all equipment and installation in accordance with the agreed standards, codes of practices of Indian Standards Institutions and specific instruction furnished by the particular equipments suppliers as well as the Owner.
- E.6.2 Required checking to be made on all equipment and installation at site. This shall include but not limited to the following:
- a) Physical inspection for removal of any foreign bodies external defects such as damaged insulators, loose connecting bolts, loose foundation bolts etc.
  - b) Check for grease insulating / lubricating oil leakage and its proper level / quantity.
  - c) Check for free movement of mechanism of the circuit breaker / isolator and rotating parts of other rotating machine and devices.
  - d) Check for tightness of all the cables, busbars as well as earth connection in the main earthing net work.
  - e) Check for clearance of live busbar and conductors from the metal enclosures.
  - f) Continuity check in case of power and control cables.

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- g) Checking of all mechanical and electrical interlocks, including tripping of breakers using manual operation of relay.
  - h) Checking of alarm and annunciation circuits by manual actuation of relevant relays like buchholz relay in case of transformer.
  - i) Check and calibrate devices requiring field adjustments / calibration like adjustment of relay setting etc.
  - j) Check proper connection to earth-mat work of all non current carrying parts of equipments & installation.
- E.6.3 All the measuring and testing instruments will be arranged by the contractor and while submitting his quotation he shall furnish list of testing equipments which are readily available with him and also which can be procured by him from outside agency for the purpose of testing and commissioning.
- E.7.0 **MINOR CIVIL WORK:**
- E.7.1 Minor civil works including secondary grouting/under pinning of structure i.e. filling the gap between structure and foundation after levelling, alignment shall be done by the contractor at no extra cost. This shall also include necessary materials required for doing the work.
- E.7.2 Minor civil works of final / secondary grouting of structures, towers equipment has to be arranged by the contractor and the rate for the same should be included in respective erection. Final / secondary grouting means filling the gap between the structure and foundation after levelling, alignment etc.
- E.7.3 Minor civil work shall also include fixing of foundation bolts for radiator / cooling oil pump etc. Foundation bolts for such work shall however be arranged by BHEL.

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E.8.0 **PRICE SCHEDULE**

E.8.1 The prices to be quoted FIRM and should be valid till the work is completed to the satisfaction of BHEL / Owner and handed over the system to Owner.

E.8.2 The quantities given in schedule of equipment are estimated ones and may vary up to  $\pm 30\%$  on the total value of the contract. Quantity of individual item may vary up-to any extent.

E.9.0 **START OF WORK AND COMPLETION SCHEDULE**

E.9.1 The contractor shall mobilise at site within one week from the date of LOI.

E.9.2 The entire work under this tender is required to be completed as indicated in Letter of Intent.

E.9.3 Detailed Bar Chart (activity schedule) should be submitted by the bidder in Annexure 'M' showing as to how the work is proposed to be executed in order to meet the completion schedule. This shall be filled in by the bidder after mobilisation at site and to be given to ENGINEER-IN-CHARGE at site.

E.9.4 The contractor is required to commence the work within the time as indicated in Letter of Intent failing which the contract is liable to be cancelled and EMD/SD shall be forfeited.

E.10.0 **SCHEDULE OF EQUIPMENT:**

The estimated quantities in the Schedule of Equipment given in Annexure-1 is tentative to give idea of work and to enable tenderer to quote unit rates. The actual quantities required to be erected shall be based on relevant drawings and latest revisions.

## **ANNEXURE TO CONDITIONS OF CONTRACT FOR ETC WORKS**

The following terms and conditions shall form a part of the tender document. If any discrepancies found between below mentioned clauses and clauses in the Conditions of Contract for Erection Works, DOC. NO. – TB-ETC-GCC,REV.-02, dated 20th JUNE, 2005, the clauses mentioned in this annexure shall prevail.

### **1. Condition of Contract for Erection works (DOC. NO. – TB-ETC-GCC, REV.-02, 20th June, 2005):**

#### **A. EARNEST MONEY DEPOSIT**

Every tender must be accompanied by the prescribed amount of Earnest Money Deposit (EMD) mentioned in NIT.

##### **1. Mode of EMD deposit:**

EMD can be submitted in any one of the following modes:

- 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). Details of BHEL account mentioned in this document.
- iii) Banker's cheque/Pay order/Demand Draft, in favour of 'Bharat Heavy Electricals Limited' and payable at New Delhi (Along with offer)
- iv) 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.
- v) No other form of EMD remittance shall be acceptable to BHEL

##### **2. Forfeiture of EMD**

EMD by the bidder will be forfeited as per NIT conditions, if

- i) After opening the tender and within the offer validity period, the bidder revokes his tender or makes any modification in his tender which is not acceptable to BHEL.
  - ii) The contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/contract.
3. EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged under the provision of extant "Guidelines on Suspension of business dealing with supplier/contractors" and forfeited/ released based on the action as determined under these guidelines.
  4. In the case of unsuccessful bidders, the Earnest Money will be refunded to them within a reasonable time after award of work.
  5. EMD shall not carry any interest.
  6. EMD of successful bidder shall be retained as part of Security Deposit.

7. **Bidders may please note that “One Time EMD” provision stands deleted. Hence, bidders who have deposited Rs. 2 Lakh as ‘One Time EMD’ with BHEL are also required to submit the requisite amount of EMD.**
8. No MSE benefits shall be given to MSEs bidder for **WORKS CONTRACT. Please refer clause no. L (facilities provided to MSEs) for detail.**

**B. SECURITY DEPOSIT**

Security Deposit means the security provided by the Contractor towards fulfilment of any obligations in terms of the provision of the contract.

1. Upon acceptance of Tender, the successful Tenderer should deposit the required amount of Security Deposit for satisfactory completion of work. **The total amount of Security Deposit will be 5 % of the Contract Value. EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.**
2. Mode of Security deposit:

The security Deposit should be furnished before start of the work by the contractor.

The balance amount to make up the required Security Deposit of 5% of the contract Value may be furnished in any 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 favour of BHEL.
- iii) Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format for Security Deposit shall be in the prescribed formats enclosed with general conditions of contract.
- iv) Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The FDR should be in the name of the contractor, A/C BHEL and duly discharged on the back.
- v) Securities available from Indian Post Offices such as National Savings Certificates, Kisan Vikas Patras etc. (Certificates should be held in the name of Contractor furnishing the security and duly endorsed/hypothecated/pledged, as applicable, in favour of BHEL and duly discharged on the back).

**(NOTE: 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. Submission of Security Deposit:**

- i) At least 50 % of the required Security Deposit, including the EMD, shall be submitted before start of work. Balance of the Security Deposit can be submitted by way of deduction of 10% of the gross amount progressively from each running bills of the contractor till the total amount of the required Security Deposit is collected.
- ii) If the value of work done at any time exceeds the contract value, the amount of Security Deposit shall be correspondingly enhanced and the additional Security Deposit shall be immediately deposited by the Contractor or it shall be recovered from payment/s due to the Contractor.
- iii) The recoveries made from running bills (cash deduction towards balance SD amount) can be released against submission of equivalent Bank Guarantee in acceptable form, but only once, before completion of work, at the discretion of BHEL.

4. The BG shall be submitted only through the Banker. Along with the BG, the Bank shall also furnish a letter of confirmation (in the prescribed formats enclosed with general conditions of contract).
5. The validity of the Bank Guarantee furnished towards Security Deposit shall be up to three months more than the period of completion of work as stipulated in the LOI and the same will be kept valid by proper renewal till the completion of the work.
6. BHEL reserves the right of forfeiture of Security Deposit in addition to other claims and penalties in the event of the contractor's failure to fulfil any of the contractual obligations or in the event of termination of contract as per terms and conditions of the contract. BHEL reserves the right to set off the Security Deposit, against any claims of any other contracts with BHEL.
7. **Conditions for acceptance of bank guarantees**

Contractors are advised to obtain Bank Guarantee preferably from any of the following BHEL consortium banks

Sl. No.	Nationalised Bank		Nationalised Bank
1	Allahabad bank	19	Vijaya Bank
2	Andhra bank		<b>Public Sector Banks</b>
3	Bank of Baroda	20	IDBI
4	Canara Bank		<b>Foreign bank</b>
5	Corporation bank	21	CITI Bank N.A
6	Central bank of India	22	Deutsche Bank AG
7	Indian Bank	23	The Hongkong and Shanghai Banking Corporation Limited
8	Indian Overseas Bank	24	Standard Chartered Bank
9	Oriental bank of Commerce	25	J P Morgan
10	Punjab National Bank		
11	Punjab & Sindh Bank		<b>Private bank</b>
12	State Bank of India	26	Axis Bank
13	State Bank of Hyderabad	27	The Federal Bank Limited
14	Syndicate Bank	28	HDFC
15	State Bank of Travancore	29	Kotak Mahindra Bank
16	UCO Bank	30	ICICI
17	Union Bank of India	31	Indusind Bank
18	United Bank of India	32	Yes Bank

Bank Guarantees from Banks outside BHEL's consortium shall be as below:

The Bank Guarantees of all Public sector banks can be accepted (in addition to consortium banks)

**The Bank Guarantees of Co-operative banks shall not be accepted.**

Bank Guarantees of other than consortium bank and public sector bank can be accepted subject to an overall exposure limit (at New Delhi) of Rs. 10 crores for banks with networth of more than Rs. 500 crores as on last balance sheet date and Rs 5 crores for banks with net worth between Rs. 350 to Rs 500 crores (A certificate and copy of latest Balance Sheet to be given by the Bank at the time of submission of Bank Guarantees).

