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

TCN – 04

Ref: PSER:SCT:KLN-E2015:TCN-04 Date: 21-02-2020

Sub	Tender Change Notice (TCN) - 04	
Job	*Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears, Panels, DG Set, misc electrical equipment and other electrical common system for Main Plant Area-U#1 and BOP Area-U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.*	
Ref	1.0	Tender no PSER:SCT:KLN-E2015:20
	2.0	BHEL's NIT, vide reference no PSER:SCT:KLN-E2015: 7806 Date: 24-01-2020
	3.0	BHEL's TCN-01 vide ref : PSER:SCT:KLN-E2015:TCN-01 Date: 11-02-2020
	4.0	BHEL's TCN-02 vide ref : PSER:SCT:KLN-E2015:TCN-02 Date: 13-02-2020
	5.0	BHEL's TCN-03 vide ref : PSER:SCT:KLN-E2015:TCN-03 Date: 17-02-2020
	6.0	Other References, if any.

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

1) The job of the subject tender shall be read as follows:

"Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal, Bangladesh."
All references appearing elsewhere in the tender document shall be read accordingly.

2) Revised TCC-CML-R-01 (VOLUME-IF-CML-SER, R-01) super superseding earlier TCC-CML-R-00 (VOLUME-IF-CML-SER-R-0) issued along with NIT.

3) VOLUME-III-PRICE SCHEDULE, REV-01 is attached superseding VOLUME-III PRICE SCHEDULE, REV-0 issued earlier along with NIT. Bidder shall quote as per this revised Volume-III, Rev-1 only.

Bidders are also requested to submit a declaration in techno-commercial offer that they have submitted their price bid as per REVISED price schedule format (VOLUME-III- PRICE SCHEDULE, REV-01)

4) Clarification to Bidder's queries attached vide Annexure-A to TCN-04.
5) Revised Annexure-II (R-01) of VOLUME-IF-TS-1 is attached herewith.
6) Revised `No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.
7) All other terms & conditions shall remain unchanged.

Thanking you

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

Dy Mgr. (SCT)

Encl: As Above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)
POWER SECTOR EASTERN REGION, DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091
फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : (033) 2339-8000

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	Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.	
Ref	1.0	Tender no PSER:SCT:KLN-E2015:20
	2.0	BHEL's NIT, vide reference no PSER:SCT:KLN-E2015: 7806 Date: 24-01-2020
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:KLN-E2015:TCN-01 Date: 11-02-2020
	4.0	BHEL's TCN-02, vide reference no PSER:SCT:KLN-E2015:TCN-02 Date: 13-02-2020
	5.0	BHEL's TCN-03, vide reference no PSER:SCT:KLN-E2015:TCN-03 Date: 17-02-2020
	6.0	BHEL's TCN-04, vide reference no PSER:SCT:KLN-E2015:TCN-04 Date: 21-02-2020
	7.0	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.

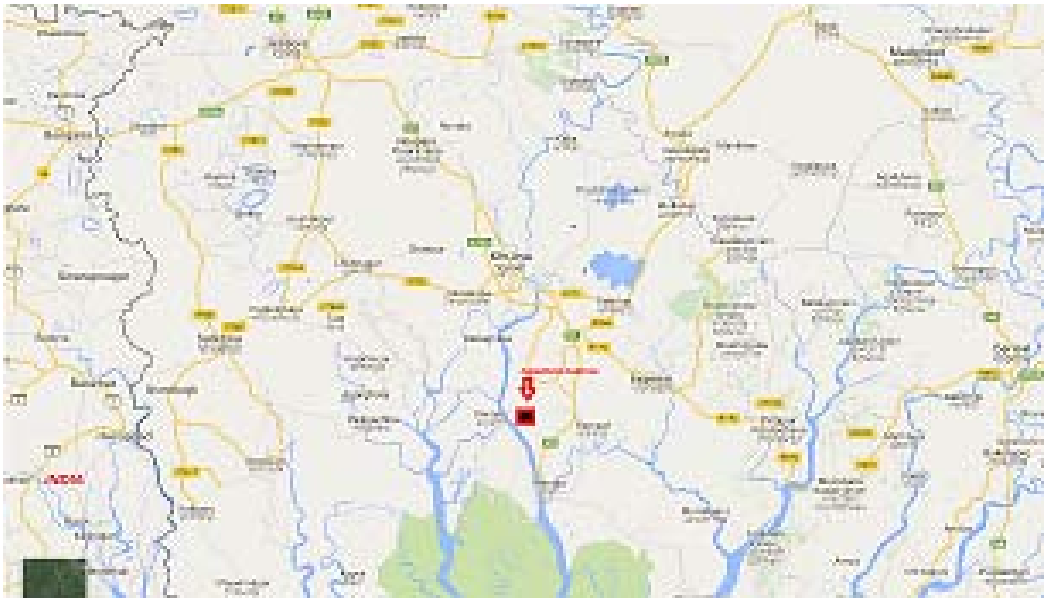
Thanking you,

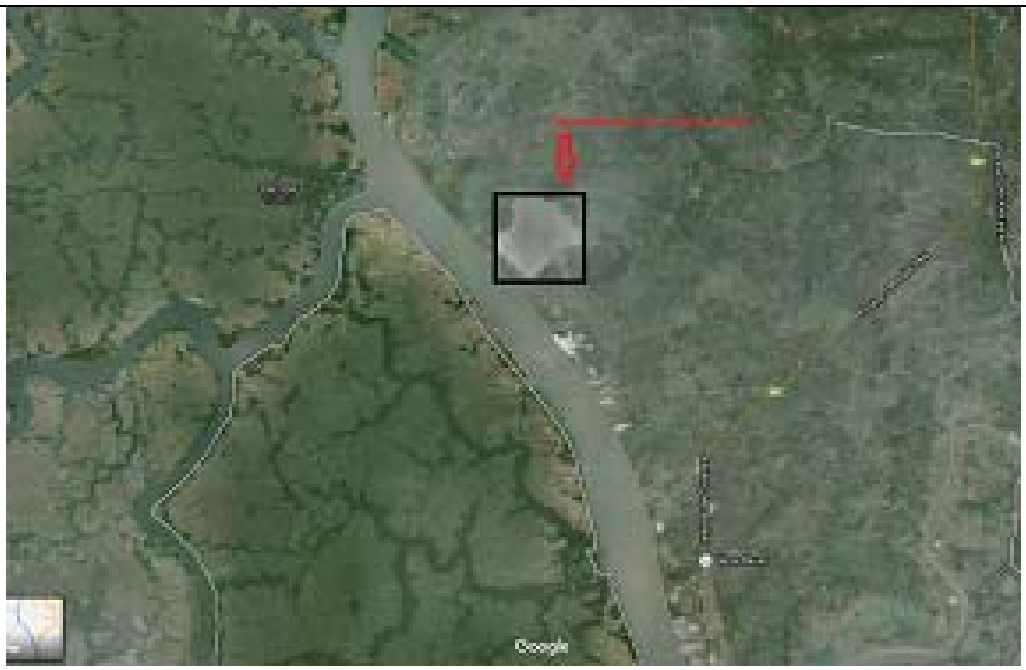
Yours faithfully,

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

CONTENT

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 tender.

CLAUSE NO	DESCRIPTION
1.0	**PROJECT SYNOPSIS AND GENERAL INFORMATION**
1.1	PROJECT SYNOPSIS
	The 2x660 MW MAITREE SUPER THERMAL POWER PROJECT is located in Moithara Village, Rampal Upazila, Bagerhat District, Bangladesh. The Bidder shall acquaint himself by a visit to the site, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually binding on the Owner. All relevant site data / information as may be necessary shall have to be obtained / collected by the Bidder.  LOCATION MAP:2X660MW MAITREE RAMPAL PROJECT

	 LOCATION MAP:2X660MW MAITREE RAMPAL PROJECT
1.2	APPROACH TO SITE
	The nearest town Khulna is at a distance of 23 km from project site. The site is Connected by road from Mangla- Khulna Highway. Nearest Domestic airport is Jessor, Bangladesh at a distance of about 93 KM and international airport is Dhaka at a distance of 263 KM, Bangladesh
1.3	OWNER
	Bangladesh-India Friendship Power Company (Pvt.) Limited (BIFPCL) is the owner which is a 50:50 joint venture company of NTPC, India and Bangladesh Power Development Board BPDB, Bangladesh.
	OWNER'S ENGINEER (CONSULTANT)
	FICHTNER GmbH & Co. KG, Stuttgart, Germany is the Owner's Engineer i.e. consultant of the Owner
2.0	**NAME OF WORK**
2.1	ETC OF ELECTRICAL PKG OF Main Plant Area-U#1 and BOP Area-Common for U#1&2.
	Providing labour, supervision, T&Ps, consumables, etc for receipt from store/ storage yard, watch & ward, transportation to site, pre-assembly (as required), erection, testing, commissioning, trial run, handing over, etc, as required and receipt, storage, etc of self-supplied materials, etc for total scope defined in tender and terms & conditions of tender, taking into account of all clarifications, confirmations, agreements till date for complete work of generator transformer, station transformer, unit auxiliary transformer,Unit Transformers, Station Aux. Transformers, other misc transformer, HT/ LT bus duct, DG set, associated equipments/ items/ panel, cable tray & accessories; cabling; various panel;motor; earthing and lightening protection, HT/ LT switch gear, other misc equipment; etc for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bagerhat, Bangladesh.

2.1.2	BOP Area for –Common for Unit# 1,2 {as mentioned in cl. no. 2.1 above} will be mainly as below – • Electrical items pertaining to Balance of Plants area like 'AC System', 'Ventilation System', 'Compressed Air Sys.', 'Fuel Oil System','Fire Protection System', 'Gas Chlorination Sys.', 'Hydrogen Plant area', 'Cooling Tower', 'DM Plant', 'PT Plant','CW Treatment Plant 'CPU Package', 'Sewage Treatment Plant', 'Effluent Treatment Plant', 'Mill Reject', 'etc. • Raw water System • DG Sets • Any other item/area common to both the Units.
3.0	**EVALUATION OF BID**
3.1	Bidders should quote prices strictly as per prescribed format of Price Schedule, Volume-III (Latest revision) of the tender.
3.2	Bid shall be evaluated based on modalities enumerated in this volume or elsewhere in the tender, ie in technical specification/ SCC/ Price Schedule, as applicable.
4.0	**BROAD SCOPE OF WORK**
4.1	Intent of this tender is to provide services for execution of work according to most modern & proven techniques & codes. Omission of specific reference to any method, equipment or material necessary for proper & efficient services towards installation of the equipment shall not relieve successful bidder of the responsibility of providing such services/ facilities to complete the work or portion of work awarded to him. Accepted rates/ price shall deem to be inclusive of all such contingencies.
4.2	It is not the intent of this tender 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 BHEL/ purchaser who will interpret the meaning of drawings, specifications and shall be entitled to reject any work or material, which in his judgments is not in full accordance herewith.
4.3	Omission of specific reference to any method, equipment or material necessary for proper & efficient working of the plant shall not relieve successful bidder of the responsibility of providing such facilities to complete the work at accepted rates. Any mismatch/ defect found due to mistake in work shall have to be rectified by successful bidder free of cost. Inspection by BHEL/ customer does not relieve successful bidder of responsibility of executing quality erection.
4.4	Following shall be the responsibility of successful bidder and have to be provided within accepted rates/ prices.
4.4.1	Provision as required of all types of labour, supervisors, engineers, watch & ward, tools & tackles, calibrated MMD as specified and otherwise required for the work, consumables for erection, testing, commissioning, etc including handling.
4.4.2	Proper out-turn as per BHEL plan and commitment.
4.4.3	Completion of work as per BHEL/ project schedule.
4.4.4	Good quality and accurate workmanship for proper performance of equipment.
4.4.5	Repair and rectification.
4.4.6	Preservation/ re-conservation of all components during storage, erection, commissioning till handing over.
4.5	Dismantling, removal of debris, leveling etc of all temporary buildings, structures,

	pipelines, cables, etc as per instruction of BHEL/ customer on completion of work. If successful bidder fails to do so, BHEL will get the job done through other agency and the cost along with applicable overhead will be recovered from successful bidder. Decision of BHEL in this regard shall be final & binding on successful bidder. However, the scope of dismantling & leveling the area is limited only to successful bidder's site office, yard, other spaces occupied by successful bidder.
4.6	BHEL - Power Sector (ER) is ISO 9001-2008 certified company. Quality of work, to customer's satisfaction and as per system requirements are the essence of ISO:9001-2008 certification. The bidder in all respects will organise his work, systems, environment, process control documentation, T&Ps, measuring and monitoring devices (MMDs) etc as per instructions of BHEL engineer.
4.7	Successful bidder shall comply with HSE (Health, Safety & Environment) requirements of BHEL and follow all applicable Operational Control Procedures (OCPs) within quoted rate/ price.
4.8	Successful bidder shall construct closed/ semi closed/ open stores shed for proper storage of items received by them without extra cost.
4.9	Successful bidder should use fire proof tarpaulin only to cover any material either in open or at a covered area.
4.10	Successful bidder should deploy portable fire extinguishers of required number in his office, stores and work areas.
4.11	Earthing of equipment including instruments is also included under his scope.
4.12	Successful bidder shall take the full responsibility of testing, pre-commissioning and commissioning of the equipment being installed by him or installed by others but being commissioned by him under the overall supervision of BHEL. It shall be the responsibility of successful bidder to arrange all the testing/ measuring instruments and complete all testing, pre-commissioning, commissioning activities for the particular equipment as per relevant standards, code of practice, manufacturer's instructions, applicable quality plans for installation, testing, commissioning and BHEL norms. All these will be witnessed by BHEL/ representative of BHEL/ customer and reports signed jointly. Successful bidder shall submit a check list to BHEL prior to taking up testing, commissioning activities which shall be approved by BHEL and the activities shall be carried out in accordance with the check list.
4.13	Successful bidder has to arrange all safety appliances required during acid filling/ charging of battery and other items like sp gravity meter, thermometer, jerry cans, funnels, etc. Resistance box with all interconnecting cables, PVC drums for water loads, etc of suitable rating/ capacity for carrying out capacity/ discharge test of batteries shall be arranged. Also, maintenance of battery parameters, after commissioning till handing over to owner shall be carried out.
4.14	Rotation of motor terminal boxes and minor modification to suit cable termination, if required shall be carried out at no extra cost.
4.15	For soot blowers, valves and dampers, operated through associated MCCs, entire commissioning including setting of limit/ torque switch and position feedback unit, electrical control gear of actuators of MOVs & damper, is included in the scope of successful bidder.
4.16	Before starting erection job, successful bidder shall ensure that the area is sufficiently cleaned against ingress of dust & water, and all debris are cleared off from the floor to a designated area as per instruction of BHEL. Successful bidder shall arrange to get the working area and surroundings cleaned daily to ensure a dust free atmosphere for working.
4.17	The accuracy of all equipments, instruments and their functioning shall be established before they are permitted for use on the job. If the engineer doubts the accuracy of the precision tools any time during erection, successful bidder shall arrange the checking of tools/ equipment/ instruments at his cost.

4.18	Foundations for all equipment shall be provided by BHEL. Dimensions & locations of foundations, pockets, anchor bolt shall be checked by successful bidder for their correctness as per drawings/ documents. Further, top elevation of foundations shall be checked with respect to bench marks, etc. All minor adjustments of foundation level, dressing and chipping of foundation surfaces up to 50 mm, enlarging the pockets in foundations, etc as may be required for erection of equipment/ plants shall be carried out by successful bidder within the accepted rates/ price.
4.19	While on the job, care is essential to avoid too much chipping and resultant lowering of level. In case of excess chipping successful bidder has to arrange additional packing plates as per requirements provided it is allowed by BHEL engineer. When required by manufacturers, the embedded sub-sole plates shall be scraped and checked with Prussian blue to get the required contact with frames.
4.20	Successful bidder shall ensure perfect matching of packer plates including scraping and blue matching with foundation by dressing the foundation, as well as perfect matching between packer plates and base plate of equipment to the satisfaction of BHEL engineer.
4.21	All civil works, viz grouting/ excavation/ casting of foundation anchor points for derricks, winches, guy ropes, fastening, etc and foundations required for any other temporary supports/ works, as required for safe & efficient operation of tools & tackles, shall be successful bidder's responsibility. For these civil works all materials excluding normal cement and required facilities will have to be arranged by successful bidder at their own cost.
4.22	All minor civil works for main equipments including drilling, chipping, enlarging cutouts, foundation pockets, cable cut outs, etc will have to be carried out by successful bidder at no extra cost. Grouting of equipments erected by successful bidder as per procedure is included in the scope. Materials like special cement, sand aggregates, etc including shuttering, curing, etc shall be arranged without any extra cost.
4.23	All other points shall be as per the terms & conditions and specification along with aforesaid references together with amendments incorporated thereto.
5.0	**SITE VISIT**
	Bidder should visit site and acquire full knowledge & information about site conditions. The bidder must visit site, to acquaint themselves with the conditions prevailing at site and in & around the plant premises, together with all statutory, obligatory, mandatory requirements of various authorities before submission of bid.
6.0	**DEVIATION/CLARIFICATION**
	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 offer as per prescribed 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. All dewatering pumps including high capacity pumps and diesel engine driven pumps are to be provided by successful bidder within finally accepted rates.
8.0	**GENERAL TECHNICAL REQUIREMENT (CODES AND STANDARDS)**
8.1	The work must be performed according to the most recent relevant codes, standards, accident prevention regulations and local rules and legal regulations.
8.2	All materials and equipment supplied and all work carried out as well as calculation sheets, drawings, quality and class of goods, methods of inspection, specific design features of equipment and parts and acceptances of partial plants shall comply in every respect with the applicable standards, codes and regulations to be chosen from the following:
8.2.1	American Association of State Highway and transportation Officials AASHTO American Concrete Institute ACI American Gear Manufacturers Association AGMA American Institute of Steel Construction AISC American Iron & Steel Institute AISI American Moving and Conditioning Association AMCA American National Standards Institute ANSI American Petroleum Institute API American Public Health Association APHA American Society for Testing and Materials ASTM American Society of Civil Engineers ASCE American Society of Heating, Refrigeration & Air Conditioning Engineers ASHRAE American Society of Mechanical Engineers ASME American Water Works Association AWWA American Welding Society AWS American Wire Gauge AWG Anti-Friction Bearing Manufactures Association AFBMA Architectural Institute of Japan AIJ Association Francaise de Normalisation AFNOR British Standards Institute BS Chlorine Institute CI Crane Manufacturers Association of America CMAA Deutsches Institut für Normung DIN Diesel Engine Manufacturers Association DEMA European Norm EN Expansion Joint Manufacturer Association EJMA Fédération Européene de Manutention FEM Heat Exchanger Institute HEI Hydraulic Institute HI Illuminated Engineers Society IES Institute of Electrical and Electronics Engineers IEEE Instrument Society of America ISA Insulated Power Cable Engineers Association IPCEA International Electrotechnical Commission IEC International Standards Organization ISO Japanese Architectural Standard Specification JASS Japanese Electrical Manufacturers Association JEMA Japanese Electrotechnical Institute JEC Japanese Industrial Standards JIS Manufacturers Standardization Society MSS National Association of Corrosion Engineers NACE National Electrical Code (USA) NEC

	National Electrical Manufacturer Association (USA) NEMA National Electrical Safety Code NESC National Fire Protection Association NFPA National Structural Code for Building NSCB Occupation Safety and Health Administration OSHA Portland Cement Association PCA Properties of Water and Steam IFC Scientific Apparatus Manufacturers Association SAMA Society of Automotive Engineers ASE Standards of Japanese Electrotechnical Committee JEC Steel Structures Painting Council SSPC Technische Vereinigung der Grosskraftwerksbetreiber VGB Tubular Exchanger Manufacturers Association TEMA Underwriters Laboratory UL Uniform Building Code UBC Verband Deutscher Elektrotechniker VDE Verein Deutscher Ingenieure VDI Vereinigung Deutscher Elektrizitätswerke (Association of German Power Plants) VDEW Water Pollution Control Federation WPCF
8.3	Generally, all internationally and nationally recognized standards as above will be applied, except if specific standards called for by:
8.3.1	a) Occupational Safety Board of Bangladesh b) Department of Inspection for Factories and Establishments, Bangladesh c) Department of Environment, Bangladesh d) Bangladesh Power Development Board e) Bangladesh Energy Regulatory Commission f) Ministry of Power, Energy and Mineral Resources g) Bangladesh Fire Service and Civil Defence Ministry h) All relevant Bangladesh National Statutory Regulations i) Bangladesh National Building Code j) Bangladesh Standards k) Local Authorities.
8.4	All steam boilers and unfired pressure vessels together with associated pipework and fittings shall comply with the Bangladesh Boiler Act, 1923 with amendments.
8.5	All pressure parts shall be designed in accordance with applicable ASME codes.
8.6	All services, supplies and works shall comply with the requirements of the relevant laws of Bangladesh and the IFC/World Bank Group Standards and Guidelines in their latest edition, including but not limited to:
8.6.1	Environmental Conservation Rules Bangladesh Energy Regulatory Commission Act; BERC Licensing Regulation BERC Technical Quality Standards; Bangladesh National Building Code; other applicable laws in Bangladesh; IFC Performance Standards on Environmental and Social Sustainability; IFC / World Bank Group Environmental, Health and Safety (EHS) General Guidelines; IFC / World Bank Group EHS Guidelines for Thermal Power Plants; IFC / World Bank Group EHS Guidelines for Electric Power Transmission and Distribution.
8.7	It is contractor's responsibility to provide sufficient evidence that any national or other standard the Contractor proposes (other than those mentioned above) will

	ensure an equivalent or higher standard.
8.8	Except where otherwise specified, the plant/equipment shall comply with the appropriate agreed internationally accepted Standard Specification as mentioned elsewhere in contract specifications, each incorporating the latest revisions at the time of tendering. Where no internationally accepted standard is applicable, the Successful 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.
8.9	Where the Successful bidder proposes alternative codes or standards he shall include in his tender 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.
8.10	In case bidder proposes any IS code, it shall be verified by reputed institutions like IIT that the proposed code is equivalent or superior to the codes mentioned above. Comparison report shall be established and provided to BHEL/Owner for information. Such report shall highlight the main items of the code, including material composition, material properties, design clauses and others as required. Report shall identify deviations of both codes and give justification for this deviation.
8.11	The bidder shall ensure that design will consider material properties as per approved code.
8.12	In the event of any conflict between the codes & standards referred above, and requirements of this specification, the requirements which are more stringent shall govern.
8.13	Wherever specified or required the plant/equipment shall conform to various applicable statutory regulations at Bangladesh. Wherever required, obtaining approval for plant/ equipment supplied under the specification from statutory authorities shall be the responsibility of the successful bidder.
8.14	Following codes have been accepted by BIFPCL for use in the project:
8.14.1	IS-2062 for Structural Steel
9.0	**GENERAL SERVICES TO BE RENDERED BY BIDDER**
	Services for construction, fabrication, erection, testing, trial run, commissioning/ completion of various equipment & accessories/ items under the contract shall include but not be limited to the following.
9.1	Collecting materials from store/open yard from time to time for fabrication/ erection as per construction program and unloading as per flow of consignment. Successful bidder shall be custodian of all materials issued till the plant/ equipment is officially taken over by BHEL/ customer after complete erection, commissioning/ completion. Successful bidder shall maintain adequate security personnel and security measures for proper precaution and safety of material.
	Trial run, commissioning of individual equipment/ sub-systems to the satisfaction of BHEL/ BHEL's advisor/ owner.
9.2	Deployment of all skilled & unskilled manpower required for erection supervision, watch & ward, commissioning/ completion and other services to be rendered under this tender.
9.3	Deployment of all erection tools & tackle, construction machinery, transportation vehicles and all other implements in adequate number and size, appropriate for erection work to be handled under scope of this tender except otherwise specified.
9.4	Supply of all consumables, eg welding electrodes, gases for gas cutting job, etc as well as materials required for temporary supports, scaffolding etc as necessary for such construction work, unless specified otherwise.
9.5	Providing support services for successful bidder's erection staff eg construction of

	site offices, temporary stores, residential accommodation and transport to work site for erection personnel, watch and ward for security and safety of the materials under successful bidder's custody etc, as required.
9.6	Maintaining proper documentation of all site activities undertaken by successful bidder as per proforma, mutually agreed with BHEL, submitting monthly progress reports as also any such document as & when desired by BHEL/ customer, taking approval of all statutory authorities eg, Electrical Inspector, Factory Inspector, Provident Fund authority etc. for respective portions of work under the jurisdiction of such statutes of laws.
9.7	All the materials issued to the bidder by BHEL shall be reconciled by the bidder and the unused materials have to be returned back to BHEL stores/ yard or any other place as specified by BHEL. A material reconciliation statement showing the details of materials issue/return duly signed by BHEL engineer shall have to be submitted by the bidder.
9.8	As part of overall project management activity, successful bidder shall be responsible for proper co-ordination of erection activities during various phases of execution of the contract. Successful bidder shall identify a person designated as Site Incharge, with whom BHEL shall interact on matters related to execution of the contract. The Site Incharge shall be the single point contact person on behalf of successful bidder. BHEL shall interact with the Site Incharge only on all matters on co-ordination between BHEL and successful bidder. For timely completion of work successful bidder may have to work in one or more shifts. He will not be eligible for any extra charge on this account.
9.9	Successful bidder shall confine all their field operations to those works which can be performed without subjecting the equipment and materials to adverse effects, during inclement weather conditions, like monsoon, storms, etc and during other unfavourable construction conditions. No field activities shall be performed by successful bidder under conditions which might adversely affect quality & efficiency thereof, unless special precautions or measures are taken by successful bidder in proper & satisfactory manner in performance of such works and with concurrence of BHEL. Such unfavourable construction conditions in no way relieve successful bidder of their responsibility to perform work as per schedule.
9.10	Successful bidder shall supply all skilled workmen like mill-wright fitters, welders, gas cutters, electricians, riggers, sarangs, erectors, carpenters, pipe fitters, masons, laggers, tin-smiths, instrument technicians/machanics etc, as required, in addition to other skilled, semi-skilled and unskilled workmen required for all works of handling, transportation from site store to erection site, erection, testing, commissioning/ completion contemplated under this tender. Only fully trained and competent men with previous experience on the job shall be employed. They shall hold valid certificates wherever necessary. BHEL reserve the right to decide on suitability of workers and other personnel who will be employed by successful bidder. BHEL reserves the right to insist on removal of any employee of successful bidder at any time, if found unsuitable and successful bidder shall forthwith remove him.
9.11	Supervisory staff employed by successful bidder shall be technically qualified and experienced in the area of work. They shall ensure proper out turn of work and discipline on the part of labour put on the job by successful bidder and in general see that the works are carried out in a safe & proper manner and in coordination with other labour and staff employed directly by BHEL or other successful bidders of BHEL and BHEL's client.
9.12	Successful bidder shall also furnish daily labour report showing by classification the number of employees engaged in various categories of work a progress report of work as required by BHEL.

9.13	The work shall be executed under the usual conditions affecting major power plant construction and in conjunction with numerous other operations at site. Successful bidder and their personnel shall co-operate with other personnel, and other successful bidders, co-ordinating their work with others and proceed in a manner that shall not delay or hinder the progress of work as a whole.
9.14	Successful bidder's supervisory staff shall execute the work in the most substantial & workman like manner in the stipulated time. Accuracy of work and aesthetic finish are essential part of this contract. Successful bidder shall be responsible to ensure that assembly and workmanship conform to the dimensions and tolerance given in the drawing/ instruction given by BHEL from time to time.
9.15	It is the responsibility of successful bidder to engage their workman in shifts or on overtime basis for achieving target set by BHEL during erection, commissioning/ completion, testing. Bidder's quoted rate shall include all these contingencies.
9.15	Any other service, although not specifically called for but required for a contract of the size and nature indicated in the tender.
9.16	After completion of commissioning activity of equipment/ systems, successful bidder shall prepare test reports/protocols which shall include all relevant information related to various commissioning checks, tests carried out, any deviations/ commissioning noticed wrt intended design requirements, sequence of various commissioning activities as actually adopted vis-à-vis as recommended in the procedures, program schedule achieved and any other such information as required .These test reports/protocols shall be submitted in requisite number of copies to BHEL/ BHEL's advisor/ owner during the commissioning activities.
10.0	**PROTECTION**
10.1	Equipment having anti-friction or sleeve bearings 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 protectors
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 other consumables including wire brush, emery papers, painting brush,CRC, petrol/diesel for cleaning etc to be supplied by successful bidder within accepted rate.
11.0	**GENERAL GUIDELINES FOR FIELD ACTIVITIES**
11.1	Successful bidder shall execute the works in a professional manner so as to achieve the target schedule without any sacrifice on quality and maintaining highest standards of safety and cleanliness.
11.2	Successful bidder shall co-operate with BHEL/ owner and other successful bidders working in site and arrange to perform their work in a manner so as to minimise interference with other successful bidder's works. BHEL shall be notified promptly of any defect in other successful bidders' works that could affect 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 successful bidder. In all cases of controversy, the decision of BHEL shall be final & binding on successful bidder without any commercial implication.

