

**TENDER
SPECIFICATION
BHEL PSSR SCT 2245**

FOR

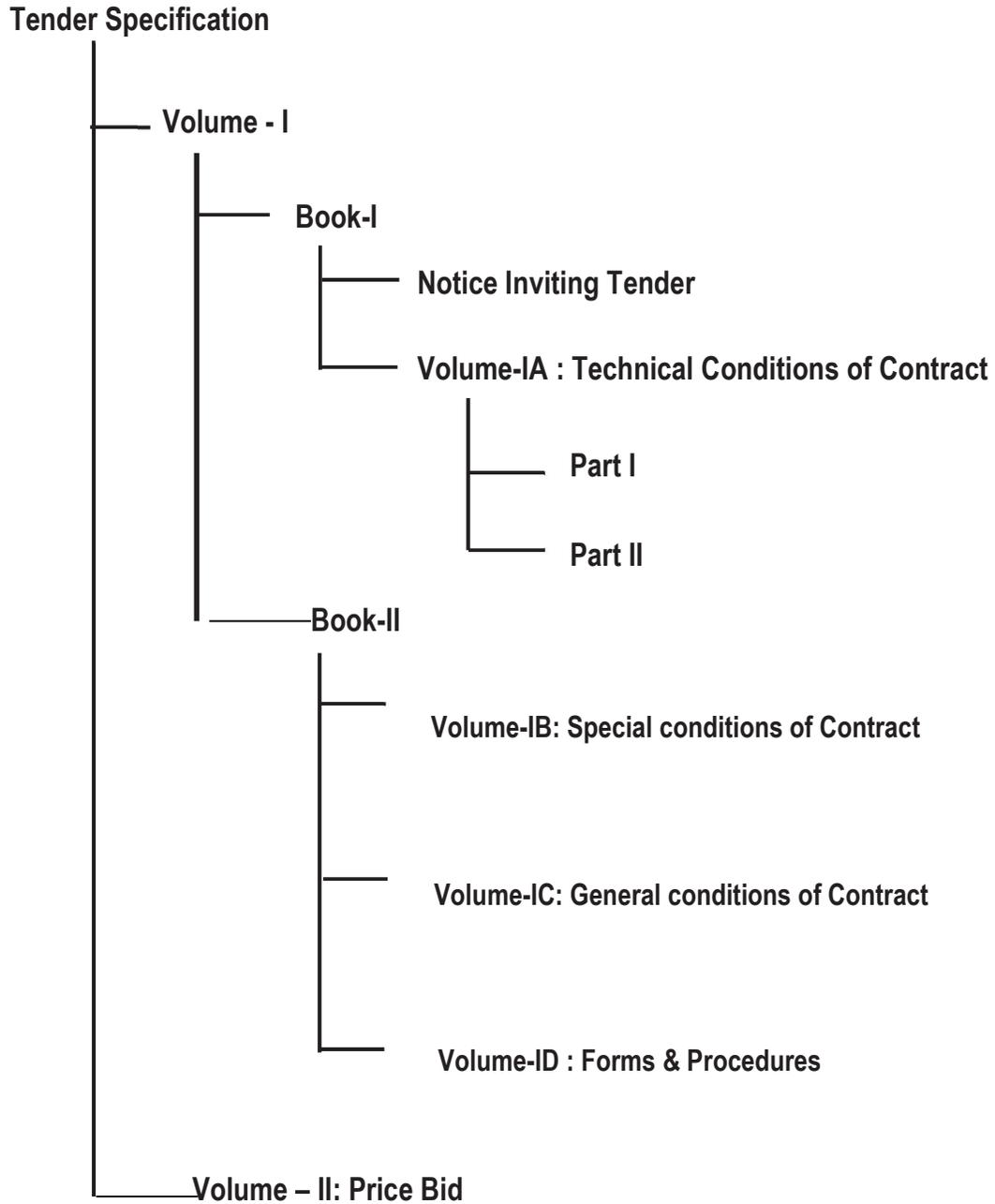
Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) under Package-A and Operation and Maintenance of the same under Package-B at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha.

**PRICEBID
VOLUME -II**



BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector – Southern Region
BHEL Integrated Office Complex, TNEB Road
Pallikaranai, Chennai -600100

TENDER SPECIFICATION CONSISTS OF



PRICE BID

CONTENTS	
Description	No. of pages
Part A : Instructions to the Bidders	01
Part B : Format for total amount (Enclosed as a separate Excel File in BHEL NIC e-Procurement portal for the subject tender)	(Separate Excel File)
Part C: Bill of quantities with weightage for amount of each items with respect to the total quoted price	25

PRICE BID

PART A **Instruction to Bidders:**

1. This scope of work in this tender is split into two Packages, Package A and Package B.
2. Package A broadly comprises of Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) and
Package B broadly comprises of Operation and Maintenance of the same under Package A
3. **Bidder shall submit Price for Package A only.**
4. The successful bidder (L1 Bidder) will be considered for award of both Package A and Package B.
5. Bidders shall only quote "Total Lumpsum amount" in the format given in the price bid. The "Total Lumpsum amount" is for the entire scope of work of Pkg A. Payment will be as per actual quantity executed as certified by BHEL Engineer.
6. Tenderers are requested to affix their company seal and authorized signature in all pages.
7. Bidders shall quote 'Total Amount' in the format enclosed as a separate Excel File in BHEL NIC e-Procurement portal for the subject tender and upload the same under 'Packet details - > Tender covers -> Finance '(Cover Type Description – Price Bid)'' and same shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope of work defined in specification and in accordance with terms & conditions of the tender. Any other entry elsewhere in the price bid shall be treated as Null and Void. Quoting of rates in any other form/ formats will not be entertained.
8. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C **(Pkg A)** of the Price Bid.
9. Contractor shall prepare billing break up in consultation with BHEL Engineer and submit the same for approval of BHEL Engineer In charge. Though the work is being tendered on lumpsum price basis, the payment shall be effected only based on the billing break up to the extent of work executed.
10. Payment shall be made for the actual quantities of work executed at the unit rate arrived as per the billing break up approved by BHEL. Refer TCC Vol 1A PART-1 Chapter-9 BOQ.
11. Bidders are also requested to refer Clause 37.0 of NIT for "Mode of Award of Work".

