भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT HEAVY ELECTRICALS LIMITED
(A Govt. of India Undertaking)

TCN – 01

Ref: PSER:SCT:KGN-E2120:TCN-01 Date: 11-10-2021

Sub	Tender Change Notice (TCN) - 01	
Job	PROCUREMENT, SUPPLY, ERECTION, TESTING, COMMISSIONING, OPERATION & MAINTENANCE (O&M), ETC RELATED WITH EXTENSION OF CONSTRUCTION POWER SOURCES, GENERAL ILLUMINATION OF ALL THE WORKING AREAS, BUILDINGS AND OFFICES FOR FGD SYSTEM AT NTPC KAHALGAON STPP (4X210 MW+3X500 MW) ,BIHAR	
Ref	1.0	Tender no PSER:SCT:KGN-E2120:21
	2.0	BHEL's NIT, vide reference no PSER:SCT:KGN-E2120:8726 Date: 05-10-2021
	3.0	All other pertinent issues till date.

With reference to above, following points/ documents, relevant to tender, may please be noted and complied with while submitting offer.

1.0 Revised Volume-IF-TCC-CML-Rev-01 is attached, superseding Volume-IF-TCC-CML-Rev-00 issued earlier along with NIT. Bidders are requested to go through entire volume before submitting their offer.

2.0 Revised Volume-IF-TCC-TS-1-Rev-01 is attached, superseding Volume-IF-TCC-TS-1-Rev-00 issued earlier along with NIT. Bidders are requested to go through entire volume before submitting their offer.

3.0 Revised `No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.

4.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

DY. MGR (SCT)

Encl : As above.

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These special conditions shall be construed as part of tender document and shall be read along with general conditions of contract (GCC) and other volumes of tender. In case of any conflict or inconsistency between GCC, other volumes and these Technical conditions contract (TCC), the same shall be brought out by the bidder in writing to BHEL for clarification with stipulated date & before due date of submission of offer, failing which most stringent interpretation/ clause in favour of BHEL shall be adopted and the same shall be binding to the bidder.

CLAUSE NO	DESCRIPTION
1.0	**PROJECT SYNOPSIS AND GENERAL INFORMATION**
1.1	Kahalgaon Super Thermal Power Plant has been set up by NTPC, is located near Kahalgaon town in Bhagalpur district of Bihar State. The Stage-I & Stage -II of the Project were comprised of four (4) units of 210 MW, three (3) units of 500 MW respectively. The ultimate capacity of the project is 2340 MW (4 X 210 MW, Stage-I + 3 X 500 MW, Stage-II). As per Govt. of India norms, Flue Gas Desulphurization (FGD) system is being set up by NTPC for all units. 1. Owner : NTPC Ltd. 2. Project title : Flue Gas Desulphurisation (FGD) system Package for 2x210 MW Kahalgaon STPS Stage-I 4. Location : Kahalgaon town in Bhagalpur district, Bihar 5. Nearest Rly Stn : Colgong (Kahalgaon) 2.0 km away from project site 6.Nearest Port : Paradip 7. Nearest Airport : Patna (250 KM FROM PROJECT LOCATION) 8. Road Approach : Bhagalpur - Sahibganj State Highway 9. Lattitide : 25 o 15 N 10. Longitude : 87 o 15 E 11. Average Elavation : 16 MTR. 12. Average Temp : 35-40°C During summer 13. Average Rainfall : 50-75 CM
2.0	**EVALUATION OF BID**
2.1	Bidders should quote prices strictly as per prescribed format of price schedule, Volume-III of the tender.
2.2	Bid shall be evaluated based on modalities enumerated in this volume or elsewhere in the tender, i.e. in technical specification/ SCC/ Price Schedule, as applicable.
2.3	Separate order shall be placed for (i) ENABLING ELECTRICAL JOB - SUPPLY (Sch-3) (ii) ENABLING ELECTRICAL JOB - SERVICE (Sch-4), & (iii) O&M JOB (Sch-5) and shall be treated as separate contract.
3.0	**NAME OF WORK**
3.1	The scope broadly covers, procurement, supply (Except those which BHEL will provide as per tender terms), providing required manpower, including supervision, tools & plants, consumables, watch & ward, etc as per technical specification and terms & conditions of tender taking into account all clarifications, confirmations and agreements till date for erection, testing, commissioning, operation & maintenance (O&M), etc of construction power network for FGD System of NTPC Kahalgaon STPP(4X210 MW+3X500 MW),Bihar
3.2	The scope broadly comprises of 3 parts – (i) Supply part; (ii) Service part and (iii) O&M part.
4.0	**BROAD SCOPE OF WORK**
4.1	Distribution of LT network to BHEL facilities such as Office, store sheds, lighting mast, etc. from available construction power network sources, established by Owner (NTPC).
4.2	The successful bidder shall arrange for transportation of all materials & equipment,

	required for successful completion of the job under this tender. BHEL shall not, in anyway, be responsible for transportation of such materials or equipment and shall not issue any permit, etc in this regard.
4.3	All registration and statutory inspection fees, if any, in respect of the job pursuant to this tender shall be paid by successful bidder. However, any registration, statutory inspection fees lawfully payable under the provisions of Indian Electricity Act and other statutory laws and its amendments from time to time during execution of the job in respect of the plant equipment ultimately to be owned by BHEL, shall be to BHEL's account. Any such inspection or registration need to be re-arranged due to the fault of successful bidder or their sub-contractor, the additional fees to such inspection and/ or registration shall be borne by successful bidder.
4.4	All works shall be performed to lines, grades and elevations indicated on drawings (provided by BHEL). The successful bidder shall be responsible to locate and execute the works. Basic horizontal and vertical control points will be established and marked by BHEL at site at suitable points. These points shall be used as datum for the works under the contract. The successful bidder shall inform BHEL well in advance the time, place at which they intent to do work in the area allotted to them so that suitable datum points may be established and checked by BHEL to enable the successful bidder to proceed with works. Any work done without being properly located may be removed and/ or dismantled by BHEL at the expense of successful bidder.
4.5	The successful bidder shall bring to site all equipment, components, parts, materials, including construction equipment, tools & tackles for the purpose of the works under intimation to BHEL. All such goods shall, from the time of their being brought vest in BHEL, but may be used for the purpose of the works only and shall not on any account be removed or taken away by the successful bidder without the written permission of BHEL. The successful bidder shall nevertheless be solely liable and responsible for any loss or destruction thereof and damage thereto. BHEL shall have a lien on such goods for any sum or sums which may at any time be due or owing to them by the successful bidder, in respect of or by reasons of the contract. After giving a 15 (fifteen) days notice in writing of their intention to do so, BHEL shall be at liberty to sell and dispose off any such goods, in such manner as they shall think fit including public auction or private treaty and to apply the proceeds in or towards the satisfaction of such sum or sums due as aforesaid. After the completion of the works, the successful bidder shall remove from the site under the direction of BHEL the materials, such as construction equipment, erection tools & tackles, scaffolding, etc with the written permission of BHEL. If the successful bidder fail to remove such materials, within 15 (fifteen) days of issue of a notice by BHEL to do so then BHEL shall have the liberty to dispose off such materials and credit the proceeds thereto to the account of the successful bidder.
4.6	The intent of this tender is to provide services for execution of the work according to most modern & proven techniques and codes. Omission of specific reference to any method, equipment or material necessary for the proper & efficient service shall not relieve the successful bidder of the responsibility of providing such service/ facility to complete the work or portion of work awarded to them. The quoted/ accepted rates/ price shall deem to be inclusive of all such contingencies.
4.7	The work shall conform to dimensions & tolerances given in various drawings & documents that will be provided during execution. If any portion of works is found to be defective in workmanship & not conforming to drawings/ documents or other stipulations, the successful bidder shall dismantle and redo the work duly replacing the defective materials at their own cost, failing which recoveries, as determined by BHEL, shall be effected from successful bidder's bills.
4.8	It is not the intent of this specification to specify herein all the details of erection, commissioning, etc. However, the system shall conform in all respects to high standards of quality & workmanship for performing the required duties in a manner acceptable to purchaser who will interpret the meaning of drawings & specifications and shall be entitled to reject any work or material, which in their judgments is not in full accordance herewith.
4.9	Following shall be the responsibility of successful bidder and have to be provided within finally accepted rates/ prices.

4.9.1	Provision as required of all types of labour, supervisors, engineers, watch & ward, tools & tackles, calibrated MMD as specified and otherwise required for the work, consumable, etc.
4.9.2	Proper out-turn as per BHEL plan and commitment.
4.9.3	Completion of work as per BHEL schedule.
4.9.4	Good quality and accurate workmanship for proper performance of the equipment.
4.10	Dismantling, removal of debris, levelling, etc of all temporary structures, cables, etc as per instruction of BHEL on completion of work. If successful bidder fail to do so, BHEL will get it done through other agency and the cost along with applicable overhead will be recovered from successful bidder. Decision of BHEL engineer in this regard shall be final & binding on successful bidder.
4.11	BHEL - Power Sector (ER) is ISO 9001-2015 certified company. Quality of work, to customer's satisfaction and as per system requirements are the essence of ISO: 9001-2015 certification. The successful bidder, in all respects will organise their work, systems, environment and process control documentation, T&Ps, measuring and monitoring devices (MMDs), etc as per instructions of BHEL engineer.
4.12	The successful bidder will comply with HSE (Health, Safety & Environment) and Safety & Security requirements of BHEL & customer and follow all applicable Operational Control Procedures (OCPs) within quoted rate/ price.
4.13	The successful bidder shall construct closed/ semi closed/ open stores shed at the allocated space inside the plant premises for proper storage of items received by them without extra cost.
4.14	The successful bidder should deploy fire extinguishers of required number in their office and work areas.
4.15	The successful bidder shall strictly abide by State & Central laws, statutory rules, regulations, Labour law, BOCW etc as indicated in tender. In addition, successful bidder shall comply with PF regulations, etc for all their employees/ workmen as per local authorities/ Governing Body instructions. Compliance with statutory obligations as well as any other requirements/ provisions with respect to successful bidder's manpower, equipment including insurance, medical facilities, minimum wages, safety requirements, accommodations, etc are the responsibility of successful bidder.
4.16	All the necessary lifting tackles, tools & plants including cranes, tractors, trailers, lorries, trucks, pulley blocks, jacks, winches, wire rope, etc of suitable capacities, etc and other equipment incidental to carry out this work shall have to be arranged by the successful bidder at their cost.
4.17	If the successful bidder or their workmen break, deface, injures or destroy any part of building, road, kerbs, fence enclosures, water pipes, drains, electric/ telephone poles or wires, trees or any other property or damage any part of erected stores, stored components, etc the successful bidder shall make the same good at their own expenses (of which BHEL site engineer's decision shall be final) failing which the site engineer shall get the same rectified by other agencies at the risk & cost of the successful bidder and the same shall be deducted from the sums that may be due then or at any time thereafter become due to the successful bidder or even from their security deposit.
4.18	All the necessary tools & plants and equipment (except those mentioned to be given by BHEL free of cost as per relevant annexure of the tender), including operator, fuel, consumables, etc for running the same, required for the above job of upkeepment, maintenance and preservation/ conservation work shall be arranged by the successful bidder at their own cost.
4.19	Complete list of T&P/ equipment which shall be provided by successful bidder, is to be furnished in detail to Construction Manager, BHEL for review & acceptance.
4.20	The successful bidder will make their own arrangement for communication needs at their site office or residential area/ labour colony.
4.21	In event of any failure on the part of the successful bidder in providing necessary T&P, etc BHEL may at their discretion also terminate the contract on this ground and take out any part of contract or entire contract from the scope of successful bidder. Decision of BHEL in this regard will be final & binding on successful bidder.
4.22	All consumables required for the work shall be provided by the successful bidder at their

	own cost. The consumables supplied by the successful bidder shall be subject to prior approval of BHEL.
4.23	The successful bidder shall provide necessary first aid facilities for all their employees, representatives, and workmen working at site.
4.24	During the period of contract, the successful bidder shall be responsible for keeping the entire area allotted to them clean and free from rubbish debris, etc as per direction of BHEL and to entire satisfaction of BHEL. The successful bidder shall provide proper sanitary arrangement in the work area & office.
4.25	Work procedures that are to be used during the work shall be such, as to minimise fire hazards to the extent practicable. Combustible material, waste and rubbish shall be collected and removed from the site, at least once in every week or at any other periodicity, as per direction of BHEL.
4.26	Successful bidder's supervisory personnel & sufficient number of workers shall be trained for fire-fighting & other safety procedured and shall be assigned specific fire protection duties.
4.27	Successful bidder shall provide & maintain requisite fire protecting equipment of the types & number for their office & work premises. Access to such fire protection equipment is to be given at all times. Compliance of the above requirement shall in no way relieve the successful bidder of any of their responsibility & liabilities to fire accident occurring either to materials, man and equipment or to those of other's working in the area.
4.28	The successful bidder shall have total responsibility for all materials in their custody, and shall ensure protection of all materials from theft, fire, pilferage and any other damage & loss. The successful bidder shall make suitable and adequate arrangement to ensure the above, by deploying security personnel.
4.29	In case of theft of material from store, successful bidder shall lodge FIR with the Police Station (PS) so that Insurance Company do not turn down the claim. In the event of non-admittance of the claim by Insurance Company due to non-availability of FIR, BHEL reserve the right to recover the loss suffered from successful bidder’s bills based on the merit of the case.
4.30	The successful bidder shall be responsible to ensure that none of the personnel move beyond the areas marked out for their operation. In cfase of a need for the successful bidder's personnel to move beyond the area marked for them, the same shall be done with a written permission of the Construction Manager, BHEL.
4.31	If the materials/equipments belonging to the successful bidder are stored in areas other than those earmarked for them, BHEL will have the right to get it shifted to the area earmarked for the successful bidder at their cost.
4.32	For completion of work, the successful bidder may have to work in one or more shifts, at no extra cost to BHEL.
4.33	All the successful bidder employees shall carry identification cards/ gate passes while working at site as per the laid down procedure.
4.34	**OPERATION & MAINTENANCE (O&M)**
4.34.1	On successful installation and commissioning of the system (to be certified by BHEL Construction Manager), the contractor shall do the necessary operation and maintenance works of the system for a period of 30 (Thirty) months from the date of start of Operation and Maintenance job. Requirement of number and category of maintenance job person to be decided by BHEL at time to time as per actual site job progress and to be intimated to vendor accordingly. Vendor will arrange for deputing the required maintenance job personnel within seven days from the date of BHEL intimation. Payment shall be made on prorate basis as per actual performance of Man-month duty. All T&Ps and consumables required for carrying out the maintenance works of the system shall be arranged by the contractor. Replacement of damaged materials if any, if found attributable to contractor, shall be done by the contractor within the quoted price for the materials supplied by them.
4.34.2	Operation and maintenance of total construction power network consisting of 11 kV ring-main system, 11KV/415V step down transformers, LT distribution boards (440 V), with all necessary rail poles, wires, insulators, hardwares, isolators, circuit breakers,

	protection system, metering equipment, HT/AB/LT cables, conductors etc. general illumination system during construction, high mast lighting, temporary pole lighting, temporary lights at different floors/ areas till the permanent illumination system is established. For regular day to day as well as breakdown maintenance of the entire system on round the clock basis, necessary provision for experienced supervisor, licensed electrician, helper, T&Ps etc., replacement /rectification of item & components to restore the system for making the system operational is to be made by the contractor within the Price quoted by the bidder and accepted by BHEL.
4.34.2.1	The bidder scope also includes obtaining necessary approvals from statutory authorities
4.34.2.2	Contract Period for O&M services may be extended for a period of maximum 12 months by BHEL, at the same rate and terms & conditions, in case the work is not completed and the requirement exists, beyond the stipulated variation limit of the tender. However, this shall be confirmed by BHEL in writing. During further extension, if any, as required for the project and granted by BHEL, separate rate for Operation and maintenance is to be quoted as per the Vol-III, Rate schedule
4.34.2.3	During the maintenance period, the contractor shall also provide all necessary spares including transformer oil etc. for the system, as required, on actual reimbursement basis/BHEL supplied items as free issue.
4.34.2.4	The scope mentioned above is a brief guidance and not exhaustive. For detail scope SCC of tender document shall be referred.
4.34.2.5	For further extension, if any, as required for the project and granted by BHEL, BHEL reserves the right to exercise monthly charges as per Optional item rate of Vol-III. These services shall be available on round the clock basis. Necessary provision for experienced supervisor, licensed electrician, helper, T&Ps etc. to be made.
4.34.2.6	During the maintenance period, the contractor shall provide all necessary spares, fuses, cable gland / lugs, lamps, cables including transformer oil etc. for the system, as required. Payment for the same shall be made on actual basis/OR same shall be supplied by BHEL as free issue item.
4.34.3	However, if requirement of such spares is necessitated due to the fault of the contractor, the same shall have to be supplied by the contractor on their own cost within the quoted rate.
5.0	**SITE VISIT**
	Bidder should visit project site and acquire full knowledge and information about site conditions together with all the statutory, obligatory, mandatory requirements of various authorities, before submission of offer.
6.0	**DEVIATIONS/ CLARIFICATIONS**
	Normally no deviation with respect to tender is acceptable to BHEL. However, in case of unavoidable circumstances, the bidder may submit their query for seeking clarifications of BHEL as per modality stipulated in NIT or may submit the same along with his offer as per rescribed schedule/ format without any ambiguity. Any assumptions, presumptions, deviations, etc indicated or implied anywhere by the bidder except those indicated in the deviation schedule/ format will not be recognized and will not form a part of consideration/ offer. In the absence of such filled-up schedule/ format it will be understood and agreed that the bidder's offer is based on strict conformance to the specification and no negotiation would be allowed in this regard. BHEL reserve the right not to recognize any/ all deviations submitted after opening of the bid.
7.0	**DEWATERING**
	Successful bidder shall ensure at all times that their work area & approach/ access roads are free from accumulation of water, so that the materials are safe and the erection/ progress schedule are not affected. No separate claim in this regard shall be admitted by BHEL. No separate payments for dewatering of subsoil, surface water or catchments water, if required, at any time during execution of the work including monsoon period shall be considered by BHEL. In case of any deviation from this, BHEL may take appropriate action for setting right and cost including BHEL's overhead will be recovererd from successful bidder's bill.
8.0	**GENERAL TECHNICAL REQUIREMENTS (CODES AND STANDARDS)**

8.1	Except where otherwise specified, the plant/ equipment shall comply with appropriate Indian Standard or an agreed internationally accepted Standard Specification as mentioned elsewhere in tender, each incorporating the latest revisions at the time of tendering. Where no internationally accepted standard is applicable, the bidder shall give all particulars and details as necessary; to enable BHEL to identify all of the plant/ equipment in the same detail as would be possible had there been a standard specification.
8.2	Where the bidder proposes alternative codes or standards they shall include in their offer one copy (in English) of each standard specification to which materials offered shall comply. In such case, the adopted alternative standard shall be equivalent or superior to the standards mentioned in the specification.
8.3	In the event of any conflict between the codes & standards referred above, and requirements of the tender, the requirements which are more stringent shall govern.
8.4	Tools & plants for execution shall not be accepted except with specific approval of Construction Manager, BHEL.
8.5	Wherever specified or required the plant/ equipment shall conform to various statutory regulations such as Indian Boiler Regulation, Indian Electricity Rules, Indian Explosive Act, Factories Act, etc, as applicable for the subject job, obtaining approval for plant/ equipment supplied under the specification from statutory authorities shall be the responsibility of the successful bidder.
9.0	**DRAWING AND DOCUMENT**
9.1	The detailed drawings, specifications available with BHEL engineers will form part of contract. These documents will be made available to the successful bidder during execution of work at site. The successful bidder will also ensure availability of all drawings/ documents at work place.
9.2	One set of drawings to carry out the work will be furnished to successful bidder by BHEL on loan which shall be returned to BHEL at site after completion of work. Successful bidder's personnel shall take care of these documents given to them.
9.3	The successful bidder shall maintain a record of all drawings and documents available with them in a register as per format given by BHEL engineer.
9.4	The data furnished in various annexures enclosed with this tender are only approximate and for guidance. Due to change in design or other reason, variation in quantity and/ or alteration of items may occur for such large scale of work. No claim, whatsoever, will be admissible by BHEL in this regard.
9.5	Should any error or ambiguity be discovered in the specification or information, the successful bidder shall forthwith bring the same to the notice of BHEL before commencement of work. BHEL's interpretation in such cases shall be final & binding on them.
9.6	Deviation from design dimensions should not exceed permissible limit. The successful bidder shall not correct or alter any dimension details, without specific approval of BHEL.
9.7	The successful bidder have to arrange multiplication of protocols, log sheets and spiral binding of various documents for at least six sets. The number of sets will vary as per the requirement and shall be binding on the successful bidder.
10.0	**PROTECTION**
	Bidder shall ensure proper protection of items/ euipments being handled by them. Brief guidelines of protection of various types of items/ equipments, as applicable for the subject job, are furnished below.
10.1	Equipment having anti-friction or sleeve bearing shall be protected by weather tight enclosures. Coated surfaces shall be protected against impact, abrasion, discoloration and other damages. Surfaces which are damaged shall be repainted.
10.2	Electrical equipments, controls and insulations shall be protected against moisture and water damages. All external gasket surfaces and flange faces, couplings, rotating equipment shafts, bearings and like items shall be thoroughly cleaned and coated with rust preventive compound and protected with suitable wood, metal or other substantial type covering to ensure their full protection. All exposed threaded parts shall be greased & protected with metallic or other substantial type protector.