11.3	BHEL shall hold weekly meeting of all successful bidders working at site at a time and a place to be designated by the engineer. 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 this work. In addition to weekly meeting, BHEL may call for other meetings either with individual successful bidders or with selected number of successful bidders and in such a case successful bidder, if called will also attend such meetings.
11.4	Time is the essence of the contract and successful bidder shall be responsible for performance of their work in accordance with the specified completion period and construction schedule. If at any time successful bidder fall behind schedule, they shall take necessary action to recover such delays by increasing their workforce and T&Ps to comply with the time/ schedule and shall communicate such action in writing to BHEL, satisfying that their action will compensate for the delay. Successful bidder shall not be allowed any extra compensation for such action.
11.5	BHEL shall however not be responsible for provision of additional labour and or materials or supply of any other services to successful bidder except for the co-ordination work between various agencies' as set out earlier.
11.6	The works under execution shall be open to inspection & supervision by BHEL/ customer at all times. 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/ customer.
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. Manufacturer's interpretation in such cases shall be binding on successful bidder.
11.8	Successful bidder shall comply with all the rules & regulations of 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 successful bidder shall be to their account.
11.9	All the works such as cleaning, checking, levelling, blue matching, aligning, assembling, temporary erection for alignment, opening, dismantling of certain equipment for checking & cleaning, surface preparation, edge preparation, fabrication of tubes and pipes as per general engineering practice at site, cutting, grinding, straightening, chamfering, filling, chipping, drilling, reaming, scrapping, shaping, fitting-up, bolting/ welding, etc as may be applicable in such erection and necessary to complete the work satisfactorily, are to be treated as incidental and the same shall be carried out by successful bidder as part of the work.
11.10	It is the responsibility of successful bidder to do the alignment etc if necessary, repeatedly to satisfy engineer, with all the necessary tools & tackles, manpower etc. The alignment will be complete only when jointly certified so, by successful bidder's engineer and BHEL. Also successful bidder should ensure that the alignment is not disturbed afterwards.
11.11	Equipment and material, in case wrongly installed, shall be removed and reinstalled to comply with the design requirement at successful bidder expense, to the satisfaction of BHEL/ customer.
11.12	After identification of erection materials by BHEL at BHEL's store/ storage yard, it shall be the responsibility of successful bidder to take delivery of materials from BHEL's store/ storage yard by successful bidder's own manpower and re-stack the leftover materials as per erection sequence at BHEL store at their own cost. The entire activities are to be carried out under supervision of BHEL.
11.14	In case of successful bidder's failure to meet any of the aforesaid requirements,

	BHEL will get the same done and cost towards this, along with BHEL's applicable overhead will be recovered from successful bidder's RA bill.
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 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. 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.
12.1.6	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.
12.1.7	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.
12.1.8	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.
12.2	**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 freeof 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) Electrical Inspector 2) 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.		
12.6	**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**	**Remarks**
GENERAL			
12.7.1	Unavailability of QAE deployment schedule (duly approved by BHEL Site) matching with manpower requirement of approved L2 schedule	0.10%	Against each RA bill
12.7.2	Unavailability of required number of QAE with	$16.00	Per person per day

	proper experience & NDT certification as per the requirement of the Contract		
12.7.3	Not attending quality meeting of BHEL by nominated member of vendor / sub-contractor	$32.00	Per meeting
CALIBRATION			
12.7.4	Use of MMEs without valid calibration certificate.	$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	$16.00	Per equipment per instance
WELDING & NDT			
12.7.6	Unqualified welders carrying out welding / tack welding	$16.00	Per welder per instance.(Gatepass of the person shall be withheld)
12.7.7	Not using portable oven for welding consumables	$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	$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	$16.00	Per instance. (The subject consumables shall be confiscated)
12.7.10	Non-removal of welding slag and spatters after welding	$8.00	Per joint
12.7.11	Not using NDT equipment as prescribed in the manual / FQP / guidelines / Contract	$16.00	Per equipment per instance
12.7.12	Welder doing welding without valid job card	$8.00	Per instance
12.7.13	Discrepancy observed in the weld joints identified by BHEL / Customer for RT vs RT film offered	$32.00	per joint
MATERIAL MANAGEMENT			
12.7.14	Non-maintenance of grid pillar marking	$3.00	Per location week
12.7.15	Mismatch of location of material in store area w.r.t. location mentioned in stock register	$8.00	Per instance
12.7.16	Non-compliance of Preservation of material as per storage & preservation manuals	$16.00	Per equipment
12.7.17	Not offering received material for verification within stipulated time	$8.00	Per instance

	as per contract		
PAINTING & ALLIED WORKS			
12.7.18	Not using primer / paints of approved make and as per Specifications	$16.00	Per instance
12.7.19	Painting without proper surface preparation as per approved schedule / drawing / FQP	$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	$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	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	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.			
14.0	**HEALTH, SAFETY & ENVIRONMENT**		
14.1	HSE shall be guided by a separate volume (DOCUMENT NO HSEP:14-MAITREE: VENDOR DATE:05.05.16) , over and above the below mentioned terms and conditions.		
14.2	Round the clock experienced paramedical personnel with first aid facility & ambulance including driver, fuel, etc., at site, shall be arranged by BHEL through other sub-contractors at site. However, expenditure towards above facilities shall be shared by BHEL's sub-contractors working at site (actual cost distribution amongst all successful bidders shall be on pro rata basis proportionate to their contract prices). In case of any dispute, Construction Manager decisions in this regard shall be binding.		
16.0	**CIVIL WORKS, FOUNDATIONS AND GROUTING**		
16.1	Foundations for all equipment shall be provided by BHEL. The dimensions & locations of the foundations, pockets, anchor bolt shall be checked by successful bidder for their correctness as per drawings. Further, top elevation of foundations shall be checked with respect to bench marks, etc. All minor adjustments of foundation level, dressing & chipping of foundation surfaces up to 50 mm, enlarging the pockets in foundations, etc as may be required for erection of equipment/ plants shall be carried out by successful bidder within accepted rates/ price.		
16.2	While on the job, care is essential to avoid too much chipping and resultant lowering of level. In case of excess chipping, successful bidder has to arrange additional packing plates as per requirements provided it is allowed by BHEL.		

	When required by manufacturers, the embedded sub-sole plates shall be scraped and checked with Prussian blue to get the required contact with frames.
16.3	Successful bidder shall ensure perfect matching of packer plates including scraping & blue matching with foundation by dressing foundation, as well as perfect matching between packer plates & base plate of equipment to BHEL's satisfaction.
16.4	All civil works, viz grouting/ excavation/ casting of foundation anchor points for derricks, winches, guy ropes, fastening, etc and foundations required for any other temporary supports/ works, as required for safe & efficient operation of tools & tackles, shall be the successful bidder's responsibility. For these civil works all materials excluding cement and required facilities will have to be arranged by successful bidder at their own cost.
16.5	All minor civil works for main equipments including drilling, chipping, enlarging cutouts, column foundation pockets, cable cut outs, etc will have to be carried out by successful bidder at no extra cost. Grouting of equipments erected by successful bidder as per procedure is included in scope. Providing & grouting of pocket holes, under base-plates of structural steel/ machinery including roughening of surface, cleaning, ramming, curing, etc, all complete with CONBEXTRA GP-1 or equivalent like Sika is included in scope. Materials like grouting compound, cement, sand, aggregates, etc shall be arranged by successful bidder at no extra cost to BHEL.
17.0	**CLEANLINESS**
17.1	Successful bidder shall be responsible for keeping the entire area allotted to him clean & free from rubbish, debris, etc during the period of contract. Successful bidder shall employ enough number of special personnel to thoroughly clean his work-area at least once in a day. All such rubbish & scrap material shall be stacked or disposed in a place to be identified by BHEL/ customer. Materials and stores shall be so arranged to permit easy cleaning of area. In areas where equipment might drip oil and cause damage to floor surface, a suitable protective cover of a flame resistant, oil proof sheet shall be provided to protect floor from such damage.
17.2	Similarly, labor colony, the offices and the residential areas of successful bidder's employees and workmen shall be kept clean and neat to the entire satisfaction of BHEL/ customer. Proper sanitary arrangements shall be provided by successful bidder, in the work-areas, office and residential areas of successful bidder.
18.0	**OTHER FACILITIES TO BE PROVIDED BY SUCCESSFUL BIDDER**Error! Bookmark not defined.
18.1	All tools & tackles, machinery, equipment, instruments, etc, unless otherwise specified in the tender, required for work have to be arranged by successful bidder including its transportation to & from site, and including storage, insurance etc.
18.2	All tools & tackles to be deployed by successful bidder for the work shall have the prior approval of BHEL with regard to brand, quality and specification.
18.3	Successful bidder shall provide all necessary scaffolding materials, temporary structures, as may be required and necessary safety devices etc.
18.4	Successful bidder's responsibily with regard to operator, fuel, lubricants and daily upkeep of T&Ps provided by BHEL is further detailed in relevant section.
18.5	Timely deployment of adequate quantity of T&P is the responsibility of successful bidder. Successful bidder shall be prepared to augment the T& P at short notice to match the planned program and to achieve the milestones.
18.6	Successful bidder shall maintain & operate his tools & plants in such a way that major breakdowns are avoided. In the event of major breakdown, successful bidder shall make alternative arrangements expeditiously so that progress of work is not hampered.
18.7	The T&P to be arranged by successful bidder shall be in proper working condition and their operation shall not lead to unsafe condition. Movements of cranes, and

	other equipment should be such that no damage/ breakage occurs to foundations, other equipment, material, property and men. All arrangements for movement of the T&P, etc, shall be successful bidder's responsibility. Valid test certificate of all the applicable T&Ps are required to be produced at the time of deployment.
~~18.8~~	~~Successful bidder shall arrange adequate nos of wooden sleepers/ steel plates for compaction of approach for crane movement and material stacking near work site.~~
18.9	For welding, use of welding generators/ rectifiers only is permitted.
18.10	Successful bidder at his cost shall carry out periodical testing of his construction equipments and calibration of measuring instruments (MMDs) and tests. Test/ calibration certificates shall be furnished to BHEL. MMDs shall be calibrated only at accredited laboratory as per list available with BHEL or any other laboratory approved by BHEL.
18.11	Temporary toilet blocks are to be constructed/ fabricated at different areas as per mutual agreement for maintaining proper sanitation.
18.12	Construction and maintenance of necessary approach & access roads surrounding the work area shall be in the scope of successful bidder within accepted rates.
19.0	**RESPONSIBILITIES WITH REGARD TO EMPLOYMENT OF LABOUR, ETC**
19.1	Successful bidder shall also comply with the requirements of local authorities (Govt. of Bangladesh) with regard to employment of labours/workers at project site. They shall comply with any other statutory requirement/ local authority requirement such as police verification of antecedents of the workmen, staff, etc. with regard to employment of labours/workers at project site. In case of workmen / supervisors deployed to project from INDIA / any other country, necessary statutory guidelines issued by Indian Govt./ concerned Govt. authorities shall be strictly complied with in addition to local laws. Skilled labour with experience in construction of large utility thermal power projects shall be deployed (preferably 80% of such skilled labours shall be sourced from India).
19.2	BHEL/ customer may insist for witnessing the regular payment to the labour. They may also like to verify relevant records for compliance with statutory requirements. Successful bidder shall enable such facilities to BHEL/ customer.
19.3	It is the responsibility of successful bidder to arrange gate pass for all his employees, T&P, etc for entering the project premises. Necessary co-ordination with customer officials is the responsibility of successful bidder. Successful bidder to follow all procedures laid down by customer for making gate pass. To work beyond normal working hours, successful bidder shall arrange necessary work permits for working beyond normal working hours.
19.4	If at any time during the execution of work, it is noticed that the work is suffering on account of non-availability/ shortfall of resources from successful bidder's side, BHEL will make suitable alternate arrangements at successful bidder's risk & cost. The expenditure incurred with overheads thereby shall be recovered from the successful bidder.
19.5	It is the responsibility of successful bidder to engage his workmen in shifts and or on overtime basis to achieve targets, to suit BHEL''s commitments to customer or to adjust date of completion of events or due to other reasons. Decision of BHEL in this regard will be final & binding on successful bidder.
19.6	Successful bidder shall deploy only qualified & experienced engineers/ supervisors. They shall have professional approach in executing the work.
19.7	Successful bidder's supervisory staff shall execute the work in the most professional manner in the stipulated time. Accuracy of work and aesthetic finish are essential part of this contract. They shall be responsible to ensure that

	workmanship conform to dimensions & tolerances given in drawings/ instructions given by BHEL engineer from time to time.
19.8	The supervisory staff employed by successful bidder shall ensure proper outturn of work and discipline on the part of labour put on the job. Also in general they should see that the works are carried out in a safe and proper manner and in coordination with other labour and staff employed directly by BHEL or other successful bidders of BHEL or BHEL''s client.
19.9	If at any time, it is found that successful bidder is not in a position to deploy required engineers/ supervisors/ workmen due to any reason, BHEL shall have the option to make alternate arrangements at successful bidder's risk & cost.
19.10	The successful bidder shall deploy all the skilled/semiskilled/ unskilled labour including highly skilled workmen etc. These workmen should have previous experience on similar job. They shall hold valid certificates wherever necessary. BHEL reserves the right to insist on removal of any employee of the successful bidder at any time if he is found to be unsuitable and the successful bidder shall forthwith remove him. Successful bidder should furnish a tentative deployment plan of his manpower as required in GCC. Also the actual deployment will be so as to satisfy the project schedule of erection and commissioning.
21.0	**AS BUILT DRAWING**
	Successful bidder shall submit as-built drawing to BHEL/ customer after completion of work for acceptance/ approval. Successful bidder will be given 1 copy of working drawing based on which as-built drawing is to be prepared. However, the contractor has to make those `as-built drawing' from the modified drawing which is already followed in between the project work. The contractor has to submit required no. of as-built drawing as per the instruction of BHEL engineer after completion of jobs.
22.0	**PROJECT MANAGEMENT/ CONSTRUCTION MANAGEMENT**
	To meet the need of construction management at site, successful bidder shall provide the following services within accepted rates.
22.1	**PLANNING & MONITORING**
22.1.3	On the basis of accepted/ approved master schedule, 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.
22.1.4	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.
22.1.5	The successful bidder shall ensure monitoring of these activities at least on fortnight basis or at other frequency as mutually agreed with BHEL.
22.1.6	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.
22.1.7	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.
22.2	INFRASTRUCTURE-
22.2.1	Successful bidder shall install 2 nos all in one PCs (multimedia PC work station Core-i3, 2.1 GHz or above, 500 GB HDD, 4 GB RAM, 100/ 1000 MBPS LAN card) of HP/ Compaq/ Lenevo or equivalent make with window 8 or 7 O/S and required software like MS Office 2010 Professional, AutoCAD 2009 or higher, PageMaker

	(7.0, etc), ADOBE PDF CREATOR and ONE NO. SCANNER (HP Scan Jet Pro 2500 or equivalent), one no laser jet printer compatible for A4 size printing (ink/ cartridge for which to be supplied as & when required) with power backup at places, as per instruction of BHEL for exclusive use of BHEL. These computers/ printers/scanners shall remain successful bidder's property and they will be allowed to take out the same after completion of contract period including extension. Successful bidder shall provide data/ information, etc in prescribed formats for periodical updating of progress reports, material management reports, updating of network pertaining to successful bidder's scope of work, etc Successful bidder shall provide 1 no computer operator and 1 number service staff for miscellaneous service for BHEL's use at site/ Kolkata for reconciliation, progress review & day-to-day planning purpose, documentation, etc. These facilities are to be provided within 15 days from date of start date till completion of scheduled contract period, including extension, if the reason for extension is attributable to successful bidder. In case successful bidder fails to provide computer/ printer or personnel as per requirement, for a continuous period of fifteen days or more, BHEL shall have the right to deduct as per following rates on prorate basis, from successful bidder's RA bill or any other dues.
22.2.1.1	@ USD 230/- (Two Hundred Thirty) per month for each computer operator or at actual rate +30%, whichever is lower.
22.2.1.2	@ USD 150 /- (One Hundred Fifty) per month for each computer with printer/scanner or at actual rate +30%, whichever is lower.
22.2.1.3	@ USD 185/- (One Hundred Eighty five) per month for each service staff or at actual rate +30%, whichever is lower.
22.2.2	In case BHEL extends the service of computer operator or service staff beyond the aforesaid mandatory period, successful bidder shall extend the service to BHEL, for which BHEL will reimburse following rates.
22.2.2.1	@ USD 230/- (Two Hundred Thirty) per month for each computer operator or at actual rate +30%, whichever is lower.
22.2.2.2	@ USD 185/- (One Hundred Eighty five) per month for each service staff or at actual rate +30%, whichever is lower.
22.2.3	Successful bidder's site office must have facilities of communications like, E-mail, and telephone with STD facility within a month from LOI.
22.3	PROGRESS REPORTING
22.3.1	The bidder shall submit daily, weekly and monthly progress reports for work force, materials reports, consumables (gases/electrodes) report and other reports as per pro-forma considered necessary by the BHEL. In case of any failure on successful bidder's part to comply with this, BHEL may at its discretion, consider to withhold part payment against their RA bills.
22.3.2	The progress report shall indicate the progress achieved against planned with reasons indicating delays, if any, and shall give the remedial actions which 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 the slippages do not accumulate and effect the overall program.
22.3.3	The daily work force reports shall clearly indicate the work force deployed, category-wise specifying also the activities in which they are engaged.
22.3.4	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, successful bidder shall present program of subsequent week. Successful bidder shall constantly update/revise their work program to meet the overall requirement.

22.3.5	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 successful bidder and will be used as a forum for discussing all areas where progress needs to be speeded up. Successful bidder shall be further responsible for ensuring that suitable steps are taken to meet various targets decided upon such meetings.	
22.3.6	Successful bidder has to provide electronic/ computerized storing and re-production/ printing/ plotting of various data, log sheets, protocols, measurements etc. These may be stored in CD (as per requirement) and handed over to BHEL as per requirement.	
22.4	SITE ORGANIZATION	
22.4.1	Successful bidder shall maintain a site organization of adequate strength in respect of manpower, construction machinery and other implements at all time for smooth execution of the contract headed by Site Incharge for site operations with sufficient level of authority to take site decisions. Successful bidder will submit organization chart (showing the name of Site Incharge) with individual bio-data indicating various levels of experts to be posted for supervision in the fields of supervision and execution, quality, material management, planning, safety, etc. The organization shall be reinforced from time to time, as required to make up slippage (if any) from the schedule without any commercial implication to BHEL. The organization chart is to be submitted within 10 days from the date of LOI.	
22.4.2	Following (minimum) engineering manpower with power plant construction background to be deployed at site by successful bidder for proper execution.	
22.4.2.1	Qualified safety officers with assistants (exclusive for safety supervision for project jobs).	As per relevant HSE clause/ manual.
22.4.2.2	For planning function of entire scope of work.	1 no with sufficient experience.
22.4.2.3	For quality inspection function of entire scope.	1 no engineer. 1 no supervisor.
22.4.2.4	Material handling area for follow-up with BHEL for timely putting up material requirement, identification of material for receipt from BHEL store/ storage yard, etc for various systems, ie transformer, busduct, cable tray, vable, switchgear, panel, etc.	1 no engineer. 2 nos supervisor.
22.4.2.5	For transformer, busduct function.	1 no engineer. 1 no supervisor.
22.4.2.6	For cable tray, cabling function.	1 no enigineer. 4 nos supervisors.
22.4.2.7	For switchgear, panel, balance function.	1 no engineer. 2 nos supervisors.
22.4.3	Deputation of above man-power shall be jointly decided at site in line with construction schedule and front availability.	
22.4.4	Engineer/ supervisor for other functions like store & purchase, material management, planning, finance, administration, etc are to be provided as per site requirement and not considered above.	
22.4.5	In the event of non deputation of engineer/ supervisor by the bidder as per above agreed schedule, BHEL shall reserve the right to deduct USD 770 per man-month for engineer, USD 460 per man-month for the supervisor/ safety officer/ safety suprvisor/ chemist from RA bills. Further induction of manpower regarding site supervisor & site engineer will be decided at site as per requirement without any financial implication.	
22.4.6	BHEL reserves the right to reject or approve the list of personnel proposed by	

	successful bidder. The persons whose bio-data have been approved by BHEL will have to be posted at site and deviation in this regard will not be permitted unless specific & reasonable justification is made.
22.4.7	In addition to above, a well experienced qualified engineer to be designated, as 'Project Co-ordinator', shall be deployed by successful bidder. Such engineer shall have adequate exposure on the job and shall remain fully involved in all planning activities, guidance etc to successful bidder's own team during the complete execution period of contract.
22.4.8	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.
22.4.9	Successful bidder should also submit network programs for the erection of various items. These networks shall show BHEL/ customer hold points (CHP), which have to be cleared by BHEL/ customer, or their authorized representatives before further erection can take place. These programs for the erection would clearly identify responsibilities of successful bidder and BHEL/ customer. It is the responsibility of successful bidder to get the networks approved by BHEL within four weeks of the date of finalization of award of work/ placement of LOI.
22.5	CONSTRUCTION MANAGEMENT
22.5.1	Based on the approved program, successful bidder shall submit a program of construction/ erection/ commissioning for the implementation. These programs would be amplified showing start of erection and subsequent activities and shall form the basis for site execution and detail monitoring. The three monthly rolling program with the first month's program being tentative based on the site condition would be prepared based on these programs. Successful bidder shall also be involved along with BHEL/ customer to tie up detailed resources mobilization plan over the period of the contract matching with the performance targets.
22.5.2	The program would be jointly finalized by Site Incharge of successful bidder with BHEL/ customer as well as the site-planning representative. The erection program will also identify sequential events matching financial turnover.
22.5.3	Successful bidder is liable to furnish all documentary evidences towards payment of Works Contract Tax as and when required by BHEL.
23.0	**LAND**
23.1	Land will be provided free of cost by BHEL to the extent available/ considered necessary by BHEL to successful bidder for their office, store & labour colony within plant premises. Availability of land is very limited and successful bidder have to plan & use existing land considering use of land by other civil/ mechanical/ electrical successful bidders and storage of plant machineries & materials. The existing land shall be shared by all agencies deployed by BHEL at site.
23.2	BHEL shall hand over such allotted land to the successful bidder on as is where is condition. Successful bidder shall arrange at his own cost cleaning and grading of area allotted, construction of their temporary office, stores, godown, fabrication yards etc and also the watch & ward, etc as may be required.
23.3	All temporary roads for crane movement shall be constructed and maintained by BHEL.
23.4	Land, as available, may be provided for labour colony outside plant boundary, free of cost. Successful bidder should visit the site to assess site condition regarding feasibility of use of land for the purpose. The successful bidder to construct temporary labour colony/ hutment, toilets as per attached technical specifications and drawings after obtaining approval of formalities from statutory body.
23.5	Successful bidder shall provide adequate no of ~~Indian type~~ toilet in their labour colony.

23.6	On completion of work, all the temporary buildings, structures, pipelines, cables, etc, shall be dismantled & leveled and debris shall be removed as per instruction of BHEL by successful bidder at their cost. In the event of failure to do so, same will be removed and expenditure thereof will be recovered from successful bidder. Decision of BHEL in this regard shall be final & binding. However, the scope of dismantling & leveling the area is limited only to successful bidder's site office, yard and other spaces occupied by successful bidder.
24.0	**WATER**
24.1	BHEL will provide construction as well as potable water at one strategic point within plant premises, free of cost, to the successful bidder for their site office & store.
24.2	Further network for construction & potable water system for construction work shall be arranged by successful bidder at their own cost.
24.3	BHEL shall not be responsible for any inconvenience or delay caused due to any interruption of water supply and successful bidder shall claim no compensation for delay in work for such interruption. Successful bidder may make standby arrangement for water for which no separate payment shall be made by BHEL.
24.4	Successful bidder will have to arrange for storage of water to meet day-to-day requirement.
24.5	Availability of water (construction as well as potable) in project site is limited. Successful bidder shall ensure that no water is wasted and shall take all necessary measures for any wastage & preservation of water. In this context, for proper utilisation & to avoid scarcity, successful bidder shall mandatorily construct storage facility of construction & potable water at site (Near work places). Any deviation from this shall lead to forthwith withdrawal of the facility.
24.6	Construction water, as available, may be provided for labour colony within the project premises free of cost. Successful bidder should visit site before quoting to assess site condition regarding feasibility of use of water source for the purpose. Further network for drinking water system for construction work shall be arranged by successful bidder at their own cost. Successful bidder shall take care of all precautions to avoid any sort of misuse, wastage of water. Any deviation from this shall lead to forthwith withdrawal of this facility.
24.8	Successful bidder shall make their own arrangement of potable water facility for labour colony, at their own cost.
24.9	Bidder to note that no ground water is allowed for construction purpose by the project authority.
25.0	**ELECTRICITY**
25.1	BHEL will provide construction power free of charges at 415 V level at one/ two strategic point(s) within plant premises. Successful bidder shall make their own distribution arrangement to draw electricity. General illumination system shall be provided by BHEL. However, provision of suitable temporary lights at different floors/ working areas for execution of the work & safety of workmen shall be provided by successful bidder, within accepted rate. Illumination should be such that minimum illumination requirement as specified by local statutory body / international standard for general illumination is maintained.
25.2	If any other voltage level (other than normally available) is required, the same shall be arranged by successful bidder from power supply as above. Successful bidder will have to provide at their own cost necessary calibrated energy meters (tamper proof, suitably housed in a weather proof box with lock & key arrangement) at point of power supply along with calibration certificate from authorized/ accredited agency for working out the power consumption. In case of recalibration required for any reason, necessary charges including replacement by calibrated meters is to be borne by successful bidder. Supply of electricity shall be governed by applicable

	Rules & Regulation in Bangladesh. In case of any major deviation from normally accepted norms is observed, BHEL will reserve the right to impose penalty as deemed fit for such cases.
25.3	Successful bidder shall have to provide earth leakage circuit breaker at each point wherever human operated electrical drives/ T&Ps are deployed.
25.4	The power supply will be from the available grid. BHEL shall not be responsible for any inconvenience or delay caused due to any interruption of power supply/ variation in voltage level and no compensation for delay in work can be claimed by the successful bidder due to such non-supply on the grounds of idle labour, machinery or any other grounds.
25.5	Successful bidder shall arrange sufficient illumination at their own work areas.
25.6	Successful bidder should ensure that the work in critical areas is not held up in the event of power breakdown. In the event of breakdown in the electric supply, if the progress of work is hampered, it will be the responsibility of the successful bidder to step up the progress of work after restoration of electric supply so that overall progress of work is not affected.
25.7	Successful bidder has to make arrangement at their own cost for illumination for their working area for execution of the work & safety of workmen.
25.8	Though the construction power is provided free of charge, it is the responsibility of the successful bidder to ensure efficient utilization of electricity. Suitable audit shall be carried out jointly by BHEL & successful bidder on a periodic basis to ensure the same. In case at any point of time it is found that construction power is being used inefficiently or for any other purpose than the intended use, the successful bidder will be suitably penalized as per the provision of the contract. The maximum penalty that can be imposed on the successful bidder shall be limited to one month's electricity charges (as will be obtained from the energy meter point) per incident of inefficient use or misuse.
25.9	The contractor shall have to make arrangement of power, at their own cost, in labor colony. However, BHEL may provide the same on chargeable basis, for which successful bidder has to make necessary arrangements including installation of meter etc.
26.0	**CONSTRUCTION OF TEMPORARY OFFICE, STORES, ETC**
	Successful bidder shall arrange at their own cost cleaning & grading of area allotted, construction of their temporary office, stores, godown, fabrication yards, etc and also watch & ward
27.0	**CONSUMABLE**
27.1	Successful bidder shall provide within accepted rates/ price, all consumables like welding electrodes, cleaning agents, hole closing substance etc as necessary for such work.
27.2	It shall be responsibility of 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.
27.3	BHEL reserve the right to reject use of any consumable, like electrode, gas, lubricant/ special consumables, etc, if it is not found to be of required standard/ make, purity.
27.4	It shall be responsibility of successful bidder to obtain prior approval of BHEL regarding suppliers, type, etc, before procurement of welding electrode, TIG wire. On receipt of electrode at site, these shall be subjected to inspection & approval by BHEL. Successful bidder shall inform BHEL in details regarding type of electrodes, batch no, date of expiry, etc and produce test certificate for each lot/ batch with

	correlation of batch/ lot no with respective test certificate. No electrode will be allowed to be used without valid test certificate.
27.5	Shortage of any of the above electrodes/ filler wire or the equivalent suggested by BHEL shall not be quoted as reason for deficiency in progress or for additional rate.
27.6	All electrodes shall be dried in electrode drying oven to the temperature & period specified by BHEL or as mentioned in WPs before they are used in erection work and each welder should be provided with one portable electrode drying oven at work spot. Electrode drying oven and portable drying ovens shall be provided by successful bidder at their cost.
27.7	The electrode drying oven shall have thermometer for temperature indication. The thermostat and thermometer of oven shall be calibrated before use and also periodically as advised by BHEL and calibration test certificates (from authorised/ Govt approved/ accredited test house traceable to National/ International standards) will be submitted by successful bidder at their cost.
27.8	BHEL reserve the right to reject use of any electrode, filler wire or any other consumable at any stage, if found defective because of bad quality, improper storage, expiry date, unapproved make, etc. It shall be responsibility of successful bidder to replace the same without additional cost & time.
27.9	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 (30% at present). Postponement of such recovery is normally not permitted. Decision of BHEL in this regard is final & binding on the successful bidder.
28.0	**MEASURING AND MONITORING DEVICE (MMD)**
28.1	Successful bidder shall provide within accepted rates/ price, all MMDs as necessary for such work.
28.2	Successful bidder shall ensure deployment of reliable & calibrated MMDs. The MMDs shall have valid calibration certificate from authorized/ Govt approved /NABL accredited agencies. Successful bidder shall also keep provision of alternate engagement for such MMDs so that the work does not suffer when a particular MMD is sent for calibration. Re-testing/ re-calibration shall also be arranged by successful bidder at their own cost at regular interval during the period of use as advised by BHEL.
	In the event of failure of successful bidder to bring necessary and sufficient MMDs, BHEL may arrange for the same at the risk and cost of successful bidder. The entire cost towards this along-with overhead shall be paid by successful bidder or deducted from successful bidder’s bills.
29.0	**TOOLS & PLANTS TO BE PROVIDED BY BHEL**
29.1	T&P as per relevant annexure of this volume of tender will be provided by BHEL to successful bidder free of any charges on sharing basis as per availability. The T&Ps shall be shared by various other successful bidders and successful bidder shall plan his activities accordingly in co-ordination with BHEL site engineers.
29.2	Successful bidder shall ensure that T&Ps provided to them is kept in good running condition, all along its use by them and after use, it is returned to BHEL in good condition. BHEL's decision regarding condition evaluation shall prevail.
29.3	Depending on availability, the cranes may be provided to successful bidder free of any charges. The cranes shall be shared by various other successful bidders and successful bidder shall plan their activities accordingly in co-ordination with BHEL site engineers. Required fuel for crane including mobil, grease, other consumables required for crane operation shall also be provided by BHEL free of charge. 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 successful bidder beyond 8 hours (In single/ multiple operation) in a day (working day/ holidays), successful bidder have to deploy their own operator & helper for crane operation during these extended hours. In case 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 such case, successful bidder has to bear overtime charges of BHEL's crane operator (alongwith helper, if any) as per BHEL's standard charges. BHEL's decision in this regard will be final after judging the proficiency of successful bidder's crane operator.
29.4	Any damage/ breakdown maintenance of T&Ps arising out of improper handling by successful bidder shall be to the account of successful bidder. BHEL reserve the right to repaire the same to its own satisfaction at the cost of successful bidder. During such outage of T&P, BHEL shall not be responsible to provide any alternative. Successful bidder shall arrange for such alternative arrangement at their own cost.
29.5	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 T&P 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 successful bidder.
29.6	In case of any T&P (issued to successful bidder) remain idle without valid reason, BHEL shall withdraw the T&P immediately for allotment to other agency next in priority and no compensation shall be entertained on this account by BHEL.
29.7	The T&Ps will be issued 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.
29.8	In the event of any damage or theft occurring to the issued T&Ps, while in use with successful bidder, due to their negligence, the same shall be repaired/ replaced by 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 any agency and cost alongwith overheads shall be recovered from successful bidder's RA bill.
29.9	The items mentioned in relevant annexure are for general guidance only. Except the referred items, successful bidder has to deploy all other T&Ps required for proper & satisfactory completion of the job.
29.10	Increasing/ shortening of crane boom to suit work requirements shall have to be arranged by successful bidder at their cost. In case of non-availability of T&Ps to be provided by BHEL due to any reason, 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.
29.11	Normal/ schedule maintenance of T&P issued 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.
29.12	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.
29.13	T&P issued shall be used only for designated scope of work as per direction of