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A	PREPARATION OF DRAWING & OBTAINING STATUTORY APPROVAL			
A1	Route survey, preparation of route drawing, Detailed SLD, Detailed 11/11.5kV and 11kV/433V substation drawing, 11KV RMU/VCB drg., 11kV distribution drawing, Two/Four/Six/Eight pole structure arrangement drawing, Earthing layout, sag calculation for OH line & any other document /drawing as required by Electrical inspectorate and getting approval of above from statutory authority and also includes liaison with electrical inspectorate for field inspection and obtaining clearance certificate for charging the entire system in a phased manner as per site requirement (any number of times till completion of entire scope under this contract.)	Lump sum	1	.0271179
Bill of Quantities for Supply				
B	SUPPLY PORTION OF BOM FOR 11kV OH Lines/Cable Interconnection.			
B.1	11kV Supply Handling Items			
B.1.A	Interconnection Through HT Cables			
B.1.A.1	Supply of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3CX 185 sqmm 11kV XLPE insulated Armoured Aluminium Cables	Nos.	10	.0015534
B.2	11kV/11.5kV Substation Related Items.			
B.2.1	Supply of Lightning arrester set suitable for 11kV as per ISS/IEC Spec No. IS:3070/2-1985/Latestt. (Each set consist of all 3 Phases).	Sets	2	.0003709
B.2.2	Supply of 11kV HG Fuse set as per IS 9385(Each set consist of all 3 Phases).	Sets	2	.0005076

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at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B.2.3	Supply of 11kV pin insulator with GI pin as per IS:731 and IS:2486 Part-II. (Each set consist of all 3 Phases).	Sets	2	.0000784
B.2.4	Supply of 11kV disc insulator with fixing arrangements & conductor holding clamps as per IS:3188/1965 & IEC 309/1969/Latest. (Each set consist of all 3 Phases).	Sets	4	.0001776
B.2.5	Supply of 11kV pin insulator with pins as per IS: 2544 & IEC 60168 Latest. (Each set consist of all 3 Phases).	Sets	2	.0000216
B.2.6	Supply of 11kV 400A Air break switch-double break-horizontal mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.	Nos.	2	.0005948
B.2.7	Supply of 11kV DO fuse as per ISS/IEC Latest. (Each set consist of all 3 Phases)	Sets	2	.000515
B.2.8	ISMC-100 for cross beam for Overhead line two/four/six/eight pole steel structure at Sub Station.	MT	1	.0033749
B.2.9	ISMC-75 for cross beam for Overhead line two/four/six/eight pole steel structure at Sub Station.	MT	1	.0033749
B.2.10	Supply of 2kVA 230V 1 phase sine wave UPS of reputed make with 2 nos. of exide make 150AH 12V tubuler lead acid batteries. Vendor shall specify the make for which he is quoting in the bid and shall submit relevant certificates along with supply.	Sets	2	.0045107
B.2.11	Supply of 50kVA 3 phase 4 wire 11kV/433V copper wound DYN11 oil filled out door plinth mounted Distribution transformer of reputed make to provide power supply to 11/11.5kV sub station and illumination etc.	Nos.	1	.0028192
B.2.12	Supply of 125A out door type Floor mounted Power distribution board (PDB), IP 55 protection, Double Door type, Incomer-01 no. 125A TPN MCCB. Outgoing-02 nos. 63A TPN ELCBs with 30mA tripping, 03 nos. 40A TPN ELCBs with 30mA tripping, 02 nos. 32 A TPN ELCBs with 30mA tripping withTimer & contactors for auto on/off and 3 indicating lamps with fuse for indication bus supply ON, Digital voltmeter & VSS 0-500V, suitable bus bar arrangement for phase and neutral. Sufficient space should be provided in the removable cable gland plate to accommodate minimum 1R 3.5Cx185 sq. mm. incoming cable and outgoing cables of different sizes. All MCCB, MCBs and ELCBs shall be of reputed make.	Nos.	1	.0029308

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B.2.13	Supply of operator remote control desk/Relay control panel with chair for operating the 11kV/11.5kV Substation consisting of two Nos. of 2.5 MVA and 50kVA, 11kV/11.5kV and 11kV/0.440kV Transformers & of 11kV RMUs. This remote control desk/relay control panel shall control all operation points of Substation i.e control supply on status, UPS and battery healthiness, main supply on status for 11kV/11.5kV and 11kV/0.440kV transformers and VCBs. Other healthiness monitoring which includes breaker on/off status, trip circuit healthy indication, relay coordinations & trip alarm annunciation window etc. The panel shall be approved by BHEL.	Set	1	.0026312
B.3	11kV Overhead Ring Main Line Related Items.			
B.3.1	Supply of ACSR RACCOON conductors as per IS:398 / Latest (To meet 3 phases/lines)	Meters	6,300	.017845
B.3.2	Supply of ISMC-100 for cross beam for Overhead line two/four pole steel structure.	MT	6	.0202495
B.3.3	Supply of ISMC-75 for cross beam for Overhead line two/four pole steel structure.	MT	1	.0033749
B.3.4	Supply of 11kV V Cross arms/Straight Arm with suitable back clamps including supply of necessary fasteners as per IE specification.	Nos.	60	.0042923
B.3.5	Supply of 11kV GI stay (7/3.15mm) sets with Guy, Bow, Stay Rod, wire etc. as per I.E. Specifications. (Each set consist of all 3 Phases).	Sets	60	.006394
B.3.6	Supply of 11kV top fittings (I Clamp) with suitable back clamps including supply of necessary fasteners as per IE specification.	Nos.	60	.0013099
B.3.7	Supply of 11kV disc insulator with fixing & conductor and holding clamp as per IS: 3188/1965, IEC 60471 & IEC 309/Latest. (Each set consist of all 3 Phases).	Sets	20	.0008878
B.3.8	Supply of 11kV pin insulator with pins as per IS: 2544 & IEC 60168 Latest. (Each set consist of all 3 Phases).	Sets	60	.0006466
B.3.9	Supply of 11kV 400A Air break switch-double break-horizontal mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.	Nos.	17	.0050555

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B.3.10	Supply of 11kV 400A Air break switch-double break-Vertical mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.	Nos.	11	.0032712
B.3.11	Supply of 11kV Lightning arrester set as per ISS/IEC Spec No. IS:3070/2-1985/Latest. (Each set consist of all 3 Phases).	Sets	11	.0020397
B.3.12	Supply of 11kV HG fuse as per ISS/IEC Spec IS: 9385/Latest. (Each set consist of all 3 Phases)	Sets	11	.0027921
B.3.13	Supply of 11kV DO fuse as per ISS/IEC Latest. (Each set consist of all 3 Phases)	Sets	11	.0028323
B.3.14	Supply of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3CX 95 sqmm 11kV Armoured Aluminium XLPE insulated Cables	Nos.	11	.0010746
B.3.15	Supply of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3CX 185 sqmm 11kV XLPE insulated Armoured Aluminium Cables	Nos.	8	.0012427
B.3.16	Supply of out door type weather proof 630A capacity 11kV Pillar box IP 55 Protection as per IS with one no. Incoming and two nos. outgoing including supply of accessories.	Nos.	4	.0084934
B.3.17	Supply and fixing of anti climb device (barbed wire) rolled on the poles at 2m height as per I.E. specification and numbering of poles.	Sets	60	.0023503
B.4	Common Items for 11kV OH Lines and Substation Equipments.			
B.4.1	Supply of Double compression type brass cable glands of reputed make for 3.5C x 185 Sq. mm armoured Aluminium LT cable	Nos	2	.0001232
B.4.2	Supply of Double compression type brass cable glands of reputed make for 3.5C x 70 Sq. mm Aluminium armoured LT cable	Nos	14	.0004464
B.4.3	Supply of Double compression type brass cable glands of reputed make for 3.5C x 25 Sq. mm armoured Aluminium LT cable	Nos	12	.0001617
B.4.4	Supply of 5Cx2.5sqmm PVC insulated copper PVC sheathed LT Power Cable suitable for CT and PT Wiring from VCBs to Control Panels.	Meters	1,000	.0049742
B.4.5	Supply of 3Cx2.5sqmm PVC insulated copper PVC sheathed LT Power Cable suitable for extending AC/DC control supply to VCBs and Xmers.	Meters	1,000	.0033852