In case of private sector banks a clause to be incorporated in the text of Bank Guarantee that it can be enforceable by being presented at any branch of the bank.

In case of foreign vendors the bank guarantees issued by foreign banks may be confirmed by our consortium bank in India.

**In case of Bank Guarantees given by Non-Consortium banks (Private sector or Public sector), the Bank Guarantees are to be enforceable in New Delhi or the town/ city in which the sector office is located.**

**8. RETURN OF SECURITY DEPOSIT:**

If the contractor duly performs and completes the work in all respects to the entire satisfaction of BHEL and presents an absolute "No demand certificate", returns properties belonging to BHEL, taken, borrowed or hired by him for carrying out the said works, and furnishes performance bond BG in the prescribed proforma as per ANNEXURE-J, Security Deposit will be released to the contractor after deducting all costs, expenses and other amounts that are to be paid to BHEL under this contract or other contracts entered into with the contractor. It may be noted that in no case the Security Deposit shall be refunded/released prior to passing of final bill.

**C. Bank Account Details for submission of EMD/ Security Deposit through electronic fund transfer mode.**

<b>NAME OF THE COMPANY</b>	<b>BHARAT HEAVY ELECTRICALS LTD</b>
<b>ADDRESS OF THE COMPANY</b>	<b>TRANSMISSION BUSINESS GROUP, 5TH FLOOR, TOWER A ADVANT NAVIS IT BUSINESS PARK, PLOT NO. 7, SECTOR-142, EXPRESSWAY NOIDA, NOIDA – 201305 (U.P.)</b>
<b>NAME OF BANK</b>	<b>HDFC BANK</b>
<b>NAME OF BANK BRANCH</b>	<b>ARERA COLONY, BHOPAL</b>
<b>CITY</b>	<b>BHOPAL</b>
<b>ACCOUNT NUMBER</b>	<b>00620320000021</b>
<b>ACCOUNT TYPE</b>	<b>CASH CREDIT</b>
<b>IFSC CODE</b>	<b>HDFC0000062</b>
<b>MICR CODE</b>	<b>462240002</b>

**D. Payment terms: Clause No. C.2.0 stands deleted. Now this clause shall be read as below.**

**1.1 For all BOQ items (Except item no. Except item no.2.6, 3.2, 4.2, 15, 18, 20, 28, 34.1, 34.2, 37, 38.1, 38.2, 38.3) complete scope of work.**

1.1.1 No Mobilization Advance shall be paid.

1.1.2 10% of the contract item price on the monthly progressive bills on pro rata basis for receipt, material including arranging crane for unloading, maintaining proper records of receipt & storage in Field Quality Plans (FQPs) and as certified by BHEL Engineer. In case of power transformer/ reactors, 5% amount shall be paid after unloading and 5 % after dragging main tank in position on foundation. The sub-items mentioned in transformer/ reactor shall be consider for payment with main item.

1.1.3 60% of the contract item price on the monthly progressive bills on pro rata basis after arranging necessary calibrated tools/tackles required for erection, submitting calibration reports, qualification/experience certificates of welder/Electrician/other staff, levelling, alignment, tightening and completion of erection including maintaining proper records of installation in FQPs and as certified by BHEL, Engineer.

1.1.4 10% of the contract item price on the monthly progressive bills on pro rata basis on arranging calibrated testing equipment, submission of calibration reports, testing of equipment including maintaining proper records of testing in FQPs and as certified by BHEL, Engineer. BOQ items, which are not required to be tested as per FQP, shall be qualified for release of payment on prorata basis after completion of testing of all equipments of corresponding bay (As per SLD/ layout)

1.1.5 10% of the contract item price after completion of satisfactory commissioning and submission of complete records of erection/testing/commissioning /charging protocol as per FQPs for the corresponding bay.

1.1.6 Last 10% of the contract item price after all test reports as per contract are jointly witnessed and signed by BHEL/customer, "As Built" changes are incorporated in relevant drawings, material reconciliation and substation is handed over to the Owner / Customer. If the contract is for more than one sub-station, then the same will be released after successful handing over of each sub-station. If for any reason, the handing over is delayed for reasons beyond the control of the contractor, in such case this payment will be released against commissioning certificate issued by the BHEL / customer and against submission of final bill of individual substation.

**1.2 For BOQ item no. 2.6, 15, 18, 20, 34.1 & 34.2 (Supply in contractor's scope)**

1.2.1 80% of the contract item price on the monthly progressive bills on prorata basis after supply, receipt of the material at site, unloading, proper storage and as certified by site in charge.

1.2.2 10% of the contract item price on the monthly progressive bills on prorata basis after material erection as certified by BHEL site In-charge on prorata basis after erection.

1.2.3 Last 10% payment shall be released as per 1.1.6 above.

**1.3 For BOQ item no. 3.2, 4.2, 28, 38.1, 38.3 (Only unloading & storage)**

1.3.1 80% of the contract item price on the monthly progressive bills on prorated basis after receipt of the material at site, unloading, proper storage and as certified by site in charge.

1.3.2 10% of the contract item price on the monthly progressive bills on prorated basis after handing over to Customer and as certified by BHEL site In-charge.

1.3.3 Last 10% payment shall be released as per 1.1.6 above.

**1.4 For BOQ item no. 37 & 38.2 (Watch & Ward- Material Security)**

100% of the contract item price on the monthly progressive bills on pro rata basis towards watch & ward against submission of invoice and on certification of engineer in-charge of BHEL.

**E. Clause No. C.17.0 "Over-run Charges" Over-run Charges" stands deleted. Now this clause shall be read as below.**

If the contract is extended beyond the contract period (including grace period) for any reason (including due to extra work/additional quantity) other than those attributable to the contractor or force majeure conditions, the contractor will be compensated by payment of over-run charges at the rate of 0.2 percent (point two percent) of the executed contract value per month after the expiry of grace period. Executed value as on last day of respective month(s) will be taken for purpose of calculation of overrun compensation.

The overrun compensation will be payable for the eligible period of time extension on account of reasons attributable to BHEL only. No overrun will be payable for the extension on account of reasons attributable to contractor and/or force majeure conditions.

Part of Extension attributable to the contractor, if any, in total contract extension shall be exhausted first i.e. immediately after end of grace period. This shall be followed by Extension on account of force majeure conditions, if any and lastly on account of BHEL.

The compensation will be payable for the extended eligible period in months and days as applicable.

Any compensation paid to the contractor against over run charges during the eligible extended period of the project will be recovered from the contractor or any payment on this account payable to the contractor will be cancelled if further extension is required due to the reasons attributable to the contractor or situation of risk & cost arises due to failure of the contractor to complete the work.

If the delay is attributable to the contractor LD will be imposed as per the provision in the contract.

**Total Over Run Compensation shall be limited to 10% of the executed contract value as certified in Final Bill. For this purpose executed contract value excludes PVC, ORC, Supplementary/Additional Items and Extra Works done.**

**Grace period-** The grace period will be defined in the Tender Document based on the calculation as one month for every six month (or part thereof) of the contract period. The prices quoted by the contractor will remain firm till the contract period plus the grace period including extended period if any.

**F. Clause No. B.16.3 shall be read in conjunction with the following**

**Extra works** - Extra works that arise on account of contractor's fault will have to be carried out by the contractor free of cost including the supply of consumables etc.

After eligibility of extra works is established and finally accepted by BHEL Engineer/Designer, payment will be decided on the following rates

**Man-day rate for eligible extra works:**

Single man-day rate (for Skilled manpower & un-skilled manpower) for carrying out rework/repairs/rectification/fabrication and other such works for a man-day of 8 hours as may arise during the course of erection will be limited to minimum wages of skilled/un-skilled **manpower prevailing at the time of execution of the extra work as notified by the state Government**. Contractor has to submit notification published by the concerned state Govt. regarding minimum wage applicable for the period of execution of the extra work.

The above man day rate includes overtime if any, other site expenses and incidentals, consumables, tools and tackles etc.

As mentioned above, no payment will be made if an item of work lasts less than eight man hours.