	BHEL.
29.14	In the event successful bidder fails to use and/ or maintain BHEL T&P according to BHEL's instructions, BHEL reserve the right to withdraw such T&P 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.
29.15	It shall be responsibility of successful bidder to take delivery of T&P from stores or place of use of T&P by other agencies at project site, transport the same to site and return the same to BHEL store/ place as intimated by BHEL at project site in good working conditions after use.
29.16	EOT CRANE
29.16.1	EOT crane shall be made available to successful bidder in TG hall free of charges for erection purpose as per availability on shared basis. As the operator will be from other agency, successful bidder will do necessary co-ordination.
29.16.2	Availability of EOT crane may be affected from time to time due to routine preventive maintenance or break down maintenance. Successful bidder have to make alternative arrangement or plan/ amend/ alter their actions to suit the above condition and successful bidder will not be entitled to any compensation due to this non-availability of the crane to maintain the schedule.
29.16.3	Services of EOT crane will be provided to other agencies working in power house building or adjacent area as required. Decision of BHEL engineer for allocation of EOT crane will be final. Successful bidder has to make adjustments accordingly.
29.17	It is not obligatory on the part of BHEL to provide any T&P or other materials other than those specifically agreed to do so by BHEL in the tender. However, depending upon availability & job requirement, BHEL/ customer may make available any T&P or other other material to successful bidder on chargeable basis. Hiring charge will be based on standard followed by BHEL/ customer, as applicable. Hire charge will be recovered from successful bidder's RA bills/ security deposit or any other dues in one installment.
30.0	**ISSUE OF T&P**
30.1	In the event of BHEL's issued T&P, measuring instruments, etc, 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. Successful bidder shall not use these equipments for purposes other than the scope of work given in this tender. 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.
30.2	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.
30.3	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 successful bidder from BHEL from this contract or from any other contract.
31.0	**TEST CERTIFICATE FOR T&P**
31.1	All T&Ps, MMDs, lifting tackles and pulling devices, wire rope, slings to be deployed by successful bidder must bear valid/ latest test certificates for their suitability, and the documents shall be preserved at site.
31.2	In case of expiry of validity of any test certificate during construction, successful bidder shall revalidate the same well in advance, so that construction activities do not suffer on account of non-availability of such test certificates.
31.3	Successful bidder shall submit to BHEL for approval a list of T&Ps along with their

	fitness certificates. The T&Ps, MMDs, etc shall not be removed from site without written permission of BHEL.
32.0	**T&P, MMD TO BE PROVIDED BY SUCCESSFUL BIDDER**
32.1	Tentative list of T&P to be deployed by successful bidder for successful completion of work is given in the relevant annexure of this tender.
32.2	It may be noted that the list is not exhaustive and is only for general guidance. Successful bidder shall provide all necessary T&P (other than those specified to be provided by BHEL, if any) MMD, 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 case, successful bidder may have to deploy additional T&P. Accepted rate shall be inclusive of such requirements.
32.3	In the event of any failure on the part of successful bidder progress of work suffers, BHEL, at their discretion may also terminate the contract and take out any or whole amount of contract from the scope of successful bidder. In line with this, in the event of failure of successful bidder to deploy necessary & sufficient T&Ps, BHEL also reserve the right 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, in case progress of work is suffered. Decision of BHEL in this regard will be final & binding on successful bidder.
32.4	Mobilization schedule as mutually agreed at site for major T&Ps, have to be adhered to so as to meet the project requirement. Successful bidder will have to give give advance intimation & certification regarding capacity, etc prior to dispatch of heavy equipments. However, depending on project requirement, availability of inputs, the deployment schedule may be revised/ modified based on mutual agreement betweeb BHEL and successful bidder.
32.5	All T&P and MMDs, which are required for successful and timely execution of work covered under this tender, shall be arranged & provided by successful bidder at his own cost in working condition.
32..6	After completion of major quantum of work as to be agreed by BHEL, successful bidder may be permitted to take out any of his T&P, MMD progressively, if deemed fit by Construction Manager, BHEL based on review of work progress & balance work program. The same will be jointly agreed and recorded. BHEL's decision in this regard will be final & binding on successful bidder.
33.0	**INSURANCE**
33.1	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
33.2	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.
33.3	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.
33.4	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.
34.0	**REPORTING DAMAGES AND CARRYING OUT REPAIRS**
34.1	Checking all components/ equipment at siding/ site and reporting to transport and/ or insurance authorities of any damages/ losses will be in the scope of successful bidder. Necessary assistance for verification/ survey and lodging claims with underwriters and follow up to logical conclusion will also be part of this tender.
34.2	Successful bidder shall render all help to BHEL in inspection including handling, opening packages, re-packing, re-stacking, assessing and preparing estimates for repairs of components damaged during transit, storage, erection, commissioning and preparing estimates for fabrication of materials lost/ damaged during transit, storage and erection. Successful bidder shall help BHEL to furnish all the data required by railways, insurance company or their surveyors.
34.3	Successful bidder shall report to BHEL in writing any lost/ damages to equipment/ components during drawl of the materials from stores, in transit to site and unloading at a place of work and during erection & commissioning. The above report shall be as prescribed by BHEL site. Any consequential loss arising out of noncompliance of this stipulation will be borne by successful bidder.
34.4	Successful bidder shall carry out fabrication of any material lost/ damages as per Instructions from BHEL.
34.5	BHEL, however, reserve the right to award or not to award to successful bidder any of the rectification/ rework/ repairs of damages and also fabrication of components.
34.6	All the repairs/ rectification/ rework of damages and fabrication of materials lost, if any, shall be carried out by a separately identifiable gang for certification of man-hours. Daily log sheets should be maintained for each work separately and be signed by successful bidder's representative & BHEL. Signing of log sheets does not necessarily mean acceptance of these as extra works for payment purpose.
34.7	All rectification, repairs, reworks and fabrication of components lost, which are minor and incidental to erection work (consuming up to 50 man-hours on each occasion) shall be treated as part of work without any extra cost.
34.8	In case the repairs/ rectification/ rework and fabrication of materials lost, the work has been done by more than one agency including successful bidder, payment towards extra charges will be on pro-rata basis and decision of BHEL in this regard is final & binding on the successful bidder.
35.0	**ISSUE & HANDLING, USEAGE, RECONCILIATION, RECOVERY, ETC OF BHEL'S FREE ISSUED EQUIPMENT/ MATERIALS**
35.1	ISSUE & HANDLING
35.1.1	BHEL will issue various equipment/ materials/ items free of cost to successful bidder as per the scope of this tender including BOQ of Volume-III.
35.1.2	Successful bidder shall maintain proper store account for all the BHEL issued materials and shall give requisite copies of monthly computerised reconciliation statement of such account to the BHEL.
35.1.3	Successful bidder shall solely be responsible for the safety & quality of material after it is handed over and issued to successful bidder by BHEL.
35.1.4	BHEL issued materials shall not under any circumstances taken out of the project site unless otherwise permitted by BHEL.
35.1.5	Necessary lifting tackles, cranes, tools & plants including tractors, trailers, trucks,

	pulley blocks, jacks, winches, wire ropes etc, of suitable capacities and other equipments incidental to carry out this work shall have to be arranged by successful bidder within the accepted rates/ price.. BHEL reserve the right to inspect lifting tackles and equipment before allowing their use. Such approval however shall not relieve successful bidder to ensure safe handling of equipment taking precaution to avoid any accident and damage to other equipment and personnel.
35.1.6	Successful bidder shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL/ customer store/ storage yard. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by successful bidder from BHEL/ customer.
35.1.7	Successful bidder shall submit to BHEL, a statement indicating estimated quantity of equipment/ materials required atleast 1 month in advance.
35.1.8	Successful bidder shall ensure that no lamination materials are taken over by them from BHEL. Wastage, if any due to above, shall not be compensated by BHEL.
35.1.9	Successful bidder have to note that all fasteners like MS/ HT/ HSFG bolts/ nuts, lock nuts, washers, etc shall be supplied by successful bidder as per applicable item of price schedule of tender.
35.1.10	Successful bidder to note that steel required for their enabling job like store/ site office, etc shall be arranged at their own cost. ~~Successful bidder shall do the design for its structure just immediately after receipt of TG deck drawing and obtain approval from BHEL.~~
35.2	RETURN
35.2.1	All surplus equipment/ materials issued by BHEL shall be returned by successful bidder to BHEL/ customer store/ storage yard.
35.2.2	Surplus, unused and un-tampered materials shall be sorted and returned separately at a place directed by BHEL within project area; Return of such materials will not be entitled to any handling and incidental charges.
35.2.3	All wastage/ scrap (including wastage, unusable scrap) shall be returned to stores/ designated area and a receipt obtained from BHEL for material accounting purposes. Return of such material will not be entitled to any additional cost due handling and transportation and incidental charge.
35.2.4	Scrap for structural steel shall be returned separately.
35.3	USE AND WASTAGE
	Unless specified otherwise in the tender, following guidelines shall be applicable.
35.3.1	Theoretical consumption of various equipment/ materials shall be based on tender provision/ approved drawing/ guidelines/ mutual agreement with BHEL. No extra shall be payable for any deviation for two different procedures adopted for issue and calculation of the theoretical consumption.
35.3.2	Allowable wastage of the theoretical consumption shall be considered based on tender provision/ approved drawing/ guidelines/ mutual agreement with BHEL. Invisible wastage (loss of materials due to gas cutting, straightening of edges, etc) shall be limited to above specified guidelines and shall be considered for reconciliation purpose. But this invisible wastage shall be considered to be included in allowable wastage.
35.3.3	All wastage shall be returned to BHEL.
35.4	RECONCILIATION
35.4.1	Successful bidder shall submit a reconciliation statement of equipment/ materials issued to him, once in two months. The same may be submitted alongwith RA bill.
35.4.2	Successful bidder shall properly account for the material issued to him as specified herein to the satisfaction of BHEL certifying that the balance material are available with successful bidder's custody at site.
35.4.3	If it is noticed by BHEL that the wastage is high and calls recovery at the penal rate,

	then BHEL will proceed for recovery for the excess wastage as per penal recovery rates as specified from RA bill.	
35.5	RECOVERY	
	If wastage exceeds the specified limit, recovery of excess wastage shall be made from monthly RA bill at the penal rate stipulated tender provision/ approved drawing/ guidelines/ mutual agreement with BHEL.	
36.0	**COMPLETION PERIOD**	
36.1	The entire work under the scope of tender shall be successfully completed in all respect within **18 (Eighteen) months**, from the date of start of work	
36.2	Successful bidder shall arrange to mobilise and start the work within 30 days from the date of intimation by BHEL.	
36.3	The actual date of start of work ~~of each unit~~ will be certified by Construction Manager, after adequate mobilisation of manpower, T&P by successful bidder. This certificate date will be deemed as start of work of respective units at site for purpose of the contract time schedule.	
37.0	**CONSTRUCTION SCHEDULE**	
37.1	Entire work shall be carried out in accordance with the broad project milestone schedule in conjunction with broad schedule of this package as furnished in the tender, within the stipulated completion period. This schedule will undergo review and based on progress vis-à-vis project requirement, successful bidder may have to submit revised schedule for approval of BHEL.	
37.2	Schedule of service of the subject job:	
	Event/ milestone	Schedule (From Start of Work)
37.2.1	Boiler Light Up of U#1 - **(M1)**	Within 4 months
37.2.2	Synchronisation of U#1	Within 8 months
37.2.3	Trial Operation of U#1- **(M2)**	Within 11 months
37.2.4	Completion of related BOP work for Synchronisation of U#2	Within 14 months
37.2.5	Completion of Work	Within 18 months
37.3	Sucessful bidder shall submit detail program identifying equipment & system mandatorily associated with each of aforesaid events/ milestones, to BHEL for approval.	
37.4	Successful bidder shall plan their work in such a manner so as to meet the above construction schedule & project schedule, in consultation with BHEL/ customer. **M1**& **M2 are the intermediate LD milestone. Successful bidder shall submit detailed L1/L2 schedule separately for the package after getting LOI from BHEL and prior to issuance of detailed work order**.	
37.5	Successful bidder shall submit daily work program based on above construction schedule. Deferment of schedule is not acceptable, unless specifically called for by BHEL. Successful bidder will adhere to schedule and resource planning to be augmented to ensure completion as per schedule. Slippage from adheherence to this schedule will attract penalty/ LD as per tender provision.	
37.6	Periodic progress reviews on the entire activities of execution in respect of supply & works in scope of successful bidder will be held once in a month at Kolkata/ site. These meetings will be attended by reasonably higher officials of successful bidder and will be used as a forum for discussing all areas where progress needs to be speeded up. Successful bidder shall be further responsible for ensuring that suitable steps are taken to meet various targets decided upon such meetings. Review fshall be done in applicable BHEL format (F-14 etc) and shall have to be signed jointly by BHEL engineer and site in-charge of vendor. This signed document shall form the basis for furure delay analysis of the project.	

38.0	**CERTIFICATE TOWARDS COMPLETION**
	The work under the scope of successful bidder shall be deemed to have been completed in all respects only when so certified by BHEL/ customer. Decision of BHEL in this regard shall be final and binding on successful bidder.
39.0	**EXTENSION OF COMPLETION PERIOD**
39.1	Successful bidder shall submit detail work program (L-2 schedule) for approval of BHEL, as detailed in construction schedule. The approved schedule will be taken into account as basis for consideration of contract extension as per following detail.
39.2	If the completion of work as detailed in the scope of work gets delayed beyond the contract/ completion period, successful bidder shall request for an extension of the contract and BHEL at its discretion may extend the contract.
39.3	Based on the reviews jointly signed, the works balance at the end of original contract period less the backlog attributable to 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', successful bidder is bound to complete the portion of backlog attributable to successful bidder. Any further 'Time extension' or 'Time extensions' at the end of the previous extension shall be worked out similarly.
39.4	However, if any 'Time extension' is granted to successful bidder to facilitate continuation of work and completion of contract, due to backlog attributable to successful bidder alone, then it shall be without prejudice to the rights of BHEL to impose penalty/ LD for the delays attributable to successful bidder, in addition to any other actions BHEL may wish to take at the risk & cost of successful bidder.
39.5	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 successful bidder as per specified format. Review of the programme and record of shortfall shall be done.
39.6	During the period of 'Time extension', successful bidder shall maintain their resources as per mutually agreed program.
39.7	At the end of total work completion as certified by BHEL, and upon analysis of the 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. The 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 successful bidder.
40.0	**SECURITY DEPOSIT & PERFORMANCE BOND**
40.1	Security deposit shall be applicable as per relevant clause of GCC (Volume-IB).
40.2	Performance bond is not applicable for this tender.
40.3	RELEASE OF SD BG AND FINAL BILL
	In addition to other provisions of tender regarding release of SD and final bill, following provisions shall also be governing to this tender.
40.3.1	For SD BG- further extension beyond date of acceptance of final bill will not be enforced if the following is fulfilled.
40.3.1.1	Successful bidder discharges their responsibility in r/o of submission of final bill along with absolute 'No Demand Certificate' and other documents as detailed below to the satisfaction of BHEL
40.3.1.2	Joint protocol of set of documents as submitted as detailed in below is certified by site & successful bidder's representative.
40.3.1.3	There is no negative value of the final bill (after release of SD BG) - site to certify the same before release of SD BG.

40.3.1.4	Successful bidder has returned the property belonging to BHEL - site to certify the same before release of SD BG.
40.3.1.5	Successful bidder has submitted joint protocol against `Delay analysis', if applicable for delayed execution of job.
40.3.2	List of documents to be submitted & jointly protocoled indicating acceptance of final bill by BHEL.
40.3.2.1	Final bill.
40.3.2.2	Measurement for final bill signed, jointly signed by BHEL & successful bidder's representative.
40.3.2.3	Statement having cumulative joint measurement for the contract, jointly signed by BHEL & successful bidder's representative.
40.3.2.4	Claim by successful bidder for refund of security deposit.
40.3.2.5	Jointly signed material reconciliation statement.
40.3.2.6	Statement of payment received from BHEL – Bill wise (Including RA/ PVC/ ORC/ rate revision/ extra work).
40.3.2.7	No claim certificate by successful bidder.
40.3.2.8	Clearance certificates wherever applicable, viz clearance certificates from customer, various statutory authorities, like Labour Department, PF Authorities, Commercial Department, etc.
40.3.2.9	Notarized Indemnity Bond as per prescribed format.
41.0	**TAXES, DUTIES, ETC**
41.1.0	**IMPORT DUTIES: (Applicable For Bidder From Bangladesh)**
41.1	Bidder may please note that import for the project shall be in the name of our Employer / Owner of the Plant / Project and such import other than Office and Household Equipment shall be exempted from payment of Customs Duty, VAT & Supplementary Duty as per Special Order 373/655 Date: 13/12/2018 of National Board of Revenue, Govt. of Bangladesh. Also Regulatory Duty(RD), Advance Trade VAT(ATV) & AIT are exempted / not applicable. Any documentation needed for availing of Duty Free Imports will be submitted by the bidder in reasonable time having regard to the time for delivery of the work and the time for completion.
41.1.2	However, if any of the taxes as mentioned above are paid by the bidder as per the extant law in force in Bangladesh, the same shall be reimbursed at actuals subject to production of documentary evidence in support of such payment. However, the bidder shall obtain prior approval of BHEL before deposition of such taxes.
41.1.3	Temporarily imported erection materials, machineries and spare parts during construction period of Project are exempted from payment of Customs Duty and VAT. Such items shall be exported within six months from the commercial operation date. Documentation for the same to be submitted / maintained by the bidder.
41.1.4	Any Taxes for exporting material from source country & as applicable in the source country shall be on bidder's account. However, bidder to take into consideration Duty Free Export Provisions in source country, as applicable, including that in GST in case of exports from India. As such, while offering the rates, the bidder may take into account the benefit of above provisions, as the cost of input to the bidder will be net of such taxes and adjust their offer price accordingly to make it more competitive.
41.2.0	**BANGLADESH VAT (Applicable For Bidder From Bangladesh)**

41.2.1	The Bidder shall submit copy of VAT registration Certificate (Musak-8), TIN Certificate, Trade License to the BHEL site office immediately after receiving the Order but before raising the first Tax Invoice against this tender.
41.2.2	The subject job shall be treated as "**Deemed Export"** as per Section **2(62)(b**) of the **Bangladesh VAT and Supplementary Duty Act,2012** read with Rule 18A.of the **Bangladesh VAT and Supplementary Duty Rule,2016** as the payment of the consideration shall be in foreign currency (US Dollar) and through international tender. Accordingly, the subject service/ supply shall be " Zero Rated" VAT.
41.2.3	The successful bidder shall ensure compliance in this regard with the local VAT authorities.
41.2.4	The bidder shall raise Tax Invoice (Challan Patra) as per Rule 16(1) (Musak-6.3) of the Value Added Tax & supplementary Duty Rules, 2016 mentioning Name, Address and VAT Registration Number of BHEL site office.
41.2.5	Bidder shall note that the Tax Invoice complying with Rule 16(1) of the Value Added Tax & supplementary Duty Rules, 2016 must contain the 'Bill to' and 'Ship to' details as below: BHEL Bangladesh VAT Regn. No. 00761853 GM/Construction Manager- BHEL Maitree Site Bharat Heavy Electricals Limited Power Sector Eastern Region, 2x660 MW Maitree Super Thermal Power Project, Moidara Village, Rampal Upazila, Bagerhat District, Bangladesh
41.2.6	The bidder shall submit self-certified copy of the Treasury Challan and / or self-attested copy of the Current Account (Musak-18) along with the Tax Invoice as an evidence of payment of output tax claimed from BHEL.
41.2.7	Bidders shall quote price excluding Bangladesh VAT envisaging VAT exemption on the same. In this connection please note that VAT, if and as applicable, on Bidders Quoted Price and in case BHEL is unable to provide exemption documents shall be payable extra. In such case bidder shall submit self-certified copy of the Treasury Challan and / or self-attested copy of the Current Account (Musak-18) along with the Tax Invoice as an evidence of payment of output tax claimed from BHEL.
41.2.8	**Value Added Tax Deduction at Source: (VDS)**
41.2.8.1	BHEL shall make VDS from Bidder's Gross Bill , if applicable.
41.3.0	**INCOME TAX DEDUCTION AT SOURCE:**
41.3.1	Bidder should have valid 12-digit TIN number in Bangladesh prior to start of work. Advance Income Tax (AIT) under the Income Tax Ordinance,1984(and rules made thereunder) shall be deducted at prevailing rates on Gross Invoice value from the bills unless Exemption Certificate from the appropriate authority/ authorities is/ are furnished under Income Tax Laws of Bangladesh
41.3.2	Payment shall be made in Bangladesh. Bangladesh Income Tax (AIT) shall be deducted, if applicable.
41.3.3	Advance Income Tax (AIT) under the Income Tax Ordinance,1984 (and

	rules made thereunder) shall be deducted at prevailing rates on Gross Invoice value from the bills even supply items are considered under Erection & Services , if applicable.
41.4.0	The Bidder shall carry out their own tax diligence to get acquainted with the relevant rules and regulations of Bangladesh pertaining to the subject job.
41.5.0	Except otherwise mentioned above bidder shall quote their rates/ price inclusive of all taxes, duties, cess, any State or Central Levy, social security contribution and other Taxes in or outside Bangladesh (but excluding Bangladesh VAT & Import Duties) in line with provisions as mentioned above etc. together with variation thereto during contract period including extension, if any. BHEL shall not release any additional payment in this regard.
41.6.0	The bidder is responsible for compliance of all relevant Tax Laws of Bangladesh and all other related places outside Bangladesh in connection with this contract and BHEL will not bear any such liability.
41.7.0	New tax & duties, if imposed subsequent to latest due date of offer submission, as per NIT & TCN, as applicable, by statutory authority after due date of submission of latest price offer and within the contract period including extension, if any (provided reason for extension is not attributable to vendor), shall be reimbursed by BHEL at actual on production of relevant supporting document to the satisfaction of BHEL. However, the vendor shall obtain prior approval from BHEL before depositing new taxes & duties. 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.
41.7.1	**Taxes** **(For Overseas Bidders other than Indian and Bangladesh)**
	Any taxes, duties, Cess etc. in the source country of the bidder shall be on bidder's account. However, the bidder must consider the duty drawback / export incentive in the source country while giving quotations.
41.7.2	**Import in Bangladesh**(Applicable for Indian Bidder and Bidder other than Bidder from Bangladesh)
	Bidder may please note that import for the project shall be in the name of our Employer / Owner of the Plant / Project and such import other than Office and Household Equipment shall be exempted from payment of Customs Duty, VAT & Supplementary Duty as per Letter# 27.00.0000.075.14.124.18/1028, Dated: 15.07.2018 (2) Letter Reference :ft 01/EPC/ Exemption of Duties/Taxes/2018 of Bangladesh-India Friendship Power Company (Pvt.) Limited, Dated: 30.05.2018 & Special Order It 373/655 Date: 13/12/2018. Also Regulatory Duty(RD), Advance Trade VAT(ATV) & AIT are exempted / not applicable. Further, any documentation needed for facilitating the Imports like Bill of Entry, Bill of Lading, Packing List, Certificate of Origin etc. will be submitted by the bidder in reasonable time having regard to the time for delivery of the work and the time for completion.
	However, if any of the taxes as mentioned above are paid by the bidder as per the extant law in force in Bangladesh, the same shall be reimbursed at

	actuals subject to production of documentary evidence in support of such payment. However, the bidder shall obtain prior approval of BHEL before deposition of such taxes.
41.7.3	**(For Indian Bidders) – SERVICE IN BANGLADESH**
41.7.3.1	The Bidder shall submit copy of VAT registration Certificate (Musak-8), TIN Certificate, Trade License to the BHEL site office immediately after receiving the Order but before raising the first Tax Invoice against this tender.
41.7.3.2	For Indian Bidder, payment for supply component of the BBU items whch is exported from India shall be paid in India after due compliance of Bangladesh Income Tax Act. While making payment in India to the Indian Bidder in equivalent INR on the date of payment, Tax Deduction at sourse (TDS) as per Indian Income Tax Act,1961 shall be made. For payment in INR for supplies sourced from India ,payment shall be made in INR based on the conversion rate prevailing on the due date of offer submission or as on the date of payment which ever is lower.
41.7.3.3	Bidders shall quote price excluding Bangladesh VAT envisaging VAT exemption on the same. In this connection please note that VAT, if and as applicable, on Bidders Quoted Price and in case BHEL is unable to provide exemption documents shall be payable extra. In such case bidder shall submit self-certified copy of the Treasury Challan and / or self-attested copy of the Current Account (Musak-18) along with the Tax Invoice as an evidence of payment of output tax claimed from BHEL.
41.7.3.4	Bidder may please note that import for the project shall be in the name of our Employer / Owner of the Plant / Project and such import other than Office and Household Equipment shall be exempted from payment of Customs Duty, VAT & Supplementary Duty as per S.R.O-179/2019/28 dtd. 13-06-2019. Also Regulatory Duty(RD), Advance Trade VAT(ATV) & AIT are exempted / not applicable. Any documentation needed for availing of Duty Free Imports will be submitted by the bidder in reasonable time having regard to the time for delivery of the work and the time for completion.
41.7.3.5	Temporarily imported erection materials, machineries and spare parts during construction period of Project are exempted from payment of Customs Duty and VAT. Such items shall be exported within six months from the commercial operation date. Documentation for the same to be submitted / maintained by the bidder.
41.7.3.6	Any Taxes for exporting material from source country & as applicable in the source country shall be on bidder's account. However, bidder to take into consideration Duty Free Export Provisions in source country, as applicable, including that in GST in case of exports from India. As such, while offering the rates, the bidder may take into account the benefit of above provisions, as the cost of input to the bidder will be net of such taxes and adjust their offer price accordingly to make it more competitive.
41.7.3.7	**Paying Authority - Construction Manager/ General Manager – BHEL – Maitree Site Office** .Bidder shall note that the Tax Invoice complying with Rule 16(1) of the Value Added Tax Rules, 1991 must contain the 'Bill to' and

	'Ship to' details as below: BHEL Bangladesh VAT Regn. No. 00761853 Bharat Heavy Electricals Limited Power Sector Eastern Region, 2x660 MW Maitree Super Thermal Power Project, Moidara Village, Rampal Upazila, Bagerhat District, Bangladesh Consignee – A/C – BIFPCL Ship to – A/C Matree Project Bill to – A/C – BHEL Site Office
42.0	**TERMS OF PAYMENT**
42.1	The contractor shall submit their running bill (RA bill) at site once in a month, at the end of the month, as per billing schedule of this tender. RA bill, complete in all respects accompanied by BHEL engineer's certified/ measurement sheet, jointly signed, will be paid after passing of the bill, subject to completeness & correctness. Measurement will be taken as specified in terms & conditions of the contract and certified by the BHEL engineer of actual work. However, no extra payment shall be made in the event of delay in release of payment.
42.2	Subject to any deduction which BHEL may be authorized to make under the contract, the contractor shall on the certification of the BHEL engineer at site, be entitled to payment explained hereunder.
	For erection,testing & commissioning of various items as described in tender document ,progressive payments shall be made as per the billing break-up (mentioned elsewhere in this volume of tender), on the basis of contract price as per rate schedule (these percentages are only for the purpose of progressive payment & should not be considered as price of individual items and vendor should complete all the works without quoting reference to the billing break up).
42.3	Contractor's RA bill, complete & correct in all respect accompanied with requisite statutory certificates, certified by BHEL engineer, shall be paid within 45 - 60 days of submission of appropriate invoice with all supporting documents. The measurement will be taken by BHEL engineer as per relevant clause of GCC and certify regarding actual work executed in measurement book and bills for work. However, no extra payment shall be made in the event of delay in release of payment beyond the stated day.
42.5.5	Each RA bill shall accompany with latest agreed & jointly signed L-3/ construction schedule, as enumerated in this tender.
42.6	All admissible recovery/ adjustment, etc shall be made from interim payable amount.
42.7	BHEL site at its discretion may split up percentage break up given in Sl.no.43.0 and effect payment to suit the site condition, cash flow requirement, according to the progress of work.
43.0	**BILLING BREAKUP**
43.1	Ninty (90%) percent payment on pro-rata basis for the work completed as per billing schedule (detailed below) shall be released as progressive payment by the site authorities, on submission of protocols duly signed by BHEL site official (s) / Owner. BHEL at their descretion may further split up the above percentage and effect monthly payment in consideration of site conditions, flow requirement etc. during site execution.
43.1.1	Out of above 90%, 1.5 % of gross bill amount shall be paid in the following manner on certification by BHEL engineer after compliance of each of following activity in each month. In case of non-fulfilment of respective activity by contractor 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 will be entertained by BHEL.		
43.1.2	0.7 % shall be paid on compliance of house keeping of contractor's working area and store/ office areas.		
43.1.3	0.3 % shall be paid on compliance of general illumination of contractor's working area and stores, office area.		
43.1.4	0.2 % shall be paid on compliance of applicable OHSAS requirement as per guidelines of BHEL/ PSER and as specified in the tender.		
43.1.5	0.3 % shall be paid on compliance of applicable safety requirement as per guidelines of BHEL/ PSER and as specified in the tender.		
43.2	Balance ten percent (10%) of the total value shall be released by the site authorities, as per following break up -		
43.2.1	5% on successful completion of Trial Run of Unit#1		
43.2.2	Balance five per cent (5%) of the contract price shall be released on i) successful commissioning and readiness of electrical system as per scope of the contract ii) submission of As built drawing, iii) material re-conciliation, iv) liquidation of pending points, v) handing over of the Package. In case, any of the above activities is delayed due to reasons not attributable to the contractor for a period of more than 6 months, this 5% may be released on submission of separate BG as per performance bank guarantee format of equivalent amount valid till completion of all the above noted activities ~~Guarantee / warranty period~~. However, contractor shall comply with all formalities required for final billing / contract closing before drawing the last payment.		
Billing schedule for 90% above (Cl. 43.1), is as given below -			
Sl No.	Description of activity	IN % OF QUOTED UNIT RATE	Reference item no of Volume-III
A	**CABLE TRAY WITH ACCESSORIES/ TRAY FIXING MATL. & SUPPORTING STRUCTURES ,TRAY COVERS, IRREGULAR BENDS ETC**		Sch-3 - Sl No. A,B,C, D.1,D.2,AE.1,AE. 2,X.5
(i)	FABRICATION AND ERECTION COMPLETE AS APPLICABLE IN ALL RESPECT.	70%	
(ii)	FINAL PAINTING AND MARKING OF TRAY NOS.	20%	
B	**CABLE LAYING**		Sch-3 - Sl No.F
(i)	LAYING OF CABLES	75%	
(ii)	DRESSING & CLAMPING	15%	
C	**CABLE TERMINATION / STRAIGHT THROUGH JOINTING**		Sch-3 - Sl No.G
(i)	TERMINATION	70%	
(ii)	TESTING OF CONNECTED EQUIPMENTS / SYSTEM	20%	
D	**EARTHING / LIGHTNING PROTECTION**		Sch-3 - Sl No.H
(i)	INSTALLATION,WELDING,PAINTING	70%	
(ii)	CONNECTION TO EQUIPMENT & GRID	20%	
E	**CONDUITS / PIPES**		Sch-3 - Sl No.E
(i)	LAYING OF CONDUIT/PIPE COMPLETE IN ALL RESPECT	90%	
F	**HT MOTORS/LT MOTORS/ACTUATORS /MISC EQUIPMENT(COMMISSIONING ONLY)**		Sch-3 - Sl No.11.0,12.0,13. 0 of L,