10.3	All piping, tubing and conduit connections on equipment and equipment openings shall be closed with rough usage covers or plugs. Female threaded openings shall be closed with rough usage covers or plugs or forged steel plugs. The closures shall be taped to seal the interior of the equipment. Open ends of piping, tubing and conduit shall be sealed and taped.
10.4	All erected equipment/ components to be preserved as per the preservation recommendation of BHEL. For this type of preservation, successful bidder shall engage an exclusive team of persons for meeting the continuous requirement. All other consumables including wire brush, emery papers, painting brush etc to be supplied by the successful bidder within the quoted/ accepted rates.
11.0	**GENERAL GUIDELINES FOR FIELD ACTIVITIES**
11.1	The successful bidder shall execute the work in a professional manner so as to achieve the target schedule without any sacrifice on quality & maintaining highest standards of safety and cleanliness.
11.2	The successful bidder shall co-operate with BHEL/ owner and other contractors working at site and perform work in a manner so as to minimise interference with other contractor's works. BHEL's engineer shall be notified promptly of any defect in other contractors' works that could affect the successful bidder's work. If rescheduling of successful bidder's work is requested by BHEL/ customer in the interest of overall site activities, the same shall be compiled with by the successful bidder. In all cases of controversy, the decision of BHEL shall be final & binding on the successful bidder without any commercial implication.
11.3	BHEL will conduct meetings with the successful bidder along with other agencies at site periodically at a time, place, to be intimated by BHEL at appropriate juncture. The successful bidder shall attend such meetings and take notes of discussions during the meeting and the decisions of BHEL and shall strictly adhere to those decisions in performing work.
11.4	Time is the essence of the contract and the successful bidder shall be responsible for performance of their work in accordance with the specified construction schedule. If at any time, the successful bidder falls behind the schedule, they shall take necessary action to make good of such delays to comply with the schedule and shall communicate such action in writing to BHEL, satisfying that their action will compensate for the delay. No extra compensation for such action is applicable.
11.5	BHEL shall however not be responsible for provision of additional labour and or materials or supply of any other services to the successful bidder except for the co-ordination work between various successful bidders as set out earlier.
11.6	The works under execution shall be open to inspection & supervision by BHEL's/ owner's engineer at all times. The successful bidder shall give reasonable notice to BHEL before covering up or otherwise placing beyond the reach of inspection any work, in order that same may be verified, if so desired by BHEL/ owner.
11.7	Every effort shall be made to maintain the highest quality of workmanship by stringent supervision and inspection at every stage of execution. Manufacturer's instruction manual and guidelines on sequence of erection and precautions shall be strictly followed. Should any error or ambiguity be discovered in such documents the same shall be brought to the notice of BHEL engineer. Manufacturer's interpretation in such cases shall be binding on the successful bidder.
11.8	The successful bidder shall comply with all the rules and regulations of the local authorities, all statutory laws including Minimum Wages, Workmen Compensation etc. All registration and statutory inspection fees, if any, in respect of the work executed by the successful bidder shall be to their account.
12.0	**QUALITY CONTROL & QUALITY ASSURANCE**
12.1	**INSPECTION & FIELD QUALITY ASSURANCE**
12.1.1	Contractor shall carry out all activities conforming to the approved Field Quality Plan (FQP) & technical instructions as revised from time to time. 'Total Quality' shall be the watchword of the work and contractor shall strive to achieve the quality standards, procedures laid down by BHEL. He shall follow all the instructions as per BHEL drawings and quality standards. Contractor shall provide the services of quality

	assurance engineer as per the relevant clauses.
12.1.2	Preparation of quality assurance log sheets and protocols with customer / consultants / statutory authority, welding logs, NDE records, testing & calibration records and other quality control and quality assurance documentation as per BHEL engineer's instructions, is within the scope of work / specification. These records shall be submitted to BHEL / customer for approval from time to time.
12.1.3	The protocols between contractor and customer / BHEL shall be made for correctness of foundations, materials, procedures, at each stage of installation, generally as per the requirement of customer / BHEL. This is necessary to ensure elimination of errors and to avoid accumulation and multiplication of errors.
12.1.4	A daily log book (with proper indexing) should be maintained by every supervisor / engineer of contractor, for respective area of work, on the job for detailing and incorporating alignment/ clearance / centering / levelling readings and inspection details of various equipment, etc. This log book shall be always accessible to BHEL engineers. High pressure welding (as applicable under the scope of this contract) details like serial number of weld joints, welders name, date of welding, details of repair, heat treatment etc. will be documented in welding log as per BHEL Engineer's instructions. Record of radiography (as applicable under the scope of this contract) containing details like serial number of weld joints, date of radiography, repairs, if any, re-shots etc shall also be maintained as per BHEL Engineer's instructions. Record of heat treatments (as applicable under the scope of this contract) performed shall be maintained as prescribed by BHEL.
12.1.5	The contractor has to take prior permission / approval before deployment of NDE & Heat Treatment agencies at site as per BHEL document no. PP-QLY-AA-DC-106/01-20. The contractor's employees involved in NDE & Heat treatment job must be qualified & experienced as per the requirement of the above document.
12.1.6	The performance of welders (as applicable under the scope of this contract) will be reviewed from time to time as per the BHEL standards. Welders' performance record shall be furnished periodically for scrutiny of BHEL's Engineer. Currently, BHEL follows online Welder Performance Monitoring System. Contractor shall extend necesary support, as deemed fit by BHEL site-in-charge, regarding data entry into the system. Corrective action as informed by BHEL shall be taken in respect of those welders not conforming to these standards. This may include removal/ discontinuance of concerned welder(s). Contractor shall arrange for the alternate welders immediately.
12.1.7	Only welders duly authorized by BHEL / customer / consultant after welder qualification test as per ASME Sec-IX / AWS D1.1 (as applicable) shall be engaged on the work. All the welders shall carry identity cards as per the proforma prescribed by BHEL / Customer / Consultant. High Pressure welders and welders of special materail viz. C276, Ti, etc., must be trained & tested by experts from BHEL-WRI/ other units. Necessary infrastructure for welder traning & testing, as per BHEL's instruction, to be arranged by the contractor without any extra cost to BHEL.
12.1.8	Any re-laying or re-termination of cables / re-erection of instruments / recalibration of instruments etc. required due to contractor's mistake and found at any stage inspection, shall be carried out by the contractor at no extra cost. Repair / rectification procedure to be adopted to make any job acceptable shall be subject to the approval of BHEL. Weekly Quality Review Meeting at site shall be organised by BHEL to discuss quality issues and next weeks inspection plans. Site in-charge of the contractor along with QAEs of the contractor must be present in the meeting with closure report of the issues raised by BHEL in the previous meetings.
12.1.9	Weekly Quality Review Meeting at site shall be organised by BHEL to discuss quality issues and next weeks inspection plans. Site incharge of the contractor along with QAEs of the contractor must be present in the meeting with closure report of the issues raised by BHEL in the previous meetings.
12.2	REQUIREMENT OF ISO 9001
12.2.1	BHEL: PSER is accredited with ISO 9001 certification and as such this work is subject to various audits to meet ISO 9001 requirements.
12.2.2	The basic philosophy of the Quality Management System under ISO 9001 is to define

	the organizational responsibility, work as per documented procedures, verify the output with respect to acceptance norms, identify the non-conforming product / procedure and take corrective action for removal of non-conformance specifying the steps for avoiding recurrence of such non-conformities, & maintain the relevant quality records. The non-conformities are to be identified through the conduct of periodical audit of implementation of quality systems at various locations/stages of work. Suppliers / vendors of various products / services contributing in the work are also considered as part of the quality management system. As such the contractor is expected not only to conform to the quality management system of BHEL but also it is desirable that they themselves are accredited under any quality management system standard.
12.2.3	BHEL reserves the right to carry out quarterly quality audits and quality surveillance of the systems and procedures of contractor's quality management. Contractor shall provide all necessary assistance to enable BHEL to carry out such audit & surveillance.
12.2.4	Quality audits / approval of the results of test & inspection will not prejudice the right of BHEL to reject an equipment service not giving desired performance and shall not in no way limit the liabilities and responsibilities of the contractor in earning satisfactory performances of equipment / service as per specification.
12.3	MMEs / MMRs
12.3.1	Contractor shall ensure deployment of reliable and calibrated MMEs (Measuring and Monitoring Equipment). The MMEs shall have test / calibration certificates from authorised / Government approved / Accredited agencies traceable to National / International Standards. Retesting / re-calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer within the contract price. The contractor will also have alternate arrangements for such MMEs so that work does not suffer when the particular equipment / instrument is sent for calibration. Also if any MMEs not found fit for use, BHEL shall have the right to stop the use of such item and instruct the contractor to deploy proper item and recall i.e. repeat the readings taken by that instrument, failing which BHEL may deploy MME and retake the readings at Contractor's cost.
12.3.2	Contractor shall provide all the Measuring Monitoring Equipment (MMEs) required for completion of the work satisfactorily. These MMEs shall be of brand, quality and accuracy specified by BHEL Engineer and should have necessary calibration and other certificates as per the requirement of BHEL Engineer. Decision of BHEL Engineer regarding acceptance or otherwise of the measuring instruments / gauges / tools for the work under this specification, is final and binding on the contractor. BHEL shall give an indicative list of MMEs required for this work else where in this contract and to be made available by the contractor. The list will be reviewed by BHEL site as per the requirement of approved FQPs and the contractor shall meet any augmentation needed wherever required.
12.3.3	It is the responsibility of the contractor to prove the accuracy of the testing / measuring / calibrating equipment brought by him based on the periodicity of calibration as called for in the BHEL's quality assurance standards/BHEL Engineer's instructions.
12.3.4	Re-work necessitated on account of use of invalid MMEs shall be entirely to the contractor's account. He shall be responsible to take all corrective actions, including resource augmentation if any, as specified by BHEL to make-up for the loss of time.
12.3.5	In the courses of erection, it may become necessary to carry repeated checks of the work with instruments recently calibrated, re-calibrated. BHEL may counter / finally check the measurements with their own MMEs. Contractor shall render all assistance in conduct of such counter/ final measurements.
12.4	INSPECTION BY TS / FES / QA ENGINEERS OF BHEL UNITS / ENGINEERING CENTRES
12.4.1	Apart from day-to-day inspection by BHEL Engineers stationed at Site and Customer's Engineers, stage inspection of equipment under erection and commissioning at various stages may also be conducted by teams of Engineers from Field Engineering Services of BHEL's Manufacturing Units, Quality Assurance teams from Field Quality Assurance, Unit/Factory Quality Assurance and Commissioning Engineers from Technical Services etc. Contractor shall arrange all labour, tools and tackles etc along with proper access

	for such stage inspections free of cost.
12.4.2	Any modifications suggested by BHEL FES and QA Engineers' team shall be carried out. Claims of contractor, if any, shall be dealt as per applicable clause of the contract, and provided such modifications have not arisen for reasons attributable to the contractor.
12.5	CONFORMANCE TO THE STATUTORY REQUIREMENTS (AS APPLICABLE UNDER THE SCOPE OF THE CONTRACT)
12.5.1	The work to be executed under these specifications has to be offered for inspection, at appropriate stages of work completion, to various statutory authorities for compliance with applicable regulations. The work related statutory inspections, though not limited to, are as under: 1) Inspectorate of Steam Boilers and Smoke Nuisance 2) Electrical Inspector 3) Factory Inspector, Labour Commissioner, PF Commissioner and other authorities connected to this project work. The scope includes getting the approvals from the statutory authorities, which includes arranging for inspection visits of statutory authority periodically as per BHEL Engineer's instructions, arranging materials for ground inspection, taking rub outs for stamping of the pressure parts / pipes to be offered for inspection, submitting co-related inspection reports, documents, radiographs etc and following up the matter with them. Contractor shall also make all arrangements for offering the Products / Systems for inspection at location, as applicable, to the concerned authority
12.5.2	Contractor should be qualified to execute pressure parts & piping work coming under the purview of IBR or Competant Inspecting Authority, for which he should register himself with CIB of state concerned / Competant Inspector. Contractor also should be aware of the latest Boiler regulations and Electricity Act, including the amendments thereof, as applicable under the scope of this contract.
12.5.3	Contractor shall comply with 'Qualification Tests for welders engaged in welding of Boilers and Steam Pipes under Construction, Erection and Fabrication at Site in India and in repairing Boilers and steam pipes by welding' in line with Chapter XIII of Indian Boiler Regulations- 1950, for testing his welders / men / workers, including all associated fees, procedures, required instruments and equipment and their calibration there of. It shall be contractor's responsibility to obtain approval of Statutory Authorities, wherever applicable, for the conducting of any work which comes under the purview of these authorities, at his cost.
12.5.4	The following fees shall be excluded from scope of Contractor: 1. Registration Fee as per Regulation 385 of Chapter IX of Indian Boiler Regulations-1950 or Registration Fee as per prevailing statutory boiler regulations. 2. Fees for inspection of Boiler at the site of Construction as per Regulation 395 A, sl no 4 of Chapter IX of Indian Boiler Regulations- 1950. However all other fees like visit fees charged by the Boiler Inspector and other arrangements for his visit or visits till satisfactory completion of work, shall be included in scope of Contractor.
12.6	STORAGE & PRESERVATION OF WELDING ELECTRODES & OTHER BHEL-ISSUED MATERIAL
12.6.1	The contractor shall be responsible for storage & preservation of welding electrodes & other BHEL-issued materials as per BHEL Storage & Preservation Guidelines / Instructions.
12.7	PENALTIES ON VENDORS / SUB-CONTRACTORS AGAINST NON-COMPLIANCE OF QUALITY NORMS

Sl. No.	Nature of Non-compliance	Penalty for Domestic Project	Penalty for Export Project	Remarks
GENERAL				
12.7.1	Unavailability of QAE deployment schedule (duly approved by BHEL Site) matching with manpower requirement of approved	0.10%	0.10%	Against each RA bill

	L2 schedule			
12.7.2	Unavailability of required number of QAE with proper experience & NDT certification as per the requirement of the Contract	Rs. 1,000.00	$16.00	Per person per day
12.7.3	Not attending quality meeting of BHEL by nominated member of vendor / sub-contractor	Rs. 2,000.00	$32.00	Per meeting
CALIBRATION				
12.7.4	Use of MMEs without valid calibration certificate	Rs. 1,000.00	$16.00	Per equipment per instance
12.7.5	Use of NDT equipment, welding equipment without having valid calibration certificate / condition not as per requirement	Rs. 1,000.00	$16.00	Per equipment per instance
WELDING & NDT				
12.7.6	Unqualified welders carrying out welding / tack welding	Rs. 1,000.00	$16.00	Per welder per instance. (Gatepass of the person shall be withheld)
12.7.7	Not using portable oven for welding consumables	Rs. 500.00	$8.00	Per welder per instance. (The consumables in the oven shall be confiscated)
12.7.8	Not using electrodes pre-baked in baking oven	Rs. 500.00	$8.00	Per instance. (The subject consumables shall be confiscated)
12.7.9	Not using welding consumables of approved make & not using correct type of electrode as per approved EWS / Drawing / WPS	Rs. 1,000.00	$16.00	Per instance. (The subject consumables shall be confiscated)
12.7.10	Non-removal of welding slag and spatters after welding	Rs. 500.00	$8.00	Per joint
12.7.11	Not using NDT equipment as prescribed in the manual / FQP / guidelines / Contract	Rs. 1,000.00	$16.00	Per equipment per instance
12.7.12	Welder doing welding without valid job card	Rs. 500.00	$8.00	Per instance
12.7.13	Discrepancy observed in the weld joints identified by BHEL / Customer for RT vs RT film offered	Rs. 2,000.00	$32.00	per joint
MATERIAL MANAGEMENT				
12.7.14	Non-maintenance of grid pillar marking	Rs. 200.00	$3.00	Per location week
12.7.15	Mismatch of location of material in store area w.r.t. location mentioned in stock register	Rs. 500.00	$8.00	Per instance
12.7.16	Non-compliance of Preservation of material as	Rs. 1,000.00	$16.00	Per equipment

	per storage & preservation manuals			
12.7.17	Not offering received material for verification within stipulated time as per contract	Rs. 500.00	$8.00	Per instance
PAINTING & ALLIED WORKS				
12.7.18	Not using primer / paints of approved make and as per Specifications	Rs. 1,000.00	$16.00	Per instance
12.7.19	Painting without proper surface preparation as per approved schedule / drawing / FQP	Rs. 500.00	$8.00	Per instance
PROTOCOLS & LOG SHEETS				
12.7.20	Delay in preparation of Protocols / Logsheets as per approved FQP within 3 days of completion of checks	Rs. 200.00	$3.00	Per protocol per day delay
INSPECTION OF BOUGHT-OUT ITEMS / CONSUMABLES				
12.7.21	Delay in offering inspection of Bought-out Items / Consumables / Aggregates (for items which need site inspection as per approved QP) within 3 days of receipt of material at site	1% of the item value of the LOT	1% of the item value of the LOT	per item per day delay after receipt of material
12.7.22	Delay in submission of required documents (viz. Invoice, Inspection Release Note, COC, MDCC, MTC as the case may be) of Bought-out Items (shop inspection items / consumables) with in 3 days of receipt of material at site.	1% of the item value of the LOT	1% of the item value of the LOT	per item per day delay after receipt of material
NOTE: Any non-conformity requiring dismantling / rework, attributable to vendor / sub-contractor, shall be penalised at a rate mentioned above or cost to BHEL, which ever is higher.				