**G. Overall price variation-** The individual quantity can vary to any extent or may be deleted for which no compensation will be payable to the contractor and the rates will remain firm. Also the rate of each item remains firm as long as the variation in the total value of work executed under the contract including extra items if any remains within plus/minus 30 percent of the contract value. In case the actual value of executed work including extra work on completion of work becomes less than 70% of the basic/original contract value than the following method shall be adopted.

The actual executed value shall be raised by 7 % (For arriving at the final payment against work executed ) subject to the condition that total value of work executed plus increase by 7% as above shall be limited to 70% of the basic/original contract value. The rate quoted shall be firm irrespective of any upward variation in the contract price.

**H. Clause No. C.30.0 "INCOME TAX/SALES TAX/WORKS TAX/VAT" stands deleted. Now this clause shall be read as below.**

1. All taxes (except GST) , duties , charges , royalties, cess and any other levies by Central/ State/local authorities for the execution of the contract shall be borne by the contractor and shall not be payable extra . Any increase of the same at any stage during execution of the contract shall be borne by the contractor .Quoted price of the same shall be inclusive of all such requirements.

2. Contractors have to make their own arrangement at their cost for completing the formalities, if required with relevant taxation authorities, for bringing their material, plant and machinery at site for the execution of the contract. Road permits / way bill if required shall be arranged by the contractor.
3. The Contractor is responsible to furnish documentary evidence towards GST Registration of the State wherein the site is located and any other documents as per GST Act which may be required from time to time by BHEL. BHEL will not be held to be responsible for any non-compliance of the Contractor in respect of GST laws as framed from time to time.
4. Goods and Service Tax (GST) will be reimbursed to the Contractor subject to the following conditions :-
  - (i) Submission of valid GST Compliant Tax Invoice as per the GST Invoice Rules
  - (ii) The Invoice raised by the Contractor should indicate the BHEL GST Registration Number.
5. The GST amount shall get reflected within prescribed time limit in the GSTN for BHEL to avail the input credit. If the GST Credit is reversed/ denied/ delayed to BHEL due to non-receipt/delayed receipt of Services and/or tax invoice or due to expiry of timeline prescribed in GST law or due to any other factor for availing such Input Tax Credit (ITC) or for any other reason arising out of the act directly attributable to the Contractor, GST amount shall be recoverable from Contractor from any dues payable to the Contractor along with any interest levied/ leviable on BHEL.
6. Statutory variation, if any, on account of GST will be payable by BHEL at actuals on submission of documentary evidence.
7. TDS under Income Tax Act/GST Act shall be deducted as per applicable rates unless Exemption certificate, if applicable, from the appropriate Authority is furnished to BHEL along with the Invoice.
8. **New Taxes & duties:**

If any new tax or duty is levied by the Central/State Government/ Municipality/Local Authority and becomes directly applicable on items specified in the Bill of Quantities, full reimbursement shall be made subject to submission of documentation as per statute.

**I. DELAY AND EXTENSION OF TIME:**

If, in the opinion of the Engineer, the work is delayed

- (i) by reason of abnormally bad weather, or
- (ii) by reason of serious loss or damage by fire, or
- (iii) by reason of civil commotion, local combination of workmen, strike or lockout, affecting any of the trades employed on the work, or
- (iv) by delay on the part of the agency or tradesman engaged by the BHEL in executing work not forming part of the contract, or
- (v) By reason of any other cause which in the absolute discretion of the Engineer is beyond the contractor's control, then in any such case, the Engineer (or higher authority) may make fair and reasonable extension in the completion dates of the individual items of work of the contract as whole. Such extension which will be communicated to the contractor by the Engineer in writing shall be final and binding on the contractor. No other claim in this respect for compensation, idle labour or otherwise howsoever is admissible. Upon the happening of any such

event causing delay the contractor shall immediately give notice thereof in writing to the Engineer but shall nevertheless use constantly his best endeavour to prevent or make good the delay and shall do all that may reasonably be required to the satisfaction of the Engineer to proceed with the work.

- (vi) In case of delay in completion of work BHEL reserve the right to grant time extension under the following options depending upon the performance of the vendor:
- a. Time extension without levy of LD in case it is found that delay is not attributable to the vendor
  - b. Time extension with deduction of applicable LD in line with Liquidity Damage clause if the delay is solely attributable to the vendor.
  - c. In case facts of delay is not settled, BHEL reserve the right to grant provisional time extension for delay in completion of total work or part thereof and running/ interim payments to the vendor will be released without deduction of LD subject to submission of additional Bank guarantee equivalent to maximum LD amount valid till completion of work under their scope and grant of final time extension.

During provisional time extension period ORC/ PVC shall not be payable to the contractor. The Final Delay analysis shall be prepared on completion of the work. In case of delay is not attributable to contractor as per final delay analysis the ORC/ PVC shall be released along with the final bill without any interest charges attributable to BHEL.

In case of delay attributable to contractor, LD shall be deducted for that period in line with clause "Compensation/ LD/ Penalty for delay in execution" of conditions of contract and balance ORC/ PVC (if any) shall be released along with the final bill without any interest charges attributable to BHEL.

PVC/ ORC shall be governed by respective clauses in the NIT.

**J. LD / PENALTY FOR DELAY IN EXECUTION:**

**The Clause No. C.5.0 "LD / Penalty for delay in execution" of Conditions of contract for ETC works stands deleted. Now the modified clause shall be read as below:**

In case the contractor fails to complete the project within the time specified in the tender specification or any extension thereof subject to force majeure condition, the contractor shall be liable to pay by way of LD/Penalty a sum equal to the half percent of the contract price, per calendar week or part thereof by which the commissioning of the project is delayed, subject to ceiling of 10 % of the contract price along with applicable GST (if any) on LD. Once the maximum limit of delay is reached (i.e. 20 week of delay) BHEL may consider termination of the contract and forfeit the Security deposit without prejudice to the other remedies under the contract. If the contract is for more than one sub-station and the substations are completed and taken over by customer in stages, then the delays if any by the contractor for the substation completed and handed over may be accounted for the individual substation and LD leviable shall be computed based on the contract value of individual substation. Amended/ revised contract

value (excluding ORC, Extra Works, Supplementary/Additional Items and PVC) shall be considered for calculating LD/ penalty.

**K. The Clause No. B.15.0 "Arbitration" of Conditions of contract for ETC works stands deleted. Now the modified clause shall be read as below:**

- (i) Except where otherwise provided for in the contract all questions & disputes relating to the meaning of the specification designs, drawings and instruction herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings specifications, estimates, instructions, orders of these conditions or otherwise concerning the works, of the execution or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof shall be referred to the sole arbitration of the Head TBG, BHEL, Noida and if the Head TBG is unable or unwilling to act, to the sole arbitration of some other person appointed by the Head TBG willing to act as such arbitrator.

A party wishing to commence arbitration proceeding shall invoke Arbitration Clause by giving 60 days notice to the other party. The notice invoking arbitration shall specify all the points of disputes with details of the amount claimed to be referred to arbitration at the time of invocation of arbitration and not thereafter.

There will be no objection if the arbitrator so appointed is an employee of BHEL and he had to deal with the matters to which the contract relates, in the course of his duties. The arbitrator to whom the matter is originally referred being transferred or vacating his office or being unable to act for any reason such Head TBG as aforesaid at the time of such transfer vacation of office or inability to act shall appoint (see note) another person to act as arbitrator in accordance with the terms of the contract such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor. It is also a term of this contract that no person other than a person appointed by such Head TBG as aforesaid should act as arbitrator and if for any reason that is not possible the matter is not to be referred to arbitration at all, in all cases where the amount of the claim dispute is Rs. 50,000/- (Rupees fifty thousand) and above the arbitrator shall give reasons for the award.

The provisions of Indian Arbitration and Conciliation Act 1996 or any statutory modification or re-enactment thereof and the rules made thereunder and the time being in force shall apply to the arbitration proceeding under this clause.

It is a term of the contract that the party involving arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amounts claimed in respect of each dispute.

The arbitrator may from time to time with consent of the parties enlarge the time for making and publishing the award.

The work under the contract shall, if reasonably possible, continue during the arbitration proceedings and no payment due or payable to the contractor shall be withheld on account of such proceedings.

The Arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties fixing the date of the first hearing.

The Arbitrator shall give a separate award in respect of each dispute or difference referred to him.

The Venue of arbitration shall be at New Delhi.

The award of the arbitrator shall be final, conclusive and binding all parties to this contract, subject to the provisions of the Arbitration and Conciliation Act, 1996.

Laws governing the Contract:

The contract shall be governed by the Indians Laws for the time being in force.

NOTE:-The Authority appointing the arbitrator should not be lower in rank than the Authority accepting the Agreement.