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B.4.6	Supply of 7C/9C/10Cx1.5sqmm PVC insulated copper PVC sheathed LT Control Cable suitable for extending alarm, annunciation and protection VCBs and Xmers.	Meters	1,000	.0053197
B.4.7	Supply of 1Cx10sqmm PVC insulated PVC sheathed copper LT Control Cable suitable for earthing of high mast lightning arrangements.	Meters	300	.0004767
B.4.8	Supply of 65x10 mm GI earth flat.	Meters	310	.0067035
B.4.9	Supply of 50x6 mm GI earth flat.	Meters	289	.0027353
B.4.10	Supply of 25x3 mm GI earth flat.	Meters	265	.0008971
B.4.11	Supply of 8SWG wire	Meters	2,100	.0015959
B.4.12	Supply of Required MS/GI/Nickel cadmium fasteners/anchor fasteners for erection of all supply materials and completion of entire works covered under this package (M6 to M16).	kg	100	.0004767
B.4.13	VOID			
B.4.14	Supply of Heat shrink type HT straight through jointing kits of reputed make for 3Cx185 sqmm 11kV XLPE insulated Aluminium Armoured Cables.	Nos.	8	.0021947
B.4.15	Supply of Heat shrink type HT Indoor termination kits of reputed make suitable for 11kV 3Cx95 sqmm XLPE insulated Aluminium Armoured Cables.	Nos.	11	.0010985
B.4.16	Supply of Heat shrink type HT straight through jointing kits of reputed make for 11kV 3Cx95 sqmm XLPE insulated Aluminium Armoured Cables.	Nos.	3	.000562
B.4.17	Supply of 200mm dia RCC hume pipes for make use of cable crossing where ever required such as existing culverts, trenches and road etc for HT Cables.	Meters	165	.0057623
B.4.18	Supply of 150mm NB 4.8mm thick medium class GI pipes for make use of cable crossing where ever required such as existing culverts, trenches and road etc for for LT Cables.	Meters	80	.00257
B.4.19	Suppy and fixing of 11kV and 440 V danger board of standard size.	Nos.	44	.0009423

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B.4.20	Supply and fixing of Fire Buckets with stand floor mounted type of rigid & good quality-4 nos. 10 ltr capacity Fire buckets per stand-Type & make shall be approved by BHEL/ Engineer.	Sets	12	.0017791
B.4.21	Supply and fixing of Aluminium alloy 5kg CO2 fire extinguisher industrial type with ISI Mark of reputed make. Type & make shall be approved by BHEL/ engineer.	Nos.	12	.0036527
B.4.22	Supply and erection of HT cable route markers standard size with 1m height angle support.	Nos.	65	.0015201
B.4.23	Supply and erection of LT cable route markers standard size with 1m height angle support.	Nos.	125	.0025951
B.4.24	Supply and fixing of Griddle Guards of length 15m, with 8SWG GI Wire for Road crossing with necessary fixing arrangement etc, as per IS Specification.	Sets	4	.0021171
B.5	FOR AREA LIGHTING Related Items.			
B.5.1	For Contruction Power Supply Area & its Route			
B.5.1.1	Supply of steel tubular swaged poles, 9 mtr long made of sheet steel having ultimate tensile strength 42 kg F/sq. mm conforming to BIS: 2713 (part-II) complete with 300x300x6 mm thick MS base plate for welding at site and size as per configuration given in BIS for 410 SP-28 (113 kg- pole weight) . Suitable Electrical junction box (GI/PVC)of good quality to suit the opening available in above lighting pole, one connector block for 3 Phase 4 wire incoming and outgoing cable to next street light pole with 01 no. 6A SP MCB for street light and earthing etc. Make shall be approved by BHEL Engineer	Nos.	60	.0337771
B.5.1.2	Supply of weather proof 90W LED street light fitting of make Philips/CGL/Bajaj/Havells or equivalent make along with IP 66 protection, complete with one piece of appropriate driver (integral/non-integral) and suitable for directly slipping over light mounting bracket specified at B.5.1.1 above along with other accesories, cabling upto Junction Box & termination of items supplied.	Nos.	60	.0106366

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B.5.1.3	Supply of 2Cx2.5sqmm size Armoured copper PVC insulated cable confirming to IS 1554(part-I)of reputed make.	Meters	7,600	.0372791
B.5.1.4	Supply of 50mm NB 3.6mm thick medium class standard GI pipe for incoming and outgoing cables.	Meters	120	.0038509
B.5.1.5	Supply of out door type metal clad Lighting distribution board (LDB) having IP-55 protection with double door type and one incomer with 100A TPN MCCB additionally with 3 nos. 32 A TPN ELCBs with 30mA tripping and timer & contactors for auto on/off street lights and 3 indicating lamps with fuse for indication bus supply ON, Digital Voltmeter & VSS 0-500V etc. Suitable busbar arrangement for Phase and Neutral. Sufficient space should be provided in the removable cable gland plate to accommodate incoming power cable and all outgoing cables.	Nos.	6	.0082135
B.5.2	For Open Storage Yard			
B.5.2.1	Supply of steel tubular swaged poles, 9 mtr long made of sheet steel having ultimate tensile strength 42 kg F/sq. mm conforming to BIS: 2713 (part-II) complete with 300x300x6 mm thick MS base plate for welding at site and size as per configuration given in BIS for 410 SP-28 (113 kg- pole weight) . Suitable Supply of Electrical junction box (GI/PVC)of good quality to suit the opening available in above lighting pole, one connector block for 3 Phase 4 wire incoming and outgoing cable to next street light pole with 01 no. 6A SP MCB for street light and earthing etc. also to be provided.	Nos.	72	.0405325
B.5.2.2	Supply of weatherproof 150W LED street light fitting of make Philips/CGL/Bajaj/Havells or equivalent make along with IP 66 protection, complete with one piece of appropriate driver (integral/non-integral) and suitable for directly slipping over light mounting bracket made of 40mm OD pipe specified at B.5.2.1 above along with other accessories, cabling upto Junction Box & termination of items supplied.	Nos.	72	.0211181
B.5.2.3	Supply of 50mm NB 3.6mm thick mediumclass GI pipe for incoming and outgoing cables.	Mtrs	144	.0046211