13.0	**LABOUR AND LABOUR LAWS**
13.1	**Recruitment of Local Labour** Local labours shall be engaged for unskilled work. Preference may also be given for appointment of local people in semiskilled and skilled categories, if such suitable persons are available.
13.2	**Labour Laws and Local Regulations** The Contractor shall abide by the prevailing labour laws and shall have to obtain labour license from the appropriate authority as per the law at his cost. On obtaining the labour license, the Contractor at appropriate time shall submit certified photocopy of the same to the Purchaser. The Contractor shall possess valid PF & ESI Code.
13.3	**Wages and Working Hours** The Contractor shall pay rates of Wages and observe hours and conditions of labour not less favourable than those established for the trade or industry in the district where the work is carried out but not less than the applicable minimum wages or by machinery of negotiation or arbitration to which the parties are organizations of employers and trade union's representatives respectively of substantial proportions of the employers and workers engaged in the trade or industry in the district. In the absence of any rates of Wages, hours or conditions of labour so established the Contractor shall pay rates of wages and observe hours and conditions of labour which are not less fabourable than the general levels of wages and hours and conditions observed by other contractor whose general circumstances in the trade or industry in which he is engaged are similar.
13.4	**Other Requirements** a) The Contractor shall not, otherwise than in accordance with the Statutes, Ordinances and Government Regulation or Orders for the time being in force, import, sell, give, barter or otherwise dispose of any alcoholic liquor, or drugs, or permit or suffer any such importation, sale, gift, barter or disposal by his sub-contractor(s), agents of employees. b) The Contractor shall not give, barter or otherwise dispose of to any person or persons any arms or ammunition of any kind or permit the same as aforesaid. d) The Contractor shall in all dealings with labour in his employment have a due regard to all recognised festivals, days of rest and religious or other customs. e) In the event of any outbreak of illness of an epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government, or the local municipal or sanitary authorities for the purpose of dealing with and overcoming the same. f) The Contractor shall at all times take all reasonable precautions to prevent any unlawful riotous or disorderly conduct by or amongst his employees and for the preservation of peace and protection of persons and property in the neighborhood of the Site against the same. g) The Contractor shall be responsible for observance by his sub-contractor(s) of the foregoing provisions.
14.0	**DELETED.**
15.0	**LABOUR AND SUPERVISORY STAFF**
15.1	The successful bidder shall engage specially skilled labour, eg sarangs, riggers, etc and khalasis for works under this contract.
15.2	The successful bidder shall provide adequate number of supervisory staff for carrying out job under this contract. The supervisory staff employed by the successful bidder should be familiar with BHEL material identification pattern. The successful bidder shall ensure proper out turn of work and discipline on the part of labour put on the job by the successful bidder. They will also in general see that the works are carried out in a safe and proper manner and in co-ordination with labour and staff employed directly by BHEL or other contractor of BHEL or customer.
15.3	It will be the responsibility of successful bidder to ensure safe lifting of equipment/ material taking due precautions to avoid any accident & damage to other equipment and personnel. They shall be liable for all accidents, damages, etc to personnel and equipment etc. during the execution of the work by the successful bidder.

16.0	**HEALTH, SAFETY & ENVIRONMENT**
16.1	Applicable HSE norms shall be as per HSE Doc. No.: HSEP:14-ER, Rev-01 Dated 08/05/2020, OPERATIONAL CONTROL PROCEDURE , Doc. No.: HSEOCP: 61A , Rev. No.: 00 dated 27.04.2020 & OPERATIONAL CONTROL PROCEDURE , Doc. No.: HSEOCP: 61 , Rev. No.: 01 dated 01.06.2020 & of Tender
17.0	**DELETED**
18.0	**DELETED**
19.0	**STATUTORY INSPECTION**
	The scope includes arranging for inspection visits of Electrical Inspector periodically as per BHEL engineer's instructions, submitting documents, etc and following up the matter with them as and when necessary for the work involved in this scope. Statutory Fees paid will be reimbursed on production of evidence.
20.0	**RECONCILIATION OF MATERIALS**
20.1	The successful bidder shall submit a reconciliation statement of items received & consumed by them through computerized system.
20.2	At the time of submission of bill, successful bidder shall properly account for material issued to them, if any, as specified herein to the satisfaction of BHEL certifying balance materials are available with successful bidder's custody at site.
21.0	**PROGRESS OF WORK**
21.1	During the course of work if the progress is found unsatisfactory, or if the target dates fixed from time to time are to be advanced or in the opinion of BHEL, if it is found that the workmen employed are not sufficient, BHEL will induct required additional workmen, to improve the progress and recover them from successful bidder's bills, all charges incurred on this account including all expenses together with BHEL overheads.
21.2	The successful bidder shall submit monthly progress reports as per the format, to be provided by BHEL during execution, together with requisite no of photographs (soft copy), as detailed elsewhere, to Construction Manager, BHEL, with a copy to Project Manager at BHEL/ PSER/ Kolkata. Manpower reports, material reports, consumables reports, and other reports considered necessary by BHEL will also have to be submitted with a copy to Project Manager at BHEL/ PSER/ Kolkata.
21.3	The successful bidder shall take on average five colour digital photograph/ slides each month (not less than one per week) of the works during progress. In case of failure in providing such photograph (soft copy) in each month, an amount of Rs 20,000 per month shall be deducted from successful bidder's RA bill.
21.4	The manpower reports shall clearly indicate the manpower deployed category wise daily specifying also the activities in which they are engaged. The periodicity of the reports will be decided by BHEL engineer at site.
21.5	Successful bidder shall arrange for periodic progress review meetings with the engineer at site during which actual progress during the week vis-à-vis scheduled programme shall be discussed for action to be taken for achieving targets. The programme for subsequent week shall also be presented by successful bidder for discussions. Successful bidder shall constantly update/ revise works programme too meet the overall requirement.
21.6	Bidder shall submit a detailed monthly plan after discussion with BHEL engineer and the same has to be forwarded by the first week of the month (Working month or calendar month) or otherwise as to be specfified by BHEL.
22.0	**LAND**
22.1	Availability of land within plant boundary is very limited and the contractor has to plan & use the existing land considering the use of land by other contractors and the storage of plant machineries and materials. The existing land shall be shared by all erections agencies. The same will be reviewed by BHEL and allotted to the extent available/ considered necessary free of cost. Contractor shall develop these areas for their site office, their own stores etc. Bidder must visit site to assess site condition, prior to quoting.
22.2	Levelled area for storage area for BHEL's material shall be provided as per availability free of cost.

22.3	Land for labour colony shall be arranged by successful bidder at their own. The contractor shall construct labour colony / hutment as per his requirements after obtaining approval of formalities from statutory body. Further, contractor must ensure minimum HSE norms and hyeiginic sanitary conditions in his labour colony.
22.4	The contractor will be responsible for handing back all lands, as handed over to him by BHEL/NTPC.
23.0	**WATER, POWER & OTHER FACILITIES**
23.1	Contractor shall make all arrangements himself for the supply of construction water as well as potable water for labour and other personnel at the work site/ colony. However, drawal of construction/ potable water from the bore-well shall be permitted if found suitable. Any statutory clearance required shall be obtained by the contractor. Assistance, if required shall be provided by the BHEL/NTPC.
23.2	All resources including T&P, manpower, consumables etc. required for carry out the execution of job are to be arranged by the contractor within the quoted / accepted rates.
23.3	Contractor has to make his own arrangement at his cost for completing the formalities with the all authorities / customer, if required, for bringing their material, plant, equipment at site for execution of the work.
23.4	Contractor has to make his own arrangement for accommodation, transportation & other facilities of their workmen/ employees at their own cost. Contractor has to make his own arrangement for computer facilities (including stationary), to carry out their portion of work and for preparation of reports etc., at their own cost. Providing watch & ward for security and safety of their scope of materials will be the responsibility of contractor at their cost. BHEL may call for weekly/ monthly meeting for reviewing the progress of the work and the contractor will comply with it.
24.0	**DELETED**
25.0	**PROJECT MANAGEMENT/ CONSTRUCTION MANAGEMENT**
	To meet the need of construction management at site, successful bidder shall provide the following services within quoted/ accepted rates.
25.1	PLANNING & MONITORING
25.1.1	Upon receipt of order/ LOI from BHEL, successful bidder shall interact with BHEL site for kick-off meeting to discuss & firm up item-wise/ activity-wise schedule of erection, testing, commissioning so as to complete the entire job within the stipulated completion period, matching with project schedule.
25.1.2	Based on the discussion of the kick-off meeting or otherwise, a master schedule shall be drawn, which shall be subject to acceptance/ approval of BHEL.
25.1.3	On every month, the successful bidder shall submit to Construction Manager, BHEL schedule-wise plan vs actual status of erection, testing, commissioning, along with action plan to make-up delay, if any.
25.1.4	The project schedule might undergo revision/ modification periodically, for which the successful bidder may have to prepare/ modify schedule periodically in consultation with BHEL, so as to match with revised project milestones.
25.1.5	The successful bidder shall ensure monitoring of these activities at least on fortnight basis or at other frequency as mutually agreed with BHEL.
25.1.6	Successful bidder shall submit daily work program based on above schedule. Deferment of above schedule is not acceptable. Successful bidder will adhere to schedule & augment resources to ensure completion as per schedule.
25.1.7	Progress reviews on entire activities will be held periodically as per direction of BHEL, at site/ Kolkata. These meetings will be used as a forum for discussing all areas where progress needs to be expedited. The successful bidder shall be further responsible for ensuring that suitable steps are taken to meet various targets decided upon such meetings.
25.1.8	Successful bidder shall prepare progress report indicating progress on key activities, management summary for critical activities, list of actions require BHEL's attention. The schedule shall preferably be made in Primavera/ MS Projects, so that the same is compatible with BHEL's project management software.
25.2	PROGRESS REPORTING
25.2.1	Successful bidder shall submit periodic monthly progress reports for work force,

	material, consumable and other reports as per pro-forma considered necessary by BHEL. In case of any failure on successful bidder's part to comply with this, BHEL may at their discretion, may deduct suitable amount from their RA bills or stop work or terminate contract.
25.2.2	The progress report shall indicate the progress achieved against planned with reasons indicating delays, if any, and shall give the remedial actions which the successful bidder intends to take to make good the slippage or lost time, so that further works again proceed as per the original program and slippages do not accumulate and effect the overall program.
25.2.3	The daily work force reports shall clearly indicate work force deployed, category-wise specifying also the activities in which they are engaged.
25.2.4	Weekly progress review meetings will be held at site during which actual progress during the week vis-à-vis scheduled program shall be discussed or actions to be taken for achieving targets. For discussions, the successful bidder shall present program of subsequent week. The successful bidder shall constantly update/revise his work program to meet the overall requirement.
25.2.5	Periodic progress reviews on the entire activities of execution in respect of supply and works in scope of bidder will be held once in a month at Calcutta/ site. These meetings will be attended by reasonably higher officials of the successful bidder and will be used as a forum for discussing all areas where progress needs to be speeded up. The successful bidder shall be further responsible for ensuring that suitable steps are taken to meet various targets decided upon such meetings.
25.3	SITE ORGANIZATION
25.3.1	The contractor shall provide adequate staffing in the following areas in addition to the staffing requirements of execution as instructed/informed by BHEL: 1. Overall planning, monitoring, control & Industrial relations and fulfilment of labour laws and other statutory obligations. 2. Quality control and quality assurance &. Materials management. 3. Safety, fire & security. Strength of various required person shall be decided jointly in consultation with Site in charge, BHEL.
25.3.2	The contractor shall maintain a site organization of adequate strength in respect of manpower, construction machinery and other implements at all times for smooth execution of the contract. This organization shall be reinforced from time to time, as required to make up for slippage from the schedule without any commercial implication to BHEL. The site organization shall be headed by a competent construction manager having sufficient authority to take decisions at site.
25.3.3	On award of contract, the contractor shall submit to BHEL site organization chart indicating the various levels of experts to be deployed on the job. BHEL reserves the right to reject or approve the list of personnel proposed by the Contractor. The persons, whose bio-data have been approved by BHEL, will have to be posted at site and deviations in this regard will not generally be permitted.
25.3.4	The contractor should also submit to BHEL for approval a list of construction equipment, erection tools, tackle etc prior to commencement of site activities. These tools & tackles shall not be removed from site without written permission of BHEL.
25.3.5	The organization chart for site should indicate the various levels of experts to be posted for supervision in the various fields in erection, commissioning etc as applicable.
25.3.6	Functioning of OPERATION & MAINTENANCE (O&M)
25.3.6.1	During O&M of construction power network system service, successful bidder shall deploy following minimum resources. The construction power network will be in operation continuously, for which the successful bidder may have to deploy requisite manpower, tools & plants, consumables, etc in 3 shifts.
25.3.6.1.1	1 no skilled electrician (With relevant experience) per shift.
25.3.6.1.2	1 no Semi Skilled electrical Helper (With relevant experience) per shift.
25.3.6.1.3	Requisite helper per shift.
25.3.6.1.4	Requisite tools & plants, consumables.

25.3.6.2	In the event of failure of the successful bidder to provide any of aforesaid manpower for a period of 1 day, BHEL reserve the right to deduct @Rs 18,000 per man-month for skilled electrician & @Rs 15,000 per man-month for semi-skilled electrician.
25.3.6.3	Also, BHEL reserve the right provide/ deploy requisite T&P, consumables and the cost towards this along with applicable BHEL's overhead will be recovered from the successful bidder's dues.
25.4	The successful bidder should also submit to BHEL for approval a list of T&Ps along with their fitness certificates. The tools & tackles shall not be removed from site without written permission of BHEL.
26.0	**CONSUMABLES**
26.1	The successful bidder shall provide, within accepted rates/ price, all consumables as necessary for the work. A list of tentative consumables required for the subject job is furnished in relevant annexure of the tender.
26.2	It shall be the responsibility of the successful bidder to plan activities and store sufficient amount of consumables. Non availability of any specified consumable or equivalent suggested by BHEL can not be considered as reason for not attaining the required progress or for additional claim.
26.3	BHEL reserve the right to reject use of any consumable, if it is not found to be of required standard/ make, purity.
26.4	It shall be the responsibility of the successful bidder to obtain prior approval of BHEL regarding suppliers, type, etc, before procurement.
26.5	BHEL reserves the right to reject the use of any consumable at any stage, due to bad quality, improper storage, date of expiry. It shall be the responsibility of the successful bidder to replace the same at their cost without loss of time.
26.6	In case of improper arrangement for procurement of any consumables, BHEL reserve the right to procure the same from any source and recover the cost from the successful bidder's first subsequent bill at market value plus the departmental charges of BHEL from time to time (5% at present). Postponement of such recovery is normally not permitted. Decision of BHEL in this regard is final & binding on the successful bidder.
27.0	**MMD**
27.1	The successful bidder shall ensure deployment of reliable & calibrated measuring and monitoring devices (MMD). The MMDs shall have test calibration certificate from authorized/ Govt approved agencies. The successful bidder shall also keep provision of alternate engagement for such MMDs so that the work does not suffer when a particular IMTE is sent for calibration. Re-testing/ re-calibration shall also be arranged by the successful bidder at their own cost at regular interval during the period of use as advised by BHEL.
27.2	In the event of failure of successful bidder to bring necessary and sufficient MMDs, BHEL may arrange for the same at the risk & cost of the successful bidder. The entire cost towards this along-with overhead shall be paid by the successful bidder or deducted from the successful bidder's bills.
27.3	List of tentative MMD required for the job is furnished in relevant annexure of the tender, for guidance purpose.
28.0	**TOOLS & PLANTS, MMD TO BE PROVIDED BY SUCCESSFUL BIDDER**
28.1	T&P as per relevant annexure of this volume of tender shall be provided by successful bidder, if applicable for this job and as specified in this volume of tender.
28.2	It may be noted that the list is not exhaustive and is only for general guidance. The successful bidder is required to provide all necessary T&P (other than those specified to be provided by BHEL, af any) measuring (calibrated) instruments & handing equipments for timely completion of total work as per contract. In case of project requirement, some activities may have to pre-pone. In such cases the successful bidder may have to deploy additional T&P. Quoted/ accepted rate shall be inclusive of such requirements.
28.3	In the event of any failure of the part of successful bidder, BHEL may at their discretion also terminate the contract on this ground and take out any or whole amount of the contract from the scope of successful bidder. In the event of failure of successful bidder to deploy necessary and sufficient T&P/ MMDs, BHEL will be at liberty to arrange the same at the risk & cost of successful bidder including transportation cost of same from