- (ii) In case of Contract with Public Sector Enterprise (PSE) or a Government Department through Permanent Machinery of Arbitrators ( PMA) in the department of Public Enterprises, the following shall be applicable:

In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contract, such dispute or difference shall be referred to by either party to the arbitration of one of the arbitrators in the department of public enterprises. The award of the arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the parties hereto finally and conclusively.

- (iii) The cost of arbitration shall be equally by the parties.
- (iv) Neither party shall be entitled for any interest including pre-reference or pendent-lite interest on its claims and any claim for such interest made by any party shall be void.

**L. FACILITIES PROVIDED TO MSEs**

Vide office memorandum F.No.21(8)/2011-MA dated 09.11.2016, Office of AS&DC, Ministry of MSME has issued clarification regarding definition of Goods and Services under the Public Procurement Policy of MSEs order-2012, In accordance with the Public Procurement Policy for MSEs order-2012 and OM regarding definition of Goods and Services issued by Ministry of MSME, it is clarified that benefits as envisaged in Public Procurement Policy for MSEs Order 2012 are to be provided in respect of the procurements related to the Goods and Services produced and provided by Micro and Small Enterprises (MSEs) only and no benefits is to be given in Case of Works Contracts.

**M. All other terms and conditions of tender shall remain unchanged.**

**ANNEXURE-I  
BILL OF QUANTITY CUM PRICE SCHEDULE**

**This BOQ covers unloading, storage, safety & security of material, verification, upkeeping, handing, material shifting, erection, testing & commissioning & handing over of 400kV Switchyard associated equipment/ material/ system. Work includes up-keeping of records & issuing of material to other contractors as if required. Final material reconciliation and handing over of spares to customer.**

S.No.	Type / Remark	Description	Unit	QTY.		
1	<b>Indoor GIS</b>	<b>400kV GIS</b> - as per enclosed single line diagram. Work shall include Erection / Installation, Testing and commissioning of 400kV GIS including LCC Panels. The supervision shall be provided by GIS manufacturer. Arrangement of tool & tackles, testing instruments shall be part of bidder's scope such as and not limited to Annexure-B. The scope includes complete installation of GIS, GIB and SF6 to air bushing including all the work / services required for ETC of complete GIS , support structure, earthing / grounding, Internal cabling between GIS to LCC, SF6 Gas treatment, handling / filling / top-up e.t.c. complete in all respect.				
1.01		Fully equipped 400kV, SF6 GIS Line Bay Module . (excluding support structure & earthing)	Set	6	1,53,780.90	9,22,685.41
1.02		Fully equipped 400kV, SF6 GIS Generator Transformer Bay Module . (excluding support structure & earthing)	Set	4	1,32,999.70	5,31,998.79
1.03		Fully equipped 400kV, SF6 GIS Reactor Bay Module . (excluding support structure & earthing)	Set	2	1,32,999.70	2,65,999.40
1.04		Fully equipped 400kV, SF6 GIS Start up Transformer Bay Module . (excluding support structure & earthing)	Set	2	1,32,999.70	2,65,999.40
1.05		Fully equipped 400kV, SF6 GIS Tie Bay Module . (excluding support structure & earthing)	Set	5	1,53,780.90	7,68,904.51
1.06		Phase Isolated, 400kV, SF6 gas-insulated metal enclosed Main Bus Bars complete as per SLD - BUS 1 / BUS 2. (excluding support structure & earthing)	Set	2	51,062.38	1,02,124.77
1.07		Phase Isolated, 400kV, SF6 gas-insulated metal enclosed Main Bus Bars complete as per SLD - BUS 3 / BUS 4. (excluding support structure & earthing)	Set	2	1,27,655.96	2,55,311.92
1.08		400kV Bus Sectionalizer (for Bus Bars). (excluding support structure & earthing)	Set	4	52,500.00	2,10,000.00
1.09		400kV Bus Voltage Transformer Bay (for Bus Bars). (excluding support structure & earthing)	Set	4	64,421.73	2,57,686.92
1.10		Gas Insulated Bus Duct (GIB) - 400kV Phase Isolated, SF6 gas-insulated metal enclosed <b>single phase</b> bus duct from GIS Bay module take-off to to SF6 to Air Bushing. Work includes complete installation of GIB. (excluding support structure & earthing)	Meter	1600	755.68	12,09,088.17
1.11		SF6 to Air Bushing - <b>Polymer type (including terminal connector)</b>	Nos.	36	8,312.48	2,99,249.32
1.12		Local Control Panel (LCC)	Nos.	<b>21</b>	7,556.80	1,58,692.82
1.13		Structure Work for Installation of GIS including Support Structure for GIS, GIB (bus duct), SF6 to Air Bushings, Supports, Platforms, Ladders, Foundation Bolts, Embedded Parts in floors etc. complete in all respect, which are required for installation of GIS system as per the specification	MT	50	14,560.86	7,28,043.14
1.14		SF6 Gas Filling/Recovery/Re-filling Cycle. The cycle of the gas filling/recovery/re-filling will be followed multiple time till the Completion of the HV test. Gas processing and filling unit ( DILO machine) shall be in the scope of BHEL/manufacturer.	Lot	1	3,72,280.41	3,72,280.41
1.15		HV Test for GIS - HV test kit shall be arranged by GIS Supplier. Test shall also be conducted by GIS supplier. All necessary support i.e. unloading, shifting, minor assembling of HV test kit, support for complete HV Test, dismantling & loading on carrier. Complete in all respect.	Lot	1	1,16,486.90	1,16,486.90

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S.No.	Type / Remark	Description	Unit	QTY.		
1.16		Grounding/ Earthing for GIS complete including Gas Insulated Bus duct, LCC, SF6 to air bushing, using braided Cu wire (insulated/ non-insulated)/ earth strip (Cu/Al/GI flat). Work includes cutting, lug crimping , bolting , fixing etc. and connecting with riser/earth strip (GI/AL /Cu flat) complete in all respect. Grounding Material will be supplied by GIS Supplier /BHEL.	Lot	1	2,50,233.20	2,50,233.20
1.17		Cablings between LCC and GIS including including termination, ferruling , laying, dressing, tagging etc. including arrangement of consumables etc. Cable shall be provided by GIS supplier / BHEL.	Set	19	16,624.96	3,15,874.28
2		<b>420kV 125 MVA, 3-Ph, Bus Reactor</b>				
2.1		420kV 125 MVA, 3-Ph, Reactor complete in all respect alongwith its MB Box, Radiator Bank and its cooling arrangement, Conservator, Cooler Control Cabinet/Marshalling Kiosk, accessories and insulating oil. Work includes erection of all auxiliaries viz turrets, bushings, terminal connectors, associated earthing works (excluding riser connections to main earthmat), laying of cable from Transformer auxiliaries to MK, Oil filtration, filling of oil, hot oil circulation, Oil testing etc as required to complete the installation of Reactor (Supervision of unloading, Erection, Testing and commissioning will be done by OEM). Note:- 1) Charges for Oil filtration, filling of oil, hot oil circulation etc for first time commissioning of Transformer are deemed to be covered in this line item. 2) Charges for testing of oil supplied in drums are covered separately under item no. 2.6 below. <b>Unloading of Reactor tank main body is excluded in this scope, the same is covered under a separte line item below.</b>	Set	2	6,03,750.00	12,07,500.00
2.2		Unloading of Reactor Tank (main body) (1 No.)	Nos.	2	1,08,675.00	2,17,350.00
2.3		Dragging/shifting charges of above mentioned Reactor (1 No.) <b>on ground</b> , upto rail cum road / jacking pad	Meter	80	1,449.00	1,15,920.00
2.4		Dragging / shifting charges of above mentioned Reactor (1 No.) <b>on rail cum road</b>	Meter	30	1,449.00	43,470.00
2.5		Complete dryout of 400kV Bus Reactor by N2 filling/ vaccuming/ purging and heating (if required) as per BHEL Bhopal procedure ( <b>Annexure-F</b> ). Complete in all respect <del>excluding supply N2 gas</del>	Lot	2	37,800.00	75,600.00
2.6	<b>Supply</b>	Supply of N2 gas as per instruction of BHEL Site. Mode of measurement shall be number of gas cyliner (returnable) having 50kG N2 gas	Nos.	80	2,100.00	1,68,000.00
2.7		Oil Testing (BDV, ppm, Resistivity & Tan delta etc for oil supplied in drums (if required). 1 set equals all the tests on 1 sample.	Set	25	2,100.00	52,500.00
3.1		<b>Surge Arrester:</b> 390 kV / 360 kV, 1 Phase, Gapless type Metal Oxide Surge Arrester complete with surge counter, leakage current meter, insulating base, connecting cable and terminal connector, without support structure.	Set	33	3,104.13	1,02,436.14
3.2		<b>Only unloading and handing over to customer -</b> Surge Arrester: 390 kV / 360 kV, 1 Phase, Gapless type Metal Oxide Surge Arrester with surge counter, leakage current meter, insulating base, connecting cable and terminal connector	Set	3	603.75	1,811.25
4.1		<b>420kV Bus Post Insulator</b> complete with corona ring & terminal connectors without support structure	Set	67	1,064.27	71,306.06
4.2		<b>Only unloading and handing over to customer -</b> 420kV Bus Post Insulator: with corona ring & terminal connector.	Set	3	362.25	1,086.75