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B.5.2.4	Supply of 3-Phase metering and power distribution board complete with: (1) Incoming SFU TPN 400 Amps - 1no, (2) Outgoing SFU TPN 200 Amps -1nos. (3) Outgoing SFU TPN 63 Amps -1nos. (4) Outgoing SFU TPN 32 Amps -7nos. 3 Phase Electronic Energy Meter - BHEL / L&T / GEC make. Ammeter, Voltmeter and Selector Switches for both - AE and Kaycee make. Phase indication lamps, HRC fuses for IC and OG feeders, cable glands, power terminals for cables termination, cable lugs and provision for doubly earthing the panel enclosure. Panel enclosure shall be made of sheet metal thichnness not less than 1.6 mm and suitable for out door installation, modular construction, hinged door with locking arrangement, base frame, should have sloped canopy, duly painted with first coat of primer and two coats of synthetic enamel paint (interior with white paint and exterior with light grey as per shade 5, is 630) internal power distribution to devices shall be with Aluminium busbars or copper flexible single core PVC cables of 1.1 kV grade, control wiring with 1.5 sqmm, suitable stool made out of MS structure of 1.2 meter high for mounting of panel with anchoring arragement at foundation, suitable for bottom entry of cables.	Nos.	1	.007258
B.5.2.5	Supply of out door type metal clad Lighting distribution board (LDB) having IP-55 protection with double door type and one incomer with 100A TPN MCCB additionally with 3 nos. 32 A TPN ELCBs with 30mA tripping and timer & contactors for auto on/off street lights and 3 indicating lamps with fuse for indication bus supply ON, Digital Voltmeter & VSS 0-500V etc. Suitable busbar arrangement for Phase and Neutral. Sufficient space should be provided in the removable cable gland plate to accommodate incoming power cable and all outgoing cables.	Nos.	3	.0041067
B.5.2.6	Supply of 2Cx6 sqmm Aluminium Armoured XLPE insulated cable confirming to IS 7098 (part-I) respectively along with double compression type brass cable glands, required nos of termination lugs, Jointing kits, Straight throughs and suitable glands.	Meters	7,200	.0407887
B.5.2.7	Supply of Double compression type brass cable glands of reputed make for 3.5C x 95 Sq. mm Aluminium LT cable	Nos	6	.0001351

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
B.5.2.8	Supply of Double compression type brass cable glands of reputed make for 3.5C x 185 Sq. mm Aluminium LT cable	Nos	6	.0003695
Bill of Quantities for Erection, Testing and Commissioning				
C	Erection, Testing and Commissioning BOQ Items.			
C.1	11kV Supply Handling Items			
C.1.A	Interconnection Through HT Cables			
C.1.A.1	Laying of 11kV 3Cx185 sqmm sqmm Armoured HT Cable on existing cable tray/rack from cutomers Stage-I 11KV Switchgear to Stage II to Project area .	Meters	4,600	.0360701
C.1.A.2	Erection of Heat shrink type HT Outdoor termination kits suitable for 11kV 3Cx185 sqmm Armoured Cables.	Nos.	10	.0013296
C.2	11kV/11.5kV Substation Related Items.			
C.2.1	Erection of 11kV Lightning arrestor set as per ISS/IEC Spec No. IS:3070/2-1985/Latest. (Each set consist of all 3 Phases).	Sets	2	.0002441
C.2.2	Erection of 11kV HG Fuse set as per IS (Each set consist of all 3 Phases).	Sets	2	.0002098

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C.2.3	Erection of 11kV pin insulator with GI pin as per IS:731 and IS:2486 Part-II. (Each set consist of all 3 Phases).	Sets	8	.000144
C.2.4	Erection 11kV disc insulator with fixing arrangements & conductor holding clamps as per IS:3188/1965 & IEC 309/1969/Latest. (Each set consist of all 3 Phases).	Sets	4	.0001267
C.2.5	Erection of 11kV pin insulator with pins as per IS: 2544 & IEC 60168 Latest. (Each set consist of all 3 Phases)..	Sets	2	.0000394
C.2.6	Erection of 11kV 400A Air break switch-double break-horizontal mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.	Nos.	2	.0008739
C.2.7	Erection of 11kV DO fuse as per ISS/IEC Latest. (Each set consist of all 3 Phases)	Sets	2	.0004687
C.2.8	Erection of Rail Pole 52kgs 13 meter for Overhead line two/four/six/eight pole steel structure at Sub Station.The erection includes excavation of earth of size 1x1x1.8m depth, fasteners, foundtation bolt, grouting with concrete of ratio 1:4:8 for size of 1x1x1.8m depth including supply of cement, sand, metal etc for the foundation and coping of poles by 1 feet height.	Nos.	8	.0025612
C.2.9	Erection of ISMC-100 for cross beam for Overhead line two/four/six/eight pole steel structure at Sub Station.	MT	1	.000631
C.2.10	Erection of ISMC-75 for cross beam for Overhead line two/four/six/eight pole steel structure at Sub Station.	MT	1	.000631
C.2.11	Erection, testing and commisioning of Ring Main Unit Panel as applicable as per BHEL Technical Specifications including 230 V AC/220/110 V DC Power Pack/ SMPS Facility Power Supply for control circuit inside the panel.	Nos.	2	.0032268
C.2.12	Erection, testing and commisioning of 2kVA 230V 1 phase sine wave UPS of reputed make with 2 nos. of exide make 150AH 12V tubuler lead acid batteries.	Sets	2	.0004441
C.2.13	Erection, testing and commisioning, including oil filteration and submission of oil test report of 50kVA 3 phase 4 wire 11kV/433V copper wound DYN11 oil filled out door plinth mounted Distribution transformer of reputed make to provide power supply to 11/11.5kV sub station and illumination etc.	Nos.	1	.0015439