	any of BHEL site/ other agency & charges as applicable shall be deducted from RA bill of successful bidder. Decision of BHEL in this regard will be final & binding on successful bidder.
28.4	T&P shown in the list of tender are minimum requirement. Further requirement will be reviewed time to time at site and vendors will provide additional T&P/ equipments to ensure completion of entire work within schedule time without any financial implication to BHEL. Successful bidder will give advance intimation & certification regarding capacity etc prior to dispatch of heavy equipment.
28.5	In case of non-deployment within the period indicated, BHEL reserves the right to arrange the same at the risk & cost of successful bidder or suitable recoveries will be made from RA bills at site.
29.0	**TOOLS & PLANTS TO BE PROVIDED BY BHEL ON SHARING BASIS**
29.1	T&P as per relevant annexure of this volume of tender will be provided by BHEL to the successful bidder, free of any charges on sharing basis as per availability, if applicable for this job and as specified in this volume of tender**.**
29.2	The T&Ps shall be shared by various other agencies and successful bidder shall plan their activities accordingly in co-ordination with BHEL site.
29.3	The successful bidder shall ensure that machinery provided to them is kept in good running condition, all along its use & after use and shall be returned to BHEL in good condition. BHEL's decision regarding condition evaluation shall be final.
29.4	Depending on availability, cranes will be provided to successful bidder free of any charges. The cranes shall be shared by various other agencies and successful bidder shall plan their activities accordingly in co-ordination with BHEL site engineers. Required fuel for crane including mobil, grease and other consumables required for crane operation shall also be provided by BHEL. In the normal working hours, crane operator (along with helper, if any) will be provided by BHEL on free of cost basis. In the event, the deployed BHEL crane is used by the successful bidder beyond 8 hours (In single/ multiple operation) in a day (working day/ holidays), as per direction of BHEL, the successful bidder have to deploy their own operator & helper for crane operation during these extended hours. In case the proficiency of successful bidder's crane operator is not found satisfactory for safe operation of the crane, BHEL's crane operator will be engaged for operation and in this eventuality, the successful bidder has to bear the overtime charges of BHEL's crane operator (alongwith helper, if any) as per BHEL's standard charges. BHEL engineer's decision in this regard will be final after judging the proficiency of the successful bidder's crane operator.
29.5	Any damage/ breakdown maintenance of the machinery arising out of improper handling by successful bidder shall be to the account of the successful bidder. BHEL reserve the right of repairing the same to its own satisfaction at successful bidder's cost. During such outage of the machinery, BHEL shall not be responsible to provide any alternative. The successful bidder shall arrange for such alternative arrangement at their own cost.
29.6	The successful bidder shall return BHEL, T&Ps issued to them in good working condition as & when desired by BHEL (on completion or reduction of work load). If return of equipment is delayed by successful bidder, hire charges as applicable shall be levied by BHEL from time it was requisitioned till the time of actual return. Hire charges shall also be charged on the equipment returned in damaged/ un-serviced condition to BHEL till its satisfactory repair. Equipment returned in damaged un-serviced condition shall be got repaired by BHEL at their discretion and entire cost of repair with BHEL overheads shall be recovered from the successful bidder.
29.7	In case of any machinery (given to successful bidder) remaining idle without valid reason, BHEL shall withdraw the equipment immediately for allotment to the successful bidder next in priority and no compensation shall be entertained on this account by BHEL.
29.8	The T&Ps to be provided shall be available on sharing basis and distribution of these shall be done at the discretion of Construction Manager, BHEL as per requirement/ priority of the job and availability of these items. In the event of non-availability of crane, BHEL may explore the possibility of providing alternate higher/ nearby capacity crane, found sparable with BHEL site. However, this is not a binding for BHEL. Such cranes of

	higher capacity (if provided by BHEL) will also be issued on same conditions as applicable to cranes listed in the relevant annexure.
29.9	In the event of any damage or theft occurring to the issued T&Ps, while in use with the successful bidder, due to their negligence, the same shall be repaired/ replaced by the successful bidder at their own cost within the time stipulated by Construction Manager, BHEL. Successful bidder's failure to do so shall entitle BHEL to get the above done through other agency and the cost so incurred by BHEL alongwith overheads shall be recovered from the successful bidder's bill.
29.10	The items mentioned in relevant annexure are for general guidance only. Except the referred items, the successful bidder have to deploy all other tools & plants required for proper & satisfactory completion of the job..
29.11	Increasing/ shortening of the crane boom to suit work requirements shall have to be arranged by successful bidder at their cost. In case of non-availability of the T&Ps to be provided by BHEL due to any reason, the successful bidder shall plan/ amend/ alter their activities to meet erection/ commissioning targets in consultation with BHEL. No additional compensation will be given for this.
29.12	Normal/ schedule maintenance of T&P spared to successful bidder on shared basis shall be carried out by BHEL as per requirement. Successful bidder shall plan/ alter their activities in line with availability of cranes, issued by BHEL on sharing basis.
29.13	Actual use of T&P including marching as per entry in log-book duly certified by BHEL engineer shall be considered for calculation of overtime charges.
29.14	T&P issued shall be used only for the designated scope of work as per direction of BHEL engineer.
29.15	In the event of successful bidder not using and/ or maintaining BHEL T&P according to BHEL's instructions, BHEL will have the right to withdraw such equipment without any notice and no claim in this regard shall be entertained and successful bidder shall be responsible for delay in execution on this account.
29.16	It shall be responsibility of the successful bidder to take delivery of T&P from stores or place of use of T&P by other successful bidder at project site, transport the same to site and return the same to BHEL store/place as intimated by BHEL Engineer at project site in good working conditions after use.
29.17	ISSUE OF T&P
29.17.1	In the event of BHEL issued T&P, measuring instruments, etc the successful bidder and BHEL shall maintain joint protocol about the condition of all T&P, instruments, etc taken from BHEL’s custody and return to BHEL after use. The successful bidder shall not use these equipments for purposes other than the scope of work given in this tender document. Only T&Ps issued by BHEL as per relevant annexure will be free of charges and balance T&P, measuring instruments, etc, if issued to successful bidder, shall be on chargeable basis.
29.17.2	It is the responsibility of successful bidder to keep these equipments always in working condition and ensure their safe return in working condition to BHEL’s store subject to normal wear & tear.
29.17.3	After use of T&P items issued by BHEL the same shall be returned to BHEL in good working condition subject to normal wear & tear failing which recoveries at the book value of the item or the market rate prevailing at the time of returning the items, whichever is higher, shall be made from the payments due to the successful bidder from BHEL from this contract or from any other contract.
30.0	**TEST CERTIFICATE FOR T&P**
30.1	All T&P including measuring (calibrated) instruments, lifting tackles & pulling devices, wire rope, slings to be deployed by the successful bidder must bear valid/ latest test certificates for their suitability, and the documents shall be preserved at site.
30.2	In case of expiry of validity of any such test certificate during construction, the successful bidder shall arrange for revalidation of the same well in advance, so that the construction activities do not suffer on account of non-availability of such test certificates.
30.3	The successful bidder should also submit to BHEL for approval a list of T&Ps along with their fitness certificates. The tools & tackles shall not be removed from site without

	written permission of BHEL.
31.0	**RECONCILIATION OF BHEL ISSUED MATERIALS**
31.1	The successful bidder shall submit a reconciliation statement of materials issued to them, if any, in every month. The same may be submitted along with RA bill.
31.2	Successful bidder shall properly account for the material issued to them as specified herein to the satisfaction of BHEL certifying that the balance material are available with their custody at site.
32.0	**INSURANCE**
32.1	BHEL shall arrange comprehensive MCE (marine cum erection) Insurance Policy for total project supply & services including balance of plant package covering transit risks & loss, destruction or damage during handling at Site, Storage, civil works ,erection, testing and commissioning up to trial operation completion of unit including theft, sabotage, fire, lightning and other natural calamities.
32.2	Contractor shall report to BHEL in writing any damages to equipment/components on receipt, storing, and during withdrawal of the materials from stores, in transit to site and unloading at place of work and during erection and commissioning till trial operation completion including handing over. The above report shall be as prescribed by BHEL site management. Any consequential loss arising out of non-compliance of this stipulation will be borne by contractor.
32.3	The contractor will take necessary precautions/ due care to protect the material at Project site, while in his custody from any damage/ loss till the same is handed over to BHEL/ customer at Project site. For lodging/ processing of insurance claim the contractor will submit necessary documents. BHEL will reserve the right to recover the loss from the contractor as detailed below in case the damage/loss is due to negligence/ carelessness on the part of the contractor. In case of theft of material under contractor's custody, the same shall be reported to police by the contractor immediately and copy of FIR and subsequently police investigation report shall be submitted to BHEL/ customer for taking up with insurance. However, this will not relieve the contractor of his contractual obligation for the materials in his custody.
32.4	In case the damage/loss/theft of materials are attributable to negligence/failure in discharging the duties and obligations of the contractor, the expenses incurred for repair/replacement of such components in excess of the amount realized from the underwriters, limited to Normal Excess (Deductible Franchise) shall be recovered from the contractor.
32.5	Other conditions of Insurance shall be as per relevant clause of GCC/SCC.
33.0	**MATERIAL DESPATCH CLEARANCE CERIFICATE (MDCC)**
33.1	MDCC shall be issued by BHEL/ owner or their authorized representative prior to dispatch. The test certificates shall be submitted to BHEL and MDCC will be issued thereafter.
33.2	Copy of MDCC and other dispatch document shall accompany with every dispatch, failing which the consignment shall not be allowed to enter the project premises.
33.3	Bidder should issue intimation letter to the agency before despatch of materails and copy of same will be given to BHEL for intimation.
34.0	**MATERIAL RECEIPT CERTIFICATE (MRC)**
	MRC shall be issued by BHEL after the material is received at site in good condition.
35.0	**DESPATCH**
35.1	All materials/ plants/ equipments shall be transported by road including ODC consignment. Despatch shall only be made after inspection and issue of MDCC by BHEL. Advance information by fax/ courier/email of despatch details shall be sent to Construction Manager, BHEL.
35.2	No consignment shall be dispatched on SELF basis. Material shall be despatched prepaid, door delivery basis, else ensure the clearance and collection of goods from lorry godown and arrangement to transport the same to Site store shall be in the scope of vendor.
35.3	Each package should carry the packing slip/ details of contents and should be put inside a metal enclosure, properly fixed to the packing from outside. The packing shall be such as to ensure prevention of damage, corrosion, pilferage, deterioration, loss in

	transit or storage and road-worthy.
35.4	The title of the ownership of goods to be supplied shall pass on to BHEL on dispatch ex works/ FOR destination. However, till the scope is completed in all respect and the plant/ equipment is taken over by the owner the goods shall remain with the custody of the bidder.
36.0	**DELETED**
37.0	**DELETED**
38.0	**PAYING AUTHORITY**
38.1	All issues related to invoicing, payment shall be addressed to following
38.2	CONSTRUCTION MANAGER BHARAT HEAVY ELECTRICALS LIMITED, BHEL SITE OFFICE, FGD SYATEM OF 4X210 MW STAGE-I & 3X500 MW STAGE-II, KAHALGAON SUPER THERMAL POWER STATION, NTPC LTD, DIST-BHAGALPUR BIHAR. Any change of above shall be intimated to the vendor accordingly.
39.0	**APPROVED MANUFCTURER/ SUB-VENDOR**
	For bought out items, successful bidder have to adhere to the list of sub-vendors, indicated in the tender. For items not covered under this list or for alternate vendor, successful bidder shall put up requersts to BHEL, along with relevant credentials of proposed vendor, for acceptance of BHEL.
40.0	**INSPECTION & JOINT VERIFICATION (AT VENDOR'S WORKS)**
	Prior to dispatch, the materials would be offered by the successful bidder for joint inspection at the vendor's works.with advance notice for inspection call to BHEL.
41.0	**INSPECTION & JOINT VERIFICATION (AT SITE)**
	The vendor shall be intimated within 7 days from the date of receipt of each consignment at site to depute their representative for joint inspection and verification of the equipment/ materials received at site. The vendor shall depute their representative within 7 days from receipt of such intimation failing which BHEL shall proceed with the inspection and verification of equipment/materials and BHEL's decision in this regard shall be final and binding to the vendor.
42.0	**COMPLETION PERIOD**
42.1	SUPPLY PART (SCH-3,VOL-III)
42.1.1	Entire work under the scope shall be successfully completed in all respect within 3.5 (Three & half) months from the date of LOI.
42.1.2	The successful bidder shall start supply of items within the specified days as to be jointly agreed with Construction Manager, BHEL. The successful bidder shall supply each item on written clearance from Constructon Manager, BHEL.
42.2	SERVICE PART (SCH-4,VOL-III)
42.2.1	Entire work under the scope shall be successfully completed in all respect within 4 (Four) months from the date of start of work, as certified by Construction Manager, BHEL.
42.2.2	The successful bidder have to mobilize and commence the work within 10 (Ten) days, from the date of intimation by BHEL. The exact date of start of work shall be reckoned based on certificate of Construction Manager, BHEL.
42.2.3	During the entire period of contract, successful bidder shall maintain proper progress, adequate manpower, requisite handling and transportation equipments, tools & tackles and other consumables, etc to meet the schedule programme as per the priority given by BHEL engineer.
42.3	OPERATION & MAINTENANCE PART (SCH-5,VOL-III)
42.3.1	The successful bidder shall provide complete service of operation & maintenance (O&M) of the system for a period of 30 (Thirty) months from charging and handover of 1st Transformer,which is to be certified by Construction Manager,BHEL.
42.3.2	Deleted.
42.3.3	Sucessful bidder, within reasonable time but before commencement of O&M service, shall discuss & submit to BHEL program of O&M indicating deployment pattern of

	various resouces, not less than the pattern stipulated in the tender, and obtain approval of BHEL.
42.3.4	**PROVISION FOR EXTENSION for O&M Services:**
42.3.4.1	Contract Period for O&M services may be extended for a period of maximum 12 months by BHEL, at the same rate and terms & conditions, in case the work is not completed and the requirement exists, beyond the stipulated variation limit of the tender. However this shall be confirmed by BHEL in writing.
42.3.4.2	In addition, if due to project's requirement, the service is required beyond the above stipulated extension period, the same shall be based on mutually agreed terms & conditions and rate.
42.5	The scope of work under this contract is deemed to be completed only when so certified by Construction Manager, BHEL. Decision of BHEL in this regard shall be final & binding on successful bidder.
43.0	**SUPPLY, SERVICE, O&M SCHEDULE**
43.1	Upon receipt of order/ LOI from BHEL, successful bidder shall interact with BHEL site for kick-off meeting to discuss & firm up item-wise/ activity-wise schedule of supply & serice scope so as to complete the entire job within the stipulated completion period, matching with project requirement.
43.2	Successful bidder shall obtain prior approval of BHEL for `equivalent' make of any item and obtain BHEL's clearance in writing before procurement & supply of items to site. For this, successful bidder, within 15 days from date of LOI, shall carry out site survey to work out quantities of various items, specially which are site layout oriented and submit the list along with proposed suppliers (For supply) to BHEL for acceptance. However, this list might undergo revision due to change in layout or some other ground to meet the project requirement and successful bidder shall comply with this modification together with revision in quantities to complete the job.
43.3	On every month, the successful bidder shall submit to Construction Manager, BHEL schedule-wise plan vs actual status of erection, testing, commissioning, along with action plan to make-up delay, if any.
43.4	The project schedule might undergo revision/ modification periodically, for which the successful bidder may have to prepare/ modify schedule periodically in consultation with BHEL, so as to match with revised project milestones.
43.5	The successful bidder shall ensure monitoring of these activities at least on fortnight basis or at other frequency as mutually agreed with BHEL.
43.6	Successful bidder shall submit daily work program based on above schedule. Deferment of above schedule is not acceptable. Successful bidder will adhere to schedule and resource planning to be augmented to ensure completion as per schedule.
43.7	Progress reviews on entire activities will be held periodically as per direction of BHEL, at site/ Kolkata. These meetings will be used as a forum for discussing all areas where progress needs to be expedited. The successful bidder shall be further responsible for ensuring that suitable steps are taken to meet various targets decided upon such meetings.
43.8	Approximate duration of O&M service shall be as per specified period of tender. However, the schedule & pattern may vary depending on project's requirement and accordingly, the duration may reduce or increase. The successful bidder, in consultation with BHEL, shall draw a program for O&M service required for the project requirement.
44.0	**CERTIFICATE TOWARDS COMPLETION**
	The work under the scope of the successful bidder shall be deemed to have been completed in all respects only when so certified by BHEL/ owner. The decision of BHEL in this regard shall be final and binding on the successful bidder.
45.0	**EXTENSION OF TIME FOR COMPLETION**
45.1	If the completion of work as detailed in the scope of work gets delayed beyond the contract/ completion period, the successful bidder shall request for an extension of the contract and BHEL at its discretion may extend the contract.
45.2	Based on review of agreed & jointly signed L-3/ construction schedule (as enumerated in the tender), the balance work at the end of original contract period less the backlog

	attributable to the successful bidder shall be quantified, and the number of months of 'Time extension' required for completion of the same shall be jointly worked out. Within this period of 'Time extension', the successful bidder is bound to complete the portion of backlog attributable to successful bidder. Further 'Time extension' or 'Time extensions' at the end of previous extension shall be worked out similarly.
45.2	However, if any 'Time extension' is granted to the successful bidder to facilitate continuation of work and completion of contract, due to backlog attributable to the successful bidder alone, then it shall be without prejudice to the rights of BHEL to impose penalty/ LD for the delays attributable to the successful bidder, in addition to any other actions BHEL may wish to take at the risk and cost of successful bidder.
45.3	A joint programme shall be drawn for the balance amount of work to be completed during the period of 'Time Extension', along with matching resources to be deployed by the successful bidder as per specified format. Review of the programme and record of shortfall shall be done.
45.4	During the period of 'Time extension', successful bidder shall maintain their resources as per mutually agreed program
45.5	At the end of total work completion as certified by BHEL engineer, and upon analysis of total delay, the portion of time extensions attributable to (i) Successful bidder, (ii) Force majeure conditions, and (iii) BHEL, shall be worked out and shall be considered to be exhausted in the same order. Total period of time extensions shall be the sum of (i), (ii) and (iii) above and shall be equal to period between the scheduled date of completion and the actual date of completion of contract. LD shall be imposed/ levied for the portion of time extensions attributable to successful bidder and recoverable from the dues payable to the successful bidder.
46.0	**INTEREST BEARING RECOVERABLE ADVANCE/ MOBILISATION ADVANCE**
	Not applicable for this tender.
47.0	**OVER RUN CHARGES**
	Not applicable for this tender.
48.0	**REVISION ON ACCEPTED CONTRACT RATE**
48.1	Not applicable in this tender for supply and service part of the scope.
48.2	For O&M part, following terms shall be applicable.
48.2.1	After completion of construction power network including handing over to BHEL, if any alteration/ modification to construction power network is necessitated, the successful bidder shall carry out the same, as per tems of tender and as per following rates.
48.2.1.1	If such work involves dismantling of installed system, the tender rates of extra man-hour shall be applicable for service to be provided, wherever required, by the successful bidder throughout the O&M period, including extension, if any.
48.2.1.2	If such work involves supply of items covererd in Volume-III within 02 (two) year from start of main work (SCH-3 of Volume-III), the contract rate shall be applicable for this work.
48.2.1.3	If such work involves supply of items covered in Volume-III beyond 02 (two) years from start of main work (SCH-3 of Volume-III), the contract rate shall be revised by 10 %.This shall be applicable for extended O & M contract part also,if any.
49.0	**PRICE VARIATION CLAUSE/ ESCALATION**
	Not applicable for this tender.
50.0	**EXTRA/ ADDITIONAL ITEMS OF WORK**
50.1	Extra/ additional work for all items/ systems shall be as per GCC.
50.2	No PVC, rate revision, over run charge/ compensation is applicable for extra works.
50.3	In the event of any dispute regarding acceptance of any work as "EXTRA", the work has to be carried out by keeping man-hour and consumables record jointly signed with remark "for EHQ decision". Under no circumstances, the successful bidder can refuse to carry out such work with pre-condition, save and except of keeping daily record of category of man-hours and consumables spent for the particular job for further consideration by EHQ at Kolkata.
51.0	**SECURITY DEPOSIT & PERFORMANCE BOND**
51.1	The total amount of Security Deposit will be 3% of the contract value for all parts (Supply, service and O&M).. Other terms related to Security Deposit shall be as per