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S.No.	Type / Remark	Description	Unit	QTY.		
5		<b>XLPE Armored Cable:</b> 19/33kV , 1C X 500 sq. mm Al Conductor XLPE insulated Armored cable (to be laid in cable tray) along with heat shrinkable type cable jointing / termination kit, trefoil clamps, earthing link box with / without SVL . Supervision of Cable termination / jointing kit, earthing link box with / without SVL shall be done by cable / kit manufacturer. Site testing for complete 33 kV cable System along with arrangement of site testing equipment required for the same is in cable manufacture's scope. Supply of Cable termination / jointing kit, earthing link box with / without SVL, Lug, Trefoil clamp, earthing material are in BHEL scope. Any other work as if required to carry out is in bidder's scope EXCLUDING cable tray and earthing material i.e. 40mm MS Rod, 75X12mm GI flat, 50X6mm GI flat. Cable to install between main plant area to sea water intake pump house (Distance approx. 7 kms).				
5.1		19/33kV , 1C X 500 sq. mm Al Conductor XLPE insulated Armored cable	Km	42	1,83,750.00	77,17,500.00
5.2		33kV indoor / outdoor heat shrinkable type cable termination kit complete in all respect suitable for 19/33kV, 1C X 500 sq. mm cable. (Creepage distance 31mm/kV) (1 set equals to termination for one end of single core cable)	Set	24	2,100.00	50,400.00
5.3		33kV heat shrinkable type straight through joint suitable for with or without cross bonding provision, complete in all respect for 19/33kV, 1C X 500 sq. mm cable. Outdoor type. (1 set equals to jointing between two single core cable)	Set	66	5,250.00	3,46,500.00
5.4		Earthing link box with / without SVL (sheath voltage limiter) suitable for 19/33kV Cable cross bonded joint, including all cable/cable accessories/earthing material/mounting hardware e.t.c. required for completion of work. (1 set for 3x1-ph cable).	Set	26	5,250.00	1,36,500.00
6		<b>Stringing hardware</b>			-	-
6.1		400kV Double tension Polymer long rod / disc insulator suitable for TWIN ACSR BERSIMIS / MOOSE conductor with / without turn Buckle with subconductor spacing 450mm. (31mm / kV)	Nos.	60	2,267.04	1,36,022.42
6.2		400kV Single suspension Polymer long rod / disc insulator suitable for TWIN ACSR BERSIMIS / MOOSE conductor with straight / drop clamp, subconductor spacing 450mm. (31mm / kV)	Nos.	45	1,511.36	68,011.21
7	7/9 or 7/8 SWG	GI Shield wire including tension clamp, PG clamp and clamping on structure for down conductor, fixing/bolting with earth strip etc to complete .	Km	4	27,493.68	1,09,974.73
8	ACSR Moose/ BERSIMIS	Conductor complete with Tee connectors for droppers to equipment connections, PG clamps for busbar jumpering, Twin/Quad bundle spacers etc to complete.	Km	3	54,100.47	1,73,121.51
9	4.0" or 4.5"	Al Tube (ETC of Al.Tube includes Aluminium welding and bending to be included. Welding sleeve and Al tube will be supplied by BHEL.)	Meter	50	305.98	15,299.03
10		<b>AUXILIARY SUPPLY - (LT DISTRIBUTION BOARDS, BATTERY, CHARGER) refer file "LT ACDC Board Ennore" for reference.</b>				
10.1		415V AC DISTRIBUTION BOARD (ACDB)	Set	1	14,490.00	14,490.00

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S.No.	Type / Remark	Description	Unit	QTY.		
10.2		220V DC distribution board	Set	1	14,490.00	14,490.00
10.3		48 V DC Distribution board	Set	1	14,490.00	14,490.00
10.4		415V AC MAIN LIGHTING DISTRIBUTION BOARD (MLDB) with Lighting Transformer.	Set	1	68,827.50	68,827.50
10.5		415V AC Emergency Lighting Distribution board (AC ELDB) with Lighting Transformer	Set	1	32,602.50	32,602.50
10.6		220V DC Emergency Lighting Board (DC ELDB)	Set	1	21,000.00	21,000.00
11		<b>BATTERY BANK &amp; CHARGER.</b>				
11.1		48 V, 200 AH Battery Bank (NiCd / Lead Acid Plante Battery) along with all accessories such as racks, interconnecting cables, connectors etc.	Set	2	78,487.50	1,56,975.00
11.2		220 V, 600 AH Battery Bank (NiCd / Lead Acid Plante Battery) along with all accessories such as racks, interconnecting cables, connectors etc.	Set	2	54,337.50	1,08,675.00
11.3		220V 150A Float Cum Boost Battery Charger	Set	2	14,490.00	28,980.00
11.4		48 V, 50A Float Cum Boost Battery Charger	Set	2	14,490.00	28,980.00
11.5		Battery discharge Load bank (Resistive/ reactive type)	Set	2	5,250.00	10,500.00
11.6		Battery Health Monitoring System	Set	1	1,050.00	1,050.00
12		DRY TYPE LT transformer - 630 kVA (or 800kVA)	Set	2	11,335.20	22,670.40
13		3 Phase LT Bus duct (Air Insulated)	Meter	40	525.00	21,000.00
14		<b>400kV Control and Relay Panels, Station Automation system (Testing and commissioning of relays in scope of panel supplier. Necessary manpower support, wiring, BUS wiring, tools, tackles and testing equipment to be in scope of ETC contractor).</b>				
14.01		400kV Tie Line-1&2 Relay Panel ( Approx 800mm Wide) ( AIS End ) {1Set = 2 Nos. Panel}	Set	2	8,868.93	17,737.86
14.02		400kV Tie Breaker Relay Panel ( Approx 800mm Wide) ( AIS End) { 1 Set = 1 No. Panel}	Set	2	4,434.47	8,868.93
14.03		400kV Centralized Busbar Relay Panel ( Approx 800mm Wide) ( AIS End ) ( 1 Set=6 Panels)	Set	1	26,606.79	26,606.79
14.04		400kV Tie Line - Tie-Future diameter Backup Control Panel ( Approx 1000mm Wide) ( AIS End ) { 1 Set = 1 Panel }	Set	2	4,434.47	8,868.93
14.05		400kV Line Relay Panel ( Approx 800mm Width) { 1 Set = 2 Nos. Panels }	Set	6	8,868.93	53,213.58
14.06		400kV Bus Reactor Relay Panel ( Approx 800mm Wide) ( 1 Set=2 Nos Panels)	Set	2	8,868.93	17,737.86
14.07		400kV ST Breaker Relay Panel ( Approx 800mm Wide) ( GIS End) { 1 Set = 2 No. Panel}	Set	2	8,868.93	17,737.86
14.08		400kV GT Breaker Relay Panel ( Approx 800mm Wide) ( GIS End) { 1 Set = 1 No. Panel}	Set	2	4,434.47	8,868.93
14.09		400kV Tie Relay Panel ( Approx 800mm Width) { 1 Set = 1 Nos. Panels }	Set	7	4,434.47	31,041.26
14.10		Islanding Relay Panel ( Approx 800mm Wide) {1 Set = 1 No. Panel}	Set	2	4,434.47	8,868.93
14.11		400kV Busbar Relay Panel ( Approx 800mm Wide) ( 1 Set=1 Nos Panels)	Set	4	4,434.47	17,737.86
14.12		Metering Panel comprising of main and check meters ( Approx 800mm Wide) { 1 Set = 1 No. Panel}	Set	4	4,434.47	17,737.86
14.13		Synchronizing Trolley ( Approx. 600mm wide)	Nos.	1	4,434.47	4,434.47
14.14		Aux Network Panel/ SAS Panel ( Approx 800mm Wide) { 1 Set = 1No. Panel }	Set	3	4,434.47	13,303.40
14.15		Operator Work Station / Engineering Work Station PC Set at Control room	Nos.	3	1,050.00	3,150.00
14.16		Engineering Work Station PC / DFR at Control room	Nos.	4	1,050.00	4,200.00
14.17		Energy Metering Master Station	Nos.	1	1,050.00	1,050.00
14.18		A3 printer	Nos.	2	315.00	630.00
14.19		Dot Matrix printer	Nos.	1	315.00	315.00
14.20		A3 High Speed printer	Nos.	1	315.00	315.00
14.21		UPS with Battery Backup	Nos.	2	2,625.00	5,250.00
14.22		67 inch Large Video Screen	Nos.	1	3,150.00	3,150.00