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at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
C.2.14	Erection, testing and commissioning of 125A out door type Floor mounted Power distribution board (PDB), IP 55 protection, Double Door type, Incomer-01 no. 125A TPN MCCB. Outgoing-02 nos. 63A TPN ELCBs with 30mA tripping, 03 nos. 40A TPN ELCBs with 30mA tripping, 02 nos. 32 A TPN ELCBs with 30mA tripping with Timer & contactors for auto on/off and 3 indicating lamps with fuse for indication bus supply ON, Digital voltmeter & VSS 0-500V, suitable bus bar arrangement for phase and neutral. Sufficient space should be provided in the removable cable gland plate to accommodate minimum 1R 3.5Cx185 sq. mm. incoming cable and outgoing cables of different sizes. All MCCB, MCBs and ELCBs shall be of reputed make.	Nos.	1	.0002842
C.2.15	Erection, testing and commissioning, including oil filtration and submission of oil test report of 11kV/11.5kV, 2.5MVA oil filled outdoor transformer as per BHEL Technical Specifications.	Nos.	2	.0103378
C.2.16	Erection, testing and commissioning of Ring Main Unit Panel as applicable as per BHEL Technical Specifications including 230 V AC/220/110 V DC Power Pack/ SMPS Facility Power Supply for control circuit inside the panel.	Nos.	2	.0032268
C.2.17	Erection, testing and commissioning of operator remote control desk/Relay control panel with chair for operating the 11kV/11.5kV Substation consisting of 2 Nos. of 2.5 MVA and 50kVA, 11kV/11.5kV and 11kV/0.440kV Transformers & 4 Nos. of 11kV outdoor VCB/ RMU. This remote control desk/relay control panel shall control all operation points of Substation i.e control supply on status, UPS and battery healthiness, main supply on status for 11kV/11.5kV and 11kV/0.440kV transformers and VCBs/ RMUs. Other healthiness monitoring which includes breaker on/off status, trip circuit healthy indication, relay coordinations & trip alarm annunciation window etc. The panel shall be approved by BHEL.	Set	1	.0007351
C.3	11kV Overhead Ring Main Line Related Items.			
C.3.1	Stringing of ACSR RACOON conductors as per IS:398/Latest (To meet 3 phases/lines)	Meters	6,300	.0076168

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
C.3.2	Erection of Rail Pole 52kgs 13 meter The erection includes excavation of earth of size 1x1x1.8m depth, grouting with concrete of ratio 1:4:8 for size of 1x1x1.8m depth including supply of cement, sand, metal etc. for the foundation and coping of poles by 1 feet height.	Nos.	60	.0192088
C.3.3	Erection of Rail Pole 52kgs 13 meter for 11kV Overhead line two/four/six/eight pole steel structure.The erection includes excavation of earth of size 1x1x1.8m depth, fasteners, foundation bolt, grouting with concrete of ratio 1:4:8 for size of 1x1x1.8m depth including supply of cement, sand, metal etc for the foundation and coping of poles by 1 feet height.	Nos.	34	.010885
C.3.4	Erection of ISMC-100 for cross beam for Overhead line two/four/six/eight pole steel structure.	MT	6	.003786
C.3.5	Erection of ISMC-75 for cross beam for Overhead line two/four/six/eight pole steel structure.	MT	1	.000631
C.3.6	Erection of 11kV V Cross arms/Straight Arm with suitable back clamps including erection of necessary fasteners as per IE specification.	Nos.	60	.0013575
C.3.7	Erection of 11kV GI stay (7/3.15mm) sets with Guy, Bow, Stay Rod, wire etc. as per I.E. Specifications. (Each set consist of all 3 Phases).	Sets	60	.0045929
C.3.8	Erection of 11kV top fittings (I Clamp) with suitable back clamps including erection of necessary fasteners as per IE specification.	Nos.	60	.0003358
C.3.9	Erection of 11kV disc insulator with fixing & conductor and holding clamp as per IS: 3188/1965 & IEC 309/1969/Latest. (Each set consist of all 3 Phases).	Sets	20	.0006335
C.3.10	Erection of 11kV pin insulator with pins as per IS: 2544 & IEC 60168 Latest. (Each set consist of all 3 Phases).	Sets	60	.0011835
C.3.11	Erection of 11kV 400A Air break switch-double break-horizontal mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.	Nos.	17	.0074279
C.3.12	Erection of 11kV 400A Air break switch-double break-vertical mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.	Nos.	11	.0048063

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
C.3.13	Erection of 11kV Lightning arrestor set as per ISS/IEC Spec No. IS:3070/2-1985/Latest. (Each set consist of all 3 Phases).	Sets	11	.0013425
C.3.14	Erection of 11kV HG fuse as per ISS/IEC Spec IS: 9385/Latest. (Each set consist of all 3 Phases)	Sets	11	.001154
C.3.15	Erection of 11kV DO fuse as per ISS/IEC Latest. (Each set consist of all 3 Phases)	Sets	11	.0025778
C.3.16	Laying of 11kV 3Cx95sqmm Armoured HT Cable	Meters	600	.0016581
C.3.17	Erection of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3CX 95 sqmm 11kV Armoured Cables	Nos.	11	.0008679
C.3.18	Laying of 11kV 3Cx95sqmm Armoured HT Cable on existing cable trays/racks	Meters	1,100	.0045597
C.3.19	Laying of 11kV 3Cx185sqmm Armoured HT Cable	Meters	900	.0047255
C.3.20	Erection of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3CX 185 sqmm 11kV Armoured Cables	Nos.	8	.0010637
C.3.21	Erection, testing and commisioning of 500kVA, 11kV/433V Compact Package Substations (consisting of dry type transformers) as per BHEL Technical Specifications.	Nos.	10	.0498013
C.3.22	Erection, testing and commisioning, including oil filtration and submission of oil test report of 500kVA, 11kV/0.440kV Package Substations as per BHEL Technical Specifications.	Nos.	1	.0052292
C.3.23	Erection, testing and commisioning of out door type weather proof 630A capacity 11kV Pillar box IP 55 Protection as per IS with one no. Incoming and two nos. outgoing.	Nos.	4	.0014554
C.4	Common Items for 11kV OH Lines and Substation Equipments.			
C.4.1	Laying of 3.5Cx185sqmm LT Power Cable for interconnection of LTDB with Package Substation.	Meters	500	.0011227

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
C.4.2	Termination of 3.5Cx185sqmm LT Power Cable along with supply of aluminium lug of reputed make suitable for interconnection of LTDB with Package Substation.	Nos.	2	.0000532
C.4.3	Laying of 3.5Cx70sqmm LT Power Cable for Lighting LDB &50 kVA Aux. Transformer.	Meters	2,000	.0028325
C.4.4	Termination of 3.5Cx70sqmm LT Power Cable along with supply of aluminium lug of reputed make suitable for Lighting LDB &50 kVA Aux. Transformer.	Nos.	14	.0002123
C.4.5	Laying of 3.5Cx25sqmm LT Power Cable for High Mast.	Meters	1,950	.0017513
C.4.6	Termination of 3.5Cx25sqmm LT Power Cable along with supply of aluminium lug of reputed make suitable for High Mast.	Nos.	12	.0001322
C.4.7	Laying and termination of 5Cx2.5sqmm LT Power Cable including supply of double compression type brass cable glands and required number of termination lugs of reputed make suitable for CT and PT Wiring from VCBs to Control Panels.	Meters	1,000	.0008981
C.4.8	Laying and termination of 3Cx2.5sqmm LT Power Cable including supply of double compression type brass cable glands and required number of termination lugs of reputed make suitable for extending AC/DC control supply to VCBs.	Meters	1,000	.0006909
C.4.9	Laying and termination of 7C/9C/10Cx1.5sqmm LT Control Cable including supply of double compression type brass cable glands and required number of termination lugs of reputed make suitable for extending alarm, annunciation and protection VCBs.	Meters	1,000	.0008636
C.4.10	Laying and termination of 1Cx10sqmm LT Control Cable along with double compression type brass cable glands and required number of termination lugs of reputed make suitable for earthing of high mast lighting arrangements.	Meters	300	.0002073
C.4.11	Erection of 65 x 10 mm GI earth flat.	Meters	310	.0010387
C.4.12	Erection of 50 x 6 mm GI earth flat.	Meters	289	.0006888
C.4.13	Erection of 25 x 3 mm GI earth flat.	Meters	265	.0004577
C.4.14	Erection of 8SWG wire.	Meters	2,100	.0003627