			Sl No.13.0 to 24.0 of M, Sl No.14.0 of Z.1, Sl No.X.1 & X.2
(i)	TESTING, PRE COMMISSIONING OF INDIVIDUAL ITEMS	50%	
(ii)	COMMISSIOINING OF INDIVIDUAL ITEM	40%	
G	**INSERT PLATES, ANCHOR FASTENERS(SUPPLY INCLUDED) ,CHEQUERED PLATES, CANOPY, BASE FRAMES ETC**		Sch-3 - Sl No.X.6,X.7,X.8
(i)	FABRICATION AND ERECTION	70%	
(ii)	PAINTING AS APPLICABLE	20%	
H	**SWITCH GEAR, MCC, PCC, CONTROL PANELS/ DESK, OTHER PANELS, PUSH BUTTON STATIONS, BATTERY, BATTERY CHARGER, DISTRIBUTION BOARD, COMPUTER, PRINTER, JUNCTION BOX, MARSHALLING BOX , STARTER UNIT, MISC EQUIPMENTS ETC.**		Sch-3 - Sl No.J,K, Sl No.1.0 to 10.0 of L, Sl No.1.0 to 12.0 of M, Sl No. N, Sl No.O, Sl No.P, Sl No.X3 & X4,X.13
i)	PLACEMENT, ALIGNMENT & COUPLING AS APPLICABLE	50%	
(ii)	PRE-COMMISSIONING CHECKS, TESTING	20%	
(iii)	CHARGING	20%	
I	**SUPPLY OF RUBBER MAT / DISPLAY BOARD/moisture sealing compound/cable Lug/Cable gland/galvanized MS conduit/ Cable gland adaptor/cable gland hole plug/paint/Cable straight through jointing kit.**		Sch-4
i)	On completion of Supply	80%	
ii)	on laying/installation of material/item	10%	
J	**INSTALLATION OF RUBBER MAT / DISPLAY BOARD/moisture sealing compound/ Cable gland adaptor/ cable gland hole plug.**		Sch-3 - Sl No.X.9,X.10,X.11 ,X.12
(i)	On completion of installation	90%	
K	**CIVIL WORKS**		Sch-3 - Sl No.I
(i)	Prorata on completion of actual work	90%	
L	**OIL FILLED TRANSFORMERS**		
L.1	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)		Sch-3 - Sl no.1.0(b),2.0(b),3.0,4.0(b),5.0(b),6.0(b),7.0(b),8.0(b),9.0(b),10.0(b),11.0(b),12.0(b),13.0(b),of Sl No.Z.1 and Sl no.1.0 to 7.0 of Sl No.Z.2
i)	Placement on foundation and alignment.	35%	
ii)	Fixing, fitting, of piping,hydraulic test of radiator banks, erection of allied items / associated auxiliaries including filling of pre-treated, tested oil as applicable	20%	
iii)	Completion of dry out of transformer including Oil filteration complete.	10%	
iv)	Pre-commissioning checks & tests	15%	
v)	Charging	10%	
L.2	UNLOADING AND/OR SHIFTING(if required) as applicable, to TRANSFORMER FOUNDATION FOR ERECTION PURPOSE		Sch-3 - Sl no.1.0(a),2.0(a),4

			.0(a),5.0(a),6.0(a),7.0(a),8.0(a),9.0(a),10.0(a),11.0(a),12.0(a),13.0(a) of Sl No.Z.1
i)	Completion of above noted activities	90%	
M	**DRY TYPE TRANSFORMER, NGR, MISC EQUIPMENTS ETC.**		Sch-3 - Sl No.Z.3
i)	PLACEMENT, ALIGNMENT & COUPLING AS APPLICABLE	70%	
ii)	PRE-COMMISSIONING CHECKS, TESTING	10%	
iii)	CHARGING	10%	
N	**BUS DUCTS (ISOLATED PHASE B/D AND SEGREGATED PHASE B/D)**		Sch-3 - Sl No.ZA.1,ZA.2
(i)	Pre-assembly of Bus ducts and accessories, pre-alignment, erection with proper leveling and alignment, including welding etc.	65%	
(ii)	Pre-commissioning checks & tests & charging	15%	
iii)	Charging	10%	
O	**LT BUS DUCTS**		Sch-3 - Sl No.ZA.3
(i)	Pre-assembly of Bus Ducts and accessories, pre-alignment, erection with proper levelling and alignment, including welding etc.	70%	
(ii)	Pre - commissioning checks/testing & charging .	10%	
iii)	Charging	10%	
P	**DG SET**		Sch-3 - Sl no.ZB
(i)	Placement and alignment of DG set on Foundation	45%	
(ii)	Erection of associated accessories viz. package piping, cabling, insulation etc. as applicable.	25%	
(iii)	Pre-commissioning checks/testing	10%	
(iv)	Charging and putting DG set on trial operation	10%	
Q	**SUPPORT STRUCTURE (FOR BUS DUCT, DG SET ETC)**		Sch-3 - Sl No.ZC
(i)	Assembly of structure, as applicable	25%	
(ii)	Placement, alignment & welding of structures as applicable.	65%	
R	**GENERATOR CIRCUIT BREAKER (GCB)**		Sch-3 - Sl No.Y
(i)	Placement and alignment of GCB on Foundation alongwith installation/fittings of associated items including loose items, internal wiring etc.	60%	
(ii)	Pre-commissioning checks/testing	20%	
(iii)	Charging	10%	
44.0	**RETENTION AMOUNT**		
44.1	Shall be as per as per terms of payment/ billing schedule of this volume.		
45.0	**INTEREST BEARING RECOVERABLE ADVANCE/MOBILISATION ADVANCE**		
	Not applicable for this tender.		
46.0	**OVER RUN CHARGE (ORC)**		
	Not applicable for this tender.		
47.0	**REVISION ON ACCEPTED CONTRACT RATE**		
	Not applicable in this tender.		
48.0	**PRICE VARIATION CLAUSE/ ESCALATION (PVC)** Not applicable for this tender.		
49.0	**EXTRA/ ADDITIONAL ITEMS OF WORK**		
	Shall be as applicable as per GCC.		
50.0	**LIQUIDATED DAMAGE**		
47.1	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, including taxes, duties, etc., for delay of each week or part thereof.
47.2	**INTERMEDIATE LD**
47.2.1	Intermediate LD milestones **(M1 & M2)** have been defined as per **clause no. 37.0**. In case of slippages of these milestones, delay analysis shall be carried out on achievement of each of these two intermediate milestone.
47.2.2	In case delay in achieving M1 Milestone is solely attributable to the contractor, 0.5% per week of executable contract value*, limited to maximum 2% of executable contract value, will be withheld.
47.2.3	In case delay in achieving M2 Milestone is solely attributable to the contractor, 0.5% per week of executable contract value*, limited to maximum 3% of executable contract value, will be withheld.
47.2.4	Amount already withheld, if any against slippage of M1 milestone, shall be released only if there is no delay attributable to contractor in achievement of M2 Milestone.
47.2.5	Amount required to be withheld on account of slippage of identified intermediate milestone(s) shall be withheld out of respective milestone payment (if any) and balance amount (if any) shall be withheld @10% of RA Bill amount from subsequent RA bills.
47.2.6	Final deduction towards LD (if applicable), on account of delay attributable to contractor shall be based on final delay analysis on completion / closure of contract. Withheld amount, if any due to slippage of identified intermediate milestone(s) shall be adjusted against LD or released as the case may be.
47.2.7	In case of termination of contract due to any reason attributable to contractor before completion of work, the amount already withheld against slippage of intermediate milestones shall not be released and be converted into recovery.
47.2.8	* ***Executable Contract Value*** *- Value of work for which inputs/ fronts were made available to contractor and were scheduled for execution till the date of achievement of that milestone*
47.3	The total liability for delay shall not in any case exceed 10 % (Ten percent) of the contract price, including taxes, duties, etc. Contract price for this purpose, shall be the final executed value exclusive of ORC, extra work executed, supplementary/ additional items and PVC.
47.4	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.
47.5	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.
47.6	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.
47.7	The successful bidder shall continue with performance of the order/ contract under all circumstances, to the extent not cancelled.
47.8	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.
47.9	Other provision shall be as per the GCC.

51.0	**GUARANTEE**
51.1	Even though the work will be carried out under supervision of BHEL, successful bidder will be responsible for the quality of workmanship, quality of materials/ items and design for which successful bidder is responsible.
51.2	Successful bidder shall guarantee the work executed under the scope of the contract for a period of 24 (Twenty-Four) months from the date of start of guarantee period as certified by the engineer (ie on completion of total work under scope and/ or taking over by BHEL/ owner) and shall rectify free of cost all defects due to faulty supply or work done. In case successful bidder 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 successful bidder's risk and cost without prejudice to any other rights and recover the same from security deposit/ other dues.
51.3	The guarantee period will commence from the date of handing over of electrical system under scope of this contract ~~of respective unit~~ to customer or six months after completion of full load operation of ~~respective~~ unit, whichever is earlier, provided all erection, testing and commissioning works are completed in all respect for the ~~respective~~ unit.
51.4	Other provision shall be as per the GCC.
52.0	**CUSTOM CLEARANCE**
52.1	The successful bidder shall be responsible for Bangladesh customs clearance of all materials, supplies, equipment, tools and other articles shipped into Bangladesh by him for the implementation of his works, including the food and the personal effects of the Successful bidder's personnel.
52.2	All payment for clearance charge, storage charge, etc. which are imposed by the relevant agencies of the Government of Bangladesh, relating to the clearance of equipment, materials and Plant that will be incorporated in the Permanent Works or relating to the Temporary Works shall be borne by the Successful bidder. Further, if the Successful bidder is delayed in submitting necessary shipping documents to the Employer, the demurrage charges by the Port Authority will be borne by the Successful bidder.
52.3	Tools and equipment and other equipment of the Successful bidder for use during construction but which are to remain the property of the Successful bidder and which are to be exported by the successful bidder from Bangladesh at the completion of the Work shall be carefully documented and specially listed to facilitate both import and export. The Successful bidder shall determine prior to shipment the customs regulations applicable to this special case as well as normal import rules and regulations applicable. The Successful bidder shall also be responsible for inland transport by barge/ truck/train to the Site.
53.0	**IDENTIFICATION OF CONTRACTOR'S EMPLOYEES, VEHICLES AND BUILDINGS**
53.1	The Contractor shall provide each of his employees and his Subcontractor's employees with a name tag bearing the picture, the name or initials of the employee, a serial number and the name of the Contractor. Each employee shall wear his badge visibly to the security personnel at any time.
53.2	All vehicles and large equipment furnished and used by the Contractor or his Subcontractors on the Work shall be clearly marked with the Contractor's or Subcontractor's business name. The Contractor's offices, stores, depots and

	other facilities shall also be clearly identified. The detailed requirements are defined in the Safety Health and Environmental (SHE) Plan to be provided by the Contractor.
53.3	The Contractor shall be liable for and shall provide all aspects of security and security measures for the Site, Employer's site offices and Employer's living accommodation, including guard services, transfer organizations and transport etc.
53.4	Around-the-clock security presence and operational routine shall be maintained throughout the year. Passes and temporary identification permits shall be issued and examined and access to any part of the Site, the site offices and living accommodation shall be controlled and limited to those who have an authorization.
54.0	**EXPATRIATE PERSONNEL**
54.1	The Contractor shall submit to BHEL / Employer data of all personnel he intends to bring into Bangladesh for the performance of the Work. This data shall include the name and present address of each person, his intended assignment and responsibility in connection with the Work and a concise resume of his experience in the type of work to which he will be assigned. This data shall be submitted to the BHEL / Employer at least thirty (30) days prior to their expected arrival in Bangladesh.
54.2	Any expense associated with illness of the Contractor's personnel, including replacement thereof, shall be to the Contractor's account.
54.3	Costs of passports, visas, travel documents, inoculations and other incidental expenses incurred by the Contractor's non-Bangladesh employees and their dependents occasioned by travel to and from Bangladesh shall be borne by the Contractor.
54.4	All accommodations and amenities for the Contractor's personnel and families (including all staff and labour) must be provided by the Contractor, and BHEL / Employer shall not have any liability for the same.
55.0	**BANK DETAILS**
55.1	EMD, Tender cost, & Security Deposit amount, as applicable, can also be submitted directly by Foreign Bidders (other than Indian bidders) to the followings Bharat Heavy Electricals Limited bank account in Bangladesh- SBI (Branch Address): Dr. Motiar Rahman Tower, 64 KDA Avenue, Tetultola Mor, Shibbari Khulna City Corporation, Khulna-9100. Phone: 88-041-721338 (Direct), 88-041-2831345 Ext. 102 Cell: 8801716-138627, Fax: 88-041-733350. A/C No (USD): **05620257520202** A/C No (BDT): **:05620257520201** SWIFT: **SBINBDDH056**

	ROUTING NO: **220471543** BHEL's address in Bank A/c- Bharat Heavy Electricals Ltd., Rampal, Bagerhat, Bangladesh.
55.2	EMD, Tender cost, & Security Deposit amount, as applicable, can also be submitted directly by Indian Bidders to the followings Bharat Heavy Electricals Limited bank account in India- 1. SBI (Branch Address:-Commercial Branch, Salt Lake, Sector V, Kolkata, Branch Code SBIN0004289), A/C No. 11107800029, INR Account.
56.0	**LAWS AND REGULATIONS**
56.1	The Successful bidder agrees and acknowledges that:
56.1.1	He and their respective employees, servants, consultants and agents abide by all Applicable Law, (i) relating to the performance of the Work; (ii) by all rules and regulations of those Governmental Authorities who have control or jurisdiction over the Site or the countries where the Successful bidder may reside or perform work, directly or indirectly under this Contract (including the timely payment of any and all fees, assessments, or other governmental charges and registrations with relevant agencies or other Governmental Authorities required in connection therewith) and; (iii) with the terms and conditions of any Authorizations.
56.1.2	Successful bidder represents that it is fully aware of all of the Applicable Laws, terms and conditions of any Authorizations, business practices and plant rules and regulations which must be complied with when performing the Work.
56.1.3	Successful bidder shall furnish to Employer and Engineer, promptly upon request, such information concerning Successful bidder, their respective employees, consultants, servants and agents as the Employer or Engineer may be required to furnish to any applicable Governmental Authority.
56.2	Without prejudice to the generality of the foregoing:
56.2.1	The Successful bidder shall observe, comply with and respect Bangladesh laws, rules and regulations and shall not interfere with Bangladesh political or religious affairs either directly or indirectly.
56.2.2	The Successful bidder shall comply with such other rules and regulations as Employer and the Engineer may establish from time to time with respect to the construction work and personnel employed by the Successful bidders provided such rules and regulations shall not modify any of the Contract.
56.2.3	The Successful bidder shall, in all dealings with its labor, pay due regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulations pertaining to the employment of labor.
56.2.4	The Successful bidder shall not give or barter or otherwise dispose of, to any person or persons, any arms or ammunition of any kind, or permit the same as aforesaid.
56.2.5	In the event of any outbreak of illness of an epidemic nature the Successful bidder shall comply with and carry out such regulations, orders and requirements as may be made by the Government of the People's Republic of Bangladesh or the local medical or sanitary authorities, for the purpose of

	dealing with and overcoming the same.
56.3	**Compliance**
56.3.1	Successful bidder shall ensure that its employees, servants, consultants and agents abide by all Applicable Law, relating to the performance of the Work and by all rules and regulations of those Governmental Authorities and persons who have control or jurisdiction over the Site (including the timely payment of any and all fees, assessments, or other governmental charges and registrations with relevant agencies or other Governmental Authorities required in connection therewith) and with the terms and conditions of any Authorizations.
56.3.2	Successful bidder represents that it is fully aware of all of the Applicable Laws, terms and conditions of the Authorizations, consents, business practices and plant rules and regulations which must be complied with when performing the Work.
56.3.3	Successful bidder shall furnish to the BHEL / Employer, promptly upon request, such information concerning its employees, consultants, servants and agents as BHEL / Employer may be required to furnish to any applicable Governmental Authorities.
56.4	**Related Compliance Obligations**
56.4.1	The Successful bidder shall Take all reasonable care that the Work is performed with the minimum possible impact on the environment and local community in respect of land and occupants affected by or adjacent to the Work.
56.4.2	The Successful bidder shall have responsibility prior to Provisional Acceptance Certificate for administration and co-ordination with the Governmental Authorities, as necessary, of any testing or the taking of any other action necessary to demonstrate the Work's compliance with all Applicable Laws, as well as the Authorizations, Consents, as maybe required for or issued in connection with the development, construction, erection and operation of the Works.
56.4.3	The Successful bidder shall provide BHEL / Employer with a copy of all communications with any such authorities and at least five (5) days prior written notice to BHEL / Employer in respect of any meeting with any such authorities (with Successful bidder responsible for obtaining all necessary permissions for the attendance of a representative of BHEL / Employer at any such meeting).
56.4.4	The Successful bidder shall carry out its obligations under this Contract so as not to cause or contribute to any breach by, or violation of, Employer of any Applicable Law, consent or Authorization.
56.5	**Permits and Licenses**
56.5.1	Successful bidder shall obtain and maintain all consents, permits and licenses **("Consent")** which are required by Applicable Law for the performance of the Work and to allow Successful bidder to perform and complete the Work in accordance with the Contract Schedule (irrespective of whether the same are required to be procured in the name of Successful bidder or Employer), other than the Authorizations.
56.5.2	Specifically, where an Consent by its very nature can only be procured by the Employer (BIFPCL), the Employer shall at the Successful bidder's

	request, execute such documents and complete such formalities as are necessary for presentment of the application or other Consent related documents to the relevant Governmental Authority or other person. However, the foregoing shall in no circumstances be construed as (i) relieving the Successful bidder from his obligations under Clause 23.3.1 for which he shall remain primarily and fully responsible, or (ii) as imposing any responsibility on the Employer in respect of procurement of consents/ licenses/ approvals/ permits other than the Authorizations.
56.5.3	If requested by Successful bidder, BHEL / Employer shall provide reasonable assistance to Successful bidder in obtaining and maintaining such Consents. Successful bidder shall not be entitled to any adjustment to the Contract Schedule or the Contract Price or any other terms of this Contract relating to any delay or failure to obtain or maintain any such Consents. Employer /BHEL will provide reasonable assistance to the Successful bidder for obtaining any required authorization and export licenses for exporting tolls, equipment, test equipment, and other Successful bidder's Equipment, all of which are and remain the property of the Successful bidder, from Bangladesh at the conclusion of the Work.
56.6	**SUCCESSFUL BIDDER'S RESPONSIBILITY TO GET ACQUAINTED WITH BANGLADESH LAWS, IMPORT POLICY, ETC.**
	The Successful bidder shall get himself acquainted with the relevant Bangladesh Laws as well as the import policy of the Government of People's Republic of Bangladesh remaining in force regarding import of banned items, if any, during the execution of the Contract. In case of import of any banned items and/or contraband item, the consequential liability shall rest with the Successful bidder. Similarly the Successful bidder shall be responsible for any non-conformance of Bangladesh Laws either by its own employees during execution of the Contract.
57.0	**CONTRACT PRICE**
57.1	Bidder shall quote their price as per the format of Volume-III, price schedule (Latest revision) only. The total price quoted in price schedule ,Volume-III,shall be considered for evaluation & awarding.
57.2	Quantities of various items mentioned in the respective Price schedules, Volume-III are approximate, based on very preliminary information and may vary to any extent or to be deleted altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of the work executed under any part of this contract including extra items, if any, remains within +/- 15 % (plus/ minus fifteen percent) of the awarded price (as per LOI/ WO).
57.3	Accepted unit rates for each SWGR/ panel shall remain firm regardless of any change in width, height, type, weight or other parameter (except length), as furnished in tender. For variation in length, adjustment to accepted rate of SWGR/ panel shall be based on following modality. Decision of BHEL shall be final & binding on bidder.
57.3.1	For variation in length within +/- 15% of SWGR/ panel, accepted unit rates shall remain firm.
57.3.2	For variation in length of SWGR/ panel beyond +/- 15% of specified length, wherever indicated in the tender, rate of unit length of variation shall be arrived by

	dividing the item rate by length as indicated in tender and rate/ price adjustment for payment during execution for length excess/ shortage over & above the +/- 15 % variation of indicated length shall be done accordingly on the following basis.
57.3.3	Based on above, if actual length exceeds variation limit, accepted unit rates will undergo change for the portion beyond 1.15/ 0.85 times of indicated length, additional payment/ recovery will be effected by BHEL in the following manner.
57.3.3.1	Length of SWGR/ panel as indicated in tender = A.
57.3.3.2	Accepted unit rate for SWGR/ panel = Rs B.
57.3.3.3	Rate per unit length (L) to be considered for the purpose of additional payment/ recovery for variation in length = Rs B/A = Rs C.
57.3.3.4	Actual length of the SWGR/ panel = D.
57.3.3.5	Additional payment/ recovery in unit rate for variation of lingth beyond length (1.15A/ 0.85A) = (D-1.15A)/ (0.85A-D) x C.
57.4	Applicability of new size of cable tray, cable, etc for a project of such magnitude may be inevitable. To derive rates of such new items of installation of cable tray, laying of cable, cable termination, etc, which are not covererd in BOQ of Volume-III, following guidelines shall be applicable for this tender. Decision of BHEL shall be final & binding on bidder.
57.4.1	For new size cable tray, width of cable tray will be taken into reference and rate of installation of cable tray of nearest width will be pro-rated to derive the rate for installation of new cable tray.
57.4.2	To derive the rate for laying of new size cable, OD of cable will be taken into reference and rate of laying of cable of nearest lower OD will be pro-rated to derive the rate for laying of for new cable.
57.4.3	Rate for termination of new size cable and other items will be derived based on mutually agreed modality and on approval of BHEL.
58.0	**OTHER TERMS**
58.1	The contractor shall provide signed *'Certificate of Declaration for Confirming the Knowledge of Site Conditions, Laws and Regulations'* as per attached format on its letter head along with the offer.
58.2	Applicable Law or Law with respect to any person, shall mean any law, legislation, statute, act, by-laws, rule, regulation, ordinance, order, decree, protocol, notification, policy, by-law, administrative guideline, ruling, instruction, directive, code, requirement, consent, license, approval, permit, judgment, court order, treaty or any interpretation thereof by any Governmental Authority or person acting under the authority of any Government Authority and / or of any statutory authority, whether in effect as on the Contract Date or thereafter, as applicable to such person.
58.3	Customer shall mean the Bangladesh –India Friendship Power Company (Pvt.) Limited (BIFPCL), having its office at Level 17, Barak Unique Height, 117, Kai Nazrul Isam Avenue, Eskaton Garden, Dhaka, Pin 1217, Bangladesh.
58.4	Engineer or Consultant shall mean M/s. FICHTNER GmbH & Co. KG, Stuttgart, Germany or such other engineer or consultant, as may be appointed from time to time by Customer and who is acting on behalf of Customer as Engineer for the purpose of the Contract with Customer and includes such other person (if any) to who the Engineer's authority may have been lawfully delegated pursuant to the Contract with Customer.
58.5	Governmental Authority shall mean, in respect of a country, the government (Central, State and local) or any ministry, directorate, department or political sub division thereof and any person exercising executive, legislative, judicial, regulatory or administrative functions of or pertaining to government or law or any other governmental entity, instrumentality, agency, authority, corporation, committee or

	commission under the direct or indirect control of any such government.
58.6	Site means the Project Site at Rampal, District Bagerhat, Bangladesh, all off-site and lay down areas, jetty, intake water system, ash dyke and other locations where all or any part of the work is to be executed under the scope of work of BHEL in accordance with the Contract with Customer.
58.7	The Contractor shall provide and employ in connection with the execution of the Works :
58.7.1	Only such technical assistants as are skilled and experienced in their respective trades and such sub-agents, foremen and leading hands as are competent to give proper supervision to the Work they are required to supervise.
58.7.2	Such skilled, semi-skilled and unskilled labour as is necessary for the proper and timely execution of the Works. To the extent possible, the Contractor shall deploy unskilled labour from the local populations.
58.7.3	Child Labour: The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development in compliance with the applicable labor laws and other relevant treaties ratified by the government.
58.7.4	Working Time: No work shall be done on legal Bangladesh holidays or at times other than the regularly established working hours without the written approval of BHEL/ Owner (BIFPCL) and/ or Engineer (Fichtner), which shall not be unreasonably withheld. However, work necessary in case of emergencies or for the proper case, receipt, unloading, transporting, maintenance, and protection of equipment or finished work may be done without prior approval. This requirement shall not preclude the Contractor's use of scheduled overtime work and such work may be established by the Contractor, as a regular procedure, with the written permission of BHEL/ Owner (BIFPCL) and/ or Engineer (Fichtner); such permission, however, may be revoked at any time by BHEL/ Owner (BIFPCL) and/ or Engineer (Fichtner) if the Contractor fails to maintain adequate equipment and supervision for proper execution and control of the Work and all operations performed there under.
58.7.5	The Contractor shall comply with all applicable relevant labour Laws including the Bangladesh Labour Act 2006 and the Bangladesh Labour Rules 2015 to the Contractor’s personnel relating to their employment, health, safety, welfare, immigration and shall allow them all their legal rights.
58.7.6	The Contractor shall be responsible for obtaining all necessary permits(s) and /or visa(s) from the relevant Governmental Authorities for the entry and deployment of employees, representatives, labour, consultants and other personnel to be employed on the Site into the country where the Site is located, and otherwise for ensuring all due compliance with Applicable Laws with respect thereto.
58.7.7	The contractor shall arrange passports for all his employees, representatives, labour, consultants and other personnel. BHEL will assist Contractor for issue of Visa including multi-entry visa and other permits as per requirement for the job/Work. However, the Contractor shall arrange for attestation of certificates and other documents required for travel arrangements, medical test as applicable and comply with other formalities. All expenses for all these activaties will be borne by the Contractor.
58.7.8	It shall be the responsibility of the Contractor to pay wages/ salaries and other benefits to its employees / personnel engaged by it as per the agreement with them, and in keeping in line with the Local laws in Bangladesh. The Contractor shall submit the Construction Manager, BHEL Maitree Project, Bangladesh regularly, the details / Statement of wages/ salaries and other benefits paid to its employees /

	personnel in India /Back home, besides wages / salaries and other benefits paid in Bangladesh.
58.7.9	The Contractor, in particular, shall provide proper accommodation to his labourers and arrange proper water supply, conservancy and sanitation arrangements at the site for all necessary hygienic requirements and for the prevention of epidemics in accordance with relevant regulations, rules and orders of the government.
58.7.10	The Contractor, further in particular, shall pay applicable wages to his labourers, and pay them in time. In the event of delay in payment BHEL may effect payments to the labourers and recover the cost from the Contractor.
58.7.11	The Contractor shall at all times during the progress of the Contract use its best endeavour to prevent any unlawful, riotous or disorderly conduct or behaviour by or amongst its employees, representatives, labour, consultants and other personnel.
58.7.12	The Customer and / or Engineer or BHEL after notifying and discussion with the Contractor, be entitled to object to and require the Contractor to remove forthwith from the Work any person employed by the Contractor in or about the execution of the Work who in the opinion of the Customer and / or Engineer or BHEL misconduct himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered by the Employer and / or Engineer to be undesirable and such person shall not be again employed upon the Work without the written permission of the Customer and / or Engineer or BHEL. Any person so removed form the Work shall be replaced immediately by a competent substitute approved by Customer and / or Engineer or BHEL.
58.7.13	All employees or representatives engaged by the Contractor in connection with the performance of the Contract shall be under the complete control of the Contractor and shall not be deemed to be employees of the BHEL or Customer, and nothing contained in the Contract shall construed to create any contractual relationship between any such employees, representatives and BHEL or Customer.
58.8	Indemnification: Contractor shall protect, defend, indemnify and hold the Customer, the Engineer, BHEL (and their respective officers, directors, employees, servants or agents) (the “Indemnified Persons”) harmless from and against:
58.8.1	Any and all Losses arising directly or indirectly from or incurred by reason of the acts or omissions of any of Contractor or any of their respective officers, directors, employees, servants or agents in the performance of Contractor’s obligations under the Contract, without limitation, whether or not resulting from any defect in or condition of the premises on which the Work is or is to be performed or any equipment thereon, including any such Losses arising from injury to or death or damage to or loss of property.
58.8.2	Any and all Losses arising directly or indirectly from or incurred by reason of claims or sanctions or penalties imposed by any Governmental Authorities or others for any actual or asserted failure by any of Contractors or any of their respective officers, directors, employees, servants or agents to comply with any Applicable Law or Authorizations or Consents or with any rules and regulations applicable to it or them or to obtain or maintain any Consents.
58.8.3	Any and all Losses arising directly or indirectly from or incurred by reason of any failure of Contractor:
58.8.3.1	To pay any Taxes relating to income or any other Taxes required to be paid by such person;
58.8.3.2	To make any payments in respect of Taxes which are to be paid by such Person in connection with the performance of its obligations relating to this contract or, in the case of the Contractor, any Taxes which it is required to pay pursuant to the terms of this Contract.
58.8.3.3	To file tax returns as required by Applicable Laws or comply with reporting or filing requirement under Applicable Law relating to Taxes; or nothing in this clause shall

	restrict any person's right to contest the amount of any tax or other liability owned to a competent authority provided such contest is bona fide and made in good faith;
58.8.4	Any and all Losses arising directly or indirectly from or incurred by reason of hazardous materials introduced to the Site or any other location by any of other location by Contractor or any of their respective officers, directors, employees, servants or agents in t the performance of the Work;
58.8.5	Any and all Losses arising directly or indirectly from or incurred by reason of non-compliance with Applicable Laws by the Contractor or any of their respective officers, directors, employees, servants or agents including , without limitation , labour laws; and
58.8.6	Any and all Losses arising directly or indirectly from or incurred by reason of any accident or injury to any workman or other person in the employment of the Contractor.
58.8.4	Contractor Obligation to Ensure
58.8.4.1	The Contractor shall appropriately insure against such liability in compliance with all Applicable Law and shall continue such insurance during the whole of the time that any persons are employed by him/it on the Work and shall provide BHEL, Customer or Engineer with a copy of such policy of insurance and the receipt of payment of the current premium or evidence that it has complied with the Applicable Law in this regard.
58.8.4.2	All accidents shall be reported by the Contractor directly to the appropriate Governmental Authority as per Applicable Law remaining in force.
58.8.4.3	Automobile Liability Insurance: Covering use of all vehicle use by the Contractor or its Subcontractors (whether or not owned by them) in connection with the execution of the Contract.
58.8.4.4	Workers' Compensation: In accordance with the statutory requirements under Applicable Laws. The minimum insurance cover for personal injury or death insurance for the Contractor's employees is as per the law and common practice in Bangladesh.
58.9	Laws and Regulations: The contractor agrees and acknowledges that :
58.9.1	Contractor shall and shall ensure their respective employees, servants, consultants and agents abide by the all Applicable Law, (i) relating to the performance of the Work and (ii) by all rules and regulation of those Governmental Authorities who have control or jurisdiction over the Site or the countries where the Contractor may reside or perform work, directly or indirectly under this Contract (including the timely payment of any or all fees, assessments or other governmental charges and registrations with relevant agencies or other Governmental Authorities required in connection therewith) and (iii) with the terms and conditions of any Authorizations.
58.9.2	Contractor represents that it is fully aware of all the Applicable Laws, terms and conditions of any Authorizations, business practices, plant and project Site rules and regulations which must be complied with when performing the Work.
58.9.3	Contractor shall furnish to BHEL, Customer and Engineer, promptly upon request, such information concerning contract and their respective employees, consultants, servants and agents as BHEL or Customer or Engineer may be required to furnish to any applicable Governmental Authority.
58.10	SIGN BOARDS
	The Contractor shall provide one project/Work profile sign board for each site of the size not exceeding 1 m x 2 m, and maintain them in good condition. All information on the signboards will be written in English and Bengali. The signboards will be positioned on a steel frame as directed by the BHEL or Customer or Engineer. The Contractor shall submit proposals for the materials of the signboards, the text layout (in English and Bengali) on an approved yellow background and installation of the