	GCC.
51.2	Performance bond not applicable for the tender
52.0	**TAXES, DUTIES ETC**
52.1	All taxes excluding GST & BOCW Cess (as specified elsewhere in the tender) but including, Charges, Royalties, any State or Central Levy and other taxes for materials if any obtained for the work and for execution of the contract shall be borne by successful bidder and shall not be payable extra by BHEL. Any increase of above at any stage during execution of contract, including extension of the contract, shall have to be borne by successful bidder contractor. Bidder's quoted/ accepted rates/ price shall be inclusive of all such requirements
52.2	GST along with Cess (as applicable) legally leviable & payable by successful bidder as per GST Law shall be paid by BHEL, extra. Hence, bidder shall not include GST along with Cess (as applicable) in their quoted rates/ price.
52.3	Successful bidder shall furnish proof of GST registration with GSTN Portal covering the services under this contract. Registration should also bear endorsement for the premises from where the billing shall be done by successful bidder on BHEL for this project / work.
52.4	Since GST on output will be paid by BHEL separately as enumerated above, bidder's your quoted rates / price should be after considering the Input Credit under GST law at bidder's end.
52.5	TDS under Income Tax Act shall be deducted as per prevailing IT rules from the bills.
52.6	TDS under GST shall be deducted as per prevailing GST rules from the bills.
52.7.1	You may collect TCS under section 206C(1H) of Income Tax Act, 1961 if applicable.
52.7.2	In case, you collect TCS under section 206C(1H) of Income Tax Act, 1961, following compliance is required.
52.7.2.1	TAN and PAN of vendor should appear in all invoices/claims. Copy of TAN /TCS registration is to be submitted.
52.7.2.2	Amount of TCS and Assessable value on which TCS has been calculated should be specified clearly in the invoice.
52.7.2.3	You shall be required to submit certificate of TCS in Form no. 27D within 15 days from the due date for furnishing the statement of tax collected at the source.
52.7.3	In case, you do not collect TCS under section 206C(1H) of Income Tax Act, 1961, following declaration is to be submitted along with each invoice: - "I/We hereby declare that I/We are not required to collect TCS under section 206C(1H) of Income Tax Act, 1961, on this bill.
52.7.4	In event of failure to comply with the provisions of the Act, or proper certificate not issued, or if tax collected but not remitted to the Government, or for any other reason and thereby causing loss to BHEL, the same shall be recoverable from the vendor with applicable interest.
52.7.5	You shall comply with all statutory amendment/notifications in this respect.
52.8	Bidder shall note that GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred thereunder) wherein the 'Bill To' details shall encompass following. BHEL GSTN – 10AAACB4146P1ZU. PAN of BHEL-AAACB4146P Name - BHARAT HEAVY ELECTRICALS LIMITED Address - BHEL SITE OFFICE, Old BMD Office-NTPC, 1st Floor, Near Stage-1 Chimney, NTPC-Kahalgaon, Bhagalpur, Bihar, PIN-813214
52.9	Successful bidder to intimate immediately on the day of removal of goods (in case of any supply of goods) to BHEL along with all relevant details and send a scanned copy of Tax Invoice to BHEL through following communication mode for enabling BHEL to meet its GST related compliances. Portal address. and Email address – Shall be intimated later. Specific details of above shall be intimated to successful bidder by

	BHEL at appropriate juncture.
52.10	In case of delay in submission of above mentioned documents on the date of despatch, BHEL may incur penalty / interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from successful bidder, in case such delay is not attributable to BHEL.
52.11	In case of raising any Supplementary Tax Invoice (Debit / Credit Note), successful bidder shall issue the same containing all the details as referred to in Section 34 read with Section 31 of GST Act & Rules referred there under.
52.12	Successful bidder shall comply with the Time Limit prescribed under the GST Law and rules thereof for raising of the Tax Invoice. If any supply of goods is applicable, successful bidder shall also ensure prompt delivery of goods after despatch.
52.13	Bidder shall note that in case GST credit is delayed / denied to BHEL due to delayed / non receipt of goods and / or Tax Invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reasons, not attributable to BHEL, GST amount shall be recoverable from successful bidder along with interest levied/ leviable on BHEL, as the case may be.
52.14	Successful bidder shall upload the invoices raised on BHEL in GSTR-1 within the prescribed time as given in the GST Act, and the same shall be available to BHEL in FORM GSTR-2A/2B electronically through the common portal. Bidder shall note that in case of delay in declaring such invoice in your return and GST credit availed by BHEL is denied or reversed subsequently as per GST Law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from the successful bidder along with interest levied / leviable on BHEL
52.15	Way Bill: Successful bidder to arrange for way bill / e-waybill for any transfer of goods for the execution of the contract. Successful bidder has to make their own arrangement at their cost for completing the formalities, if required, with Issuing Authorities, for bringing materials, plants & machinery at site for execution of the works under this contract, Road Permit / Way Bill, if required, shall be arranged by successful bidder and BHEL will not supply any Road Permit/ Way Bill for this purpose.
52.16	Any new taxes & duties, if imposed subsequent to due date of offer submission as per NIT & TCN, by statutory authority during contract period (including extension, if the same is not attributable to you), shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, you shall obtain prior approval from BHEL before depositing new taxes and duties.
52.17	Benefits and / or abolition of all existing taxes must be passed on to BHEL against new taxes, if any, proposed to be introduced at a later date.
53.0	**TERMS OF PAYMENT**
53.1	RETENTION AMOUNT
53.1.1	Retention Amount shall be 5% of executed contract value and shall be recovered at the rate of 5% from each Running Bill admitted, including PVC Bills.Refer GCC clause no 2.22.1.
53.1.2	Retention Amount shall be refunded as per clause no 2.22.2 of GCC alongwith confirmation of receipts of TCS certificates from vendor, as applicable and Confirmation of full GST credit to BHEL. Any Interest if levied thereon for reasons elaborated in taxes, duties clause of the tender, which is not attributable to BHEL, will be recovered from final payment/ retention/ securities.

53.2	**INTERIM PAYMENT**
53.2.1	For all items of work as per Volume-III, Price Schedule, interim payment shall be limited to 95 % of the gross value of interim bill on item rate basis. 5% of gross value of each RA bill shall be retained from each RA bill as 'rentention Amount' as described in clause no 53.1 above. All admissible recovery / adjustments etc. shall be made from the interim payable amount.
53.2.2	Out of this 95 %, 1.5 % of gross bill amount shall be paid in the following manner on certification by Engineer-in-chargeafter compliance of each of following activity in each month. In case of non-fulfilment of respective activity by vendor in each month, no payment shall be made by BHEL against corresponding activity and no claim of bidder at a later date, whatsoever, in this regard shall be entertained by BHEL.
53.2.2.1	0.7 % shall be paid on compliance of house keeping of vendor's working area and store/ office areas.
53.2.2.2	0.3 % shall be paid on compliance of general illumination of vendor's working area and stores, office area.
53.2.2.3	0.2 % shall be paid on compliance of applicable OHSAS requirement as per guidelines of BHEL/ PSER and as specified in the tender.
53.2.2.4	0.3 % shall be paid on compliance of applicable safety requirement as per guidelines of BHEL/ PSER and as specified in the tender.
53.2.3	BHEL site at its discretion may further split up the above percentages of break up and effect payment to suit the site condition, cash flow requirement, according to the progress of work.
53.2.4	The contractor shall submit his running bill, once in a month at the end of each month. The RA bill complete in all respect, accompanied by Engineer-in-charge certified measurement sheets, jointly signed, will be paid after 45 days of submission of bill, subject to completeness and correctness. Income Tax at the prevailing rates on gross value of work done & applicable surcharge shall be deducted from contractor's bill, unless exempted by Income Tax Authority.
53.2.5	Applicable GST, which can be claimed at any point, shall be released to you upon compliance of following:
53.2.5.1	You declaring such Invoice in your GSTR-1
53.2.5.2	Receipt of Goods / services and Tax Invoice by BHEL
53.2.5.3	Confirmation of payment of GST thereon by you on GSTN Portal
53.2.6	Above is subject to receipt of goods / service and tax invoice thereof along with you declaring invoice in your return and paying GST within timeline prescribed for availing ITC by BHEL.
54.0	**DELETED**
55.0	**DELETED**
56.0	**LIQUIDATED DAMAGE**
56.1	**SUPPLY PART (REFER SCH-3-VOLUME-III)**
56.1.1	If the successful bidder fails to complete entire scope within completion period for reasons attributable to them, BHEL shall have the right to recover as liquidated damages (LD) a sum equivalent to 0.5 % of contract price (supply part) per week or part thereof, including taxes, duties, etc, for delay of each week or part thereof.
56.1.2	The liability for delay shall not in any case exceed 10 % (Ten percent) of the contract price (Supply part), including taxes, duties, etc.
56.2	**SERVICE PART (SCH-4, VOLUME-III)**
56.2.1	If the successful bidder fail to complete entire scope within completion period for reasons attributable to them, BHEL shall have the right to recover as liquidated damages (LD) a sum equivalent to 0.5 % of contract price (Service part) per week or part thereof , including taxes, duties, etc, for delay of each week or part thereof.
56.2.2	The liability for delay shall not in any case exceed 10 % (Ten percent) of the contract price (Service part), including taxes, duties, etc.
56.3	**O&M PART (SCH-5,VOL-III)**
	If the the successful bidder fails to deploy requisite manpower and other resouces as per direction of BHEL and fail to operate & maintain the system/ package and the system/ package remains non-functional/ inoperative for more than 15 day reasons

	attributable to them, BHEL shall have the right to recover as liquidated damages (LD) a sum equivalent to 0.5 % of contract price (O&M part) per week or part thereof, including taxes, duties, etc, for each day. This LD shall be over & above other recoveries/ deduction stipulated elsewhere in the tender for O&M part. The liability for delay shall not in any case exceed 10 % (Ten percent) of the contract price (O&M part), including taxes, duties, etc.
56.4	BHEL shall deduct aforesaid amounts from any money due or which may become due to the successful bidder and/ or recover from the bank guarantees/ security deposit of the successful bidder. To be entitled to impose such compensation/ penalty/ recovery, BHEL will not be required to prove that they have incurred such amount as actual damage.
56.5	BHEL reserve the right to complete the job through other resource on account of and at the risk & cost of successful bidder without notice to successful bidder of the work not so executed, without cancelling the order/ contract in respect of the work not yet due for completion.
56.6	BHEL reserve the right to cancel the order/ contract or a portion thereof for the work not so completed at the risk & cost of the successful bidder and the successful bidder shall be liable to BHEL for any excess costs thereof.
56.7	The successful bidder shall continue with performance of the order/ contract under all circumstances, to the extent not cancelled.
56.8	Where action is taken as per above, the successful bidder shall be liable for any loss, which BHEL may sustain on that account. The successful bidder shall not be entitled to any gain on such action and the manner & the method of such purchase shall be at the discretion of BHEL. It shall not be obligatory on the part of BHEL to serve a notice of such completion, through other resource, on successful bidder.
56.9	In case of LD recovery, the applicable GST shall also be recovered from vendor/Contractor/ suppliers.
56.10	All other terms & conditions of GCC shall be applicable.
57.0	**GUARANTEE(APPLICABLE FOR BOTH SUPPLY AND SERVICE PART):**
57.1	Even though the work will be carried out under supervision of BHEL, the contractor will be responsible for the quality of workmanship, quality of materials/ items and design for which the contractor is responsible.
57.2	The contractor shall guarantee the work executed under the scope of the contract for a period of 12 (twelve) months from the date of start of guarantee period as certified by the engineer (ie on readiness of Construction power network and other scope of works as per orders) and shall rectify free of cost all defects due to faulty supply or work done. In case the contractor fails to repair/ replace the defective works within the time specified by the engineer, BHEL may proceed to undertake the repairs/ replace such defective works at contractor's risk and cost without prejudice to any other rights and recover the same from security deposit/ other dues.
58.0	**CONTRACT RATE/ PRICE**
58.1	Bidder shall quote their rates strictly in accordance with prescribed price schedule, Volume-III (latest revision).
58.2	BHEL shall place separate orders for (i) Supply part; (ii) Service part and (iii) O&M part as per corresponding price components of Volume-III, ie as per respective schedules of Volume-III.
59.0	**AS BUILT DRAWING**
	The successful bidder shall submit as-built drawing for handing over to BHEL/ customer after completion of work. The successful bidder will be given one copy of working drawing. However, the successful bidder have to make those `as-built drawing' from the modified drawing which is already followed in between the project work. The successful bidder has to submit as-built drawing with RA bill, in which the work (carried out as per modified drawing) is claimed.
60.0	**OTHER TERMS**
60.1	Drawings issued, if any, are for tender purpose only. No additional financial implication will be entertained by BHEL at a later date on account any alteration to this, except otherwise specifically addressed in the tender.

60.2	In addition to prevalent statutory laws, act, etc, successful bidder shall also take into account of statutory guidelines regarding The Building and Other Construction Workers (Regulation of Employment & Condition of Service) Act, 1996 along with associated Central/ State Govt Rules.
60.3	Successful bidder shall provide temporary barricade all around the working area to avoid any untoward incident, as per guideline of customer.
60.4	Successful bidder shall strictly comply with the HSE guidelines of BHEL & customer and follow the Access Control System regarding security aspect of the project. Relevant document of the tender shall be referred in these regards.
60.5	For materials supplied by the successful bidder for the project, entry gate pass duly signed & stamped, as per guidelines of the project, to be submitted positively for record purpose.
60.6	Contractor's Labour Information Management System (CLIMS):
60.6.1	The Contractor has to necessarily get itself registered in the Contractor's Labour Information Management System (CLIMS), which will be installed by the NTPC.
60.6.2	The entry and exit of all contract labour to the plant premises will be through Gate Access Control System of above 'Contractor's Labour Information Management System'
60.6.3	It will be the responsibility of the Contractor to ensure timely exit of all labours from the plant premises after completion of job of that day.
60.6.4	The contractor has to abide with all the statutory compliance applicable to its workers and employees and update the details of the same in the above System.
60.7	All other terms & conditions of this specification, not mentioned above shall be governed by the pertinent provisions of GCC.

ANNEXURE-I

LIST OF T&P AND MMD TO BE DEPLOYED BY SUCCESSFUL BIDDER

SL NO	DESCRIPTION	TENATIVE DEPLOYMENT SCHEDULE
1.0	10/12/14/18 MT pick & carry type tyre mounted mobile crane. 1 no	As per requirement
2.0	Crimping tool of all sizes (Up to 1000 sqmm core size)	Quantity & schedule of deployment shall be jointly decided at site within 10 days of order/ LOI.
3.0	Box spanner set (Taparia or equivalent)	- do -
4.0	Vacuum cleaner cum blower	- do -
5.0	Handheld multimeter (digital) (500 V & 1000 V)	- do -
6.0	2500 KV hand operated megger	- do -
7.0	Earth tester	- do -
8.0	Phase sequence tester	- do -
9.0	Relay test kit	- do -
10.0	Oil filtering machine	- do -
11.0	Welding machine	- do -
12.0	Hand held emergency light	- do -
13.0	Tong tester up to 1000A	- do -
14.0	Other hand tools like screw driver, pliers, spanners	- do -
15.0	Tree/ grass cutting tools	- do -
16.0	Digging tools	- do -
17.0	Flash light/ torches	- do -
18.0	Gas cutting set	- do -
19.0	Misc MMD	- do -

NOTE	
1.0	Bidder shall note that this list is not exhaustive and they may be required to provide additional T&Ps not stated in the list for proper execution of job, at no extra cost to BHEL.
2.0	T&P and MMD shall be mobilized and deployed by successful bidder, as required at site for successful execution of the job as per above tentative deployment plan. However, specific deployment plan of T&P, MMD shall be jointly finalised based on project requirement prior to start of work. The plan might undrgo revision depending on project requirement. Depending upon the jointly agreed deployment program, any additional t&P, MMD, if required for proper completion of job, shall have to be deployed by the successful bidder. Similarly, if any of the aforesaid items is not required for the job as per jointly agreed program, the successful bidder need not have to deploy the same.
3.0	Bidder shall note periodical testing & calibration of testing equipment are to be done at CMERI/ Durgapur, ERIL/ Kolkata, Regional Research Laboratories/ Gwahati/ Jorhat/ Bhubaneswar and copy of test certificates to be submitted to BHEL as per ‘ISO’ norms.

ANNEXURE-II
LIST OF MATERIALS AND CONSUMABLE TO BE SUPPLIED BY SUCCESSFUL BIDDER

SL NO	DESCRIPTION	TENATIVE DEPLOYMENT SCHEDULE
1.0	Insulation tape	As per requirement of the job, to be jointly decided at site within 10 days of order/ LOI.
2.0	White spirit	- do -
3.0	Kerosene/ Petrol/ Diesel	- do -
4.0	Detergent/ soap/ cleaning chemicals	- do -
5.0	Welding electrode.	- do -
6.0	Gas	- do -
7.0	Other consumable	- do -
8.0	Fuse wire of required current ratings at 33/11/0.433 voltage grades	- do -

NOTE	
1.0	Bidder shall note that this list is not exhaustive and they may be required to provide additional consumables not stated in list for proper execution of job, at no extra cost to BHEL.
2.0	Deployment plan of major consumables shall be jointly finalised based on project requirement prior to start of work. The plan might undrgo revision depending on project requirement. Depending upon the jointly agreed deployment program, any additional consumables, if required for proper completion of job, shall have to be deployed by the successful bidder. Similarly, if any of the aforesaid items is not required for the job as per jointly agreed program, the successful bidder need not have to deploy the same.

ANNEXURE-III
LIST OF T&Ps TO BE PROVIDED BY BHEL FREE OF CHARGE ON SHARING BASIS

SL NO	ITEM
1.0	High capacity crane (Beyond 12/ 16 T), if required.

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This volume shall be construed as part of tender document and shall be read along-with others volumes of tender. Unless otherwise specified, in case of any confusion of any clause/ provision of this volume or any conflict/ inconsistency of any clause/ provision of this volume with that of other volume, the same shall be brought out by the bidder in writing to BHEL for clarification or during pre-bid discussions, if applicable, failing which most stringent interpretation in favour of BHEL shall be adopted and the same shall be binding to the bidder. Unless otherwise specified, all terms & conditions shall be applicable for entire scope and for each part/ package of the tender.