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
C.4.15	Erection of Heat shrink type HT straight through jointing kits of reputed make for 11kV 3Cx185 sqmm Armoured Cables.	Nos.	8	.0012101
C.4.16	Erection of Heat shrink type HT Indoor termination kits of reputed make suitable for 11kV 3Cx95 sqmm Cables.	Nos.	11	.0010199
C.4.17	Erection of Heat shrink type HT straight through jointing kits of reputed make for 11kV 3Cx95 sqmm Cables.	Nos.	3	.0003435
C.4.18	Erection of 200 mm dia RCC hume pipes for rmake use of cable crossing where ever required such as existing culverts, trenches and road etc for HT Cables.	Meters	165	.0023482
C.4.19	Erection of 150mm NB 4.8mm thick medium class GI pipes for make use of cable crossing where ever required such as existing culverts, trenches and road etc for for LT Cables.	Meters	80	.0007544
C.5	FOR AREA LIGHTING Related Items.			
C.5.1	For Contruction Power Supply Area & its Route			

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
C.5.1.1	<p>Installation/Erection of steel tubular swaged poles, 9 mtr long made of sheet steel having ultimate tensile strength 42 kg F/sq. mm conforming to BIS: 2713 (part-II) complete with 300x300x6 mm thick MS base plate for welding at site and size as per configuration given in BIS for 410 SP-28 (113 kg- pole weight) with 1.5 mtr deep excavation, concreting in 1:4:8 ratio size 45 cms x 45 cms x 150 cms and pole plinth in 1:3:6 cement concreting having 300 mm height and 300 mm dia including double earthing of pole with suitable arrangement, duly painted with two coats of red oxide paint and one coat of aluminium paint to be applied after erection; the length of pole below ground to be painted with two coats of black bituminous paint. the pole shall be complete with Junction Box, GI Pipe for incoming and outgoing cables fuse and minor fabrication as below :</p> <p>i) Drilling 20 mm dia hole at about 2.5 mtr from ground level for wire leads from junction box to light fixture.</p> <p>ii) Drilling 15mm dia holes at about 0.7 and at 2.5 mtr from ground level and welding 12 mm nuts for using a 12 mm GI bolt for fastening earth conducters.</p> <p>iii) Welding required holes for fixing pole cap of street light bracket.</p> <p>iv) Welding diametrally 10 mm MS round 30 mm below pole top edge for clipping wire leads .</p>	Nos.	60	.0163901
C.5.1.2	Erection of 90W LED street light fitting with all accessories along with cabling and termination.	Nos.	60	.0007109
C.5.1.3	Cable Laying and Termination of 2Cx2.5sqmm size copper PVC/ XLPE insulated cable confirming to IS1554 (Part-I) insulated cable of reputed make including supply of lugs, glands, etc.	Meters	7,600	.0039379
C.5.1.4	Erection, testing and commissioning of out door type metal clad Lighting distribution board (LDB) having IP-55 protection with double door type and one incomer with 100A TPN MCCB additionally with 3 nos. 32 A TPN ELCBs with 30mA tripping and timer & contactors for auto on/off street lights and 3 indicating lamps with fuse for indication bus supply ON, Digital Voltmeter & VSS 0-500V etc. Suitable busbar arrangement for Phase and Neutral. Sufficient space should be provided in the removable cable gland plate to accommodate incoming power cable and all outgoing cables.	Nos.	6	.0010508

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
C.5.1.5	Erection, Earthing and Charging of High Mast (30 Meters) along with its Accessories.(High Masts Lights consisting of Mast shaft in multiple sections, head frame, steel wire rope, double drum winch, galvanized lantern carriage, luminaires and their control gear boxes, aviation obstruction lights, control/feeder panel etc. complete with all other accessories and interconnecting cables) (Excluding Civil Works)	Sets	6	.0249511
C.5.2	For Open Storage Yard			
C.5.2.1	Installation/Erection of steel tubular swaged poles, 9 mtr long made of sheet steel having ultimate tensile strength 42 kg F/sq. mm conforming to BIS: 2713 (part-II) complete with 300x300x6 mm thick MS base plate for welding at site and size as per configuration given in BIS for 410 SP-28 (113 kg- pole weight) with 1.5 mtr deep excavation, concreting in 1:4:8 ratio size 45 cms x 45 cms x 150 cms and pole plinth in 1:3:6 cement concreting having 300 mm height and 300 mm dia including double earthing of pole with suitable arrangement, duly painted with two coats of red oxide paint and one coat of aluminium paint to be applied after erection; the length of pole below ground to be painted with two coats of black bituminous paint. the pole shall be complete with Junction Box, fuse and erection of GI Pipe for incoming and outgoing cables and minor fabrication as below : i) Drilling 20 mm dia hole at about 2.5 mtr from ground level for wire leads from junction box to light fixture. ii) Drilling 15mm dia holes at about 0.7 and at 2.5 mtr from ground level and welding 12 mm nuts for using a 12 mm GI bolt for fastening earth conductors. iii) Welding required holes for fixing pole cap of street light bracket and fabricating and fixing mounting bracket made out of 40mm OD pipe iv) Welding diametrically 10 mm MS round 30 mm below pole top edge for clipping wire leads .	Nos.	72	.0196681
C.5.2.2	Installation/Erection & Commissioning of LED street light fitting 150 watt of Bajaj, crompton, Philips or equivalent make, complete with one piece of appropriate driver (integral/non-integral) and directly slipping over light mounting bracket made out of 40 mm OD pipe and suitable for lamps, JB, cabling & termination of items supplied .	Nos.	72	.0014475