	signboards on Site to BHEL for approval. Each sign board shall show: a) the name of the Work b) the name of the Contractor c) all other details as required by the BHEL or Customer or Engineer The Contractor shall maintain the sign boards and remove them on completion of the Works or when instructed by the Engineer
58.11	Without prejudice to the generality of the foregoing:
58.11.1	The Contractor shall observe, comply with the respect Bangladesh Laws, rules and regulation and shall not interfere with Bangladesh political or religious affairs either directly or indirectly.
58.11.2	The Contractor shall comply with such other rules and regulation as Customer and Construction Management may establish from time to time with respect to the Construction work and personnel employed by the Contractors provided such rules and regulation shall not modify any of the Contract.
58.11.3	The Contractor shall, in all dealings with its labour employed on or connected with the Contract, pay dues regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulation pertaining to the employment of labour.
58.11.4	The Contractor shall not give or barter or otherwise dispose of, to any person or persons, any arms or ammunition of any kind, or permit the same as aforesaid.
58.11.5	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 of the People's Republic of Bangladesh or the local medical or sanitary authorities, for the purpose of dealing with and overcoming the same.
58.12	Change in Laws and Regulation: Any law, regulations ordinance, order or by laws having the force of law is enacted, promulgated, abrogated, or changed in Bangladesh, which shall be deemed to include any change in interspersion of application by the Competent Authority.
58.13	While bidder's scope include deployment of all resources, like T&P, materials, consumables, manpower including supervision etc for proper completion of the subject job and no sub-contracting for execution of the job is allowed by BHEL, depending on project's requirement and on prior acceptance of BHEL, bidder may associate agencies for deployment of skilled/ un-skilled manpower only for site execution. Bidder should arrange all resources, like T&P, materials, consumables, supervision etc directly for the subject job.
58.14	Drawings issued, if any, are for tender purpose only. No additional financial implication will be entertained by BHEL at a later date on account of any alteration to this.
58.15	Successful bidder shall provide temporary barricade all around the working area to avoid any untoward incident, as per guideline of customer.
58.16	Successful bidder shall strictly comply with the HSE guidelines of BHEL & customer and follow the Access Control System regarding security aspect of the project.
58.17	Any other non-conformity noticed w.r.t. customer's guidelines, but not listed in the tender, will also be fined. Decision of BHEL in this regard is final & binding on successful bidder. For this purpose, it is prudent that bidder visit site prior to offer submission and get acquainted with local environment, customer's guideline, etc. No claim successful bidder, whatsoever, at a later date will be entertained by BHEL. The amount will be deducted from bills of the successful bidder The amount collected on the above will be utilized for giving award to the employees of various agencies working at site who could avoid accidents by following safety rules and for improving the safety at site. Such award will be decided by the committee

	consisting of employees of agencies working within the project and be awarded in presence of BHEL representative.
58.18	Successful bidder shall submit indemnity bond after receipt of LOI towards indemnifying BHEL of non-fulfillment of any statutory payments to authorities as per prescribed format in line with customer's format.
58.19	The successful bidder shall make arrangement at their own cost for necessary access to the work site from common access road.
58.20	The security and safety laws/ guidelines as applicable from time to time shall have to be strictly followed by the successful bidder. For this purpose, it is prudent that bidder visit site prior to offer submission and get acquainted with local environment, customer's guideline, etc. No claim successful bidder, whatsoever, at a later date will be entertained by BHEL.
58.21	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.
58.22	No announcements, press releases, handouts or photographs for publication etc. relating to this agreement/ purchase-order/ work-order or any part of the Supply/Work shall be issued or released without BHEL's prior written approval.
~~58.23~~	DELETED
58.24	EXIM Bank undertaking as per attached format to be furnished by the bidder along with their offer.
58.25	All other term & conditions of this specification shall be governed by the pertinent provisions of GCC and other volumes of this tender, as applicable.

ANNEXURE – I

LIST OF T&P TO BE PROVIDED BY BHEL FREE OF HIRE CHARGE ON SHARING BASIS

SL NO	DESCRIPTION & CAPACITY OF T&P	QUANTITY	REMARKS
1.0	75T/80T up to 250T capacity crawler crane.	1 no	For designated work as to be finalized with BHEL site after award of work.
2.0	EOT crane in TG hall.	1 no	For general purpose.

NOTE	
1.0	Successful bidder shall note that since above T&Ps will be used by various agencies at site, can be issued depending on availability & as per direction of BHEL. Terms of issue shall be as specified in the tender.

ANNEXURE-II
LIST OF T&Ps TO BE DEPLOYED BY SUCCESSFUL BIDDER

SL NO	ITEM
1.0	**Lifting material**
1.1	Truck/ trailor – 8T/ 10T/ 12T.
1.2	14MT New Generation Tyre mounted mobile crane (TRX / SX or Equivalent model). Note: Hydra or similar crane shall not be accepted
1.3	Steel wire rope.
1.4	Shackle.
1.5	Jack.
1.6	Hand pulley block/ hoist.
1.7	Sling.
1.8	Transit pulley.
2.0	**Oil treatment**
2.1	Transformer oil filteration machine of suitable capacities.
2.2	Oil hose.
2.3	Pre-treatment tank with all accessories & fittings (should accommodate transformer oil).
2.4	Vaccum pump.
2.5	Calibrated vacuum gauge of 1 tor – 1 no.
2.6	Oil gauge glass and three number steel containers – 2 nos.
2.7	Compound gauge (pressure side 1 & vaccum side 760 mm of hg).
2.8	Tarpaulin (both ordinary & fire resistant).
2.9	Trident hose adapter.
2.10	Vaccum cleaner.
2.11	Vaccum hose.
3.0	**External assembly**
3.1	Safety belt.
3.2	Safety helmet.
3.3	Protable collapsible ladder.
3.4	Scaffolding material.
3.5	Torque wrench M12.480. M20 2000 kg-cm.
3.6	Precision level.
3.7	Plumb bob.
3.8	Vaccum cleaner.
3.9	Electric blower.
3.10	Electric hot blower.
3.11	Grinder.
3.12	Hand lamp with transformer (240 / 24 V).
3.13	Drill machine.
3.14	Tool sets, spanner, etc.
3.15	Cable crimping tools (hydraulic and ordinary) of all sizes.
4.0	**Welding & gas cutting**
4.1	Arc welding set.
4.2	Mig welding set.
4.3	Gas welding set.
4.4	Gas cutting set.
4.5	Welding mask, apron, glove, glasses.
4.6	Welding machines (generator / transformer).

5.0	**Testing equipment**
5.1	Primary & secondary current injection test kit.
5.2	Primary/ secondary voltage injection test kit.
5.3	Motorized megger (5 KV).
5.4	Hand operated megger.
5.5	Omicron test kit.
5.6	Avometer/ motwane make.
5.7	Phase sequence indicator.
5.8	Precision voltage, frequency and temperature calibration.
5.9	Digital multimeter.
5.10	Tong tester with selector switch.
5.11	Ducter/ micro ohm meter (digital).
5.12	Relay test kit (eemake ‘zfb’ of equivalent).
5.13	Schering bridge for tan delta measurement.
5.14	Continuity tester, relay jack plug.
5.15	Three phase (15A) and single phase variac.
5.16	Wheatstone bridge.
5.17	Bdv testing kit for transformer oil.
5.18	HV test kit, 100 mA (both AC & DC suitable for testing the equipment).
5.19	Transformer turn ratio kit.
5.20	Winding resistance kit.
5.21	Micro ohm meter
5.22	Testing kit for moisture content/ resistivity/ acidity, etc or suitable arrangement made for testing at reputed/ approved laboratories.
6.0	**General equipment**
6.1	Steel measuring tape.
6.2	Drill gauge.
6.3	Straight shank drills (1.00 mm to 13 mm).
6.4	Mores taper drills up to 40 mm.
6.5	Hand reamers up to 50 mm.
6.6	Hand taps m1 to M30.
6.7	Taps for taper pipe thread PT1/8-3/4, PT 1-2.
6.8	Carbide rotary cutters “A” type – “G” type.
6.9	Hack saw blades (high speed tool steel) upto 300 mm.
6.10	Machinist files 250 mm – 300 mm.
6.11	Set of needle files.
6.12	File handles.
6.13	Emery cloths/ papers.
6.14	Working lamps (with holder & sufficient extn chord).
6.15	Steel tool boxes (containing socket wrench set).
6.16	Torque wrenches.
6.17	Adjustable angle wrenches (upto 12’’).
6.18	De spanner sets.
6.19	Ring spanner sets.
6.20	Combination pliers.
6.21	Insulated cutting pliers.
6.22	Wire strippers.
6.23	Cable joint pliers.
6.24	Crimping tools (different sizes).
6.25	Screw driver sets.
6.26	Big screw drivers.

6.27	Jig saw tooth machine & blades.
6.28	Circular saw tooth machine & blades.
6.29	Hand drill m/c and bits of dia 5, 8, 10, 12, 18 and 22 mm.
6.30	Hand grinder (emmery grinder) AG5 & AG7 with grinding wheel.
6.31	Cutting wheel (no 36).
6.32	Wire spool.
7.0	**Dewatering equipment.**
7.1	Dewatering pump (5 HP), diesel & electric operated.

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. Similarly, if any out of of list is not required for the job as per jointly agreed program, successful bidder need not to deploy the same.
2.0	MMD and T&P shall be mobilized and deployed by successful bidder, as required at site for successful execution of the job. Deployment plan of T&P, MMD shall be jointly finalised based on project requirement prior to start of work or during progress of work. The plan might undrgo revision depending on project requirement.
3.0	Bidder shall note, periodical testing & calibration of testing equipment are to be done at CMERI/ Durgapur, ERTL/ Kolkata, Regional Research Laboratories/ Gwahati/ Jorhat/ Bhubaneswar OR Any recognised/reputed laboratory of Bangladesh acceptable to BHEL/BIFPCL and copy of test certificates to be submitted to BHEL as per 'ISO' norms.

ANNEXURE-III
LIST OF CONSUMABLE TO BE SUPPLIED BY SUCCESSFUL BIDDER

SL NO	ITEM
1.0	Ms bolt, nut, plain washer and spring washer.
2.0	Copper washer.
3.0	Welding electrode, gas, filler wire, cleaning agents, etc.
4.0	Cable tag, Ferrule, Aluminium strip/fasterners etc.
5.0	Grouting compound, sand, chip, etc for minor civil works.
6.0	Emery sheet, grease, etc.
7.0	Oxygen & DA cylinder.
8.0	Primer & paint.
9.0	½" MS plug as required.
10.0	Jute waste and markin cloth.
11.0	Tarpauline.
12.0	Any other item as specified elsewhere in the tender.

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. Similarly, if any of aforesaid items is not required for the job as per jointly agreed program, successful bidder need not to deploy the same.
2.0	Deployment plan of major consumables shall be jointly finalised based on project requirement prior to start of work or during progress of work. The plan might undrgo revision depending on project requirement.

VOLUME-III-R01
PRICE SCHEDULE

Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO. PSER:SCT:KLN-E2015:20

PREAMBLE

1	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully before filling in rates for various items. Clauses under this preamble shall be read in conjunction with Volume-IB, ID, IE , Volume – IF and other tender sections as applicable and shall have precedence over any contrary statement mentioned any where in this document.
2	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions. Drawings encloaesd with the tender are only preliminary and for tender purposes and giving some idea of the work involved. The work is to be executed as per drawings & documents, which shall be furnished during execution.
3	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc. equipment, strengthening of roads/culverts/bridges etc. including arranging all clearances etc. required for carrying out different activities & tests, materials, levies, taxes(except service tax), transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the complete tender document and this schedule.
5	The quantities of the various items mentioned in this schedule of items are approximate, based on very preliminary information and may vary to any extent or be deleted altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of work executed under any part of this contract including extra items, if any but excluding any price variation remains, within plus minus fifteen percent (± 15%) of the awarded price as per LOI .
6	Prior written approval of BHEL shall be sought by the contractor in case quantity variation of any item crosses +50% (plus fifty percent) limit during execution and approval to be obtained before execution of further quantity for this item.
7	In case Sealed /Paper Price Bids are opened for finalisation of the tender, for any Item Rate/BOQ based contract, possibility of variation of quantity/ addition/deletion of items can not be ruled out. Under such circumstances, after execution of work, if it is observed that standing as L-1 is changed based on actual quantity executed, the bidder shall give suitable rebate to maintain your standing as L-1. Since this aspect can be assessed at the end of execution, necessary adjustment will be effected at the end of execution in final bill.This condition shall not be applicable where the tender is finalised through Reverse Auction.
8	BHEL reserve the right to rationalize the rates, quoted by L-1 bidder against unit rate items and/ or other optional items with respect to item-wise lowest rates (amongst the participating bidders), before placement of order.
9	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing , clearing of old structures and leveling etc. including fixing of grid pillars, benchmarks etc. required for commencement of site activities. No separate payment will be made towards the same.However, if separate rate for such item is avalable in the rate schedule, the same shall be considered.
10	Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English language.
11	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted as per BHEL approved payment schedule/billing break-up.
12	The tenderer shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to the done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
13	No splitting of the job is envisaged. Decision of BHEL in this regard shall be final and binding to the bidders.
14	Bidders are not allowed to alter the Price Schedule format including item description,quantity etc. and the offer is liable for rejection if the bidders submit their prices in Price Schedules modified by them.BHEL reserves the right to reject the offers of bidders who submit offers in Price Formats which are modiified/altered by them. Also putting any comments instead of rates/price in the designated column of the rate schedule shall make the offer liable for rejection.
15	Bidders to note that for Civil &/Structural packages, against a particular item against a ST No. appearing in more than one schedule of the BOQ, same rate must be quoted in all schedules for that particular items with same descriptions. If by error, different rates are quoted in different schedules for same ST No.(i.e. item with same description), then the higher of the rates shall be considered for evaluation but awarding shall be done with the lower rate ,if the bidder becomes L-1."
16	For Lumpsum Service Contract : The items/components indicated in the tender is indicative and may vary to any extent. No compensation shall be payable in case of any variation in the items/components listed in the bill of quantities if the executed weight remains within the variation limit. However, in case of deletion of any item or addition of new items over and above the items listed or variation of existing quantity beyond variation limit specified, adjustment (i.e. Payment or recovery as the case may be) shall be done on pro-rata basis based on the Rate per MT worked out from the quoted lump-sum Price and the total weight of components listed /indicated in price schedule plus 15% weight variation limit.
17	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.
18	In case of tender for Civil and/or Structural works , the Non-schedule items are not quoted by the bidder, it will be treated at par with rate of corresponding item of CPWD/PWD/ Bangladesh Schedules schedule as prescribed in the tender/BOQ cum Rate Schedule.
19	No interest, whatsoever, shall be payable by BHEL on the security deposit, any bank guarantee submitted or any amount due to successful bidder/contractor.
20	Size and weights of various items are mentioned in the attached BOQ cum rate/price schedule for reference purpose only & these shall not be taken into consideration for quoting/calculating amount in the rate schedule. These shall be utilised as per relevant sections of tender. Bidders shall quote for each item in the rate column, taking unit as mentioned in the quantity column. Rates shall be filled in both figures and words. Amount shall be calculated based upon these rates multiplied by the mentioned quantity for the respective items.
21	Bidder's Grand Total price shall be considered for evaluation unless stated otherwise.
22	In case of BOP packages, if Bidder does not quote/indicate the price for freight chagses against indicated rate schedule, the same shall be considered as 2% of basic price and adjusted with the total quoated price against each item keeping the total quoted price unaltered.

VOLUME-III-R-01
PRICE SCHEDULE

Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO. PSER:SCT:KLN-E2015:20

SCHEDULE - 1 : TOTAL PRICE

SL NO	DESCRIPTION	PRICE SCHEDULE REF	TOTAL PRICE (IN USD)
1.0	TOTAL PRICE FOR ERECTION, TESTING & COMMISSIONING OF CABLE TRAYS, CABLING, LIGHTING AND EARTHING PROTECTION, HT/LT TRANSFORMER, HT/LT BUS DUCT, HT/LT SWITCHGEARS,HT/LT MOTOR,VARIOUS PANELS, DG SET, OTHER MISC ELECTRICAL EQUIPMENT FOR MAIN PLANT AREA-U#1,FGD-U#1 AND BOP AREA-COMMON FOR U#1&2 OF 2X660 MW MAITREE STPP,RAMPAL,BANGLADESH	SCH 2 - PRICE BREAK UP	*IN FIGURES:-* *IN WORDS:-*

NOTE

1.0	Bidder shall quote total price for SCH-2- Part only at Sl No. 1 above. All other amounts / rates of each item of works in respective schedules / parts will be derived based on allocated percentages. As such, any uncalled figure/ amount noted at any other place / schedule of Volume-III will not be recknoed & will stand null & void.
2.0	Bidder to note that total price at Sl No. 1 above shall be considered for evaluation & awarding. As such grand total price should be complete in all respect for the full scope defined and considering all terms and conditions.
3.0	Bidder's quoted total price of SCH-2 at Sl. No 1 above, shall be apportioned into amount of various items of works based on allocated percentages against respective item, in respective schedules / parts. As such, bidder shall not indicate / quote any amount / rate in these schedules / parts and any amount / rate quoted against any item shall not be taken into cognizance / account and offer may be liable for rejection.
4.0	Based on the itemwise percentage allocations, the amount for the individual items of the Bill of Quantity shall be arrived at. The rates of individual items shall be derived from the amount against each items and its quantity after rounding off to upto 2 decimal places. However, RA bill payment shall be done after rounding off the gross amount to two decimal points. Any adjustment, if required, due to such methodology, will be effected / adjusted in final bill.
5.0	Any item as per scope of work, if not included in the price quoted above and shown separately will not be taken cognizance of and the offer shall be liable for rejection.
6.0	Price format shall not be changed by bidder in any case and it may lead to cancellation of their offer.

VOLUME-III-R01 PRICE SCHEDULE			
Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.			
TENDER NO - PSER:SCT:KLN-E2015:20			
SCHEDULE - 2 : BREAK UP OF TOTAL PRICE			
SL NO	**DESCRIPTION**	**PRICE SCHEDULE REF**	**WEIGHTAGE**
1.0	TOTAL PRICE FOR ERECTION, TESTING & COMMISSIONING OF CABLE TRAYS, CABLING, LIGHTING AND EARTHING PROTECTION, HT/LT TRANSFORMER, HT/LT BUS DUCT, HT/LT SWITCHGEARS,HT/LT MOTORS,VARIOUS PANELS, DG SET, OTHER MISC ELECTRICAL EQUIPMENT FOR MAIN PLANT AREA-U#1,FGD-U#1 AND BOP AREA-COMMON FOR U#1&2 OF 2X660 MW MAITREE STPP,RAMPAL,BANGLADESH		
a	SERVICE (PART-I)	SCH-3	0.97290339
b	SUPPLY (PART-II)	SCH-4	0.02709661
2.0	**TOTAL**		1.00000000

VOLUME-III-R01
PRICE SCHEDULE

Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO-PSER:SCT:KLN-E2015:20

SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
A	**CABLE TRAYS (complete with Coupler plate, Fastners, clamp, and fixing hardware etc. complete, including site modifications required as described & classified in the technical specification to suit site layout).**			
A.1	**GALVANISED MS LADDER TYPE CABLE TRAY**			
1.0	600mm wide	Metres	19920	0.01554063
2.0	450mm wide	Metres	1860	0.00116100
3.0	300mm wide	Metres	2100	0.00115645
4.0	150mm wide	Metres	1560	0.00073017
5.0	100mm wide	Metres	120	0.00005617
A.2	**GALVANISED MS PERFORATED TYPE CABLE TRAY**			
1.0	600mm wide	Metres	8400	0.00786409
2.0	450mm wide	Metres	600	0.00046809
3.0	300mm wide	Metres	960	0.00059922
4.0	150mm wide	Metres	960	0.00052866
5.0	100mm wide	Metres	1200	0.00066083
6.0	50mm wide (ladder/ perforated/solid bottom)	Metres	720	0.00033700
A.3	**LADDER TYPE FRP CABLE TRAY (complete with Coupler plate, Fastners, clamp, and fixing hardware etc. complete, including site modifications required as described & classified in the technical specification to suit site layout).**			
1.0	600mm wide	Metres	37800	0.02948981
2.0	450mm wide	Metres	6020	0.00375763
3.0	300mm wide	Metres	12600	0.00693871
4.0	150mm wide	Metres	16800	0.00786338
5.0	100mm wide	Metres	840	0.00039317
A.4	**PERFORATED TYPE FRP CABLE TRAY (complete with Coupler plate, Fastners, clamp, and fixing hardware etc. complete, including site modifications required as described & classified in the technical specification to suit site layout).**			
1.0	600mm wide	Metres	10500	0.00983012
2.0	450mm wide	Metres	2240	0.00174754
3.0	300mm wide	Metres	4200	0.00262160
4.0	150mm wide	Metres	8400	0.00462581
5.0	100mm wide	Metres	2100	0.00115645
6.0	50mm wide (ladder/perforated/solid bottom)	Metres	1400	0.00065528
B	**CABLE TRAY ACCESSORIES**			
B.1	**(LADDER TYPE)**			
B.1.1	**HORIZONTAL 90 DEG. BEND 600 MM RADIUS**			
1.0	600mm wide	Nos.	420	0.00118435
2.0	450mm wide	Nos.	36	0.00009148
3.0	300mm wide	Nos.	60	0.00013511
4.0	150mm wide	Nos.	24	0.00004735
B.1.2	**VERTICAL 90 DEG. BEND 600 MM RADIUS (INSIDE)**			
1.0	600mm wide	Nos.	60	0.00016919
2.0	450mm wide	Nos.	6	0.00001525
3.0	300mm wide	Nos.	6	0.00001351
B.1.3	**VERTICAL 90 DEG. BEND 600 MM RADIUS (OUTSIDE)**			
1.0	600mm wide	Nos.	60	0.00016919
2.0	450mm wide	Nos.	6	0.00001525
3.0	300mm wide	Nos.	6	0.00001351
B.1.4	**TEES 600 MM RADIUS**			
1.0	600mm wide	Nos.	324	0.00091364
2.0	450mm wide	Nos.	6	0.00001692
3.0	300mm wide	Nos.	24	0.00006768
4.0	150mm wide	Nos.	1	0.00000171
B.1.5	**CROSSES 600 MM RADIUS**			
1.0	600mm wide	Nos.	5	0.00001410
2.0	450mm wide	Nos.	1	0.00000282
3.0	300mm wide	Nos.	1	0.00000282
B.1.6	**REDUCERS LHS /RHS**			
1.0	600mm wide - 450mm wide	Nos.	18	0.00003811
2.0	600mm wide - 300mm wide	Nos.	12	0.00002541
3.0	450mm wide - 300mm wide	Nos.	5	0.00001059
B.2	**(PERFORATED TYPE)**			
B.2.1	**HORIZONTAL 90 DEG. BEND 600 MM RADIUS**			
1.0	600mm wide	Nos.	144	0.00044622
2.0	450mm wide	Nos.	12	0.00003384
3.0	300mm wide	Nos.	30	0.00007623
4.0	150mm wide	Nos.	5	0.00001126

VOLUME-III-R01
PRICE SCHEDULE

Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO-PSER:SCT:KLN-E2015:20

SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
B.2.2	**VERTICAL 90 DEG. BEND 600 MM RADIUS (INSIDE)**			
1.0	600mm wide	Nos.	23	0.00007127
2.0	450mm wide	Nos.	3	0.00000846
3.0	300mm wide	Nos.	3	0.00000762
B.2.3	**VERTICAL 90 DEG. BEND 600 MM RADIUS (OUTSIDE)**			
1.0	600mm wide	Nos.	10	0.00003099
2.0	450mm wide	Nos.	1	0.00000282
3.0	300mm wide	Nos.	1	0.00000254
B.2.4	**TEES 600 MM RADIUS**			
1.0	600mm wide	Nos.	132	0.00044585
2.0	450mm wide	Nos.	4	0.00001351
3.0	300mm wide	Nos.	18	0.00006080
4.0	150mm wide	Nos.	1	0.00000171
B.2.5	**CROSSES 600 MM RADIUS**			
1.0	600mm wide	Nos.	4	0.00001351
2.0	450mm wide	Nos.	1	0.00000338
3.0	300mm wide	Nos.	1	0.00000338
B.2.6	**REDUCERS LHS /RHS**			
1.0	600mm wide - 450mm wide	Nos.	2	0.00000508
2.0	600mm wide - 300mm wide	Nos.	12	0.00002702
3.0	450mm wide - 300mm wide	Nos.	4	0.00000789
B.3	**FRP CABLE TRAY ACCESSORIES**			
B.3.1	**(FRP LADDER TYPE)**			
B.3.1.1	**HORIZONTAL 90 DEG. BEND 600 MM RADIUS**			
1.0	600mm wide	Nos.	273	0.00076983
2.0	450mm wide	Nos.	7	0.00001779
3.0	300mm wide	Nos.	98	0.00022067
4.0	150mm wide	Nos.	140	0.00027620
B.3.1.2	**VERTICAL 90 DEG. BEND 600 MM RADIUS (INSIDE)**			
1.0	600mm wide	Nos.	189	0.00053296
2.0	450mm wide	Nos.	6	0.00001525
3.0	300mm wide	Nos.	140	0.00031525
4.0	150mm wide	Nos.	378	0.00064536
B.3.1.3	**VERTICAL 90 DEG. BEND 600 MM RADIUS (OUTSIDE)**			
1.0	600mm wide	Nos.	224	0.00063165
2.0	450mm wide	Nos.	19	0.00004828
3.0	300mm wide	Nos.	84	0.00018915
4.0	150mm wide	Nos.	126	0.00021512
B.3.1.4	**TEES 600 MM RADIUS**			
1.0	600mm wide	Nos.	28	0.00007896
2.0	450mm wide	Nos.	14	0.00003948
3.0	300mm wide	Nos.	10	0.00002820
4.0	150mm wide	Nos.	19	0.00004055
B.3.1.5	**CROSSES 600 MM RADIUS**			
1.0	600mm wide	Nos.	11	0.00003102
2.0	450mm wide	Nos.	7	0.00001974
3.0	300mm wide	Nos.	7	0.00001974
B.3.1.6	**REDUCERS LHS /RHS**			0.00000000
1.0	600mm wide - 450mm wide	Nos.	14	0.00002964
2.0	600mm wide - 300mm wide	Nos.	14	0.00002964
3.0	450mm wide - 300mm wide	Nos.	7	0.00001482
B.3.2	**(FRP PERFORATED TYPE)**			
B.3.2.1	**HORIZONTAL 90 DEG. BEND 600 MM RADIUS**			
1.0	600mm wide	Nos.	155	0.00048031
2.0	450mm wide	Nos.	7	0.00001974
3.0	300mm wide	Nos.	95	0.00024139
4.0	150mm wide	Nos.	224	0.00050440
B.3.2.2	**VERTICAL 90 DEG. BEND 600 MM RADIUS (INSIDE)**			
1.0	600mm wide	Nos.	100	0.00030988
2.0	450mm wide	Nos.	6	0.00001692
3.0	300mm wide	Nos.	44	0.00011180
4.0	150mm wide	Nos.	196	0.00041829
B.3.2.3	**VERTICAL 90 DEG. BEND 600 MM RADIUS (OUTSIDE)**			
1.0	600mm wide	Nos.	114	0.00035326
2.0	450mm wide	Nos.	12	0.00003384
3.0	300mm wide	Nos.	100	0.00025410
4.0	150mm wide	Nos.	100	0.00021341
B.3.2.4	**TEES 600 MM RADIUS**			
1.0	600mm wide	Nos.	20	0.00006755
2.0	450mm wide	Nos.	9	0.00003040
3.0	300mm wide	Nos.	16	0.00005404
4.0	150mm wide	Nos.	7	0.00001494
B.3.2.5	**CROSSES 600 MM RADIUS**			
1.0	600mm wide	Nos.	11	0.00003715
2.0	450mm wide	Nos.	11	0.00003715
3.0	300mm wide	Nos.	7	0.00002364
B.3.2.6	**REDUCERS LHS /RHS**			0.00000000
1.0	600mm wide - 450mm wide	Nos.	12	0.00003049
2.0	600mm wide - 300mm wide	Nos.	12	0.00002702
3.0	450mm wide - 300mm wide	Nos.	7	0.00001381
C	**CABLE TRAY COVER COMPLETE WITH ACCESSORIES**			
C.1	**GALVANISED CABLE TRAY COVER COMPLETE WITH ACCESSORIES**			
1.0	600mm wide	Metres	140	0.00012604
2.0	450mm wide	Metres	70	0.00005589
3.0	300mm wide	Metres	140	0.00010285
C.2	**FRP CABLE TRAY COVER FLAT/PEAK COMPLETE WITH ACCESSORIES**			
1.0	600mm wide	Metres	7000	0.00630184
2.0	450mm wide	Metres	1120	0.00089423
3.0	300mm wide	Metres	420	0.00030855
4.0	150mm wide	Metres	35	0.00001308