CLAUSE NO	DESCRIPTION
1.0	NAME OF WORK
	The scope broadly covers, procurement, supply (Except those which BHEL will provide as per tender terms), providing required manpower, including supervision, tools & plants, consumables, watch & ward, etc as per technical specification and terms & conditions of tender taking into account all clarifications, confirmations and agreements till date for erection, testing, commissioning, operation & maintenance (O&M), etc of construction power network for FGD System of NTPC Kahalgaon STPP(4X210 MW +3X500 MW), Bihar
2.0	BROAD SCOPE OF WORK
2.1	Distribution of LT network to BHEL facilities such as Office, store sheds, lighting mast, etc. from available construction power network sources, established by Owner (NTPC).
2.2	The successful bidder shall arrange for transportation of all materials & equipment, required for successful completion of the job under this tender. BHEL shall not, in anyway, be responsible for transportation of such materials or equipment and shall not issue any permit, etc in this regard.
2.3	All registration and statutory inspection fees, if any, in respect of the job pursuant to this tender shall be paid by successful bidder. However, any registration, statutory inspection fees lawfully payable under the provisions of Indian Electricity Act and other statutory laws and its amendments from time to time during execution of the job in respect of the plant equipment ultimately to be owned by BHEL, shall be to BHEL's account. Should any such inspection or registration need to be re-arranged due to the fault of successful bidder or their sub-contractor, the additional fees to such inspection and/ or registration shall be borne by successful bidder.
2.4	The scope broadly comprises of 3 parts – (i) Supply part; (ii) Service part and (iii) O&M part.
2.5	Supply scope broadly covers design/ engineering , procurement, supply in duly packed condition to site, etc as per technical specification and terms & conditions of tender taking into account all clarifications, confirmations and agreements till date of construction power distribution(11KV & 415 V) network.
2.6	Service scope broadly covers providing required manpower, including supervision, tools & plants, consumables, watch & ward, etc as per technical specification and terms & conditions of tender taking into account all clarifications, confirmations and agreements till date for receipt, unloading of supplied items, watch & ward till handing over, erection, testing, commissioning, handing over to BHEL, etc of construction power distribution network (11 KV & 415 V).
2.7	O&M scope broadly covers providing proper manpower, tools & tackles, consumables, etc as per technical specification and terms & conditions of tender taking into account all clarifications, confirmations and agreements till date for smooth operation & maintenance of construction power distribution network during the tenure of O&M service, after successful handing over to BHEL.

2.8	Balance items as per tender shall be supplied by successful bidder for installation.
2.9	Testing of all materials, including submission of test reports, as required, shall be the responsibility of successful bidder.
2.10	The successful bidder shall strictly abide by the state and central laws, statutory rules, regulations, etc as indicated in GCC. In addition, the successful bidder shall have to comply with professional tax regulations for all their employees/ workman as per the local authorities/ Governing bodies instructions. Compliance with statutory obligations as well as any other requirements/ provisions with respect to successful bidder's manpower, equipment including insurance, medical facilities, minimum wages, safety requirements, accommodations, etc, are the responsibility of the successful bidder.
2.11	This is divisible contract comprising of supply of equipment/ materials & service & O&M
3.0	BROAD SCOPE OF SUPPLY
3.1	All items supplied by successful bidder shall be brand new and shall procure material/ equipment as per specification and from list of approved vendors/ manufacturers as per relevant annexure of the tender. In exceptional cases if any item cannot be sourced from listed vendor/ manufacturer, successful bidder shall put up a request to BHEL for such alternate source, enclosing all relevant documents, for approval of BHEL. The successful bidder shall submit manufacturer's test report/ technical specification of items supplied. All items shall confirm to relevant IS Code and shall bear IS mark wherever applicable.
3.2	Miscellaneous items and work not specifically described herein but required shall be provided as per relevant IS and REC specification and construction standards and shall constitute part scope of contract.
3.3	Consignments shall be dispatched directly to site. Details of consignee can be had from site.
4.0	SCOPE OF SERVICE
4.1	It is not the intent to specify herein all details of equipment and materials. Any item of the work not covered by this tender, but necessary to complete the system will be deemed to have been included in the scope of the job. The major items of work are described hereunder. However, the successful bidder shall perform all the necessary work including fulfilling the statutory requirements to the entire satisfaction of BHEL. The successful bidder, within the accepted rate/ price, shall arrange required manpower, T&Ps, IMTEs with valid certificate of calibration.
4.2	Unless otherwise specified in Volume-III, the scope of work will broadly comprise of but not limited to the followings.
4.3	Receiving (BHEL's supplied and successful bidder's supplied), storing (including preservation) of materials at site store/ store-yard (Open area will be provided by BHEL free of cost to make store/ store yard), handling/ transportation to erection site, erection, erection, aligning, fastening, welding, supporting, cleaning, laying & termination, checking and carrying out statutory tests as required, commissioning, handing over, etc of HT/ LT cables, transformers, llighting masts, LT kiosks, etc as per detail scope.
4.4	While on the job, care is essential to avoid too much chipping and resultant lowering of level. In case of excess chipping contractor has to arrange additional packing plates as per requirements as provided it is allowed by BHEL engineer.
4.5	BHEL will provide the plot plan of the project to the successful bidder at site.. Materials/ items supplied for future maintenance shall be handed over to BHEL after joint verification/ inspection. The successful bidder shall carry out statutory requirements and clearances, etc as per Indian Electricity Acts 1956 and amendments thereof, if any.
4.6	All the work shall be carried out as per instruction of BHEL engineer. BHEL

	engineers' decision regarding the correctness of the work, method of working shall be final and binding on the successful bidder.
4.7	The successful bidder shall ensure timely completion of work. Simultaneous working in multiple fronts will be required to meet the schedule. The successful bidder must deploy adequate quantity of tools & testing instruments. They must also have on their roll adequate qualified, trained & experience engineers, supervisory staff, technicians, skilled personnel. Successful bidder shall deploy manpower as instructed by BHEL to match project schedule.
4.8	The work shall be executed under the usual condition affecting major power plant construction and in conjunction with numerous other operations at site. The successful bidder and their personnel shall co-operate with personnel of other agencies, co-ordinate his work with others and shall proceed in a manner that would not delay or hinder the progress of project work as a whole.
4.9	Successful bidder shall be holding valid license as electrical contractor. If the license is of any state other the designated project, then they will have to obtain electrical license/ permission from appropriate authority as may be applicable. The successful bidder, for the entire job, shall deploy qualified technicians/ supervisors with the valid certificates.
4.10	Successful bidder shall ensure proper installation, setting connection and functioning in-situ testing for all electrical equipment installed by successful bidder in accordance with drawings, specifications & manufacturer's recommendations. If any portion of the work is found to be defective in workmanship or not conforming to drawings or other specifications, successful bidder shall dismantle and re-do the work duly replacing the defective material at their cost.
4.11	Successful bidder, for safety, shall adequately illuminate all the working area during erection period.
4.12	Successful bidder shall obtain approval, if any, from appropriate authority for installation at all stages including renewal, etc as per requirement. Necessary fees to be deposited by the successful bidder to the statutory authorities for arranging clearance of his installations erected before commissioned by them. The amount shall be reimbursed by BHEL on production of requisite evidence of payment. The successful bidder shall do all necessary co-ordination in this regard.
5.0	SCOPE OF OPERATION AND MAINTENANCE (O&M)
5.1	Successful bidder has to maintain construction power system (11KV & 415V) commissioning, handing over to BHEL to ensure continuous availability to meet the construction power requirement by other agencies. It should be noted that the construction activities of the project would be dependent on the availability of this system. Hence consistent and continuous availability of the system is of paramount importance. Successful bidder shall, therefore, endeavor to ensure highest availability of the system.
5.2	Operation & maintenance of total construction power Distribution network consisting of, 11 KV/ 415 V step down transformers, LT distribution boards (415 V), with all necessary rail / PCC poles wires, isolators, circuit breakers ,hardware, protection panels, metering equipment, HT/LT cables, etc., general illumination system during construction, tower lighting (lighting mast), temporary pole lighting, temporary lights at different floors/ areas till the permanent illumination system is established (IS or any other standard to be referred to).
5.3	For regular day to day as well as breakdown maintenance of the entire system for the period of O&M of construction power system on round the clock basis, necessary provision for experienced supervisor, licensed electrician, helper, T&Ps, etc, replacement/ rectification of item & components to restore the system for making the system operational is to be made by the successful bidder within

	the accepted rate/ price.
5.4	The successful bidder scope also includes obtaining necessary approvals from statutory authorities.
5.5	Successful bidder shall operate and maintain the system in three-shift operation for uninterrupted operation as per instruction of BHEL. Electricians should have valid license for handling 11KV & 415 V system. The entire system is to be manned all through the 365 days in a year (till this contract completion) including weekly off, national & state holidays.
5.6	During this period, various reports have to be generated and records to be maintained as per requirements of BHEL. The engineer will specify the formats for these at site. Various parameters of the system, i.e. recording of loads, transformer's oil temperature and oil level in transformers, healthiness of the system are to be recorded on day to day basis.
5.7	Sub-contractors of customer and BHEL will draw power from LT distribution boards at various locations. Successful bidder shall co-ordinate and assists them in terminating the cables and other work related to drawl of construction power by these agencies.
5.8	While operating the system, successful bidder shall intimate BHEL engineer immediately on noticing any abnormalities, which requires immediate attention.
5.9	All work, including any preventive and breakdown maintenance work in the system shall be taken up only after obtaining necessary permit/ clearance from BHEL engineer.
5.10	BHEL reserves right to terminate the contract any time without assigning reasons.
5.11	Maintenance of 11 KV overhead line, 415 volt distribution system, Distribution substation, electrical maintenance of BHEL office/ store, etc. and temporary Illumination system in various areas.
5.12	The successful bidder shall be provided with all spares (free of cost) required for preventive maintenance and break down maintenance of all equipment under the scope of work. The successful bidder shall preserve the spares till the same is fully consumed or till the contract is valid. BHEL shall provide, as free issue, the spares required for the preventive and breakdown maintenance of equipment provided by BHEL.
5.13	During the maintenance period, the successful bidder shall provide all necessary spares for the system, as required, on actual reimbursement basis or BHEL supplied items as free issue
5.14	During the maintenance period, the successful bidder shall provide all necessary spares, fuses, cable gland/ lugs, lamps, cables etc for the system, as required. Payment for the same shall be made on actual basis/ or the same shall be supplied by BHEL as free issue item.
5.15	However, if requirement of such spares is necessitated due to the fault of the successful bidder, the same shall have to be supplied by the successful bidder at their own cost.
5.16	Planned and preventive maintenance
5.16.1	The main activities to be carried out during the planned and preventive maintenance are generally as under:
5.16.2	General inspection and cleanliness of the entire system.
5.16.3	Insulation resistance measurement, testing of oil samples for breakdown values. In case, the IR value / BDV is less than the required; the successful bidder shall inform BHEL. Topping up of oil in the transformers. BHEL shall provide oil for this purpose as free issue. Required filtration along with deployment of oil filtering m/c, to achieve desired BDV, is excluded from the scope. However, necessary assistance for this is included in the scope.
5.16.4	Noting down the defects noticed in the system in the period between shutdowns.

	These shall be brought to the notice of BHEL engineer. These shall be attended to during the next available planned shutdown and got verified from BHEL.
5.17	Breakdown maintenance
	Successful bidder shall attend the breakdown of the system most expeditiously and bring the system back to normalcy at the earliest, as per instructions of BHEL. Successful bidder shall deploy additional resources for rectifying the faults within the shortest possible time. Successful bidder may note that no compensation shall be payable for deployment of such additional resources.
5.18	Successful bidder shall provide all resources labour, T&P (as per relevant annexure), consumables (as per relevant annexure), etc for O&M of entire system. However, BHEL shall provide as free issue equipment/ spare parts required for preventive & breakdown maintenance of entire system and components/ materials required for preventive & break down maintenance of BHEL installations (ie office, stores shed, open stores yard).
5.19	Maintenance of electrical installations of BHEL stores sheds & yards/ office sheds, etc and temporary area illumination.
5.20	Successful bidder shall be responsible for maintenance of electrical installation in BHEL office sheds, site cabins, storage yard, stores sheds (semi closed & closed) & lighting masts and temporary area Illumination. The nature of works to be carried out will be such as trouble shooting, attending the fault/ repairing/ replacement of defective parts/ devices. BHEL shall provide necessary electrical items/ spares free of charge required for this type of maintenance work. Regular tree/ grass cutting for the overhead lines & cleaning of premises is also included in the scope of work.
5.21	For operation & maintenance, successful bidder, in addition to providing requisite T&Ps, consumables, manpower, etc to carry out the job, shall also be equipped with shock treatment chart, discharge rod, fire extinguishers, LT gloves, fire bucket with stand, first aid box and shall maintain the same for day-to-day as well as any exigency.
6.0	SAFETY ASPECTS TO BE FOLLOWED AT SITE
6.1	Successful bidder shall ensure adherence to the requirement of safety connected with this work. They shall provide necessary safety appliances to his workmen and supervisors and ensure use of the same to prevent loss of human lives, injuries to men engaged and damage to property and environment. Safety guidelines of BHEL/ customer shall be applicable; copies of the same are available in the tender.
6.2	Successful bidder shall obtain necessary work permits from BHEL/ customer prior to taking up any work on the system. They shall arrange for display of due and necessary caution notices/ boards, etc.
6.3	All electrical equipment, connections and wiring for construction power, its distribution and use shall conform to the requirements of Indian electricity act and rules. Only electricians licensed by the appropriate statutory authority shall be employed by successful bidder to carry out all types of electrical work. All electrical appliances including portable electric tools used by successful bidder shall have safe plugging system to source of power and be appropriately earthed.
6.4	Successful bidder shall be held responsible for any violation of statutory regulations (local, state or central) and BHEL instructions that may endanger safety of men, equipment, material and environment in this scope of work or other agencies. Cost of damage, if any, to life and property arising out of such violation of statutory regulations shall be borne by the successful bidder.
6.5	In case of a fatal or disabling injury/ accident to any person at site due to lapse by successful bidder, the victim and/ or his/ her dependants shall be compensated by successful bidder as per statutory requirements. However, if considered

	necessary, BHEL shall have the right to impose appropriate financial penalty on successful bidder and recover the same from payments due to successful bidder for suitably compensating the victim and/ or his/ her dependants. Before imposing any such penalty, appropriate enquiry shall be held by BHEL giving opportunity to successful bidder to present their case.
6.6	In case of any damage to property due to lapses by successful bidder, BHEL shall have the right to recover cost of such damages from payments due to successful bidder after holding an appropriate enquiry.
6.7	In case of any delay in the completion of a job due to mishaps attributable to lapses by successful bidder, BHEL shall have the right to recover cost of such delay from payments due to the contractor after notifying the contractor suitably and giving them opportunity to present his case.
6.8	If successful bidder fail to improve the standards of safety in its operation to the satisfaction of BHEL after being given a reasonable opportunity to do so, and/ or if successful bidder fail to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instruction regarding safety issued by BHEL official, BHEL shall have the right to take corrective steps at the risk & cost of successful bidder after giving a notice of not less seven days indicating the steps that would be taken by BHEL.
6.9	Successful bidder shall submit report of all accidents, fires and property damage, dangerous occurrences to the BHEL official immediately after such occurrence but in any case not later than twelve hours of the occurrence. Such report shall be furnished in the manner prescribed by BHEL. In addition, periodic reports on safety shall also be submitted by the successful bidder to the authorized BHEL official time to time as prescribed.
7.0	GENERAL & INDICATIVE TECHNICAL FEATURE
	Customer will provide power at 11 KV source. Further distribution to meet the project's construction power requirement at the stated voltage grade is to be accomplished through the scope of this tender.
8.0	ERECTION PROCEDURE
8.1	AB GO switches, DO fuse with all accessories, stay wire assembly, etc near transformer foundations are required. Transformer shall be connected by three core HT cable (in case transformer is located away from line) or by O/H conductor (in case transformer is located near the line).
8.2	The successful bidder shall transport the same from store/ fabrication yard to site of erection. The structures and poles have to be erected as per the approved drawings. The successful bidder shall make necessary excavation & foundation work for erection of pole structures and transmission poles. All materials required for the foundation, plastering shall be provided by successful bidder within the quoted rate/ price.
8.3	The successful bidder shall align the structure & poles, mount the other structures and accessories, insulators, AB switches, fuses, erect lighting arresters, etc as per standard or as directed by engineer. Once the erection of equipment and accessories are completed, stringing of ACSR conductor shall be carried out carefully maintaining adequate ground clearance. Necessary earth guards shall be provided at road crossings and where LT lines are crossing. There may be a situation where the overhead stringing is not possible, in such cases, 11 KV XLPE cables have to be laid & connected with the ACCR conductor using suitable jointing materials. All necessary statutory methods are to be followed in such cases. The successful bidder, within the accepted rate/ price, shall supply all required hardware for this job.
9.0	**ERECTION OF TRANSFORMER, LT KIOSK, LIGHTING MAST, JUMPERING, O/H LINE, CABLING WORK**