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S.No.	Type / Remark	Description	Unit	QTY.		
14.23		Laptop with relay parameterisation software	Nos.	2	1,050.00	2,100.00
14.24		GPS receiver with 100mm TDU complete in all respects including antenna, all cables, processing equipment etc.	Nos.	1	1,050.00	1,050.00
14.25		Handling & installation of furniture required in switchyard control room & Power house control room for OWS, printer, chairs etc.	Lot	1	3,150.00	3,150.00
14.26		Armoured/ Unarmoured FO cable along with connectors for SAS & Busbar Protection. The laying of network/optical cables shall be in the contractor scope. However, Optical cable will be laid under SAS supplier's supervision. Splicing and Termination shall be in SAS supplier's scope.). FO cable shall be laid in HDPE pipe and the same is covered in seperate BOQ item.	Meter	1000	15.75	15,750.00
14.27		Laying of 25 / 32 / 40 mm (Nominal Dia) HDPE pipes	Meter	1000	105.00	1,05,000.00
14.28		Laying of 100 mm (Nominal Dia) HDPE pipes	Meter	50	210.00	10,500.00
15	<b>Supply</b>	Supply of High Density PE pipe including tee / elbow as per relevant IS code. The quantity mentioned are provisional and may vary upto any extend during detailed engineering. Mode of measurement shall be running length of HDPE Pipe only. Tee & Bend as per requirements are deemed included.				
15.1	<b>Supply</b>	25 mm (Nominal Dia) HDPE pipe	Meter	400	58.80	23,520.00
15.2	<b>Supply</b>	32 mm (Nominal Dia) HDPE pipe	Meter	400	105.00	42,000.00
15.3	<b>Supply</b>	40 mm (Nominal Dia) HDPE pipe	Meter	100	168.00	16,800.00
15.4	<b>Supply</b>	100 mm (Nominal Dia) HDPE pipe	Meter	50	756.00	37,800.00
					-	-
16		<b>Tele communication Equipment</b>			-	-
16.1		Digital Protection Coupler Panel	Set	6	6,300.00	37,800.00
16.2		Equipment Cabinets for SDH & PDH equipments	Set	4	6,300.00	25,200.00
16.3		NMS ( For SDH Equipment & Multiplexer) ( Handling & Storage only)	Nos.	2	5,250.00	10,500.00
16.4		EPAX ( 24/8) with 24 Telephones , Cables and accessories .	Set	1	5,250.00	5,250.00
16.5		HF Cable	Meter	100	10.50	1,050.00
16.6		4 Wire telephone instrument along with telephone with wires	Nos.	6	105.00	630.00
16.7		5 Pair telephone cable , armoured ,0.5sq.mm annealed copped conductor and petroleum jelly filled with polyethene outer jackets	Meter	300	10.50	3,150.00

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S.No.	Type / Remark	Description	Unit	QTY.		
17		Cabling including laying, tagging , dressing, ferruling, lugging ,soldering, tapping, jointing, crimping, installation of cable gland, termination and drilling/cutting holes in cable gland plates- laying can be either on trays, supports, underground, buried in ground or through GI/PVC pipe over/under ground, through wall etc. All erection materials viz. ferrules, copper lugs, cable ties / straps, Al. tags, markers, GI / PVC wall sleeves with rubber / nylon bushes and flexible steel conduits shall be supplied by bidder. Supply of cable glands shall be quoted separately.				
		<b>Control cables</b>				
17.01		3Cx2.5 sqmm Cu	Meter	4500	12.42	55,874.26
17.02		5Cx2.5 sqmm Cu	Meter	8000	12.42	99,332.02
17.03		7Cx2.5 sqmm Cu	Meter	4000	13.30	53,213.58
17.04		10Cx2.5 sqmm Cu	Meter	14000	13.30	1,86,247.53
17.05		12Cx2.5 sqmm Cu	Meter	10000	17.74	1,77,378.60
17.06		18Cx2.5 sqmm Cu	Meter	34000	19.51	6,63,395.96
		<b>Auxiliary Power cables</b>				
17.07		3Cx16 sqmm Al	Meter	4500	12.42	55,874.26
17.08		4Cx16 sqmm Al	Meter	3000	12.42	37,249.51
17.09		4Cx25 sqmm Al	Meter	6000	17.74	1,06,427.16
17.10		4Cx50 sqmm Al	Meter	1400	17.74	24,833.00
17.11		3Cx10 sqmm Al	Meter	4500	12.42	55,874.26
17.12		3.5Cx35 sqmm Al	Meter	700	17.74	12,416.50
17.13		3.5Cx70 sqmm Al	Meter	800	25.72	20,575.92
17.14		3.5Cx300 sqmm Al	Meter	600	57.96	34,776.00
17.15		1Cx630 sqmm Al	Meter	600	157.50	94,500.00
		<b>Fire survival Power &amp; Control Cables:</b>				
17.16		1CX50 sqmm EPR/Cu. FS Power Cable	Meter	600	26.25	15,750.00
17.17		1CX150 sqmm EPR/Cu. FS Power Cable	Meter	500	44.68	22,338.75
17.18		10CX2.5 sqmm EPR/Cu. FS Control Cable	Meter	2000	13.30	26,606.79
		<b>Directly burried cable</b>				
17.19		Directly burried cable - 4 Core X 16 Sq mm cables along with lugs, cable glands to be laid in burried trench , all civil activities such as excavation, supply and laying of sand, bricks etc. shall be in contractor's scope.	Meter	200	315.00	63,000.00
18	<b>Supply</b>	<b>SUPPLY OF CABLE GLANDS</b> (Double compression type) - Supply of Tin/ Nickel, Nichel/chromium - Plated (coating thickness not less than 10 microns) Sunil & Co. / Arup/ Comet / QPIE / or equivalent BHEL approved make brass cable glands as per BS:6121, double compression heavy-duty type complete with necessary armour clamp & tapered washer etc for the following cables. All washers and hardware shall also be made of brass with nickel chrome plating Rubber components shall be of neoprene and of tested quality.Cable glands shall match with the sizes of different HT/LT/Control cables. Individual quantity may vary up to any extend				
18.01		3cx2.5 sqmm Cu	Nos.	200	177.38	35,475.30
18.02		5Cx2.5 sqmm Cu	Nos.	900	177.38	1,59,638.85
18.03		7Cx2.5 sqmm Cu	Nos.	200	212.86	42,571.20
18.04		10Cx2.5 sqmm Cu	Nos.	420	239.46	1,00,574.46
18.05		12Cx2.5 sqmm Cu	Nos.	375	266.07	99,776.25
18.06		18Cx2.5 sqmm Cu	Nos.	400	288.24	1,15,294.20
					-	-
18.07		3Cx16 sqmm Al	Nos.	220	266.07	58,535.40
18.08		4Cx16 sqmm Al	Nos.	100	266.07	26,607.00
18.09		4Cx25 sqmm Al	Nos.	50	310.41	15,520.58
18.10		4Cx50 sqmm Al	Nos.	50	310.41	15,520.58
18.11		3Cx10 sqmm Al	Nos.	50	243.89	12,194.70
18.12		3.5Cx35 sqmm Al	Nos.	50	310.41	15,520.58
18.13		3.5Cx70 sqmm Al	Nos.	50	354.75	17,737.65
18.14		3.5Cx300 sqmm Al	Nos.	20	664.13	13,282.50
18.15		1Cx630 sqmm Al	Nos.	12	1,811.25	21,735.00