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PRICE SCHEDULE

Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO-PSER:SCT:KLN-E2015:20

SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
D.1	**SUPPORT STRUCTURAL (Galvanized Iron) MATERIAL (FABRICATION/ASSEMBLY OF SUPPORT STRUCTURAL ITEMS OF SWITCHGEARS, PANELS, LPBS, STARTERS, MISC. CABLE TRAY STRUCTURES ETC.)**	MT	120	0.02808131
D.2	**CABLE TRAY SUPPORT MATERIAL** Including fabrication/assembly of loose items like Channels, Angles, Clamps, Plates etc. (Welded/Bolted type)			
D.2.1	**CHANNELS**			
1.0	SINGLE CHANNEL SC1	Metres	10725	0.01263175
2.0	DOUBLE CHANNEL DC1	Metres	10725	0.01473658
D.2.2	**CANTILEVER ARM FITTING WITH HEX BOLT & WASHER, SPRING NUT, PAN HEAD SCREW, CLAMPS ETC. COMPLETE**			
1.0	CANTILEVER ARM FOR **600MM** WIDE CABLE TRAY	Nos.	27300	0.01500592
2.0	CANTILEVER ARM FOR **450MM** WIDE CABLE TRAY	Nos.	1820	0.00087533
3.0	CANTILEVER ARM FOR **300MM** WIDE CABLE TRAY	Nos.	11700	0.00418087
4.0	CANTILEVER ARM FOR **150MM** WIDE CABLE TRAY	Nos.	6500	0.00142936
5.0	CANTILEVER ARM FOR **100MM** WIDE CABLE TRAY	Nos.	910	0.00020011
6.0	CANTILEVER ARM FOR **50MM** WIDE CABLE TRAY	Nos.	1040	0.00022870
AE.1	**FABRICATION OF IRREGULAR BEND (Supply of cable tray material is by BHEL, consumables etc. to be provided by vendor, Applicable for BEND TYPE 'E', 'F' & G) - LTCT**			
1.0	600 MM WIDE	NOS	120	0.00046809
2.0	450 MM WIDE	NOS	30	0.00009362
3.0	300 MM WIDE	NOS	120	0.00028086
4.0	150 MM WIDE	NOS	96	0.00014979
AE.2	**FABRICATION OF IRREGULAR BEND (Supply of cable tray material is by BHEL, consumables etc. to be provided by vendor, Applicable for BEND TYPE 'E', 'F' & G) - PTCT**			
1.0	600 MM WIDE	NOS	120	0.00065534
2.0	450 MM WIDE	NOS	30	0.00014043
3.0	300 MM WIDE	NOS	120	0.00046809
4.0	150 MM WIDE	NOS	96	0.00029958
E	**Installation of GALVANISED MS CONDUITS / PIPES**			
E.1	**GALVANISED MS RIGID CONDUITS**			
1.0	Upto 50 mm diameter	Metres	150	0.00010600
2.0	Above 50 mm upto 100 mm dia	Metres	90	0.00007021
E.2	**FLEXIBLE CONDUITS MADE OF COLD ROLLED ANNEALED ELECTRO GALVANISED MS STRIP**			
1.0	Upto 50 mm diameter	Metres	180	0.00003719
2.0	Above 50 mm upto 100 mm dia	Metres	30	0.00001054
F	**CABLE LAYING** (Including supply and installation of required clamps , Al. Strips, saddles ets for cable dressing and clamping etc.) (Trefoil clamps will be supplied by BHEL)			
F.1	**11 KV HT. XLPE POWER CABLE (COPPER)**			
1.0	1C-150 SQ. MM	KM	95	0.02964641
2.0	1C-185 SQ. MM	KM	5	0.00156034
3.0	3C-120 SQ. MM	KM	50	0.02340463
F.2	**3.3 KV HT.XLPE POWER CABLE (COPPER)**			0.00000000
1.0	1C-95 SQ. MM	KM	1.8	0.00036345
2.0	3C-95 SQ. MM	KM	25	0.01170230
F.3.1	**1.1 KV LT COPPER XLPE POWER CABLE(UNARMOURED)**			0.00000000
1.0	1CX6 SQ. MM	KM	1	0.00007343
2.0	1Cx10 SQ. MM	KM	1	0.00009178
3.0	1Cx16 SQ. MM	KM	20	0.00183557
4.0	1CX25 SQ. MM	KM	2	0.00018356
5.0	1CX35 SQ. MM	KM	3	0.00046808
6.0	1CX50 SQ. MM	KM	1	0.00020192
7.0	1CX70 SQ. MM	KM	11	0.00222115
8.0	1CX95 SQ. MM	KM	2	0.00040385
9.0	1CX150 SQ. MM	KM	1	0.00031207
10.0	1CX240 SQ. MM	KM	2	0.00062414
11.0	1CX300 SQ. MM	KM	24	0.00748962
12.0	1CX500 SQ. MM	KM	50	0.02340463
13.0	1CX630 SQ. MM	KM	2	0.00093619
14.0	2CX2.5 SQ. MM	KM	170	0.01248256
15.0	2CX6 SQ. MM	KM	18	0.00165201
16.0	2CX10 SQ. MM	KM	0.5	0.00004589
17.0	2CX16 SQ. MM	KM	12	0.00187230
18.0	2CX25 SQ. MM	KM	0.5	0.00007801
19.0	2CX35 SQ. MM	KM	1	0.00020192
20.0	2CX70 SQ. MM	KM	37	0.00747115
21.0	2CX120 SQ. MM	KM	5	0.00119320
22.0	3CX2.5 SQ. MM	KM	470	0.03451056
23.0	03CX6 SQ. MM	KM	40	0.00367114
24.0	03CX10 SQ. MM	KM	2	0.00031205
25.0	03CX16 SQ. MM	KM	16	0.00249640
26.0	03CX25 SQ. MM	KM	2	0.00040385
27.0	03CX35 SQ. MM	KM	8	0.00161538
28.0	03CX50 SQ. MM	KM	1	0.00020192
29.0	03CX70 SQ. MM	KM	8	0.00249654

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PRICE SCHEDULE

Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO-PSER:SCT:KLN-E2015:20

SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
30.0	03CX120 SQ. MM	KM	1	0.00046809
31.0	03CX150 SQ. MM	KM	32	0.01497897
32.0	03CX185 SQ. MM	KM	1	0.00046809
33.0	03CX240 SQ. MM	KM	1	0.00046809
34.0	3.5CX25 SQ. MM	KM	1	0.00020192
35.0	3.5CX35 SQ. MM	KM	26	0.00525000
36.0	3.5CX70 SQ. MM	KM	4	0.00124827
37.0	3.5CX120 SQ. MM	KM	2	0.00093619
38.0	3.5CX150 SQ. MM	KM	8	0.00374474
39.0	3.5CX185 SQ. MM	KM	1	0.00046809
40.0	3.5CX240 SQ. MM	KM	3	0.00140428
41.0	04CX2.5 SQ. MM	KM	16	0.00146846
42.0	04CX6 SQ. MM	KM	13	0.00119312
43.0	04CX10 SQ. MM	KM	4	0.00062410
44.0	04CX16 SQ. MM	KM	11	0.00222115
45.0	04CX35 SQ. MM	KM	0.5	0.00005966
F.3.2	**1.1 KV LT COPPER XLPE POWER CABLE(ARMOURED)**			0.00000000
1.0	3CX2.5 SQ. MM	KM	1	0.00007462
2.0	3.5CX35 SQ. MM	KM	4	0.00080769
3.0	3.5CX70 SQ. MM	KM	3	0.00093620
4.0	4CX16 SQ. MM	KM	12	0.00242308
F.4	**LT COPPER EPR INSULATED FIRE SURVIVAL CABLE (UNARMOURED)**			0.00000000
1.0	1C-150 SQ. MM	KM	1	0.00031207
2.0	1C-400 SQ. MM	KM	3	0.00140428
3.0	1C-630 SQ. MM	KM	1	0.00046809
4.0	2C-150 SQ. MM	KM	2	0.00047728
5.0	3C-2.5 SQ. MM	KM	1	0.00007343
6.0	3C-10 SQ. MM	KM	1	0.00015603
7.0	3C-25 SQ. MM	KM	1	0.00020192
8.0	3C-35 SQ. MM	KM	1	0.00020192
9.0	3C-95 SQ. MM	KM	1	0.00031207
10.0	3C-185 SQ. MM	KM	1	0.00046809
11.0	3C-150SQ. MM	KM	1	0.00046809
12.0	4C-16 SQ. MM	KM	1	0.00020192
13.0	5C-2.5 SQ. MM	KM	1	0.00009178
F.5	**1.1 KV LT. COPPER PVC FRLS CONTROL CABLE (UNARMOURED)**			
1.0	2C X 1.5 SQ MM	KM	80	0.00587414
2.0	2CX2.5 SQ. MM	KM	1	0.00007343
3.0	3C X 1.5 SQ MM	KM	10	0.00073427
4.0	3C X 2.5 SQ. MM	KM	5	0.00036713
5.0	4C X 1.5 SQ. MM	KM	4	0.00036713
6.0	5C X 1.5 SQ MM	KM	36	0.00330420
7.0	5C X 2.5 SQ MM	KM	20	0.00183567
8.0	5C X 4 SQ MM	KM	13	0.00155103
9.0	7C X 1.5 SQ MM	KM	9	0.00099126
10.0	7C X 2.5 SQ. MM	KM	11	0.00121153
11.0	10C X 2.5 SQ. MM	KM	5	0.00055070
12.0	12C X 1.5 SQ MM	KM	32	0.00352449
13.0	12C X 2.5 SQ MM	KM	24	0.00264347
14.0	16C X 2.5 SQ. MM	KM	7	0.00096373
15.0	19CX1.5 SQ. MM	KM	0.5	0.00006884
F.6	**1.1 KV SCREENED CONTROL CABLE**			0.00000000
1.0	2P - 0.5 SQ. MM (G)	KM	36	0.00279074
2.0	4P - 0.5 SQ. MM (G)	KM	18	0.00139537
3.0	8P - 0.5 SQ. MM (G)	KM	4	0.00031008
4.0	12P - 0.5 SQ. MM (G)	KM	45	0.00540718
5.0	1P - 0.5 SQ. MM (F)	KM	4	0.00031008
6.0	2P - 0.5 SQ. MM (F)	KM	9	0.00069769
7.0	4P - 0.5 SQ. MM (F)	KM	36	0.00279074
8.0	8P - 0.5 SQ. MM (F)	KM	3	0.00023256
9.0	12P - 0.5 SQ. MM (F)	KM	3	0.00036048
10.0	20P - 0.5 SQ. MM (F)	KM	3	0.00036048
11.0	3P - 1.5 SQ. MM (G)	KM	7	0.00054264
12.0	8P - 1.5 SQ. MM (G)	KM	65	0.00503884
13.0	12P - 1.5 SQ. MM (G)	KM	7	0.00084112
14.0	4C - 1.5 SQ. MM	KM	20	0.00149236
F.7	**OTHER CABLES (including termination)**			
1.0	CAT - 5e COMMUNICATION CABLE WITHOUT CONDUIT	KM	7	0.00056708
2.0	CAT - 5e COMMUNICATION CABLE WITH CONDUIT	KM	3	0.00034886
3.0	PTFE signal cable, earthing cable alongwith flexible GI conduit for Hopper Ash level indicator system.	KM	3	0.00040699
F.7.1	**OTHER CABLES (excluding termination)**			0.00000000
1.0	OPTICAL FIBRE CABLE WITHOUT CONDUIT	KM	8	0.00064810
2.0	OPTICAL FIBRE CABLE WITH CONDUIT	KM	3	0.00025583
F.7.3	**Fiber optic cable termination.**			0.00000000
F.7.3.1	Single mode	Nos	6	0.00001425
F.7.3.2	Multi mode	Nos	18	0.00005708
G	**CABLE TERMINATION** (Supply of heavy duty copper lugs upto 2.5 Sq.mm. is under Vendor scope)			
G.1	**11 KV HT. XLPE POWER CABLE (END TERMINATION)**			
1.0	1C-150 sq mm	Nos.	140	0.00266369
2.0	1C-185 sq mm	Nos.	60	0.00114158
3.0	3C-120 sq mm	Nos.	120	0.00228317

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PRICE SCHEDULE

Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO-PSER:SCT:KLN-E2015:20

SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
G.2	**3.3 KV HT.XLPE POWER CABLE (END TERMINATION)**			
1.0	1C-95 sq mm	Nos.	60	0.00114158
2.0	3C-95 sq mm	Nos.	140	0.00443949
G.3	**1.1 KV LT COPPER XLPE POWER CABLE(UNARMOURED)**			
1.0	1CX6 SQ. MM	Nos.	13	0.00002068
2.0	1Cx10 SQ. MM	Nos.	13	0.00002269
3.0	1Cx16 SQ. MM	Nos.	286	0.00049925
4.0	1CX25 SQ. MM	Nos.	20	0.00003491
5.0	1CX35 SQ. MM	Nos.	32	0.00005850
6.0	1CX50 SQ. MM	Nos.	13	0.00002377
7.0	1CX70 SQ. MM	Nos.	117	0.00022237
8.0	1CX95 SQ. MM	Nos.	20	0.00004132
9.0	1CX150 SQ. MM	Nos.	13	0.00002686
10.0	1CX240 SQ. MM	Nos.	20	0.00004132
11.0	1CX300 SQ. MM	Nos.	247	0.00054853
12.0	1CX500 SQ. MM	Nos.	494	0.00125525
13.0	1CX630 SQ. MM	Nos.	20	0.00005082
14.0	2CX2.5 SQ. MM	Nos.	3640	0.00432380
15.0	2CX6 SQ. MM	Nos.	290	0.00034448
16.0	2CX10 SQ. MM	Nos.	7	0.00000832
17.0	2CX16 SQ. MM	Nos.	117	0.00013898
18.0	2CX25 SQ. MM	Nos.	7	0.00000832
19.0	2CX35 SQ. MM	Nos.	13	0.00002471
20.0	2CX70 SQ. MM	Nos.	377	0.00071652
21.0	2CX120 SQ. MM	Nos.	52	0.00009883
22.0	3CX2.5 SQ. MM	Nos.	5980	0.00852407
23.0	03CX6 SQ. MM	Nos.	663	0.00099985
24.0	03CX10 SQ. MM	Nos.	20	0.00003491
25.0	03CX16 SQ. MM	Nos.	169	0.00029501
26.0	03CX25 SQ. MM	Nos.	20	0.00003491
27.0	03CX35 SQ. MM	Nos.	78	0.00014260
28.0	03CX50 SQ. MM	Nos.	13	0.00002471
29.0	03CX70 SQ. MM	Nos.	78	0.00014824
30.0	03CX120 SQ. MM	Nos.	13	0.00002887
31.0	03CX150 SQ. MM	Nos.	325	0.00082582
32.0	03CX185 SQ. MM	Nos.	13	0.00003303
33.0	03CX240 SQ. MM	Nos.	13	0.00003505
34.0	3.5CX25 SQ. MM	Nos.	13	0.00002068
35.0	3.5CX35 SQ. MM	Nos.	260	0.00045387
36.0	3.5CX70 SQ. MM	Nos.	39	0.00007412
37.0	3.5CX120 SQ. MM	Nos.	20	0.00004442
38.0	3.5CX150 SQ. MM	Nos.	78	0.00019820
39.0	3.5CX185 SQ. MM	Nos.	13	0.00003505
40.0	3.5CX240 SQ. MM	Nos.	26	0.00007009
41.0	04CX25 SQ. MM	Nos.	200	0.00031814
42.0	04CX6 SQ. MM	Nos.	175	0.00030549
43.0	04CX10 SQ. MM	Nos.	39	0.00006808
44.0	04CX16 SQ. MM	Nos.	110	0.00020906
45.0	04CX35 SQ. MM	Nos.	7	0.00001330
G.4	**LT COPPER EPR INSULATED FIRE SURVIVAL CABLE**			
1.0	1C-150 SQ. MM	Nos.	12	0.00003334
2.0	1C-400 SQ. MM	Nos.	36	0.00012829
3.0	1C-630 SQ. MM	Nos.	12	0.00003049
4.0	2C-150 SQ. MM	Nos.	24	0.00005330
5.0	3C-2.5 SQ. MM	Nos.	12	0.00001711
6.0	3C-10 SQ. MM	Nos.	12	0.00002095
7.0	3C-25 SQ. MM	Nos.	12	0.00002095
8.0	3C-35 SQ. MM	Nos.	12	0.00002194
9.0	3C-95 SQ. MM	Nos.	12	0.00002281
10.0	3C-185 SQ. MM	Nos.	12	0.00003049
11.0	3C-150SQ. MM	Nos.	12	0.00003049
12.0	4C-16 SQ. MM	Nos.	12	0.00002281
13.0	5C-2.5 SQ. MM	Nos.	12	0.00001611
G.5	**1.1 KV LT. COPPER PVC FRLS CONTROL CABLE**			
1.0	2C X 1.5 SQ MM	Nos.	1430	0.00147708
2.0	2CX2.5 SQ. MM	Nos.	16	0.00001768
3.0	3C X 1.5 SQ MM	Nos.	208	0.00022989
4.0	3C X 2.5 SQ. MM	Nos.	62	0.00008838
5.0	4C X 1.5 SQ. MM	Nos.	52	0.00005747
6.0	5C X 1.5 SQ MM	Nos.	430	0.00054631
7.0	5C X 2.5 SQ MM	Nos.	234	0.00031421
8.0	5C X 4 SQ MM	Nos.	156	0.00022237
9.0	7C X 1.5 SQ MM	Nos.	104	0.00016543
10.0	7C X 2.5 SQ. MM	Nos.	125	0.00021820
11.0	10C X 2.5 SQ. MM	Nos.	65	0.00012354
12.0	12C X 1.5 SQ MM	Nos.	390	0.00074122
13.0	12C X 2.5 SQ MM	Nos.	300	0.00059496
14.0	16C X 2.5 SQ. MM	Nos.	85	0.00013521
15.0	19CX1.5 SQ. MM	Nos.	7	0.00001446
G.6	**1.1 KV SCREENED CABLE**			
1.0	2P - 0.5 SQ. MM (G)	Nos.	1170	0.00277959
2.0	4P - 0.5 SQ. MM (G)	Nos.	2340	0.00555918
3.0	8P - 0.5 SQ. MM (G)	Nos.	1040	0.00247075
4.0	12P - 0.5 SQ. MM (G)	Nos.	936	0.00296812
5.0	1P - 0.5 SQ. MM (F)	Nos.	45	0.00010691
6.0	2P - 0.5 SQ. MM (F)	Nos.	110	0.00026133
7.0	4P - 0.5 SQ. MM (F)	Nos.	1820	0.00432380
8.0	8P - 0.5 SQ. MM (F)	Nos.	430	0.00102156
9.0	12P - 0.5 SQ. MM (F)	Nos.	715	0.00226731
10.0	20P - 0.5 SQ. MM (F)	Nos.	39	0.00012367

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Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

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SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
11.0	3P - 1.5 SQ. MM (G)	Nos.	85	0.00020194
12.0	8P - 1.5 SQ. MM (G)	Nos.	780	0.00185306
13.0	12P - 1.5 SQ. MM (G)	Nos.	78	0.00018531
14.0	4C - 1.5 SQ. MM	Nos.	234	0.00037222
G.7	**CABLE JOINTS (using Straight thru jointing kit)**			
G.7.1	**11 KV HT. XLPE POWER CABLE**			
1.0	1C-150 sq mm	Nos.	70	0.00188715
2.0	1C-185 sq mm	Nos.	8	0.00021567
3.0	3C-120 sq mm	Nos.	32	0.00126859
G.7.2	**3.3 KV HT.XLPE POWER CABLE**			
1.0	1C-95 sq mm	Nos.	4	0.00010784
2.0	3C-95 sq mm	Nos.	8	0.00031715
G.7.3	**1.1 KV LT COPPER .XLPE POWER CABLE**			
1.0	1CX6 SQ. MM	Nos.	10	0.00001591
2.0	1Cx10 SQ. MM	Nos.	10	0.00001746
3.0	1Cx16 SQ. MM	Nos.	10	0.00001746
4.0	1CX25 SQ. MM	Nos.	10	0.00001746
5.0	1CX35 SQ. MM	Nos.	10	0.00001828
6.0	1CX50 SQ. MM	Nos.	10	0.00001828
7.0	1CX70 SQ. MM	Nos.	10	0.00001901
8.0	1CX95 SQ. MM	Nos.	10	0.00002066
9.0	1CX150 SQ. MM	Nos.	10	0.00002066
10.0	1CX240 SQ. MM	Nos.	10	0.00001901
11.0	1CX300 SQ. MM	Nos.	10	0.00002851
12.0	1CX500 SQ. MM	Nos.	10	0.00002541
13.0	1CX630 SQ. MM	Nos.	10	0.00003966
14.0	2CX2.5 SQ. MM	Nos.	10	0.00000950
15.0	2CX6 SQ. MM	Nos.	10	0.00001033
16.0	2CX10 SQ. MM	Nos.	10	0.00001033
17.0	2CX16 SQ. MM	Nos.	10	0.00001105
18.0	2CX25 SQ. MM	Nos.	10	0.00001105
19.0	2CX35 SQ. MM	Nos.	10	0.00001901
20.0	2CX70 SQ. MM	Nos.	10	0.00001901
21.0	2CX120 SQ. MM	Nos.	10	0.00001901
22.0	3CX2.5 SQ. MM	Nos.	10	0.00001425
23.0	03CX6 SQ. MM	Nos.	10	0.00001508
24.0	03CX10 SQ. MM	Nos.	10	0.00001746
25.0	03CX16 SQ. MM	Nos.	10	0.00001746
26.0	03CX25 SQ. MM	Nos.	10	0.00001746
27.0	03CX35 SQ. MM	Nos.	10	0.00001828
28.0	03CX50 SQ. MM	Nos.	10	0.00001901
29.0	03CX70 SQ. MM	Nos.	10	0.00001901
30.0	03CX120 SQ. MM	Nos.	10	0.00002221
31.0	03CX150 SQ. MM	Nos.	10	0.00002541
32.0	03CX185 SQ. MM	Nos.	10	0.00003966
33.0	03CX240 SQ. MM	Nos.	10	0.00005392
34.0	3.5CX25 SQ. MM	Nos.	10	0.00001591
35.0	3.5CX35 SQ. MM	Nos.	10	0.00001828
36.0	3.5CX70 SQ. MM	Nos.	10	0.00001901
37.0	3.5CX120 SQ. MM	Nos.	10	0.00002221
38.0	3.5CX150 SQ. MM	Nos.	10	0.00002541
39.0	3.5CX185 SQ. MM	Nos.	10	0.00002541
40.0	3.5CX240 SQ. MM	Nos.	10	0.00005392
41.0	04CX2.5 SQ. MM	Nos.	10	0.00001746
42.0	04CX6 SQ. MM	Nos.	10	0.00001746
43.0	04CX10 SQ. MM	Nos.	10	0.00001746
44.0	04CX16 SQ. MM	Nos.	10	0.00001901
45.0	04CX35 SQ. MM	Nos.	10	0.00002066
G.7.4	**LT. COPPER FIRE SURVIVAL CABLE**			0.00000000
1.0	1C-150 SQ. MM	Nos.	5	0.00001188
2.0	1C-400 SQ. MM	Nos.	5	0.00001586
3.0	1C-630 SQ. MM	Nos.	5	0.00001270
4.0	2C-150 SQ. MM	Nos.	5	0.00001425
5.0	3C-2.5 SQ. MM	Nos.	5	0.00000713
6.0	3C-10 SQ. MM	Nos.	5	0.00000873
7.0	3C-25 SQ. MM	Nos.	5	0.00000873
8.0	3C-35 SQ. MM	Nos.	5	0.00000914
9.0	3C-95 SQ. MM	Nos.	5	0.00000950
10.0	3C-185 SQ. MM	Nos.	5	0.00001270
11.0	3C-150SQ. MM	Nos.	5	0.00001270
12.0	4C-16 SQ. MM	Nos.	5	0.00000950
13.0	5C-2.5 SQ. MM	Nos.	5	0.00000914
G.7.5	**1.1 KV LT. COPPER PVC FRLS CONTROL CABLE**			0.00000000
1.0	2C X 1.5 SQ MM	Nos.	10	0.00001033
2.0	2CX2.5 SQ. MM	Nos.	10	0.00001105
3.0	3C X 1.5 SQ MM	Nos.	10	0.00001105
4.0	3C X 2.5 SQ. MM	Nos.	10	0.00001425
5.0	4C X 1.5 SQ. MM	Nos.	10	0.00001105
6.0	5C X 1.5 SQ MM	Nos.	10	0.00001270
7.0	5C X 2.5 SQ MM	Nos.	10	0.00001343
8.0	5C X 4 SQ MM	Nos.	10	0.00001425
9.0	7C X 1.5 SQ MM	Nos.	10	0.00001591
10.0	7C X 2.5 SQ. MM	Nos.	10	0.00001746
11.0	10C X 2.5 SQ. MM	Nos.	10	0.00001901
12.0	12C X 1.5 SQ MM	Nos.	10	0.00001901
13.0	12C X 2.5 SQ MM	Nos.	10	0.00001983
14.0	16C X 2.5 SQ. MM	Nos.	10	0.00002138
15.0	19CX1.5 SQ. MM	Nos.	10	0.00002066
H	**ABOVE GROUND EARTHING AND LIGHTNING PROTECTION MATERIAL (INCLUDING CLAMPING, BRAZING, LUGGING, FITTING OF LOOSE ITEMS ETC.)**			
H.1	**20MM DIA 1 MTR LONG STAINLESS STEEL ROD**	Nos.	469	0.00330388
H.2	**TINNED BARE CU CONDUCTOR FOR EARTHING SYSTEM**			
1.0	TINNED BARE CONDUCTOR 240SQ. MM CU	MTR	31500	0.00860482
2.0	TINNED BARE CONDUCTOR 50SQ. MM CU	MTR	700	0.00013146

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Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

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SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
3.0	TINNED BARE CONDUCTOR 95SQ. MM CU	MTR	840	0.00020078
4.0	TINNED BARE CONDUCTOR 35SQ. MM CU	MTR	1750	0.00029878
5.0	TINNED BARE CONDUCTOR 16SQ. MM CU	MTR	28000	0.00430241
6.0	STRANDED TINNED COPPER CONDUCTOR 16 SQ MM	MTR	700	0.00011951
7.0	STRANDED TINNED COPPER CONDUCTOR 35 SQ MM	MTR	210	0.00003944
8.0	STRANDED TINNED COPPER CONDUCTOR 50 SQ MM	MTR	70	0.00001434
9.0	STRANDED TINNED COPPER CONDUCTOR 95 SQ MM	MTR	210	0.00005378
10.0	STRANDED TINNED COPPER CONDUCTOR 240 SQ MM	MTR	700	0.00021512
11.0	14 SWG tinned Stranded Copper wire	MTR	4200	0.00050195
H.3	TEST LINK 150x25x3 mm SS FLAT WITH BOX	NOS.	350	0.00104573
H.4	150MMX150MMX6MM STAINLESS STEEL PLATE	NOS.	350	0.00071707
H.5	25 MMX3 MM STAINLESS STEEL(SS) CLAMP	NOS.	7000	0.00298779
H.6	25 MM X 3MM STAINLESS STEEL (SS) FLAT	MT	10	0.00195012
H.7	Ground Electrode (3 METRE LONG)	NOS	160	0.00058007
H.8	Vertical rods	NOS	125	0.00038894
H.9	30 X 8 MM TINNED COPPER BUS BAR FLAT/BAR	MT	7	0.00136509
I	**MINOR CIVIL WORK**			
1.0	Chipping of concrete (upto 50 mm depth)	SQ. M	14	0.00018495
2.0	Breaking of concrete wall/ floors including finishing	CU. M	7	0.00009248
3.0	Breaking of brick walls/floors including finishing	CU. M	28	0.00036991
4.0	Earth excavation & back filling	CU. M	28	0.00049341
J	**HT Switchgear**			
1.0	11KV, 4000A, UNIT-1 SWITCH BOARD - 1BA (01BBA)	NO.OF BOARDS	1	0.00152210
2.0	11KV, 4000A, UNIT-1 SWITCH BOARD - 1BB (01BBB)	NO.OF BOARDS	1	0.00152210
3.0	11KV, 4000A, STATION SWITCH BOARD - 0BA (00BBA)	NO.OF BOARDS	1	0.00152210
4.0	3.3KV, 3150A, UNIT-1 AUX. SWITCH BOARD (01BCA)	NO.OF BOARDS	1	0.00239187
5.0	3.3 KV, 1600A, STATION SWITCH BOARD (00BCA)	NO.OF BOARDS	1	0.00242983
6.0	3.3 KV, 1000A, RAW WATER SWITCH BOARD (00BCG)	NO.OF BOARDS	1	0.00073624
7.0	3.3 KV, 2500A, CHP-1 AUX. SWITCH BOARD (00BCB)	NO.OF BOARDS	1	0.00242983
8.0	3.3 KV, 2500A, CHP-2 AUX. SWITCH BOARD (00BCC)	NO.OF BOARDS	1	0.00242983
9.0	3.3 KV, 2000A, CHP-3 AUX. SWITCH BOARD (00BCD)	NO.OF BOARDS	1	0.00242983
10.0	3.3 KV, 1000A, JETTY AUX. SWITCH BOARD (00BCF)	NO.OF BOARDS	1	0.00074293
11.0	3.3 KV, 1000A, AHP AUX. SWITCH BOARD (00BCE)	NO.OF BOARDS	1	0.00074293
12.0	3.3 KV, 1250A, UNIT-1 FGD SWITCH BOARD (01BCB)	NO.OF BOARDS	1	0.00074293
13.0	11 KV EARTHING TRUCKS	SET	9	0.00011890
14.0	3.3 KV EARTHING TRUCKS	SET	20	0.00020538
15.0	11 KV BUS TRANSFER PANEL	NO.	2	0.00031201
16.0	HT DATA CONCENTRATOR PANEL WITH ACCESSORIES (INCLUDING INSTALLATION OF LOOSE ITEMS, MINOR WIRING IN THE ASSOCIATED PANELS.)	NO.	7	0.00109203
17.0	MOUNTING OF ETHERNET SWITCHES AT DIFFERENT HT SWGR PANELS INCLUDING LMU AND INTERNAL WIRING ETC. FOR HT DATA CONCENTRATOR SYSTEM	Nos.	40	0.00281905
K	**LT SWBD AND DC DB**			
1.0	415V, 3000A, UNIT-1 EMERGENCY MCC (01BMA)	NO.OF BOARDS	1	0.00148657
2.0	220V, 1000A, UNIT-1 MAIN DCDB (01BUA)	NO.OF BOARDS	1	0.00148657
3.0	415V, 3200A, UNIT-1 TURBINE SERVICE PMCC (01BFA)	NO.OF BOARDS	1	0.00148657
4.0	415V, 250A, UNIT-1 TURBINE VALVE DB (01BJA)	NO.OF BOARDS	1	0.00148657
5.0	415V, 630A UNIT-1 SERVICE ACDB (01BJB)	NO.OF BOARDS	1	0.00148657
6.0	415V, 4000A, UNIT-1 BOILER SERVICE PMCC (01BFB)	NO.OF BOARDS	1	0.00148657
7.0	415V, 250A, UNIT-1 BOILER VALVE & DAMPER ACDB(01BJC)	NO.OF BOARDS	1	0.00148657
8.0	415V, 400A, UNIT-1 BOILER ACDB (01BJD)	NO.OF BOARDS	1	0.00148657
9.0	415V, 400A, UNIT-1 ESP & ID FAN AREA MCC (01BJE)	NO.OF BOARDS	1	0.00148657

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Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