9.1	The successful bidder shall receive all transformers, AB switches, lighting arrestors, HG fuses, cables, etc at their store from BHEL store. The successful bidder will preserve these materials till handing over.
9.2	Successful bidder shall transport all transformers, LT kiosk, lighting mast, etc from their or BHEL's stores. The successful bidder shall erect the transformers on the foundations at a height of 1 meter (approx.) from the ground and as per drawing. LT kiosks shall be placed on concrete foundations. Each sub-station area shall be graded and slope shall be maintained to prevent rainwater accumulation. Surface shall be covered with ballast of size 15-20 mm.
9.3	Sufficient care should be taken in handling the above equipment to avoid the damage to the insulators and other delicate parts. Any damage during handling/ erection shall be borne by the successful bidder. Successful bidder shall ascertain, the healthiness of the equipment before erection, carry out required tests before erection. The successful bidder shall arrange necessary oil test kit. If the test result of oil is below the recommended value, the successful bidder shall carry out filtration of oil till the di-electric strength of oil improves. The successful bidder shall arrange the filter machine for this purpose. If the insulation resistance value of the transformers are not within permissible limit dry out of transformers shall be carried out to improve the IR value by the successful bidder. Carrying out the entire above job and providing T&P and IMTEs shall be in the scope of successful bidder.
9.4	LT kiosks and transformers shall be mounted on plinth keeping sufficient clearance from ground for incoming/ outgoing cable lifting and termination.
9.5	The general precautions during storage and handling of shall be taken in accordance with relevant IS code. While laying, the conductor shall be taken from top of the drum and the repeated in the direction of arrow on it. Care shall be taken to avoid contact with steel works, fence, etc by giving soft wood protection, using wooden rollers. Proper tools shall be used during stringing work. During stringing operation standard sag table or chart shall be followed and care shall be taken to ensure that there are no kinks in the successful bidder. Joints in conductors shall be staggered. Mid span joints in conductors shall be avoided. After stringing the conductor, it shall be clamped permanently with shackle or strain clamps. An angle or section shall be selected while pulling up conductors.
9.6	While stringing, sufficient length shall of conductors be kept at shackle terminations for making jumpers. Jumpers shall be neat and as far as possible symmetrical to run of conductors. These shall be made to prevent occurrence of faults due to wind or birds. PG clamps may be preferred to binding of conductors at jumper location or service taps.
9.7	The cross arms shall be made of MS structural steel. The length of cross arms shall be suitable for accommodating the number of insulators on them with spacing of conductor. A gap of minimum 50 mm shall be left from the center of pin hole to end of cross arm on either side. The cross arm shall be complete with pole clamp made of MS flat of size not less than 50 x 6 mm with necessary nuts, bolts, washers, etc. The length of cross arm for carrying guard wires shall always run not less than 300 mm beyond outer most bare conductor of configuration. Cross arms shall be properly clamped to the support taking into consideration the orientation of lines.
9.8	The porcelain insulators shall be confirming to IS: 731-1971 for overhead lines. This shall be glazed, crack/ burr free. The insulator shall have adequate mechanical strength, high degree of resistance to electrical puncture and resistance to climatic and atmospheric attack. All iron parts shall be hot dip galvanized & all joints shall be airtight. Pin insulators/ shackle insulators/ disc insulators shall be erected on cross arms and 'D' iron clamp shall be used or as

	specified by BHEL. Shackle insulators shall be used in conjunction with 'D' iron clamps when configuration of conductor is vertical. These shall also be erected on cross arm at intermediate support in case of long lines, deviation from straight lines. Care shall be taken that insulators are not damaged during erection
9.9	Binding of conductor with the insulator shall be done with soft Al wire/ conductor. The binding of conductor to insulator shall be sufficiently firm and tight to ensure that no intermittent contact develops. The end of binding wire shall be tightly twisted in close spaced spiral around the conductor to ensure good electrical contact and strengthen the conductor.
9.10	Support of overhead line shall be of adequate strength confirming in all respects to rules 76 of Indian electricity rules. Pole spacing and clearance between lowest conductor above the ground level across/ along the street shall be in accordance with rule 85 of Indian electricity rules. Suitable foundation shall be provided for erection of poles. The foundation shall include excavation in all types of soil and rocks and back filling, RCC, reinforcement, formwork.
9.11	After the location of supports/ stay are pegged accurately, the excavation work shall be taken up and care should be taken while excavating that pits are not oversized. The pit should be excavated in the direction of the line. The depth and size of pit shall be such that normally $1/6^{th}$ of the length of pole is buried in the ground and suitable for foundation of support. For stay the position of pit shall normally be such stay makes as large an angle as possible with the support and it shall be in the range of 40 to 60 degrees. The length of stay rod shall project 450 mm above the ground level. The pit for strut shall be located at a distance not less than 1.8M from the pole. The depth of pit shall be such that at least 1.2M of the strut is buried in the ground.
9.12	Stay set shall consist of stay rod, anchor plate, bow tightened/ turn buckle, thimble, stay wire and stain insulators. The stay rod shall be with stay grip in case of turn buckle is used instead of bow tightened. The entire stay set assembly shall be galvanized. The stay wire shall be either 7/ 4.0 mm dia or 7/ 3.15 mm dia GI having tensile strength of not less than 70 kgf/ sq mm and confirming to IS: 2141. The anchor plate shall be of MS galvanized and not less than 300 x 300 x 6.4 mm thick. The stay rod/ buckle rods shall be minimum 16/ 19 mm dia galvanized steel rod having tensile strength not less than 42 kgf/ sqmm. Minimum length of stay rod and buckle shall be 1800 mm and 450 mm respectively.
9.13	The anchor plate shall be galvanized MS plate. The stay rod with anchor plate shall be embedded in cement concrete 1:3:6. A stay shall be provided at all angle and terminal poles. Double stay shall be provided at all dead ends and in such case, these shall be as far as possible to be set parallel to each other.
9.14	All poles shall be correctly aligned and erected as per specification.
9.15	All metal supports of overhead lines and metallic fitting attached shall be permanently and effectively earthed. Cage guard/ cradle guard shall be made of 6 SWG GI wire confirming to IS 2633 including netting, stretching and jointing of cage and lacing by 10/12 SWG GI wire, binding by 14/ 16 SWG GI wire.
9.16	All supports carrying HV lines shall be fitted with danger plates confirming to IS: 2551 at height of 3 meter from ground indicating the voltage of line. The script shall be both in 'English/ Hindi'.
9.17	Necessary arrangement for preventing unauthorized persons from ascending any of the supports and structure carrying HV lines without the aid of ladder or special appliance shall be made. Unless otherwise specified barbed wire confirming to IS:278 having four points barbed spaced 75 +/- 12 mm apart shall be wrapped helically with a pitch of 75 mm around the limb of support and firmly commencing from the height of 3.5 meter and up to 5 or 6 meter as directed by the engineer.
9.18	Lightning arrestor suitable for HT lines shall be installed one unit per phase at

	terminations, transformer stations, etc. The devices shall be connected ahead of fuse provided if any. Independent earth electrode shall be provided for LA. The earth lead from earth electrode to LA shall be continuous. The LA shall confirm to IS: 3070 and shall be non-linear distribution class. The LA shall be non-linear type, distribution class, and outdoor type suitable for effectively earthed system. The LA shall consist of line terminal stud, earth terminal stud, number of spark gaps in series with non-linear resistor, the whole assembly housed inside a hermetically sealed porcelain bushing. Neoprene rubber gasket shall be provided between metal caps and porcelain bushing. Non-linear resistor shall be silicon carbide blocks metalized at both ends to ensure good electrical contact between terminals, non-linear resistor & spark gaps. Mounting bracket shall be hot dip galvanized suitable for mounting LA on structure.
9.19	TRIMMING / CUTTING / PRUNING OF TREES
	Construction of O/H lines shall also include cutting/ trimming of branches of trees or clearing of any other obstruction that may come in way of O/H lines; however this must be done with approval of BHEL.
9.20	HT & LT CABLING REQUIREMENT
	The cable installations including necessary joints & terminations shall be carried out in accordance with the specification IS: 1255-1967.
9.21	CABLE LAYING DIRECT IN GROUND
9.21.1	The method shall be adopted where the cable route is through open country, along road/ lanes, etc and where no frequent excavations are encountered and re-excavation is possible without affecting other work.
9.21.2	The width of trench for laying single cable shall be 35 cm. Where more than one cable are to be laid in the same trench in horizontal formation, width of trench shall be increased such that the inter-axial spacing between the cables for 415 volts shall be 20 cm and for 11 KV shall be 35 cm.
9.21.3	Where cables are laid in single formation, the total depth of trench shall not be less than 75 cm for cable upto 1.1 KV grade and shall not be less than 120 cm for cable above 1.1 KV grade. Wherever more than one tier formation is unavoidable and vertical formation is adopted, the depth of trench shall be increased by 30 cm for each additional tier to be formed.
9.21.4	Cable laid in trenches shall have covering of clean dry sand not less than 170 mm above the base cushion of sand before the protective cover is laid. The cables shall be protected by B class/ second class brick of not less than 20 x 10 x 10 cm or protective cover placed on top of the sand and both sides of cable for full length of the cable to the satisfaction of BHEL.
9.21.5	The trenches shall be back filled with excavated earth free from stones or other scrap edged debris and shall be rammed and watered, if necessary, in successive layers not exceeding 300 mm unless otherwise specified.
9.21.6	Route marker shall be provided along straight runs of cables and at points of change in direction as approved by BHEL and in general at intervals not exceeding 100 mtr in straight run. Route marker shall be made out of 100 x 100 x 5 mm GI/ Al plate bolted or welded on 35 x 35 x 6 mm MS angle iron of 600 mm long. Such route markers shall be mounted and grouted parallel to and 0.5 meter away from the side of trench. The work `cable' with voltage grading and size of cable shall be inscribed on the marker.
10.0	**EARTHING SYSTEM**
	Earthing system shall consist of number of earth electrodes made of 40 mm dia galvanized steel pipe placed in the ground up to required level. The space around the earth electrodes shall be filled with alternate layer of charcoal and salt. A chamber made of brickwork shall be made around each electrode. The brickwork shall be plastered. A lid made of MS plate of 6 mm thickness shall be placed to

	cover each earth pit. All the electrodes shall be connected with the earthing strips made of GI. The size of earth electrode and earthing strips for connection to the earth pits shall be selected considering fault level, duration of fault and corrosion rate. Earth resistance of each pit shall be within the specified value as per IS. Each sub-station shall have minimum two earth electrodes for neutral earthing, two for body earthing and two electrodes for LA earthing. Metallic supports, fencing, etc shall be connected to earth system. All the earth connection shall be done with GI strips of adequate cross section.
11.0	**HT/LT CABLE LAYING DRESSING AND TERMINATION**
11.1	All cable laying & termination shall be carried out as per IS specification and by qualified jointer with valid certificate.
11.2	All cables should be suitably supported so that they do not cause any strain to the equipment connected.
11.3	All LT cables from the transformer secondary terminals to the in-comer of LT kiosks and other cables like control cables etc shall be installed by the successful bidder. All cable lugs, glands, tapes, tags and any other materials to complete the cabling work shall be supplied by the successful bidder within accepted rate/ price.
11.4	All necessary testing of cables including insulation test, etc shall be carried out by successful bidder within the accepted rate/ price. IR value of cables before and after test shall be measured. IR value check and continuity test of all LT cables shall be done before & after laying and at the time of charging. The continuity of the conductors as well as the armours of cables shall be checked before & after cable laying.
11.5	If damage is noticed after cable laying or if the cable is found defective during testing, successful bidder shall replace the cable free of cost. All the testing shall be carried out on the new cable so replaced.
12.0	**APPLICATION OF PROTECTIVE PAINTING & FINAL PAINTING**
12.1	All the structures and poles (wherever applicable) shall be covered by protective paints before erection
12.2	Contractor to ensure required painting/ touch-up before installations of all the poles and structures.
12.3	Touch up paints shall be done for other equipment like transformer, LT kiosk, etc
12.4	All materials like paints, primers, paint brushes, thinners, etc. required for completing above painting work shall be supplied by successful bidder. The successful bidder, within the accepted rate/ price, shall do the supply of paints, other consumables and painting work.
13.0	**PROVISION OF SIGNBOARDS AND SAFETY MEASURES**
	All required signboards, caution boards and safety boards shall be arranged by the successful bidder and shall be installed in all the required locations. The feeder description and line description shall be displayed at vital location. All equipment shall be marked with paints. The R, Y & B phases shall be marked on the equipment with proper paints. Safety is the foremost important and the successful bidder have to adhere to safety instructions and ensure use of safety appliances.
14.0	**TECHNICAL SPECIFICATION OF CONTRACTOR SUPPLIED MATERIALS**
14.1	POLE AND POLE FITTING
	PCC poles shall be as per latest REC specification. Steel structures and other supporting structures shall be fabricated & painted at site as per standard/ prevalent practice or as directed by BHEL.
14.2	11 KV AIR BREAK SWITCH
14.2.1	The air break switch shall confirm to IS:9920. The rated voltage shall be 12 KV and rated nominal current shall be 800/ 400/ 200 A as specified.

14.2.2	Rated lightning impulse withstand voltage KV (peak): To earth between poles – 75 KV, across terminals of open switch - 85 KV.
14.2.3	Rated one minute power frequency withstand voltage: To earth between poles - 28 KV, across terminals of open switch - 32 KV.
14.2.4	The withstand values shall be standard reference atmosphere specified in IS: 2071.

14.2.4.1	Temperature rise: The temperature rise shall not exceed the limits specified below.	
	Area	Temperature rise like ambient temp, exceeding 40 deg C
	Copper contacts (Silver faced) in air	65 deg C
	Terminals of the switch intended to be connected to external conductors by bolts	50 deg C
14.2.4.2	Rated short time current: 16 KA.	
14.2.4.3	Rated peak withstand current: Withstand capacity in closed position shall be 40 KA.	
14.2.4.4	Rated mainly active load breaking capacity: 10 A.	
14.2.4.5	Rated transformer off-load breaking capacity: 6.3 A (RMS).	
14.2.4.6	Rated line charging breaking capacity: 2.5 A (RMS).	
14.2.4.7	Rated cable charging breaking capacity: 10 A (RMS).	
14.2.5	The AB shall have triple pole constructional and shall be suitable for vertical or horizontal mounting as required. The switch shall have two 11 KV post insulators per phase suitably mounted on angle irons to enable easy movement insulators. The angle iron supports shall be mounted on a 70 sqmm hollow beam suitable for fixing on double pole structure. Alternatively, the angles shall be mounted on a steel frame made of two angle/ channel supports. The switch shall be manually operated with rocking type arrangement through a 30 sqmm GI coupling rod.	
14.2.6	All current carrying parts shall be made of silver or nickel-plated 90 % electrolytic copper. The arcing horns shall be made of phosphor bronze and shall have spring-assisted operation. Switch shall have a spring mechanism so as to ensure that the speed of opening of contacts is independent of the speed of speed of manual operation	
14.2.7	The spacing between the phases shall be adjustable between 600 to 760 mm. Total lengths of the square beam/ base frame shall be kept as 2650 mm. The switch assembly shall be suitable for mounting on a H-pole structure with center-to-center distance between poles up to 2440 mm.	
14.2.8	The vertical operating rod shall comprise of 25 mm (nominal class) galvanized steel tube (medium class) as per IS: 1161. Length of the operating tube shall vary from 4800 mm to 6000 mm depending upon the mounting position of the switch on the structure.	
14.2.9	Suitable arrangement shall be provided to pad-lock the operating handle in ‘ON’ and ‘OFF’ positions.	
14.2.10	The switch shall be provided with bimetallic connectors on the incoming side to accommodate ACSR of sizes 50 sqmm. On the side, about 1 meter long flexible coil type cable not less than 100 sqmm Al section shall be provided.	
14.2.11	All iron parts shall be hot dip galvanized. The tubes shall be galvanized in accordance with IS: 4736.	
14.3	TYPE TEST	
	Certificate for compliance to type test for following test shall be furnished in accordance with IS: 9920.	
14.3.1	Temperature rise test (for contacts and terminals).	
14.3.2	Short time current and peak withstand current tests.	
14.3.3	Mainly active load breaking capacity test, transformer off-load breaking capacity test	
14.3.4	Line charging breaking capacity test.	
14.3.5	Cable charging breaking capacity test.	
14.3.6	Operation and mechanical endurance test.	

14.4	ROUTINE TEST
	The AB switches shall be subjected to the following routine tests.
14.4.1	Power frequency voltage dry test.
14.4.2	Measurement of the resistance of main circuit.
14.4.3	Operating test.
14.5	11 KV DROP-OUT FUSE CUTOUTS
14.5.1	The distribution fuse cutouts shall be outdoor, open, drop-out expulsion type fuse cutouts suitable for installation in 50 Hz, 11 KV distribution system
14.5.1.1	The cutout shall conform to IS: 9385 (part-I to III).
14.5.1.2	The rated voltage shall be 12 KV.
14.5.1.3	The rated current shall be 100 A.
14.5.2	Rated lightning impulse withstand voltage values for fuse base: The rated lightning impulse voltages both for positive and negative polarities shall be as given below.
14.5.2.1	To earth and between poles: 75 KV (Peak).
14.5.2.2	Across the isolating distance of fuse base: 86 KV (Peak).
14.5.3	Rated one minute power frequency withstand voltage (dry & wet) values for the fuse base.
14.5.3.1	To earth and between poles: 28 KV (RMS).
14.5.3.2	Across the isolating distance: 32 KV (RMS).
14.5.4	Temperature rise limit (in air).
14.5.4.1	Copper contacts silver faced: 65^0C
14.5.4.2	Terminal: 50^0C.
14.5.4.3	Metal parts acting as spring: The temperature shall not reach such a value that elasticity of the metal is changed.
14.5.5	General requirements/ constructional details: The cutouts shall be of single vent type (downward) having a front connected fuse carrier suitable for angle mounting. All ferrous parts shall be hot dip galvanized in accordance with the latest version of IS: 2632. Nuts & bolts shall conform to IS: 1364. Spring washers shall be electro-galvanized.
14.5.6	Fuse base top assembly: The top current carrying parts shall be made of a highly conductive copper alloy and the contact portion shall be silver plated for corrosion resistance and efficient current flow. The contact shall have a socket cavity for latching and holding firmly the fuse carrier until the fault interruption is completed within the fuse. The top assembly shall have an aluminium alloy terminal connector. The top assembly shall be robust enough to absorb bulk of the forces during the fuse carrier closing and opening operations and shall not over-stress the spring contact. It shall also prohibit accidental opening of the fuse carrier due to vibrations or impact.
14.5.7	Fuse base bottom assembly: The conducting parts shall be made of high strength highly conductive copper alloy and the contact portion shall be silver plated for corrosion resistance and shall provide a low resistance current path from the bottom fuse carrier contacts to the bottom terminal connector.
14.5.8	Fuse carrier top assembly: The fuse carrier top contact shall have a solid replaceable cap made from highly conductive, anticorrosive copper alloy and the contact portion shall be silver plated to provide a low resistance current path from the Fuse Base Top Contact to the Fuse Link. It shall make a firm contact with the button head of the fuse link and shall provide a protective enclosure to the fuse link to check spreading of arc during fault interruptions. The fuse carrier shall be provided with a cast bronze opening eye (pull ring) suitable for operation with a hook stick from the ground level to pull-out or close-in the fuse carrier by manual

	operation.
14.5.9	Fuse carrier bottom assembly: The fuse carrier bottom assembly shall be made of bronze castings with silver plating at the contact points to efficiently transfer current to fuse base. It shall make smooth contact with the fuse base bottom assembly during closing operation. The bottom assembly shall have a lifting eye for the hook stick for removing or replacing the fuse carrier.
14.5.10	Fuse base (porcelain): The fuse base shall be a bird-proof, single unit porcelain insulator with a creep distance (to earth) not less than 320 mm. The top and bottom assemblies as also the middle clamping hardware shall be either embedded in the porcelain insulator with Sulphur cement or suitably clamped in position. For embedded components, the pull out strength should be such as to result in breaking of the porcelain before pull out occurs in a test. For porcelain insulators, the beam strength shall not be less than 1000 kg.
14.5.11	Fuse tube: The fuse tube shall be made of fiber-glass coated with ultraviolet inhibitor on the outer surface and having arc quenching bone fire liner inside. The tube shall have high bursting strength to sustain high pressure of the gases during fault interruption. The inside diameter of the fuse tube shall be 17.5 mm. The solid cap of the fuse carrier shall clamp the button head of the fuse link, closing the top end of the fuse and allowing only the downward venting during fault interruption
14.5.12	TYPE TEST
14.5.12.1	The cutout shall confirm to the following type tests and certificate shall be furnished:
14.5.12.2	Dielectric tests (rated impulse withstand and rated one minute power frequency withstand test voltages). Temperature rise test The above tests shall be in accordance with IS: 9385 Part I & II.
14.5.12.3	For porcelain fuse base only.
14.5.12.4	Pull out test for embedded components of the fuse base.
14.5.12.5	Beam strength of porcelain base.
14.5.13	MOUNTING ARRANGEMENT
14.5.14	The cutouts shall be provided with a suitable arrangement for mounting these on 74 x 40 mm or 100 x 50 mm channel cross arm in such a way that the center line of the base is at an angle of 15 to 20 deg from the vertical and shall provide the necessary clearances from the support. Mounting arrangement shall be made of high strength galvanized steel flat and shall be robust enough to sustain the various stresses encountered during all operating conditions of the cutout.
14.6	11 KV LIGHTNING ARRESTER
14.6.1	The lightning arresters shall be substation type comply with the Indian Standards Specification IS: 3070 (Part-II).
14.6.2	Voltage rating: The rated voltage of lightning arresters shall be 9 KV (RMS). This will be applicable to the effectively earthed 11 KV systems co-efficient of earth not exceeding 80 percent as per IS: 4004 with all the transformer neutrals directly earthed.
14.6.3	Nominal discharge current rating: The nominal discharge current rating of the lightning arresters shall be 5 KA.
14.6.4	TEST
14.6.4.1	The following routine and type tests as laid down in IS: 3070 (Part-I) shall be carried out.
14.6.4.2	Routine test: Dry power frequency spark over test.
14.6.4.3	Type tests (Confirmation).
14.6.4.4	Voltage withstand tests of arrester insulation.