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
C.5.2.3	<p>Providing suitable foundation for mounting AC distribution board as specified and Installation/Erection and Commissioning of 3-Phase metering and power distribution board complete with:</p> <p>(1) Incoming SFU TPN 400 Amps - 1no, (2) Outgoing SFU TPN 200 Amps -1nos. (3) Outgoing SFU TPN 63 Amps -1nos. (4) Outgoing SFU TPN 32 Amps -7nos. 3 Phase Electronic Energy Meter - BHEL / L&T / GEC make. Ammeter, Voltmeter and Selector Switches for both - AE and Kaycee make. Phase indication lamps, HRC fuses for IC and OG feeders, cable glands, power terminals for cables termination, cable lugs and provision for doubly earthing the panel enclosure. Panel enclosure shall be made of sheet metal thichnness not less than 1.6 mm and suitable for out door installation, modular construction, hinged door with locking arrangement, base frame, should have slopped canopy, duly painted with first coat of primer and two coats of synthetic enamel paint (interior with white paint and exterior with light grey as per shade 5, is 630) internal power distribution to devices shall be with al busbars or copper flexible single core PVC cables of 1.1 kV grade, control wiring with 1.5 sqmm, suitable stool made out of MS structure of 1.2 meter high for mounting of panel with anchoring arragement at foundation, suitable for bottom entry of cables.</p>	Nos.	1	.0009977
C.5.2.4	<p>Erection, testing and commissioning of out door type metal clad Lighting distribution board (LDB) having IP-55 protection with double door type and one incomer with 100A TPN MCCB additionally with 3 nos. 32 A TPN ELCBs with 30mA tripping and timer & contactors for auto on/off street lights and 3 indicating lamps with fuse for indication bus supply ON, Digital Voltmeter & VSS 0-500V etc. Suitable busbar arrangement for Phase and Neutral. Sufficient space should be provided in the removable cable gland plate to accommodate incoming power cable and all outgoing cables.</p>	Nos.	3	.0005555
C.5.2.5	<p>Cable Laying and Termination of 2Cx6 sqmm Aluminium Armoured PVC insulated cable including supply of cable glands, lugs, etc.</p>	Meters	7,200	.0037307

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
C.5.2.6	Laying of 3.5CX95 sqmm Aluminium Armoured Cable	Meters	800	.0015475
C.5.2.7	Making of end termination of 3.5Cx95 sq.mm LT Power cable including supply of Aluminium lugs	Nos.	6	.0001082
C.5.2.8	Laying of 3.5CX185 sqmm Aluminium Armoured Cable	Meters	1,568	.0035206
C.5.2.9	Making of end termination of 3.5Cx185 sq.mm LT Power cable including supply of Aluminium lugs	Nos.	6	.0001596
Bill of Quantities for Civil Related Works				
D	SUPPLY & ERECTION PORTION OF BOM FOR CIVIL RELATED WORKS.			
D.1	For 11kV/11.5kV Substation Related Civil Works			
D.1.1	Leveling of substation yard, supply and spreading of 40mm size stone aggregate of 100 mm thick for an area of size approx 40x25m, supply and construction of brick work with cement mortar 1:6 of 230 mm thick and 450 mm height all around the substation yard, plastering the brick work in CM 1:6 etc. Tentative detail as specified under and may vary as per site conditions..			
D.1.1a	Excavation -Earthwork (300mm)	CUM	67.5	.0003194
D.1.1b	Backfilling-Earthwork (300mm)	CUM	20	.0000822

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
D.1.1c	Brickwork (230mm)	CUM	4.756	.0009604
D.1.1d	40 mm size stone aggregate or pebbles	CUM	9	.0010315
D.1.1e	Bottom PCC (M 10- 1:3:6) for holding oil from seepage into earth	CUM	22.5	.0042382
D.1.2	Supply & Erection of 3m long 50mm dia 3.6 mm thick medium class GI funnel type earth electrode with filling of bentonite earthing powder as per standard, along with required materials for four side brick work chamber with cement plastering and removable type RCC/ cast iron cover plate. Scope includes supply of required bentonite earthing powder, cement, brick, sand, RCC/cast iron cover plate.	Nos.	14	.0087765
D.1.3	Construction of 5mx4m size 3m high Control room, including supply of required civil materials like cement, sand, bricks, metal, reinforcement rods etc. The control room is concrete roof, brick wall room with inside & out site plastering, cement flooring with necessary trench arrangements for control desk & UPS and two nos 4x4 ft glass alu. slide type windows, one door of normal size (2.1x1.2m) with lock & key arrangement including painting of control room. Supply & providing of control room lighting with minimum 4 nos. of 40 W Tube light fitting, 2 nos. 1200 sweep ceiling fans and 4 nos of 40 W LED street light fitting for out side area lighting, necessary electrical wiring for fans & lights with 02 nos 5A switched socket & 2 nos 15 A switched socket in lighting board, incoming main switch, earthing, incoming power connection etc. complete(Light fittings & fans are reputed make only). Tentative detail as specified under and may vary as per site conditions..			
D.1.3a	Brickwork (230mm)	Cum	11.799	.0023827
D.1.3c	Plaster 12mm thick	SQM	51.3	.000443
D.1.3d	Paint white wash	SQM	51.3	.0000797
D.1.3e	RCC roof (M-20)- 1:1.5:3) cement supply in bidder scope	CUM	3.713	.000856
D.1.3f	Shuttering	SQM	24.75	.0006617

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
D.1.3g	Supply and Laying of Reinforcement Steel Fe500	MT	0.408	.0011747
D.1.3h	Steel -Flush door	Nos.	1	.0002726
D.1.3i	Window	No.s	1	.0000936
D.1.3j	Ventilators	No.s	2	.0001243
D.1.3k	Door window frame	Kg	50	.0002953
D.1.3l	Lights, fans ,sockets. Ceiling fans, outside area lighting, MCBs and other electrical works for above control room including installation and charging.	Lumpsum	1	.0017413
D.1.4	Supply and construction of RCC foundation as per scheme drawing for 11 kV VCBs/RMUs. Approx size 3.0m x 1.5m x2.6m (LXBXH)-4 nos., 11kV /11.5 kV, 2.5 MVA Transformers-2 Nos. Approx size 3.5m x 3m x4m (LXBXH), from ground level and including excavation of plinth pit and base concreting and plastering, white washing etc. including construction of Fire Wall in between 2 Nos. 2.5 MVA transformer and oil soak pit as per IE stanard and as per detailed layout Drg. Tentative detail as specified under and may vary as per site conditions..			
D.1.4a	PCC for foundation for Transformers (02 Nos) + HT Breakers (04 Nos)-PCC M10 (1:3:6)-IS-456 : 2000	CUM	4.032	.0007595
D.1.4b	RCC foundation for Transformers (02 Nos)+ HT Breakers (04 Nos)- -RCC M20 (1:1.5:3)-IS-456 : 2000	CUM	11.7	.0026977
D.1.4c	Reinforcement Fe500 (TMT)	MT	1.287	.0037023
D.1.4d	Shuttering	SQM	12.9	.0003449
D.1.4e	Oil Soak Pit for 02 Nos Transformers (02 Nos) -Brickwork (2x2x1.0) pit wit 230mm B/w	CUM	1.84	.0003715
D.1.4f	Brick Firewall between the transformers. -Brickwork 3wx3h wall with 230mm thick b/w	CUM	2.07	.000418