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SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
10.0	415V, 400A, UNIT-1 ESP AC & VENTILLATION MCC (01BJF)	NO.OF BOARDS	1	0.00148657
11.0	415V, 4000A, STATION SEVICES PMCC, UNIT-1 (00BFA)	NO.OF BOARDS	1	0.00148657
12.0	415V, 630A UNIT-1 AIR WASHER MCC (01BJG)	NO.OF BOARDS	1	0.00148657
13.0	415V, 1600A, CCR AIR CONDITIONING MCC (00BJS)	NO.OF BOARDS	1	0.00148657
14.0	415V, 1000A, UNIT-1 VENTILATION MCC (01BJH)	NO.OF BOARDS	1	0.00148657
15.0	415V, 630A, UNIT-1 MISC SERVICE MCC (00BJQ)	NO.OF BOARDS	1	0.00148657
16.0	415V, 3200A, ADMIN BUILDING PMCC (00BFF)	NO.OF BOARDS	1	0.00148657
17.0	415V, 400A, AUDITORIUM ACDB (00BJK)	NO.OF BOARDS	1	0.00148657
18.0	415V, 400A, CANTEEN ACDB (00BJL)	NO.OF BOARDS	1	0.00148657
19.0	415V, 1000A, SERVICE BUILDING MCC (00BJM)	NO.OF BOARDS	1	0.00148657
20.0	415V, 400A, GAS CHLORINATION MCC (00BJN)	NO.OF BOARDS	1	0.00148657
21.0	415V, 3200A, FUEL OIL PMCC (00BFC)	NO. OF BOARDS	1	0.00148657
22.0	415V, 400A, PERMANENT STORE ACDB (00BJA)	NO. OF BOARDS	1	0.00148657
23.0	415V, 630A, WORKSHOP MCC (00BJB)	NO. OF BOARDS	1	0.00148657
24.0	415V, 630A, H2 MCC (00BJC)	NO. OF BOARDS	1	0.00148657
25.0	415V, 4000A, RODM PMCC (00BFE)	NO. OF BOARDS	1	0.00148657
26.0	415V, 2500A, DESALINATION PMCC (00BFJ)	NO. OF BOARDS	1	0.00148657
27.0	415V, 1600A, PTP MCC (00BJH)	NO. OF BOARDS	1	0.00148657
28.0	415V, 630A, FIRE WATER MCC (00BJF)	NO. OF BOARDS	1	0.00148657
29.0	415V, 630A, CPU MCC (00BJD)	NO. OF BOARDS	1	0.00148657
30.0	415V, 630A, ETP MCC (00BJE)	NO. OF BOARDS	1	0.00148657
31.0	415V, 3200A, AUX.BOILER PMCC (00BFD)	NO. OF BOARDS	1	0.00148657
32.0	415V, 3200A, COOLING TOWER PMCC - 1 (01BFJ)	NO. OF BOARDS	1	0.00148657
33.0	415V, 800A, CWT & CHLORINATION MCC (00BJP)	NO. OF BOARDS	1	0.00148657
34.0	415V, 3200A, UNIT-1 FGD SERVICE SWITCH BOARD (01BFH)	NO. OF BOARDS	1	0.00148657
35.0	415V, 2500A, FGD COMMON SERVICE SWITCH BOARD (00BFH)	NO. OF BOARDS	1	0.00148657
36.0	415V, 630A, FGD AC & VENT. MCC (00BJT)	NO. OF BOARDS	1	0.00148657
37.0	415V, FGD EMERGENCY MCC (00BMA)	NO. OF BOARDS	1	0.00148657
38.0	415V, 2500A, UNIT-1 ESP LTMSB-A (01BFC)	NO. OF BOARDS	1	0.00148657
39.0	415V, 2500A, UNIT-1 ESP LTMSB-B (01BFD)	NO. OF BOARDS	1	0.00148657
40.0	415V, 2500A, UNIT-1 ESP LTMSB-C (01BFE)	NO. OF BOARDS	1	0.00148657
41.0	415V, 2500A, UNIT-1 ESP LTMSB-D (01BFF)	NO. OF BOARDS	1	0.00148657
42.0	415V, 63A, UNIT-1 SOOT BLOWER MCC (01BJI)	NO. OF BOARDS	1	0.00115457
43.0	220V, 50A, FGD/FOPH DCDB	NO. OF BOARDS	1	0.00148657
44.0	220V, 50A, RWPH DCDB	NO. OF BOARDS	1	0.00148657
45.0	415V, WALL MOUNTED ACDB	NO. OF BOARDS	8	0.00098665
46.0	220V, WALL MOUNTED DCDB	NO. OF BOARDS	6	0.00073998
47.0	LT DATA CONCENTRATOR PANEL WITH ACCESSORIES (INCLUDING INSTALLATION OF LOOSE ITEMS, MINOR WIRING IN THE ASSOCIATED PANELS.)	SET	2	0.00024666
48.0	MOUNTING OF ETHERNET SWITCHES AT DIFFERENT LT SWGR PANELS INCLUDING LMU AND INTERNAL WIRING ETC. FOR LT DATA CONCENTRATOR SYSTEM	Nos.	40	0.00281905
L	**GENERATOR RELAY PANELS, VARIOUS CONTROL PANELS, DAVR AND OTHER MISC. PANELS** (INCLUDING FITTING OF LOOSE ITEMS, INTERNAL WIRING IF ANY COMPLETE)			
1.0	Generator Relay Panel (GEN/GT/UT PROT. PANELS)	SET	1	0.00044047
2.0	STATION TRANSFORMER RELAY PANEL	SET	1	0.00035247
3.0	Electrical Control Panel in CCR	SET	1	0.00026428
4.0	Electrical Control Panel for other area	SET	8	0.00248950

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Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
5.0	MASTER CLOCK SYSTEM PANEL including associated items complete	SET	1	0.00008810
6.0	R.T.C.C. PANEL FOR POWER TRANSFORMERS	Nos.	3	0.00031713
7.0	DIGITAL AUOTOMATIC VOLTAGE REGULATOR BOARD (COMPRISING OF TRANSFORMER, REGULATION, THYRISTOR & FIELD SUPPRESSION CUBICLES - INCLUDING FITTINGS OF LOOSE ITEMS LIKE PC MONITOR AND OTHER ITEMS, INTERNAL WIRING IF ANY ETC. COMPLETE)	Set	1	0.00077821
8.0	**ENERGY MANAGEMENT SYSTEM PANELS**			
8.1	CONTROL PANEL OF EMS WITH ACCESSORIES	SET	1	0.00010571
8.2	LOCAL PANELS OF EMS WITH ACCESSORIES	SET	10	0.00105709
9.0	ELECTRICAL INTERFACE SYSTEM (EIS) PANELS	NO.	3	0.00031713
10.0	SAS / SWITCHYARD COMMUNIACTION CONTROL PANEL	No.	1	0.00010571
11.0	COMMISSIONING OF LOCAL CONTROL PANEL OF CENTRAL OIL PURIFICATION UNIT (Commisssioning only - erection by other vendor)	No.	1	0.00005637
12.0	COMMISSIONING OF LOCAL CONTROL PANEL FOR MISC SYSTEM LIKE DOSING, LP/HP BYPASS SYSTEM ETC.	No.	5	0.00028187
13.0	Misc. Electrical Relay/Transducer Panel (Commisssioning only - erection by other vendor, COMMISSIONING RATE INCL. MOUNTING OF LOOSE COMPONENTS, INTERNAL WIRING ETC.)	No.	5	0.00049260
M	**MISCELLANEOUS ITEMS OF ESP (Including fitting of loose items, internal wirings if any etc. complete)**			
1.0	Electronic Control Panel (with ARECA-II CONTROLLER)	No. Of Panel	56	0.00394666
2.0	DATA LOGGER PC WITH COLOR MONITOR	Set	1	0.00001762
3.0	IOS PC WITH COLOUR MONITOR (21")	Set	1	0.00003523
4.0	COLOR PRINTER (INKJET)	Nos	2	0.00003524
5.0	INTERLOCKS	Set	4	0.00028190
6.0	63A SWITCH FUSE UNIT	Set	4	0.00002074
7.0	LOCAL CONTROL UNIT	Nos	4	0.00002074
8.0	REMOTE CONTROL UNIT	Nos	8	0.00004149
9.0	REMOTE CONTROL UNIT PANEL	Nos	1	0.00007801
10.0	LOCAL CONTROL BOX (JUNCTION BOX) FOR PANEL TYPE HOPPER HEATER	Nos	56	0.00023232
11.0	POWER SUPPLY DISTRIBUTION SOCKET	Nos	1	0.00000415
12.0	ALI CONTROL PANEL (HIGH LEVEL)	Nos	1	0.00000170
	(FROM SL. NO. 13.0 TO 24.0 : ONLY COMMISSIONING, ERECTION BY OTHER VENDOR)			
13.0	HEATING ELEMENTS FOR HOPPER HEATER (PANEL TYPE)	SET	56	0.00023232
14.0	HEATING ELEMENTS FOR SUPPORT INSULATOR HEATER	Nos	224	0.00059232
15.0	HEATING ELEMENTS FOR SHAFT INSULATOR HEATERS	Nos	56	0.00014808
16.0	THERMOSTAT FOR HOPPER HEATERS	Nos	112	0.00029616
17.0	THERMOSTAT FOR SUPPORT INSULATOR HEATERS	Nos	8	0.00001694
18.0	ASH LEVEL INDICATOR INCLUDING CONTROL UNIT(LOW & HIGH)	Set	224	0.00047432
19.0	OPACITY MONITOR	Nos	4	0.00001409
20.0	DISCONNECTING SWITCH	Nos	56	0.00014808
21.0	ELECTRICALLY OPERATED HOIST (3T)	Nos	4	0.00021142
22.0	GEARED MOTOR FOR GD SCREEN RAPPING (GDRM)	Nos.	8	0.00010569
23.0	GEARED MOTOR FOR COLLECTING ELECTRODE RAPPING MECHANISM (CERM)	Nos	56	0.00073982
24.0	GEARED MOTOR FOR EMITTING ELECTRODE RAPPING MECHANISM (EERM)	Nos	56	0.00073982
N	**DC Starter Panel/ Starter Cabinet** (Including fitting of loose items, internal wirng if any)			
1.0	STARTER CABINET FOR DC JACKING OIL MOTOR WITH RESISTANCE BOX	SET	1	0.00007048
2.0	STARTER CABINET FOR DC EMERGENCY LUB .OIL MOTOR WITH RESISTANCE BOX	SET	1	0.00007048
3.0	STARTER CABINET FOR DC SEAL OIL MOTOR WITH RESISTANCE BOX	SET	1	0.00005285
4.0	STARTER CABINET FOR DC SCANNER AIR MOTOR WITH RESISTANCE BOX	Nos	1	0.00007048
5.0	DC STARTER CONTROL PANEL OF TDBFP WITH RESISTANCE BOX	Nos	2	0.00010571
6.0	LOCAL MOTOR STARTER FOR VENTILATION FANS ETC.	Nos	300	0.00396332
O	**JUNCTION BOX, PUSH BUTTON ETC.**			
O.1	**JUNCTION BOX**			

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Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO-PSER:SCT:KLN-E2015:20

SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
1.0	JUNCTION BOX -6 WAY	Nos.	2	0.00000969
2.0	JUNCTION BOX -12 WAY	Nos.	2	0.00001058
3.0	JUNCTION BOX -24 WAY	Nos.	2	0.00001058
4.0	JUNCTION BOX -36 WAY	Nos.	2	0.00001233
	(JUNCTION BOX FOR ESP)			
5.0	FRP POWER JB VAR-01	Nos.	9	0.00004760
6.0	FRP POWER JB VAR-03	Nos.	17	0.00008991
7.0	FRP JUNCTION BOX -CONTROL FOR ESP	Nos.	110	0.00058174
8.0	JUNCTION BOX FOR HOPPER HEATERS (LCB)	Nos	56	0.00029616
9.0	JUNCTION BOX FOR SUPPORT INSULATOR HEATERS	Nos	16	0.00008462
10.0	JUNCTION BOX FOR SHAFT INSULATOR HEATERS	Nos	8	0.00004231
11.0	JUNCTION BOX FOR START STOP PUSH BUTTON	Nos	16	0.00008462
12.0	JUNCTION BOX FOR HOPPER HEATER FEEDBACK	Nos	16	0.00008462
13.0	JUNCTION BOX FOR ALI – LOW & HIGH (CONTROL)	Nos	32	0.00016923
14.0	JUNCTION BOX FOR OPACITY MONITOR	Nos	4	0.00002115
15.0	LOCAL JUNCTION BOX FOR ALI – LOW & HIGH (CONTROL)	Nos	32	0.00016923
O.2	**PUSH BUTTONS**			
1.0	LOCAL START STOP PUSH BUTTON FOR RAPPING MOTOR	Nos	120	0.00073998
2.0	Local Push Button Stations (Non flame proof)	Nos.	1200	0.00739984
3.0	Local Push Button Stations (Flame proof)	Nos.	200	0.00140890
P	**DC System (Including fitting of battery stand/rack, fitting of loose items like connectors, thyristors, transformer etc. with necessary internal wirings etc. complete and handling & filling of electrolyte)**			
P.1	**220V, Battery Bank**			
1.1	2X170 KBH 725P Main Plant Battery Bank (Composite bank of 2 x 170 Nos. Cells, Dimension of each cell 0.6X0.25X0.5 Meter)	Set	2	0.00440286
1.2	1X170 KBH 30P Other area Battery Bank (1 x 170 Nos. Cells, Dimension of each cell 0.2X0.25X0.4 Meter)	Set	2	0.00400131
1.3	1X170 KBH 24P Other area Battery Bank (1 x 170 Nos. Cells, Dimension of each cell 0.2X0.25X0.4 Meter)	Set	2	0.00400131
P.2	**Battery Charger**			
2.1	Float cum Boost Battery Charger, 455A	Set	2	0.00065190
2.2	Float cum Boost Battery Charger, 50A	Set	2	0.00042286
2.3	Float cum Boost Battery Charger, 50A	Set	2	0.00042286
P.3	**DC Isolation Box**			
3.1	220V DC ISOLATION BOX	Nos	6	0.00015859
X	**MISCELLANEOUS**			
X.1	**MOTORS, ACTUATORS, SOOT BLOWERS ETC. (EXCLUDING ERECTION - TO BE ERECTED BY OTHER VENDORS)**			
1.0	DRYING OUT, TESTING ETC. OF HT MOTORS	No.	100	0.00352329
2.0	MOUNTING OF CTs, CONNECTORS, INTERNAL WIRING ETC. OF HT MOTORS	No.	14	0.00054611
3.0	DRYING OUT, TESTING ETC. OF LT MOTORS	No.	480	0.01014906
4.0	Actuators (Limit switches setting, position feedback calibration, commissioning for motor operated valves,dampers, gates etc.)	No.	550	0.00678319
5.0	COMMISSIONING OF SOOT BLOWERS, WALL BLOWERS, APH HOT BLOWERS ETC. (EXCLUDING ERECTION - TO BE ERECTED BY OTHER VENDORS)	No.	90	0.00118899
X.2	COMMISSIONING OF ELECTRICAL OPERATED HOIST (EXCLUDING ERECTION - TO BE ERECTED BY OTHER VENDORS)	No.	20	0.00105709
X.3	UPS (UPTO 10 KVA) WITH BATTERY & ACCESSORIES (FOR DATA CONCENTRATOR/SAS & MISC. SYSTEM)	SET	4	0.00013217
X.4	ASSEMBLY & INSTALLATION OF CONTROL DESK/STATION (A SET OF ONE NO. TABLE, TWO NO. CHAIRS, COMPUTERS, PRINTERS,SCANNERS & ASSOCIATE ACCESSORIES)	SET	8	0.00048581
X.5	**FABRICATION AND ERECTION (SUPPLY OF STRUCTURAL MATERIAL BY BHEL & SUPPLY OF COSUMABLES & PAINTS ETC. BY VENDOR)**			
1.0	Fabrication & erection of foundation/ base frames, support structures for Switchgears ,Control Panel,LCC/LPBS, Starters ,Fuse Boards and Misc. panels etc. by MS Structural items (like MS Angles, Channels, Plates, Flats etc.) including supply of all required consumables, paints etc.	MT	40	0.01092375
X.6	**CHEQUERED PLATES**			
1.0	Fabrication & erection of Chequered Plates (Material supply by BHEL) for covering up leftover floor cutout / trench around switchgear / panels (inclusive supply of all consumables , paints etc.).	MT	2	0.00054619
X.7	**INSERT PLATES /ANCHOR FASTENERS** (including supply of consumables, paints etc.)			
1.0	Fabrication of INSERT PLATES by MS plates (upto 12 mm thick), angle /flats etc.(Material supply by BHEL) and its installation on wall /floor/ceiling.	MT	0.8	0.00021848
2.0	Supply & Installation of heavy duty galvanised friction ANCHOR FASTENERS (reputed make), at least 100 mm length in concrete, of following sizes:			
2.1	Dia 8 mm	Set	3000	0.00256096
2.2	Dia 10 mm	Set	3000	0.00460973
2.3	Dia 12 mm	Set	1500	0.00303474
2.4	Dia 16 mm	Set	350	0.00074695
3.0	Supply and installation of Fasteners like nut, bolts, washer of all varriants	KG	35	0.00018510
X.8	**CANOPIES** (Including supply of all consumables, paints etc.)			

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Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

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SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
1.0	Fabrication and installation of canopies of 2 mm thick GI sheet (Material supply by BHEL) for protection of outdoor LPBs / starters etc.	Sq. Meter	35	0.00036984
X.9	**RUBBER MAT**			
1.0	Installation of Insulating rubber mat of appropriate voltage class Size for laying infront of switchgears upto 11KV. (as required under IE Rule).	Sq. Meter	2000	0.00245835
X.10	**DISPLAY BOARD**			
1.0	Installation of Electric Shock Treatment Display board as per IE Rules, Laminated on fibre material (size : 2.5 ft x 3.5 ft) and mounted on wooden frame) for switchgear rooms / substations	Pieces	70	0.00008604
2.0	11KV/3.3 KV/415V DANGER PLATE (size : 0.8 ft x 1ft)	Pieces	130	0.00015979
X.11	**Installation of MS HOT DIP GALVANISED THREADED & HEXAGONAL HEAD CABLE GLAND ADAPTORS/GLAND HOLE PLUGS AS PER REQUIRED SIZE AND SHAPES as per sample provided by BHEL**	KG.	180	0.00031793
X.12	**Application of Moisture Sealing compounds for wall, floor, panel openings for all variants**	Sq. Mtr.	35	0.00036984
X.13	**VFD PANELS AND ACCESSORIES**			
1.0	3.3 KV VFD panels FOR Ist pass RO HP motor	SET	3	0.00200270
2.0	415 V 1st pass RO booster pump VFD	SET	3	0.00140189
3.0	415 V UF permeate pump VFD	SET	6	0.00280377
4.0	415 V 2nd pass RO HP pump VFD	SET	3	0.00140189
5.0	415 V UF backpulse pump VFD	SET	2	0.00093459
6.0	415 V UF air blower VFD	SET	2	0.00093459
Y	**GENERATOR CIRCUIT BREAKER**			
Y.1	**21 KV Generator Circuit Breaker** (Including anchoring of base frames, fitting of loose items, connection of flexibles, filling of SF6 Gas, mouning of cooling fan arrangements etc. complete set)	Set	1	0.00051964
Z	**TRANSFORMERS**			
Z.1	**OIL FILLED TRANSFORMERS (SCOPE OF WORK:** **a) SHIFTING OF TRANSFORMER (IF REQUIRED) FOR ERECTION PURPOSE (Job involving Loading from storage location at about maximum 500 Mtr. perifery inside the plant premises, Transportation through multi axle low bed trailer and unloading for erection purpose)** **b) Ereection, Testing and commissioning of Transformer and associated Equipments / accessories.)** **Note- FOR GT,Additional scope is unloading and/or shifting(if required) and placement of GT on foundation.**			
1.0	Generator Transformer (3x1 phase 270MVA, {(420/ √3)/21KV)} alongwith all accessories complete (01BAT01,01BAT02,01BAT03)			
1.0 (a)	UNLOADING AND/OR SHIFTING(if required) & PLACEMENT ON FOUNDATION OF TRANSFORMER FOR ERECTION PURPOSE	Set	1	0.00660840
1.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	1	0.02714952
2.0	Spare GT 1X1 Phase 270MVA, {(420/ √3)/21KV}) alongwith all accessories complete			
2.0 (a)	UNLOADING AND/OR SHIFTING(if required) & PLACEMENT ON FOUNDATION OF TRANSFORMER FOR ERECTION PURPOSE	Set	1	0.00220280
2.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	1	0.00904984
3.0	Station Transformer (125/62.5/62.5 MVA, 230/11.5/11.5 KV) with NGR and all accessories complete (00BAT01)	Set	1	0.00814510
4.0	65 MVA, 21/11.5 KV Unit Transformer with NGR and accessories complete (01BBT01, 01BBT02)			
4.0 (a)	SHIFTING OF TRANSFORMER FOR ERECTION PURPOSE	Set	2	0.00110140
4.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	2	0.00477273
5.0	16 MVA, 11/3.45 KV Unit Aux. Transformer - 1A & 1B with NGR and accessories complete (01BBT03, 01BBT04)			
5.0 (a)	SHIFTING OF TRANSFORMER FOR ERECTION PURPOSE	Set	2	0.00073427
5.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	2	0.00183567
6.0	8 MVA, 11/3.45 KV Station Aux. Transformer with NGR and accessories complete (00BBT01)			
6.0 (a)	SHIFTING OF TRANSFORMER FOR ERECTION PURPOSE	Set	1	0.00036713
6.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	1	0.00082605
7.0	6.3 MVA, 11/3.45 KV FGD Aux. Transformer - 1A & 1B with NGR and accessories complete (01BBT05, 01BBT06)			
7.0 (a)	SHIFTING OF TRANSFORMER FOR ERECTION PURPOSE	Set	2	0.00073427
7.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	2	0.00165210
8.0	12.5 MVA, 11/3.45 KV CHP Aux. Transformer - 1A&1B with NGR and accessories complete (00BBT03, 00BBT04)			
8.0 (a)	SHIFTING OF TRANSFORMER FOR ERECTION PURPOSE	Set	2	0.00073427
8.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	2	0.00165210
9.0	12.5 MVA, 11/3.45 KV CHP Aux. Transformer - 2A&2B with NGR and accessories complete (00BBT05, 00BBT06)			
9.0 (a)	SHIFTING OF TRANSFORMER FOR ERECTION PURPOSE	Set	2	0.00073427
9.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	2	0.00165210
10.0	10 MVA, 11/3.45 KV CHP Aux. Transformer - 3A&3B with NGR and accessories complete (00BBT07, 00BBT08)			
10.0 (a)	SHIFTING OF TRANSFORMER FOR ERECTION PURPOSE	Set	2	0.00073427
10.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	2	0.00165210

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Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

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SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
11.0	3.5 MVA, 11/3.45 KV AHP Aux. Transformer - A&B with NGR and accessories complete (00BBT09, 00BBT10)			
11.0 (a)	SHIFTING OF TRANSFORMER FOR ERECTION PURPOSE	Set	2	0.00073427
11.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	2	0.00165210
12.0	3.5 MVA, 11/3.45 KV AHP Silo Jetty Transformer - A&B with NGR and accessories complete (00BBT11, 00BBT12)			
12.0 (a)	SHIFTING OF TRANSFORMER FOR ERECTION PURPOSE	Set	2	0.00073427
12.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	2	0.00165210
13.0	3.5 MVA, 11/3.45 KV Raw Water Transformer - A&B with NGR and accessories complete (00BBT13, 00BBT14)			
13.0 (a)	SHIFTING OF TRANSFORMER FOR ERECTION PURPOSE	Set	2	0.00073427
13.0 (b)	Erection, Testing and commissioning of Transformer and associated Equipments / accessories.)	Set	2	0.00165210
14.0	95 KV, 1000mA HVR TRANSFORMER (ERECTION IS EXCLUDED - OIL FILTRATION & COMMISSIOINING ONLY)	No.	56	0.00535053
Z.2	**OIL FILLLED SERVICE TRANSFORMERS**			
1.0	**2.5 MVA, 11 /0.433KV, RODM Plant Service Transformer with all accessories complete (00BFT09, 00BFT10)**	Set	2	0.00119318
2.0	**2 MVA, 11 /0.433KV, CT Service Transformer with all accessories complete (01BFT15, 01BFT16, 01BFT15)**	Set	3	0.00178977
3.0	**2 MVA, 11 /0.433KV, Fuel Oil Service Transformer with all accessories complete (00BFT05,00BFT05)**	Set	2	0.00119318
4.0	**2 MVA, 11 /0.433KV, Aux. Boiler Service Transformer with all accessories complete (00BFT07, 00BFT08)**	Set	2	0.00119318
5.0	**2 MVA, 11 /0.433KV, Admin Service Transformer with all accessories complete (00BFT11, 00BFT12)**	Set	2	0.00119318
6.0	**2 MVA, 11 /0.433KV, Desalination Service Transformer with all accessories complete (00BFT13, 00BFT14)**	Set	2	0.00119318
7.0	**1.6 MVA, 11 /0.433KV, ESP Service Transformer with all accessories complete (01BFT05, 01BFT06, 01BFT07, 01BFT08, 01BFT09, 01BFT10, 01BFT11, 01BFT12)**	Set	8	0.00246661
Z.3	**DRY TYPE TRANSFORMERS**			
1.0	2500 KVA, 11 KV/433V, WITH ALL ACCESSORIES COMPLETE	No.	6	0.00264281
2.0	2000 KVA, 11 KV/433V, WITH ALL ACCESSORIES COMPLETE	No.	4	0.00176187
3.0	1600 KVA, 11 KV/433V, WITH ALL ACCESSORIES COMPLETE	No.	2	0.00061665
4.0	8500 KVA, 21 KV/765V EXCITATION TRANSFORMER & RECTIFIER UNIT WITH ALL ACCESSORIES COMPLETE	No.	1	0.00059659
ZA	**BUSDUCTS** (Including erection of loose items like seal of bushings, wall frames, bellows, CTs and its wiring etc. as per drawing)			
ZA.1	**IP BUSDUCT(24KV)**			
a.	Main Bus Duct, 1700MM DIA (Unit-1)	MTR	225	0.01732827
b.	Tap Off Bus Duct, 780MM DIA (Unit-1)	MTR	150	0.00943883
c.	Delta Busduct, 1200MM DIA (Unit-1)	MTR	140	0.00930269
d.	Top Chambers (Neutral & Phase side) - Unit-1	No.	2	0.00140948
e.	NG cubicle with NGR, NGT including assembly of loose components alongwith internal wiring, mounting of neutral CT etc.(Unit-1)	SET	1	0.00035237
f.	LAVT Cubicle including assembly of loose components alongwith internal wiring, mounting of LAs & VTs etc. (Unit-1)	SET	1	0.00042285
g.	SPVT Cubicle including assembly of loose components alongwith internal wiring, mounting of VT etc. (Unit-1)	SET	1	0.00042285
h.	Air pressurisation equipment comprising of load unit, compresser, receiver, drier, pressurising panel & control panel etc. (Unit-1)	SET	1	0.00079284
ZA.2	**SP BUSDUCT(11KV & 3.3 KV)**			
1.0	4000A SP Busduct (11 KV) - Canopy/Plain type	MTR	175	0.00337303
2.0	3500A SP Busduct (11KV) - Canopy/Plain type	MTR	590	0.01137193
3.0	3150A SP Busduct (3.3 KV) - Canopy/Plain type	MTR	147	0.00283335
4.0	2500A SP Busduct (3.3 KV) - Canopy/Plain type	MTR	72	0.00138776
5.0	2000A SP Busduct (3.3 KV) - Canopy/Plain type	MTR	24	0.00046259
6.0	1600A SP Busduct (3.3 KV) - Canopy/Plain type	MTR	20	0.00038549
7.0	1250A SP Busduct (3.3 KV) - Canopy/Plain type	MTR	98	0.00188891
8.0	1000A SP Busduct (3.3 KV) - Canopy/Plain type	MTR	65	0.00125285
ZA.3	**LT BUSDUCTS** (each set complete comprising tentatively of following : Straight Run, 90 degree bend, Flexible Copper at Transformer end, Flexible at Switchgear end , Adapter, Expansion joint, Phase cross over, hardware at Transformer & SWBD end, silica gel breather etc.)			
1.0	4000A	SET	6	0.00066084
2.0	3200A	SET	15	0.00165204
3.0	3000A	SET	10	0.00110136
4.0	2500A	SET	1	0.00011014
ZB)	**DG SETS**			
ZB.1	2000 KVA, 415V, 2780A, DG SETs (FOR MAIN PLANT) along with Accoustic enclosure, Fuel tank(day tank, bulk oil tank), fuel oil piping, exhaust piping, DG set stack Installation, Generator terminal adaptor/box, Current transformer, instruments, Power JB, Control JB, cleaning of radiator tubes (cleaning agent to be supplied by BHEL), replacement of engine oil and its filter, lub. oil filter, radiator coolant (Diesel for commissioning, engine oil & its filter, lub oil, lub. oil filter, coolant to be supplied by BHEL) Cabling, earthing, etc. complete.	SETS	2	0.01409492
ZB.2	750 KVA, 415V, 1043A, DG SETs (FOR FGD) along with Accoustic enclosure, Fuel tank(day tank, bulk oil tank), fuel oil piping, exhaust piping,DG set stack Installation, Generator terminal adaptor/box, Current transformer, instruments, Power JB, Control JB, cleaning of radiator tubes (cleaning agent to be supplied by BHEL), replacement of engine oil and its filter, lub. oil filter, radiator coolant (Diesel for commissioning, engine oil & its filter, lub oil, lub. oil filter, coolant to be supplied by BHEL) Cabling, earthing, etc. complete.	SETS	1	0.00341461

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Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO-PSER:SCT:KLN-E2015:20

SCH-3: SERVICE (PART-I)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
ZB.3	**PANELS, BATTERY, DG Bus Duct ETC.** (Including fitting of loose items, internal wiring if any etc.)			
1.0	AMF PANEL & DG AUX. PANEL/DB	Set	3	0.00026429
2.0	24V DC, Lead Acid Type automotive Battery with accessories and stand (360AH)	Set	2	0.00002203
3.0	24V DC, Lead Acid Type automotive Battery with accessories and stand (180AH)	Set	1	0.00001101
4.0	Float cum Boost Battery Charger with stand	Nos.	3	0.00021744
5.0	NGR Panel	Nos.	3	0.00021143
6.0	Fuel transfer pump (3.7 KW) with accessories (Flow meters, valves, gauges etc.) for 2000kVA DG Sets	Set	2	0.00017626
7.0	Fuel transfer pump control panel	Set	1	0.00003107
8.0	Insulation & cladding	MT	3	0.00063429
9.0	Fabrication & erection of piping (upto 3"dia) between Fuel transfer Pumps for DG located in FOPH and buffer tank of DG set	MT	2	0.00052926
10.0	415V Bus Duct of DG Set (from DG to SWGR panel) (Including erection of loose items like seal of bushings, wall frames, bellows etc. as per drawing)	Meter	500	0.01067066
ZC	SUPPORT STRUCTURE (FOR ALL TYPE OF BUS DUCTS, DG SET ETC.) INCLUDING FABRICATION OF DG STRUCTURE (supply of materials is by BHEL)	MT	100	0.01346095
	TOTAL			**0.97290339**