14.6.4.5	Power frequency spark over test.
14.6.4.6	Hundred percent 1.2/ 550 microsecond impulse spark over test.
14.6.4.7	Front-of-wave impulse spark over test
14.6.4.8	Residual voltage test.
14.6.4.9	Impulse current withstand test.
14.6.4.10	Operating duty test.
14.6.4.11	Temperature cycle test on porcelain housing.
14.6.4.12	Porosity test on porcelain components.
14.6.4.13	Galvanizing test on metal parts.
14.7	11 KV PORCELAIN INSULATOR
14.7.1	The insulators shall comply with IS:731 and IS:3188. The porcelain shall be sound, free form defects, through verified & smoothly glazed. Unless otherwise specified, the glaze shall be brown colour. The glaze shall cover all the porcelain parts of insulators except those areas which serve as support during firing are left unglazed for the purpose of assembly. The design of insulators shall be such that stresses due to expansion and contraction in any part of the insulator shall not lead to deterioration. The porcelain shall not engage directly with hard metal. Cement used in construction of insulators shall not cause fracture by expansion or loosening by contraction and proper care shall be taken to locate the individual parts correctly during cementing. The cement shall not give rise to chemical reaction with metal fittings and its thickness shall be as uniform as possible. The insulators should preferably be manufactured in automatic temperature controlled kilns to obtain uniform baking for better electrical and mechanical properties. Both pin and strain insulators shall conform to type B of IS: 731. The strain insulators shall be of Tongue and Clevis type.
14.7.2	TEST VOLTAGE
14.7.3	The test voltages of insulators shall be as under.

14.7.4

Highest system voltage	Visible discharge test	Wet power frequency withstand test	Power frequency puncture withstand test		Impulse voltage withstand test
			Pin insulator	Strain insulator	
KV (RMS)	KV (RMS)	KV (RMS)	KV (RMS)	KV (RMS)	KV (Peak)
12	9	35	105	1.3 times the actual dry flash over voltage of the insulator.	75

14.7.5	FAILING LOAD
14.7.5.1	Mechanical Failing Load (For Pin Insulators only): The insulators shall be suitable for a minimum failing load of 10 KN applied in transverse director.
14.7.5.2	Electro-Mechanical Failing Load (For Strain Insulators): The insulators shall be suitable for a minimum failing load of 70 KN applied axially.
14.7.6	CREEPAGE DISTANCE
14.7.6.1	The minimum creep age distance shall be as under.

Highest system voltage	Heavily polluted atmosphere	
	Pin insulator	Strain insulator
KV	Mm	Mm
12	320	400

14.7.7	TEST
14.7.7.1	The insulators shall comply with the following tests as per IS: 731.
14.7.7.2	Type tests (Confirmation).

14.7.7.3	Visual examination.
14.7.7.4	Verification of dimensions.
14.7.7.5	Visible discharge test.
14.7.7.6	Impulse voltage withstand test.
14.7.7.7	Wet power frequency voltage withstand test.
14.7.7.8	Temperature cycle test.
14.7.7.9	Mechanical failing load test.
14.7.7.10	24 hour mechanical strength test for strain insulators.
14.7.7.11	Puncture test.
14.7.7.12	Porosity test.
14.7.7.13	Galvanizing test.
14.7.7.14	Electro-mechanical failing load test.
14.7.8	Routine tests.
14.7.8.1	Virtual examination.
14.7.8.2	Mechanical routine test.
14.7.8.3	Electrical routine test.
14.7.9	Acceptance test.
14.7.9.1	Verification of dimensions.
14.7.9.2	Temperature cycle test.
14.7.9.3	Electro-mechanical failing load test.
14.7.9.4	Puncture test.
14.7.9.5	Porosity test.
14.7.9.6	Galvanizing test.
14.7.10	Marking: Each insulator shall be legible and indelibly marked to show the following.
14.7.10.1	Name or trademark of manufacturer.
14.7.10.2	Month and year of manufacture.
14.7.10.3	Minimum failing load in KN.
14.7.10.4	ISI certificate mark, if any.
14.7.10.5	Markings on porcelain shall be printed and shall be supplied before firing.
14.7.11	Packing: All insulators (without fittings) shall be packed in wooden crates suitable for easy but rough handling. Where more than one insulator is packed in a crate, wooden separators shall be fixed between the insulators to keep individual insulators in position without movement within the crate.
14.7.12	Insulator fitting: Pins shall comply with the requirements of IS: 2486 (Part I to II). Helically formed fittings shall comply with IS: 12048. Fittings for strain insulators shall comply with the requirement of IS: 2486 (Part I to IV).
14.7.13	PINS FOR INSULATOR
	General requirements: The pins shall of single piece obtained preferably by the process of forging. They shall not be made by joining, welding, shrink fitting or any other process using more than one piece material. The pins shall be of good finish, free from flaws and other defects. The finish of collar shall be such that sharp angle between the collar and shank is avoided. Al ferrous pins, nuts and washers, except those made of stainless steel, shall be galvanized. The threads of nuts and taped hole when cut after galvanizing shall be well oiled or greased.
14.7.14	Dimensions: Pins shall be of small steel head type S 165 P as per IS:2486 (Part-II) having stalk length of 165 mm and shank length of 150 mm with minimum failing load of 10 KN. Tests: Insulator pins shall comply with the following test requirements as per IS:2486 (Part-I) or latest version thereof:

14.7.14.1	Checking of threads on heads.
14.7.14.2	Galvanizing test.
14.7.14.3	Visual examination test.
14.7.14.4	Mechanical test.
14.7.14.5	Galvanizing test.
14.7.14.6	Mechanical test.
14.7.14.7	Visual examination test.
14.7.15	Helically formed pin insulator ties: Helically formed ties used for holding the conductor on the pin insulator shall be made of Al alloy or Aluminized steel or Aluminum clad steel wires and shall conform to the requirements of IS:12048. The ties shall be suitable for pin insulator dimensions of Pt. - I and conductor sizes specified. Elastomer pad for insulator shall be used with the ties to avoid abrasion of the conductor coming into direct contact with the insulator.
14.7.15.1	Tests: The ties shall be subjected to the tests specified in IS: 12048.
14.7.16	FITTING FOR STRAIN INSULATOR WITH HELICALLY FORMED CONDUCTOR DEAD-END GRIP
14.7.16.1	Fittings for strain insulators of tongue & clevis type. The fittings shall consist of the following components.
	Cross arm strap conforming to IS: 2486 (Part-II). Aluminum alloy die cast thimble-clevis for attaching to the tongue of strain, insulator on one end and for accommodating the loop of the helically formed dead-end fitting at the other end in its smooth internal contour. The thimble shall be suitable for all sizes of ACSR conductors as specified. The thimble clevis shall be attached to the insulator by a steel cutting pin used with a non-ferrous split pin of brass or stainless steel. The thimble shall have clevis dimensions as per IS: 2486 (Pt – II).
14.7.16.2	Helically formed dead end grip having a prefabricated loop to fit into the grooved contour of the thimble on one end and for application over the conductor at the other end. The formed fitting shall conform to the requirement of IS: 12048.
14.7.16.3	Fittings for strain Insulators of ball & socket type.
14.7.16.4	The fittings shall consist of the following components.
	Cross arm strap conforming to IS: 2486 (Pt-II).
	Forged steel ball eye for attaching the socket end of the strain insulator to the cross arm strap. Forgings shall be made of steel as per IS: 2004. Aluminum alloy thimble-socket made out of permanent mound cast, high strength aluminum alloy for attaching to the strain insulator on one end and for accommodating the loop of the helically formed dead-end fittings at the other end in its smooth internal contour. The thimble socket shall be attached to the strain insulator with the help of locking pin as per the dimensions given in IS: 2486 (Pt-II).
14.7.16.5	Tests: The helically formed fittings for strain insulators shall be subjected to tests as per IS:12048. Other hardware fittings shall be tested as per IS:2486 (Part-I).
14.7.17	PACKING
14.7.17.1	For packing of GI pins, strain clamps and related hardware, double gunny bags or wooden cases shall be used. The heads and threaded portions of pins and the fittings shall be properly protected against damage.
14.7.17.2	The gross weight of the packing shall not normally exceed 50 kg. Helically formed fittings shall be packed in cardboard / wooden boxes. Fittings for different sizes of conductors shall be packed in different boxes and shall be complete with their minor accessories fitted in place and colour codes on tags / fittings shall be made to identify suitability for different sizes of conductors as per IS : 12048.
14.7.18	GUY STRAIN INSULATORS
14.7.18.1	The insulators shall comply with IS: 5300 the latest version thereof.
14.7.18.2	The porcelain insulator shall be sound, free from defects, thoroughly verified and smoothly glazed. The design of the insulator shall be such that the stresses to

	expansion and contraction in any part of the insulator shall not lead to its deterioration. The glaze, unless otherwise specified, shall be brown in colour. The glaze shall cover the entire porcelain surface parts except those areas that serve as supports during firing.		
14.7.19	TYPE OF INSULATORS		
	The standard guy strain insulators shall be designations 'A' and 'C' as per IS: 5300.		
	The recommended type of guy strain insulators for use on guy wires of overhead lines of different voltage levels are as follows:		
	Power Line Voltage	Designation of Insulators	
	11000 V	C	
	BASIC INSULATION LEVELS		
	The test voltage of the insulators shall be as under:		
	Designation of Insulator	Dry one minute Power Frequency withstand Voltage	Wet one minute Power Frequency withstand Voltage
		KV (RMS)	KV (RMS)
	C	27	13
14.7.20	MECHANICAL STRENGTH		
	The insulators shall be suitable for the minimum of loads specified as under:		
	Designation of Insulator	Minimum Failing Load (KN)	
	C	88	
14.7.21	TESTS		
	The insulators shall comply with following routine type acceptance tests as per IS.		
14.7.21.1	Visual examination		
14.7.21.2	Verification of dimensions		
14.7.21.3	Temperature cycle test		
14.7.21.4	Dry one-minute power frequency voltage withstand test		
14.7.21.5	Wet one-minute power frequency voltage withstand test		
14.7.21.6	Mechanical strength test		
14.7.21.7	Porosity test		
14.7.21.8	Acceptance Tests : (to be conducted in the following order)		
14.7.21.9	Verification of dimensions		
14.7.21.10	Temperature cycle test		
14.7.21.11	Mechanical strength test		
14.7.2112	Porosity test		
14.7.22	MARKING		
	Each insulator shall be legibly and indelibly marked to show following.		
14.7.22.1	Name or trademark of the manufacturer.		
14.7.22.2	Year of manufacture.		
14.7.22.3	ISI certificate mark, if any		
14.7.22.4	Marking on porcelain shall be applied before firing.		
14.7.23	PACKING		
	All insulators shall be packed in wooden crates suitable easy but rough handling and acceptable for rail trams wooden separators shall be fixed between insulators to keep individual insulators in position without movement within the crate.		
14.7.24	TESTING AND COMMISSIONING:		
14.7.24.1	The successful bidder shall arrange all instruments required for testing, commissioning. The successful bidder shall carry out all tests required. Any other tests if required by customer and statutory authority shall also be carried out by the successful bidder.		
14.7.24.2	Overhead line: Visual inspection shall be carried out for any looseness and cracks in the insulators and at terminal ends. Checks of minimum clearance between live		

	phase to ground and phase-to-phase as per IS shall be carried out. In case any deviation is noticed it shall be rectified immediately.
14.7.25	TRANSFORMER & HT CABLE
14.7.25.1	Testing of IR of HT side shall be carried out by 2500/ 5000 V insulation tester and LT side by 500 V insulation tester.
14.7.25.2	Prior to energisation following tests, but not limited to, shall be carried out
14.7.25.3	Ratio test, vector group test, magnetic balance test, Oil BDV, earth resistance, etc for transformers
14.7.25.4	High voltage test of HT cables
14.7.26	Lightning arrestor: Insulation resistance of lighting arrestor shall be checked and visual inspection of any cracks shall be done. In case any crack is noticed then it has to be replaced immediately by the successful bidder free of cost.
14.7.29	AB switch: IR value of air break switch shall be checked with megger and opening & closing operation shall be checked.
14.7.30	LT kiosk: The successful bidder shall check the operation of all components, meters, calibrate the meters. The bus bar to be checked any looseness. IR of bus bars and wiring are to be measured. After satisfactory completion of the above tests, the kiosks shall be energized.
14.7.31	Earth resistance: The successful bidder shall measure the earth resistance of all pits individually. The measured value should be within permissible limit as per IS. In case any earth pit shows a value that is more than the desired one, then contractor shall redo the earth pit work.
15.0	**LIGHTING MAST**
	For details, refer relevant document of tender.
16.0	**HT, LT CABLE**
	For details, refer relevant document of tender.
17.0	**IP CAMERA**
	For details, refer relevant document of tender.
18.0	CLEARANCE FROM STATUTORY AUTHORITIES
	It will be the responsibility of successful bidder to interact with statutory authorities regarding clearance required for setting up, installation of construction power network (11KV & 415 V). The successful bidder shall arrange clearance for this purpose as & when required from the authorities. No delay in this regard for successful completion of the job shall be acceptable to BHEL. However, statutory fees paid by the successful bidder, will be reimbursed on production of evidence.

ANNEXURE-I

LIST OF APPROVED MANUFACTURER OF ITEMS

SL NO	DESCRIPTION OF ITEM	PROPOSED MANUFACTURER/ MAKE
01	LT POWER CABLES	FINOLEX CABLES, PUNE POLY CAB INDUSTRIES, BARODA RPG CABLES TORRENT CABLES NICCO CABLES UNIVERSAL CABLES KEI DELTON CCI ISHWAR METAL IND ISHWAR CABLES PVT LTD DAKSHA (ONLY FOR CONTROL CABLES) TIRUPATI (ONLY FOR CONTROL CABLES) ROMESH CABLES ROLLEX ALPHA COMMUNICATION GEMSCAB
02	LUMINAIRIES	BAJAJ PHILLIPS CROMPTON GE HAVELLS
03	CABLE GLANDS	COMET DOWELS
04	ACSR CONDUCTOR	SMITA CONDUCTORS, MUMBAI/ GHAZIABAD HINDUSTAN VIDYUT, FARIDABAD HINDUSTAN CONDUCTOR PVT LTD, GUJARAT ASISH INDUSTRIAL CORPORATION, KOLKATA. APAR, BARODA STERLITE INDUSTRIES LTD. PUNE RAM SWAROOP ELECTRICALS BHARAT WIRES AND ROPES. DIAMOND WIRES, BARODA MODERN MALLEABLE, CALCUTTA RAM SWAROOP ELECTRICALS BHARAT WIRES & ROPES
05	INSULATORS WITH ASSOCIATED HARDWARE AND FITTINGS	JAYSHREE INSULATORS, KOLKATA MODERN INDUSTRIES, ABU ROAD WS INSULATORS, CHENNAI BHEL WS INDUSTRIES L TO, BANGALORE AREVA IEC, BHOPAL BIRLA NGK MODERN INSULATORS
06	LIGHTENING ARRESTOR	CROMPTON GREAVES LTD ELPRO INTERNATIONAL, PUNE

		OBLIUM ELECTRICALS PVT LTD, HYDERABAD ELPRO INTERNATIONAL, PUNE OBLUM ELECTRICALS PVT L TO, HYDERABAD WS INDUSTRIES LTD, CHENNAI CGL SCHNEIDER
07	STRUCTURAL STEEL	SAIL, TISCO, JINDAL
08	HT CABLE TERMINATION KIT JOINTING KIT	RAYCHEM RPG, M-SEAL
09	AIR BREAK SWITCH AND ISOLATOR	BANANI SWITCHGEAR & ELECTRICAL IND, KOLKATA POWER & CONTROL TRANSFORMER IND, MUMBAI EASTLAND SWITCHGEAR PVT. LTD, KOLKATA ALLIANCE ENGINEERS PVT LTD, KOLKATA GR POWER SWITCHGEAR, HYDERABAD ABB, BARODA ELPRO INTERNATIONAL HEVELM SWITCHGEAR & STRUCTURES MULLER ELECTROLITE RAMA ENGINEERING WORKS, BULANDSAHAR JAIPURIA BROTHERS, DELHI POWER LINE ACCESSORIES, RAIPUR LAXMI ELECTRICAL, DELHI RASHTRIYA ELECTRCALS, DELHI
10	PCC POLE	APPROVED VENDOR OF STATE DISTRIBUTION CO/ REC
11	RAIL POLE	SAIL, TISCO
12	HT POWER CABLE	UNIVERSAL CABLES LIMITED, SATNA TORRENT CABLES NICCO CABLES RPG CABLES CCI POLYCAB KEI FGIL INDUSTRIAL CABLES GEMSCAB

NOTE	
1.0	Bidder shall procure items from this list as per tender provision.
2.0	Successful bidder, after award of job but within the stipulated time frame, shall firm up with BHEL the modality of procurement, dispatch, etc regarding specific documentation (TDS, QP, TC, COC, etc) required for BHEL's acceptance, inspection procedure for dispatch clearance, documentation required for dispatch, etc.
3.0	In exceptional case, if the successful bidder fail to procure any item from the list of approved manufacturer, they have to put up request, proposed alternate equivalent manufacturer, attaching relevant documents for BHEL's acceptance, without which no item shall be procured & delivered for the subject job.
4.0	Similarly, if some item is not covered in the list of approved manufacturer, successful bidder have to put up request, proposing manufacturers, attaching relevant documents

	for BHEL's acceptance, without which no item shall be procured & delivered for the subject job.

ANNEXURE-2

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

BHARAT HEAVY ELECTRICALS LIMITED,
Power Sector - Eastern Region,
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	PROCUREMENT, SUPPLY, ERECTION, TESTING, COMMISSIONING, OPERATION & MAINTENANCE (O&M), ETC RELATED WITH EXTENSION OF CONSTRUCTION POWER SOURCES, GENERAL ILLUMINATION OF ALL THE WORKING AREAS, BUILDINGS AND OFFICES FOR FGD SYSTEM AT NTPC KAHALGAON STPP (4X210 MW+3X500 MW) ,BIHAR	
Ref	1.0	Tender no PSER:SCT:KGN-E2120:21
	2.0	BHEL's NIT, vide reference no PSER:SCT:KGN-E2120:8726 Date: 05-10-2021
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:KGN-E2120:TCN-01 Date: 11-10-2021
	4.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited 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/ issued by you and in case of such 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. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

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/uploaded offer/documents in accordance with tender instructions with acceptance of the terms & conditions of the tender by us and as per aforesaid references.

Thanking you,

Yours faithfully,

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