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S.No.	Type / Remark	Description	Unit	QTY.		
					-	-
18.16		1CX50 sqmm EPR/Cu. FS Power Cable	Nos.	20	210.00	4,200.00
18.17		1CX150 sqmm EPR/Cu. FS Power Cable	Nos.	20	543.38	10,867.50
18.18		10CX2.5 sqmm EPR/Cu. FS Control Cable	Nos.	20	239.46	4,789.26
19		Cable Trench Material - work for BOLTED TYPE GI Rack / Tray for cable trenches in Switchyard, GIS Hall & Control Room Building as per drg. nos. PE-DG-412-507-E006 & PE-DG-412-507-E005 Following works deemed included in the scope and not being payable separately - installation of cantilever arms, back plate, angle fitting, clamp for single / double channel, base plate for single / double channel, beam clamp, tray fixing clamp, screw, nut bolt, anchor bolt, floor / ceiling / beam / columns support, Side runner for cable tray, side coupler, pvc end cap, earthing clamp, tray clamp etc. complete in all respect are deemed included in the scope. Cable rack assembly will be of 1/2/3/4 tier. (Bolted type Cable Rack/Tray material/Hardware , Nut Bolt, fasteners shall be free issued by BHEL.) Cutting , drilling, punching, minor civil works also included in the scope. Minor welding and application of protective / zinc rich paint on welded surface is also included in the scope.				
19.1		Single Channel (C1)	Meter	600	210.00	1,26,000.00
19.2		Double Channel (C2)	Meter	110	315.00	34,650.00
19.3		Horizontal support cantilever arm assembly (CA1)	Nos.	1850	210.00	3,88,500.00
19.4		Ladder type cable tray - 600 mm wide (Standard supply length of 2.5m)	Meter	2750	37.70	1,03,661.25
19.5		Horizontal / Vertical Tee for ladder type cable tray - 600mm wide	Nos.	30	105.00	3,150.00
19.6		Horizontal / Vertical Bend for Ladder type cable tray - 600mm wide	Nos.	125	105.00	13,125.00
19.7		Ladder / Perforated type cable tray, including bend, tee etc. - 300mm wide	Meter	200	42.13	8,425.20
19.8		Ladder/ Perforated type cable tray, including bend tee etc.- 150mm wide	Meter	150	42.13	6,318.90
20	<b>Supply</b>	Supply of medium duty GI Pipe / conduit / long radius elbow / tee as per IS 1239. The pipe shall carry BIS certification marking				
20.1		GI pipe, 50 NB	Meter	160	354.38	56,700.00
20.2		GI Pipe, 100 NB	Meter	260	834.23	2,16,898.50
20.3		90 degree long radius elbow, suitable for 50 NB GI pipe	Nos.	40	360.15	14,406.00
20.4		90 degree long radius elbow, suitable for 100 NB GI pipe	Nos.	50	885.15	44,257.50
20.5		Tee Bend suitable for 50 NB GI pipe	Nos.	20	307.65	6,153.00
20.6		Tee Bend suitable for 100 NB GI pipe	Nos.	20	780.15	15,603.00
21		<b>Laying of GI conduits</b> at minimum depth of 300mm including excavation, backfilling, making and repairing of walls in trenches, cutting, threading, fixing of sockets/ bends , tees, elbows, bends, check nuts, bushings, reducers, enlargers, coupling caps, nipples where required etc. complete. <u>Both ends of GI conduits shall be closed by plastering.</u> (Payment will be made for the as erected pipe length including elbow length)				
21.1		GI pipe, 50 NB	Meter	140	58.19	8,146.23

**ANNEXURE-I  
BILL OF QUANTITY CUM PRICE SCHEDULE**

**This BOQ covers unloading, storage, safety & security of material, verification, upkeeping, handing, material shifting, erection, testing & commissioning & handing over of 400kV Switchyard associated equipment/ material/ system. Work includes up-keeping of records & issuing of material to other contractors as if required. Final material reconciliation and handing over of spares to customer.**

S.No.	Type / Remark	Description	Unit	QTY.		
21.2		GI Pipe, 100 NB	Meter	240	69.52	16,685.42
22		Fixing of GI Pipes on Lattice/ Pipe Structure/ Vertical wall / Structure including clamping, fixing of sockets/ bends as required etc. complete. Both ends of GI Pipes shall be closed by plastering. (Payment will be made for the as erected pipe length).				
22.1		50 NB dia	Meter	20	58.19	1,163.75
22.2		100 NB dia	Meter	20	69.52	1,390.45
23	<b>Supply &amp; ETC</b>	Supply and Installation of Fire proof sealing / fire stop system / fire protection coating system required to prevent spreading of fire from one place to other place (or one zone to other zone) through the openings in wall / floor, cables laid in trays / racks and openings below Electrical Switchgear / MCC / Distribution boards / Cabinets / Panels, etc. using suitable block system using individual blocks with suitable framework or by silicon RTV foaming system. Refer clause 5.06.00 Vol. IV: Electrical Works for details	Sq.m	40	2,267.04	90,681.61
24		Galvanised steel Lattice Structures including hardwares for Towers, beams & equipment support	MT	280	3,991.02	11,17,485.18
25		Galvanised steel Pipe Structures including hardwares for equipment support	MT	90	3,370.20	3,03,317.60
26	<b>Supply &amp; ETC</b>	Supply and Installation of Panel Supporting Angles / Channel etc. <b>Structural Steel Work</b> welded in built up sections like angles, channels & framed work etc including providing cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete	MT	4	63,856.30	2,55,425.18
27		Earthing material- The earthing includes earthing of all switchyard equipment, towers, pipe structure, cable trenches, fence, pipe electrode , Control room equipments using necessary connectors for earthing flats. Earthing clamping shall be carried out by ETC contractor. GS strip including cutting, bending, welding with 40 mm dia MS rod riser/earth strip, applying zinc rich paint, clamping to structure/building wall etc. to complete. Hardware required for connecting flat on pads of structure & equipment included in scope. The Earthing of equipments, Auxiliary Earthmats under Iso/ ES/ CB MOM boxes shall be carried out as per equipment earthing details				
27.1		75 x 12 mm GI Flat	km	1.5	62,969.40	94,454.10
27.2		50 x 6 mm GI Flat	km	0.9	49,666.01	44,699.41
27.3		40 mm Dia MS Rod	MT	2	10,908.79	21,817.57
27.4		Pipe Electrode - 3 m long	Nos.	40	7,183.84	2,87,353.50
					-	-
28		Unloading, storage & handing over of Essential/ Mandatory spares to Customer as per ANNEXURE: SPARE_LIST. The spare list is provisional and minor changes may occur during detailed engineering stage.			-	-
28.01		420 KV GIS Mandatory Maintenance Equipment (ref. S1)	Lot	1	10,500.00	10,500.00
28.02		420 KV GIS Mandatory Spares (ref. S2)	Lot	1	32,235.00	32,235.00
28.03		LV SWITCHGEAR (ref. S3)	Lot	1	5,250.00	5,250.00
28.04		LV TRANSFORMERS (ref. S4)	Lot	1	5,250.00	5,250.00
28.05		BATTERY (ref. S5)	Lot	1	2,205.00	2,205.00
28.06		BATTERY CHARGERS (ref. S6)	Lot	1	3,150.00	3,150.00
28.07		POWER AND CONTROL CABLES (ref. S7)	Lot	1	95,231.64	95,231.64
28.08		TEST EQUIPMENTS (ref. S8)	Lot	1	8,400.00	8,400.00

**ANNEXURE-I  
BILL OF QUANTITY CUM PRICE SCHEDULE**

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S.No.	Type / Remark	Description	Unit	QTY.		
28.09		390 kV / 360 kV, 1 Phase Surge Arrester (ref. S9)	Lot	1	1,050.00	1,050.00
28.10		420kV POST INSULATOR (ref. S10)	Lot	1	1,050.00	1,050.00
28.11		Tele communication Equipment (ref. S11)	Lot	1	5,250.00	5,250.00
28.12		Control / Relay / SAS Panel Spare including relays (ref. S12)	Lot	1	5,250.00	5,250.00
29	<b>Supply &amp; ETC</b>	Supply & ETC of TANGEDCO approved make 2.0 HP Automatic Start/ Stop type Centrifugal pump and accessories for sump pit	Nos.	1	11,335.20	11,335.20
30	<b>Supply &amp; ETC</b>	Supply & ETC of TANGEDCO approved make 1.0 HP Automatic Start/ Stop type Centrifugal pump and accessories for sump pit	Nos.	1	10,500.00	10,500.00
31	<b>Supply &amp; ETC</b>	Supply & ETC of TANGEDCO approved make 0.5 HP Automatic Start/ Stop type Centrifugal pump and accessories for sump pit	Nos.	1	6,801.12	6,801.12
32	<b>Supply &amp; ETC</b>	Supply & Mounting of Phase Color Discs, Danger Plate and Identification Plates for bays & Equipments as per IS:2551; 1982 & IS:5; 1978.	Lot	1	1,13,352.02	1,13,352.02
33	<b>Supply &amp; ETC</b>	Equipment Fixing Hardware - M20 x 65 LG Bolts (Full Threaded) with nut and two Plane Washer and one Spring Washer (Supply of equipment fixing hardware as per specification TB-XXX-618-002a).	Kg	180	84.00	15,120.00
<b>34</b>		<b>33kV Load Break switch</b>				
34.1	<b>Supply</b>	Supply 33kV, 3 Phase, Load Break switch of reputed make subject to BHEL / customer approval. The load break switch should be suitable for operation at fault load current. Technical parameters are - Rated voltage 33kV, Max permissible voltage 36kV, Creepage distance 31mm/kV, Short circuit capacity 25kA for 3 Sec, Rated current 500A, Fault load current 630A, outdoor type. Load break switch should be of proven design and make which have already been extensively used and type tested. Terminal connector to suit 19/33kV 500 Sq mm cable termination. Supply of Load Break Switch complete in all respect including terminal connector. Supply of lattice / pipe structure is covered in a separate item below.	Set	2	63,000.00	1,26,000.00
34.2	<b>Supply</b>	Supply of lattice / pipe structure for Load Break Switch	Set	2	21,000.00	42,000.00
34.3	<b>ETC</b>	ETC for Load break switch complete in all respect including structure.	Set	2	4,620.00	9,240.00
35	<b>Supply &amp; ETC</b>	<b>INSULATION MAT:</b> The scope covers supply and laying of insulating mats of "class A" conforming to IS: 15652-2006. These insulating mats shall be laid in front of all floor mounted AC and DC switchboards and control & relay panels located in control room building/ Switchyard panel room / GIS LCC Panel e.t.c.refer scope note for details	Sq Meter	100	1,364.34	1,36,434.38
36		Watch & ward of stored / erected / commissioned material at storage area, project site, erection area or any other locations as per material safety requirement and instruction of site in-charge complete in all aspect including safety of 19/33kV Cable system. (round the clock security by authorized service agency consisting of armed guard). Safety & Security of 19/33kV Cable system beyond plant boundary is covered in separate BOQ item below.	Month	20	47,250.00	9,45,000.00