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SCH-4: SUPPLY (PART-II)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
A	**RUBBER MAT**			
1.0	Supply of Rubber mat of appropriate voltage class Size for laying infront of switchgears upto 3.3 KV. (as required under IE Rule).	Pieces	**210**	0.0038437
2.0	Supply of Rubber mat of appropriate voltage class Size for laying infront of switchgears above 3.3 KV and upto 11 KV Switchgear. (as required under IE Rule).	Pieces	**140**	0.00349375
B	**DISPLAY BOARD**			
1.0	Supply of Electric Shock Treatment Display board as per IE Rules, Laminated on hardboard material (size : 2.5 ft x 3.5 ft) and mounted on wooden frame) for switchgear rooms / substations	Pieces	**80**	0.00079907
2.0	Supply of 11KV/6.6 KV/3.3 KV/415V DANGER PLATE	Pieces	**50**	0.00033312
C	**Supply of GALVANISED MS CONDUITS / PIPES**			
C.1	**GALVANISED MS RIGID CONDUITS**			
1.0	50 mm diameter	Metres	100	0.00021691
2.0	100-125 mm diameter	Metres	50	0.00049942
C.2	**FLEXIBLE CONDUITS MADE OF COLD ROLLED ANNEALED ELECTRO GALVANISED MS STRIP**			
1.0	20-25 mm diameter	Metres	1000	0.0013428
D	**Supply of MS HOT DIP GALVANISED THREADED & HEXAGONAL HEAD CABLE GLAND ADAPTORS/GLAND HOLE PLUGS AS PER REQUIRED SIZE AND SHAPES**	KG.	**50**	0.00041678
E	**Supply of Moisture Sealing compounds for wall, floor, panel openings for all variants**	Sq. Mtr.	**30**	0.00124756
EA	**Supply of Grey shade (RAL 7032) paint (For use in Transformer, Bus Duct, HT/LT SWBDs etc. as touch-up paint)**	Ltr.	**50**	0.00012677
F	**CABLE GLANDS & LUGS**			
F.1	**Supply of DOUBLE COMPRESSION HEAVY DUTY CABLE GLANDS (Use upto 11KV level)**			
	ABOVE (MM) UP TO (MM)			
1.0	Upto 15	Nos.	12	0.00002715
2.0	15 18	Nos.	12	0.00003334
3.0	18 21	Nos.	12	0.0000419
4.0	21 24	Nos.	12	0.00005565
5.0	24 27	Nos.	12	0.00006569
6.0	27 30	Nos.	12	0.00006879
7.0	30 33	Nos.	12	0.00010003
8.0	33 36	Nos.	12	0.00011094
9.0	36 39	Nos.	12	0.00013982
10.0	39 42	Nos.	4	0.00005508
11.0	42 46	Nos.	4	0.00005508
12.0	46 50	Nos.	4	0.00006904
13.0	54 58	Nos.	4	0.00008912
14.0	58 62	Nos.	4	0.0001035
15.0	62 70	Nos.	4	0.0001035
16.0	70 78	Nos.	4	0.00013164

VOLUME-III-R01
PRICE SCHEDULE

Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO- PSER:SCT:KLN-E2015:20

SCH-4: SUPPLY (PART-II)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
F.2	**Supply of Cu/Al. LUGS (HEAVY DUTY TYPE) - SOLDERLESS CRIMPING TYPE (Use upto 11KV level)**			
1.0	4 sq mm	Nos.	200	0.00001653
2.0	6 sq mm	Nos.	50	0.00000568
3.0	10 sq mm	Nos.	50	0.0000062
4.0	16 sq mm	Nos.	50	0.00000826
5.0	25 sq mm	Nos.	20	0.00000496
6.0	35 sq mm	Nos.	20	0.00000661
7.0	50 sq mm	Nos.	20	0.00001033
8.0	70 sq mm	Nos.	20	0.00001673
9.0	95 sq mm	Nos.	20	0.00002396
10.0	120 sq mm	Nos.	10	0.00001642
11.0	150 sq mm	Nos.	10	0.00002128
12.0	185 sq mm	Nos.	10	0.00002799
13.0	240 sq mm	Nos.	10	0.00004132
14.0	300 sq mm	Nos.	10	0.00006032
15.0	400 sq mm	Nos.	10	0.00009482
16.0	630 sq mm	Nos.	10	0.00019419
G	**Supply of CABLE straight thru jointing kit**			
G.1	**1.1 KV LT COPPER XLPE POWER CABLE(UN-ARM)**			
1.0	1CX6 SQ. MM	Nos.	6	0.00003278
2.0	1Cx10 SQ. MM	Nos.	6	0.00008881
3.0	1Cx16 SQ. MM	Nos.	6	0.00008881
4.0	1CX25 SQ. MM	Nos.	6	0.00011657
5.0	1CX35 SQ. MM	Nos.	6	0.00011657
6.0	1CX50 SQ. MM	Nos.	6	0.00011657
7.0	1CX70 SQ. MM	Nos.	6	0.00018828
8.0	1CX95 SQ. MM	Nos.	6	0.00018828
9.0	1CX150 SQ. MM	Nos.	6	0.00018828
10.0	1CX240 SQ. MM	Nos.	6	0.00024175
11.0	1CX300 SQ. MM	Nos.	6	0.00024175
12.0	1CX500 SQ. MM	Nos.	6	0.00029584
13.0	1CX630 SQ. MM	Nos.	6	0.00030317
14.0	2CX2.5 SQ. MM	Nos.	6	0.00003278
15.0	2CX6 SQ. MM	Nos.	6	0.00003278
16.0	2CX10 SQ. MM	Nos.	6	0.00008881
17.0	2CX16 SQ. MM	Nos.	6	0.00008881
18.0	2CX25 SQ. MM	Nos.	6	0.00014726
19.0	2CX35 SQ. MM	Nos.	6	0.00014726
20.0	2CX70 SQ. MM	Nos.	6	0.00025983
21.0	2CX120 SQ. MM	Nos.	6	0.00025983
22.0	3CX2.5 SQ. MM	Nos.	6	0.00005634
23.0	03CX6 SQ. MM	Nos.	6	0.00005634
24.0	03CX10 SQ. MM	Nos.	6	0.00010044
25.0	03CX16 SQ. MM	Nos.	6	0.00010044
26.0	03CX25 SQ. MM	Nos.	6	0.00018623
27.0	03CX35 SQ. MM	Nos.	6	0.00018623
28.0	03CX50 SQ. MM	Nos.	6	0.00018623
29.0	03CX70 SQ. MM	Nos.	6	0.00028585
30.0	03CX120 SQ. MM	Nos.	6	0.00028585
31.0	03CX150 SQ. MM	Nos.	6	0.00028585
32.0	03CX185 SQ. MM	Nos.	6	0.00052838
33.0	03CX240 SQ. MM	Nos.	6	0.00052838
34.0	3.5CX25 SQ. MM	Nos.	6	0.00018623
35.0	3.5CX35 SQ. MM	Nos.	6	0.00018623

VOLUME-III-R01
PRICE SCHEDULE

Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO- PSER:SCT:KLN-E2015:20

SCH-4: SUPPLY (PART-II)

Sl No	ITEM DESCRIPTION	Unit	Quantity	Weightage
36.0	3.5CX70 SQ. MM	Nos.	6	0.00028585
37.0	3.5CX120 SQ. MM	Nos.	6	0.00028585
38.0	3.5CX150 SQ. MM	Nos.	6	0.00028585
39.0	3.5CX185 SQ. MM	Nos.	6	0.00052838
40.0	3.5CX240 SQ. MM	Nos.	6	0.00052838
41.0	04CX25 SQ. MM	Nos.	6	0.00018623
42.0	04CX6 SQ. MM	Nos.	6	0.00005634
43.0	04CX10 SQ. MM	Nos.	6	0.00010044
44.0	04CX16 SQ. MM	Nos.	6	0.00010044
45.0	04CX35 SQ. MM	Nos.	6	0.00018623
G.2	**LT. COPPER FIRE SURVIVAL CABLE**			
1.0	1C-150 SQ. MM	Nos.	6	0.00018828
2.0	1C-400 SQ. MM	Nos.	6	0.0002627
3.0	1C-630 SQ. MM	Nos.	6	0.00030317
4.0	2C-150 SQ. MM	Nos.	6	0.00025983
5.0	3C-2.5 SQ. MM	Nos.	6	0.00005634
6.0	3C-10 SQ. MM	Nos.	6	0.00010044
7.0	3C-25 SQ. MM	Nos.	6	0.00018623
8.0	3C-35 SQ. MM	Nos.	6	0.00018623
9.0	3C-95 SQ. MM	Nos.	6	0.00028585
10.0	3C-185 SQ. MM	Nos.	6	0.00052838
11.0	3C-150SQ. MM	Nos.	6	0.00028585
12.0	4C-16 SQ. MM	Nos.	6	0.00010044
13.0	5C-2.5 SQ. MM	Nos.	6	0.00007329
G.3	**1.1 KV LT. COPPER PVC FRLS CONTROL CABLE**			
1.0	2C X 1.5 SQ MM	Nos.	6	0.00003278
2.0	2CX2.5 SQ. MM	Nos.	6	0.00003278
3.0	3C X 1.5 SQ MM	Nos.	6	0.00005634
4.0	3C X 2.5 SQ. MM	Nos.	6	0.00005634
5.0	4C X 1.5 SQ. MM	Nos.	6	0.00007329
6.0	5C X 1.5 SQ MM	Nos.	6	0.00007329
7.0	5C X 2.5 SQ MM	Nos.	6	0.00007329
8.0	5C X 4 SQ MM	Nos.	6	0.00007329
9.0	7C X 1.5 SQ MM	Nos.	6	0.00007329
10.0	7C X 2.5 SQ. MM	Nos.	6	0.00007329
11.0	10C X 2.5 SQ. MM	Nos.	6	0.00009076
12.0	12C X 1.5 SQ MM	Nos.	6	0.00009076
13.0	12C X 2.5 SQ MM	Nos.	6	0.00009076
14.0	16C X 2.5 SQ. MM	Nos.	6	0.00014787
15.0	19CX1.5 SQ. MM	Nos.	6	0.00014787
	TOTAL			**0.02709661**

ANNEXURE-A TO TCN-04

TENDER NO:PSER:SCT:KLN-E2015:20

JOB: Erection, testing & Commissioning of cable trays, cabling, lighting and earthing protection, HT/LT Transformer, HT/LT Bus duct, HT/LT Switchgears,HT/LT Motors, various Panels, DG Set, other misc electrical equipment for Main Plant Area-U#1,FGD U#1 and BOP Area-Common for U#1&2 of 2x660 MW Maitree STPP,Rampal,Bangladesh.

TENDER NO: PSER:SCT:KLN-E2015:20

Sl No	Reference Clause of Tender Documents	Existing provision	Bidder's query	BHEL's clarification
1	PRE QUALIFICATION CRITERIA	ANNEXURE - 4; Check List; Point no.: 4	In general bidding process – EMD is only prerequisite for Bangladesh Government direct work. But in terms of bidding under private/Foreign EPC company usually "EMD"/"Cost of Tender" process is not practicing here in Bangladesh. Even though we have done couple of project under Indian/European/Korean companies whom had never asked for any EMD for general bidding. But this is to confirm you that we will comply with all the Bank Guarantee terms. Considering above all point does it really need to provide the EMD amount along with cost of tender.	Shall be as per tender
2	VOLUME-III; PRICE SCHEDULE	SL NO: Item Description	Need to know the total weight Electrical BOQ total weight & each line item weight.	Weight details of major items are provided in attached revised Annexure-II (R-01)of VOLUME-IF-TS-1
3	VOLUME-III; PRICE SCHEDULE	K: HT, LT SWBD AND DC DB	All panels dimension required. All panel weight required.	Refer attached revised Annexure-II (R-01)of VOLUME-IF-TS-1
4	VOLUME-III; PRICE SCHEDULE	Z: TRANSFORMERS	Transformers weight & dimension required to identify the costs.	Refer attached revised Annexure-II (R-01)of VOLUME-IF-TS-1
5	VOLUME-III; PRICE SCHEDULE	F.1: Supply of DOUBLE COMPRESSION HEAVY DUTY CABLE GLANDS (Use upto 11KV level)	Each cable size outside diameter required for gland supply or the specific sizes of cable glands and quantities are required.	Gland sizes as indicated are overall diameters of cable glands for various sizes of cables. Tentative quantity for individual range of gland sizes has been indicated, however ,successful bidder will supply cable glands as per actual requirement and clearance given by BHEL-Site.
6	VOLUME-III; PRICE SCHEDULE	A.4: FRP Cable tray	Please specify the Supports materials for FRP Cable tray.	Refer TCC-TS-DRG- Installation detail of cable tray support system
7	VOLUME-III; PRICE SCHEDULE	D.1: SUPPORT STRUCTURAL (Galvanized Iron) MATERIAL	Please specify the scope for structural Supports Cutting and welding portion's painting. If it is in subcontractors scope, please let us know the specification of paints.	Entire scope of making structural support for cable trays are in the scope of succesful bidder.Painting of cutting and welding portion of support structure shall be matching with the paint of parent material.
8	VOLUME-III; PRICE SCHEDULE	C.2: FRP CABLE TRAY COVER FLAT	In the BOQ , we didn't find the any items for cable tray band cover to quoted. How would it be installed at site, Please clarify.	Cover for bend portion of the cable tray shall be fabricated by suitably cutting the length of cable tray cover of respective sizes.
9	VOLUME-III; PRICE SCHEDULE	L: COMMISSIONING OF LOCAL CONTROL PANEL, HT panel, LT panel , Transformer etc.	We provide skill manpower for commissioning assistance.	Commissioning is under the scope of successful bidder.
10	VOLUME-III; PRICE SCHEDULE	Testing	Please provide us the testing specification of the equipment to be tested at site.	Testing specification will be provided during execution of job at site.

ANNEXURE-II-R-01

TENTATIVE DIMENSION/ WEIGHT OF MAJOR EQUIPMENT (VARIATION IN DIMENSION AND WEIGHT UPTO PLUS/MINUS 15% SHALL BE CONSIDERED AS MATCHING WITH SPECIFIED DIMENSIONS/WEIGHT)

SL NO	ITEM DESCRIPTION	UNIT	TOTAL QTY	APPROXIMATE DIMENSION (EACH)			APPROXIMATE WEIGHT (EACH) (MT)
				L (M)	B (M)	H (M)	
1	**HT Switchgear**						
1.1	11KV, 4000A, UNIT-1 SWITCH BOARD - 1BA (01BBA)	NO OF BOARD	1				
1.1A	Section-A			17.4	2.927	2.846	37.8
1.1B	Section-B			18.2	2.927	2.846	39.6
1.2	11KV, 4000A, UNIT-1 SWITCH BOARD - 1BB (01BBB)	NO OF BOARD	1				
1.2A	Section-A			14.12	2.927	2.846	30.6
1.2B	Section-B			14.94	2.927	2.846	32.4
1.3	11KV, 4000A, STATION SWITCH BOARD - 0BA (00BBA)	NO OF BOARD	1	7.54	2.927	2.846	14.4
1.4	3.3KV, 3150A, UNIT-1 AUX. SWITCH BOARD (01BCA)	NO OF BOARD	1	23.34	2.927	2.846	52.2
1.5	3.3 KV, 1600A, STATION SWITCH BOARD (00BCA)	NO OF BOARD	1	21.1	2.927	2.846	46.8
1.6	3.3 KV, 1000A, RAW WATER SWITCH BOARD (00BCG)	NO OF BOARD	1	11.26	2.927	2.846	25.2
1.7	3.3 KV, 2500A, CHP-1 AUX. SWITCH BOARD (00BCB)	NO OF BOARD	1	18.42	2.927	2.846	41.4
1.8	3.3 KV, 2500A, CHP-2 AUX. SWITCH BOARD (00BCC)	NO OF BOARD	1	25.8	2.927	2.846	57.6
1.9	3.3 KV, 2000A, CHP-3 AUX. SWITCH BOARD (00BCD)	NO OF BOARD	1	24.16	2.927	2.846	54
1.10	3.3 KV, 1000A, JETTY AUX. SWITCH BOARD (00BCF)	NO OF BOARD	1	10.44	2.927	2.846	23.4
1.11	3.3 KV, 1000A, AHP AUX. SWITCH BOARD (00BCE)	NO OF BOARD	1	15.36	2.927	2.846	34.2
1.12	3.3 KV, 1250A, UNIT-1 FGD SWITCH BOARD (01BCB)	NO OF BOARD	1	13.72	2.927	2.846	30.6
1.13	11 KV EARTHING TRUCKS	SET	9	0.7	0.9	1.3	0.56
1.14	3.3 KV EARTHING TRUCKS	SET	20	0.7	0.9	1.3	0.56
1.15	11 KV BUS TRANSFER PANEL	NO.	2	0.8	0.8	2.3	0.25
1.16	HT DATA CONCENTRATOR PANEL WITH ACCESSORIES (INCLUDING INSTALLATION OF LOOSE ITEMS, MINOR WIRING IN THE ASSOCIATED PANELS.)	NO.	7	0.8	0.8	2.0.	0.2
1.17	MOUNTING OF ETHERNET SWITCHES AT DIFFERENT HT SWGR PANELS INCLUDING LMU AND INTERNAL WIRING ETC. FOR HT DATA CONCENTRATOR SYSTEM	NO.	40	0.325	0.44	0.044	0.0066
2	**LT SWBD AND DC DB**						

0.325

2.1	415V, 3000A, UNIT-1 EMERGENCY MCC (01BMA)	NO OF BOARD	1	15.36	1.1	2.45	18.57
2.2	220V, 1000A, UNIT-1 MAIN DCDB (01BUA)	NO OF BOARD	1	8.56	1.1	2.4	9.63
2.3	415V, 3200A, UNIT-1 TURBINE SERVICE PMCC (01BFA)	NO OF BOARD	1	14.46	1.1	2.45	17.32
2.4	415V, 250A, UNIT-1 TURBINE VALVE DB (01BJA)	NO OF BOARD	1	11.16	1.1	2.4	12.62
2.5	415V, 630A UNIT-1 SERVICE ACDB (01BJB)	NO OF BOARD	1	8.46	1.1	2.4	9.87
2.6	415V, 4000A, UNIT-1 BOILER SERVICE PMCC (01BFB)	NO OF BOARD	1	17.36	1.1	2.45	20.43
2.7	415V, 250A, UNIT-1 BOILER VALVE & DAMPER ACDB(01BJC)	NO OF BOARD	1	11.06	1	2.4	11.07
2.8	415V, 400A, UNIT-1 BOILER ACDB (01BJD)	NO OF BOARD	1	6.36	1.1	2.4	7.07
2.9	415V, 400A, UNIT-1 ESP & ID FAN AREA MCC (01BJE)	NO OF BOARD	1	3.66	1.1	2.4	4.07
2.10	415V, 400A, UNIT-1 ESP AC & VENTILLATION MCC (01BJF)	NO OF BOARD	1	3.66	1.1	2.4	4.07
2.11	415V, 4000A, STATION SEVICES PMCC, UNIT-1 (00BFA)	NO OF BOARD	1	13.4	1.1	2.45	16.62
2.12	415V, 630A UNIT-1 AIR WASHER MCC (01BJG)	NO OF BOARD	1	7.56	1.1	2.4	8.87
2.13	415V, 1600A, CCR AIR CONDITIONING MCC (00BJS)	NO OF BOARD	1	5.76	1.1	2.4	6.87
2.14	415V, 1000A, UNIT-1 VENTILATION MCC (01BJH)	NO OF BOARD	1	7.56	1.1	2.4	8.87
2.15	415V, 630A, UNIT-1 MISC SERVICE MCC (00BJQ)	NO OF BOARD	1	15.66	1.1	2.4	17.87
2.16	415V, 3200A, ADMIN BUILDING PMCC (00BFF)	NO OF BOARD	1	7.56	1.1	2.4	8.87
2.17	415V, 400A, AUDITORIUM ACDB (00BJK)	NO OF BOARD	1	6.36	1.1	2.4	7.07
2.18	415V, 400A, CANTEEN ACDB (00BJL)	NO OF BOARD	1	6.36	1.1	2.4	7.07
2.19	415V, 1000A, SERVICE BUILDING MCC (00BJM)	NO OF BOARD	1	7.56	1.1	2.4	8.87
2.20	415V, 400A, GAS CHLORINATION MCC (00BJN)	NO OF BOARD	1	7.56	1.1	2.4	8.87
2.21	415V, 3200A, FUEL OIL PMCC (00BFC)	NO OF BOARD	1	14.76	1.1	2.45	17.22
2.22	415V, 400A, PERMANENT STORE ACDB (00BJA)	NO OF BOARD	1	5.46	1.1	2.4	6.07
2.23	415V, 630A, WORKSHOP MCC (00BJB)	NO OF BOARD	1	7.56	1.1	2.4	8.87
2.24	415V, 630A, H2 MCC (00BJC)	NO OF BOARD	1	7.56	1.1	2.4	8.87
2.25	415V, 4000A, RODM PMCC (00BFE)	NO OF BOARD	1	24.66	1.1	2.45	28.72
2.26	415V, 2500A, DESALINATION PMCC (00BFJ)	NO OF BOARD	1	15.36	1.1	2.45	18.57
2.27	415V, 1600A, PTP MCC (00BJH)	NO OF BOARD	1	5.46	1.1	2.4	6.07
2.28	415V, 630A, FIRE WATER MCC (00BJF)	NO OF BOARD	1	7.56	1.1	2.4	8.87

2.29	415V, 630A, CPU MCC (00BJD)	NO OF BOARD	1	10.26	1.1	2.4	11.87
2.30	415V, 630A, ETP MCC (00BJE)	NO OF BOARD	1	14.76	1.1	2.45	17.22
2.31	415V, 3200A, AUX.BOILER PMCC (00BFD)	NO OF BOARD	1	15.36	1.1	2.45	18.57
2.32	415V, 3200A, COOLING TOWER PMCC - 1 (01BFJ)	NO OF BOARD	1	15.36	1.1	2.45	18.57
2.33	415V, 800A, CWT & CHLORINATION MCC (00BJP)	NO OF BOARD	1	5.46	1.1	2.4	6.07
2.34	415V, 3200A, UNIT-1 FGD SERVICE SWITCH BOARD (01BFH)	NO OF BOARD	1	24.66	1.1	2.45	28.72
2.35	415V, 2500A, FGD COMMON SERVICE SWITCH BOARD (00BFH)	NO OF BOARD	1	24.66	1.1	2.45	28.72
2.36	415V, 630A, FGD AC & VENT. MCC (00BJT)	NO OF BOARD	1	6.36	1.1	2.4	7.07
2.37	415V, FGD EMERGENCY MCC (00BMA)	NO OF BOARD	1	11.76	1.1	2.4	13.92
2.38	415V, 2500A, UNIT-1 ESP LTMSB-A (01BFC)	NO OF BOARD	1	11.76	1.1	2.4	13.92
2.39	415V, 2500A, UNIT-1 ESP LTMSB-B (01BFD)	NO OF BOARD	1	11.76	1.1	2.4	13.92
2.40	415V, 2500A, UNIT-1 ESP LTMSB-C (01BFE)	NO OF BOARD	1	11.76	1.1	2.4	13.92
2.41	415V, 2500A, UNIT-1 ESP LTMSB-D (01BFF)	NO OF BOARD	1	11.76	1.1	2.4	13.92
2.42	415V, 63A, UNIT-1 SOOT BLOWER MCC (01BJI)	NO OF BOARD	1	20.06	1.1	2.45	20.07
2.43	220V, 50A, FGD/FOPH DCDB	NO OF BOARD	1	5.46	1.1	2.4	6.07
2.44	220V, 50A, RWPH DCDB	NO OF BOARD	1	5.46	1.1	2.4	6.07
2.45	415V, WALL MOUNTED ACDB	NO OF BOARD	8	1.7	0.3	1.2	0.017
2.46	220V, WALL MOUNTED DCDB	NO OF BOARD	6	1.7	0.3	1.2	0.083
2.47	MOUNTING OF ETHERNET SWITCHES AT DIFFERENT LT SWGR PANELS INCLUDING LMU AND INTERNAL WIRING ETC. FOR LT DATA CONCENTRATOR SYSTEM	NO.	40	1	0.5	0.1	-----
3	**GENERATOR RELAY PANELS, VARIOUS CONTROL PANELS, DAVR AND OTHER MISC. PANELS** (INCLUDING FITTING OF LOOSE ITEMS, INTERNAL WIRING IF ANY COMPLETE)						
3.1	Generator Relay Panel (GEN/GT/UT PROT. PANELS)	SET	1	1	1	2	------
3.2	STATION TRANSFORMER RELAY PANEL	SET	1				
3.3	Electrical Control Panel in CCR	SET	1	2	2.504	1	--------
3.4	R.T.C.C. PANEL FOR POWER TRANSFORMERS	NO.	3	1	1	2	0.7
3.5	DIGITAL AUOTOMATIC VOLTAGE REGULATOR BOARD (COMPRISING OF	SET	1				

	TRANSFORMER, REGULATION, THYRISTOR & FIELD SUPPRESSION CUBICLES - INCLUDING FITTINGS OF LOOSE ITEMS LIKE PC MONITOR AND OTHER ITEMS, INTERNAL WIRING IF ANY ETC. COMPLETE)						
3.5A	REGULATION CUBICLE 1			2	2.63	1.2	1.1725
3.5B	FIELD BREAKER AND FIELD FLASHING			2	3.17	1.2	1.1725
3.5C	THYRISTOR CUBICLE (2 SUITE)			2	3	1.2	1.5225
3.5D	THYRISTOR CUBICLE (2 SUITE)+ TRUNKING CUBICLE			2	3	1.2	1.5225
3.5E	IPBD Excitation Transformer LV Side			2	----	-----	-------
3.5F	Transformer Cubicle			2	3.65	3.6	2.25
4	TRANSFORMERS (INDICATED WEIGHTS ARE IN DRY OIL CONDITION OF TRANSFORMERS)						
4.1	OIL FILLED TRANSFORMERS						
4.1.1	Generator Transformer (3x1 phase 270MVA, {(420/√3)/21KV)} along with all accessories complete (01BAT01,01BAT02,01BAT03)	SET	1	6.2	4.95	4.95	3 X 218
4.1.2	Spare GT 1X1 Phase 270MVA, {(420/√3)/21KV}) along with all accessories complete	SET	1	6.2	4.9	4.95	218
4.1.3	Station Transformer (125/62.5/62.5 MVA, 230/11.5/11.5 KV) with NGR and all accessories complete (00BAT01)	SET	1	6.5	3	6.5	120
4.1.4	65 MVA, 21/11.5 KV Unit Transformer with NGR and accessories complete (01BBT01, 01BBT02)	SET	2	4.5	3.5	4.5	42
4.1.5	16 MVA, 11/3.45 KV Unit Aux. Transformer - 1A & 1B with NGR and accessories complete (01BBT03, 01BBT04)	SET	2	3.5	3	3.5	17.5
4.1.6	8 MVA, 11/3.45 KV Station Aux. Transformer with NGR and accessories complete (00BBT01)	SET	1	6.5	4.8	5.4	25
4.1.7	6.3 MVA, 11/3.45 KV FGD Aux. Transformer - 1A & 1B with NGR and accessories complete (01BBT05, 01BBT06)	SET	2	6.5	4.8	5.4	12.25
4.1.8	12.5 MVA, 11/3.45 KV CHP Aux. Transformer - 1A&1B with NGR and accessories complete (00BBT03, 00BBT04)	SET	2	4.5	2.5	2.7	13.5
4.9	12.5 MVA, 11/3.45 KV CHP Aux. Transformer - 2A&2B with NGR and accessories complete (00BBT05, 00BBT06)	SET	2	4.5	2.5	2.7	13.5
4.1.10	10 MVA, 11/3.45 KV CHP Aux. Transformer - 3A&3B with NGR and accessories complete (00BBT07, 00BBT08)	SET	2	7.2	5.5	4.3	20.85
4.1.11	3.5 MVA, 11/3.45 KV AHP Aux. Transformer - A&B with NGR and	SET	2	6.4	5.5	5.2	11

	accessories complete (00BBT09, 00BBT10)						
4.1.12	3.5 MVA, 11/3.45 KV AHP Silo Jetty Transformer - A&B with NGR and accessories complete (00BBT11, 00BBT12)	SET	2	6.4	5.5	5.2	11
4.1.13	3.5 MVA, 11/3.45 KV Raw Water Transformer - A&B with NGR and accessories complete (00BBT13, 00BBT14)	SET	2	6.4	5.5	5.2	11
4.1.14	95 KV, 1000mA HVR TRANSFORMER (ERECTION IS EXCLUDED - OIL FILTRATION & COMMISSIOINING ONLY)	NO.	56	2	1.6	2	2
4.2	OIL FILLED SERVICE TRANSFORMERS						
4.2.1	2.5 MVA, 11 /0.433KV, RODM Plant Service Transformer with all accessories complete (00BFT09, 00BFT10)	SET	2	4	3.2	3	7
4.2.2	2 MVA, 11 /0.433KV, CT Service Transformer with all accessories complete (01BFT15, 01BFT16, 01BFT15)	SET	3	3.5	3	2	6.5
4.2.3	2 MVA, 11 /0.433KV, Fuel Oil Service Transformer with all accessories complete (00BFT05,00BFT05)	SET	2	3.5	3	2	6.5
4.2.4	2 MVA, 11 /0.433KV, Aux. Boiler Service Transformer with all accessories complete (00BFT07, 00BFT08)	SET	2	3.5	3	2	6.5
4.2.5	2 MVA, 11 /0.433KV, Admin Service Transformer with all accessories complete (00BFT11, 00BFT12)	SET	2	3.5	3	2	6.5
4.2.6	2 MVA, 11 /0.433KV, Desalination Service Transformer with all accessories complete (00BFT13, 00BFT14)	SET	2	3.5	3	2	6.25
4.2.7	1.6 MVA, 11 /0.433KV, ESP Service Transformer with all accessories complete (01BFT05, 01BFT06, 01BFT07, 01BFT08, 01BFT09, 01BFT10, 01BFT11, 01BFT12)	SET	8	3	3	3	5.5
5	DRY TYPE TRANSFORMERS						
5.1	2500 KVA, 11 KV/433V, WITH ALL ACCESSORIES COMPLETE	NO.	6	3.2	2.265	3	1.275
5.2	2000 KVA, 11 KV/433V, WITH ALL ACCESSORIES COMPLETE	NO.	4	3	2.165	2.9	1
5.3	1600 KVA, 11 KV/433V, WITH ALL ACCESSORIES COMPLETE	NO.	2	3	2.165	2.75	3.5
5.4	8500 KVA, 21 KV/765V EXCITATION TRANSFORMER & RECTIFIER UNIT WITH ALL ACCESSORIES COMPLETE	NO.	1	5.18	2	3.7	9.3
6	**IP BUSDUCT(24KV)**						
6.1	NG cubicle with NGR, NGT including assembly of loose	SET	1	2.2	1.65	2.1	-----

	components alongwith internal wiring, mounting of neutral CT etc.(Unit-1)						
6.2	LAVT Cubicle including assembly of loose components alongwith internal wiring, mounting of LAs & VTs etc. (Unit-1)	SET	1	1.5	.5	2.1	-------
6.3	SPVT Cubicle including assembly of loose components along with internal wiring, mounting of VT etc. (Unit-1)	SET	1	2	0.8	2.1	-------
6.4	Air pressurisation equipment comprising of load unit, compressor, receiver, drier, pressurising panel & control panel etc. (Unit-1)	SET	1	3.3	2.5	1.5	-----