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
D.1.4g	Plastering the brick work (pit + firewall) 12mm thick plaster in 1:4	SQM	23.38	.0002019
D.1.4h	Paint white wash	SQM	19.38	.0000301
D.1.5	Supply and fixing of 3.15mm GI chain linked wire fencing height 2.5m for the substation. Grouting of 3m height ISA 75 fabricated posts at an interval of 1.5m (2m vertical 0.5m slanting, 0.5m grouting). Three runs of barbed wire along with the fencing on the slanting angle post, fixing of mesh with post by 50x6mm MS flat with fasteners (2 nos./post) and earthing of fencing by 8SWG wire and providing finish aluminum painting of all steel materials etc. (Earthing flat supply and erection is paid separately).	Meters	60	.0148999
D.1.6	Supply and installation of 1m x 2.5m height MS gate made of MS Angle, channel/rolled sections including supply and fixing of hinges, locking arrangement etc including providing finish aluminum painting etc. (Per Sub Station)	Nos.	1	.0004173
D.1.7	Supply and installation of One No. vertical air terminations, 6m height 50 mm NB 3.6mm thick medium class GI Pipe with 1m height lightning spike on the top (total height-7m) with suitable Base plate & foundation bolts for Lightning protection of PSS. Vertical air terminal shall be grounded with earth pits. Required civil works for lightning pole erection and grouting including supply of grouting civil materials are in the scope of Contractor. (02 sets Per Sub Station)	Sets	2	.0012538
D.2	For Package Substation (PSS) Related Civil Works			
D.2	Leveling of substation yard, supply and spreading of 40mm size stone aggregate of 75mm thick for an area of size 8m x 6m, supply and construction of Brick work with cement mortar 1:6 of 230 mm thick and 450 mm height all-round the substation yard, plastering the brick work in CM 1:6, white washing etc complete. (Per Sub Station). Tentative detail as specified under and may vary as per site conditions..			
D.2a	Excavation (8x6x0.300) -Eartwork	CUM	158.4	.0007496
D.2b	VOID			
D.2c	Brickwork (8x2+6x2)x0.230	CUM	27.521	.0055576

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
D.2d	PCC M10 (1:3:6)	CUM	52.8	.0099456
D.2e	Plastering the brick work 12mm thk	SQM	138.6	.0011969
D.2f	Paint white wash	SQM	138.6	.0002154
D.3	Supply and construction of foundation as per supplier foundation drawing for 500kVA/250kVA. Package Substation. Appx size 4400 mm x 4400 mm x500 mm height (size may slightly vary as per new order of PSS) from ground level and including excavation of plinth pit and base concreting and plastering, white washing etc. as per the instruction of BHEL site engineer. (Per Sub Station). Tentative detail as specified under and may vary as per site conditions..			
D.3a	RCC M20 (1:1.5:3)	CUM	106.48	.0245518
D.3b	Reinforcement	MT	11.713	.0336941
D.3c	Shuttering	SQM	96.8	.0025881
D.4	Supply and fixing of 3.15mm GI chain linked wire fencing height 2.5m for the substation of size 8m x 6m including grouting of 3m height ISA 75 fabricated posts at an interval of 1.5m (2.5m vertical 0.5m slanting, 0.5m grouting) and three runs of barbed wire along with the fencing on the slanting angle post, fixing of mesh with post by 50x6mm MS flat with fasteners (2 nos./post) and earthing of fencing by 8 SWG GI wire and providing finish aluminum painting of all steel materials etc. Supplied structural steel materials are used for fencing posts. (Per Sub Station) (Earthing flat supply and erection is paid separately).	Meters	308	.0764861
D.5	Supply and installation of 1m x 2.5m height MS gate made of MS Angle, channel/rolled sections including supply and fixing of hinges, locking arrangement etc including providing finish aluminum painting etc. (Per Sub Station)	Nos.	11	.0045901

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
D.6	Supply and Erection of 3m long 50mm dia 3.6 mm thick medium class GI funnel type earth electrode with filling of bentonite earthing powder as per standard, four side brick work chamber with cement plastering, white washing and removable type RCC/ cast iron cover plate. Scope includes supply of required betonite eathing powder, cement, brick, sand, RCC/cast iron cover plate. Minium 06 earthpits per sub station. Sub station earthing shall be carried out by using supplied 50X6, 25X6 and 25x3 mm earth flats. (Supply and Eerection rates of Earth Flats are provided separately)	Nos.	66	.0413748
D.7	Supply and erection One No. 5m height 3mm thick conical GI street light pole of reputed make with 40W LED street light fitting with base plate, foundation bolts and single lighting GI arm bracket with fasteners including supply all civil materials like cement, metal & sand etc for making foundation and cabling from LT panel. Supply and providing of necessary timer circuit for auto charging of lights. Make shall be approved by BHEL/ Engineer	Nos.	22	.0108422
D.8	Supply and installation of One No. vertical air terminations, 6m height 50 mm NB 3.6mm thick medium class GI Pipe with 1m height lightning spike on the top (total height-7m) with suitable Base plate & foundation bolts for Ligtning protection of PSS. Vertical air terminal shall be grounded with earth pits. Required civil works for lightning pole erection and grouting including supply of grouting civil materials are in the scope of Contractor. (02 sets Per Sub Station)	Sets	22	.0137916
D.9	Supply and Erection of 3m long 50mm dia 3.6 mm thick medium class GI funnel type earth electrode with filling of bentonite earthing powder as per standard, four side brick work chamber with cement plastering, white washing and removable type RCC/ cast iron cover plate. Scope includes supply of required betonite eathing powder, cement, brick, sand, RCC/cast iron cover plate. Minium 02 earthpits per LDB. Earthing shall be carried out by using supplied 50x6 and 25x3 mm earth flats. (Supply and Erection rates of Earth Flats are provided separately)	Nos.	14	.0087765
D.10	Excavation of cable trench size 0.4x1.0 m depth in all soil for HT cable and 0.4x0.8 m depth for LT cable. After cable laying, the trench will be back filled with excavated earth materials / other outside earth materials with compaction.	CUM	1,240	.0109654
D.11	Supply & Erection and spreading of river sand in cable trench of 300 mm thick for protection of HT Power cable.	CUM	180	.006081

Tender Specification for Package-A for Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting (including supply of materials as specified in the tender specification) at 1X800MW Darlipalli STPP Stage-II, Sundargarh dist., Odisha

at DARLIPALI STPP, STAGE-II

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
D.12	Supply and laying of red/ ash bricks in the cable trench for protection of HT Power cable.	No.s	15,000	.0046633