**ANNEXURE-I  
BILL OF QUANTITY CUM PRICE SCHEDULE**

**This BOQ covers unloading, storage, safety & security of material, verification, upkeeping, handing, material shifting, erection, testing & commissioning & handing over of 400kV Switchyard associated equipment/ material/ system. Work includes up-keeping of records & issuing of material to other contractors as if required. Final material reconciliation and handing over of spares to customer.**

S.No.	Type / Remark	Description	Unit	QTY.		
37		<b>Additional security for 19/33kV Cable, cable accessories i.e. termination, jointing, earthing materials, beyond plant (Thermal Power Station - ENNORE SEZ) boundary</b> - Cable to install between main plant area to sea water intake pump house (Distance approx. 7 kms). watch & ward of stored / erected / commissioned material at temporary storage area, erection area, 33kV Cable route or any other locations as per material safety requirement and instruction of site in-charge. (round the clock security by authorized service agency consisting of armed guard)	Month	15	47,250.00	7,08,750.00
38		Ware House/ Closed Store/ Open Store out side the Plant boundary - Following additional charges (In addition to the respective BOQ rates) shall be application in the case when material need to be received / stored at a storage yard (Not in bidder's scope) outside the Plant (Thermal Power Station - ENNORE SEZ) boundary (for significant time even for months) and later shifted to storage yard inside the plant boundary for onwards E.T.C. works. This includes complete scope of material handing including, material receipt, unloading, material handling, safety, security, material loading, onward transportation to plant, receipt/ unloading of material at site e.t.c. complete in all respect. Any other works need to be carry out for successful execution of the same are deemed included in bidders scope (excluding transit insurance).				
38.1		Unloading of material at ware house / out side plant store	MT	200	465.95	93,189.52
38.2		Arrangement of Watch & Ward/ Deputation of Security Personnel sufficient in nos. for safety and security of Ware House/ Closed Store/ Open Store located out side Power Plant area round the clock. (Security by authorized security service agency consisting of armed guards)	Month	24	47,250.00	11,34,000.00
38.3		Proper Storage, Reconciliation, Up keeping of records and preservations of Switchyard equipment/ Items/ GIS equipment/ items and accessories complete in all respect.	Month	24	17,468.18	4,19,236.36
38.4		Loading and Transporation by Trailor/ Truck/ Tractor to ensure suitability/ safety and transportability of Switchyard equipment/ Items/ GIS equipment/ items and accessories from Ware House/ Closed store/ Open Store located outside Power Plant area to Switchyard area/ Store for erection/ storage, including transportation lead of first 5 Kms.	MT	200	1,680.00	3,36,000.00
38.5		Carriage charges for subsequent lead of 30 Kilometre (after first 5 Kilometre lead which is covered in BOQ item 38.4). If the lead is more / less than 30 Kilometre, payment shall be made on prorata basis.	MT	200	105.00	21,000.00
					<b>Total</b>	<b>291,56,527</b>

**(ANNEXURE-II)**

**TRANSMISSION BUSINESS GROUP  
(SUB- CONTRACTS MANAGEMENT)  
TBG - NOIDA**

**PRICE SCHEDULE FORMAT**

**SUB: RECEIPT OF EQUIPMENT/ MATERIAL AT SITE, UNLOADING, INSPECTION, VERIFICATION, STORAGE, UP-KEEPING DURING STORAGE, ERECTION, TESTING, COMMISSIONING AND HANDING OVER OF 400kV GIS SWITCHYARD AT ENNORE TPP**

I/ We hereby agree to execute the above work at ----- % (in figure) -----  
Percentage (in words) Above / Below/ at Par the rates of items given in BOQ for erection testing and commissioning work (Annexure-I) of subject tender.

**NOTE:**

1. The percentage quoted shall be clearly written both in words and figures In case of discrepancy in rates in figure and words, the minimum will be taken into account by BHEL.
2. The quoted percentage will apply to the individual items unit rate uniformly.

Date:

Place

Signature of tenderer

Name & Designation of authorized person(s) with seal

### ANNEXURE-III

**SUMMARY OF PRICES FOR RECEIPT OF EQUIPMENT/ MATERIAL AT SITE, UNLOADING, INSPECTION, VERIFICATION, STORAGE, UP-KEEPING DURING STORAGE, ERECTION, TESTING, COMMISSIONING AND HANDING OVER OF 400kV GIS SWITCHYARD AT ENNORE TPP**

SI No.	Description	Amount (Rs.)
1	Total amount as per the rates in BOQ for subject ETC works (Annexure-I)	291,56,527.00
2	Applicable percentage above/below/ at Par to the total amount in BOQ for subject ETC works (As indicated in Price Schedule Format, Annexure -II).	.....% above/below/ at par
3	<b>Total amount for subject ETC works after consideration of percentage above/below/ at par.</b>	

**FORMAT OF NO DEVIATION CERTIFICATE  
(To be submitted in the bidder's letter head)**

REF: .....

Dated.....

**BHARAT HEAVY ELECTRICALS LIMITED,  
TRANSMISSION BUSINESS GROUP,  
5<sup>TH</sup> FLOOR, ADVANT NAVIS IT BUSINESS PARK,  
PLOT No-7, SECTOR-142, EXPRESSWAY NOIDA,  
NOIDA-201305  
DISTT- G.B.NAGAR (UTTAR PRADESH)**

**Sub.: Tender for “RECEIPT OF EQUIPMENT/ MATERIAL AT SITE, UNLOADING,  
INSPECTION, VERIFICATION, STORAGE, UP-KEEPING DURING STORAGE,  
ERECTION, TESTING, COMMISSIONING AND HANDING OVER OF 400kV GIS  
SWITCHYARD AT ENNORE TPP”**

**TENDER NO. TBSM/ENNORE/ETC/TENDER,**

**DATE 08.06.2018**

Dear Sir,

With reference to above, this is to confirm that as per tender conditions, we have visited subject site before submission of our offer and noted the job content & site conditions etc.

We also confirm that we have not changed / modified the tender documents as appeared in the website and in case of observance at any stage, it shall be treated as null and void. We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT and we hereby convey our unqualified acceptance to all terms and conditions as stipulated in the tender and NIT. In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer strictly in accordance with tender instructions.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized representative of the bidder)

## DECLARATION FOR RELATION IN BHEL

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder failing which the offer of Bidder is liable to be summarily rejected)

-----

REF:.....

Date.....

To,

**BHARAT HEAVY ELECTRICALS LIMITED,  
TRANSMISSION BUSINESS GROUP,  
5<sup>TH</sup> FLOOR, ADVANT NAVIS IT BUSINESS PARK,  
PLOT No-7, SECTOR-142, EXPRESSWAY NOIDA,  
NOIDA-201305  
DISTT- G.B.NAGAR (UTTAR PRADESH)**

Dear Sir,

Sub : Declaration for relation in BHEL

Ref : 1) NIT/Tender Specification No: .....,

I/We hereby submit the following information pertaining to relation/relatives of Proprieter/Partner(s)/Director(s) employed in BHEL

**Tick(√) any one as applicable:**

1. The Proprieter, Partner(s), Director(s) of our Company/Firm DO NOT have any relation or relatives employed in BHEL

OR

2. The Proprieter, Partner(s), or Director(s) of our Company / Firm HAVE relation / relatives employed in BHEL and their particulars are as below:

(i)

(ii)

Signature of the Authorised Signatory

Note:

1. Attach separate sheet, if necessary.
2. If BHEL Management comes to know at a later date that the information furnished by the Bidder is false, BHEL reserves the right to take suitable against the Bidder / Contractor.

