

**TENDER  
SPECIFICATION  
BHEL PSSR SCT 2191**

**FOR**

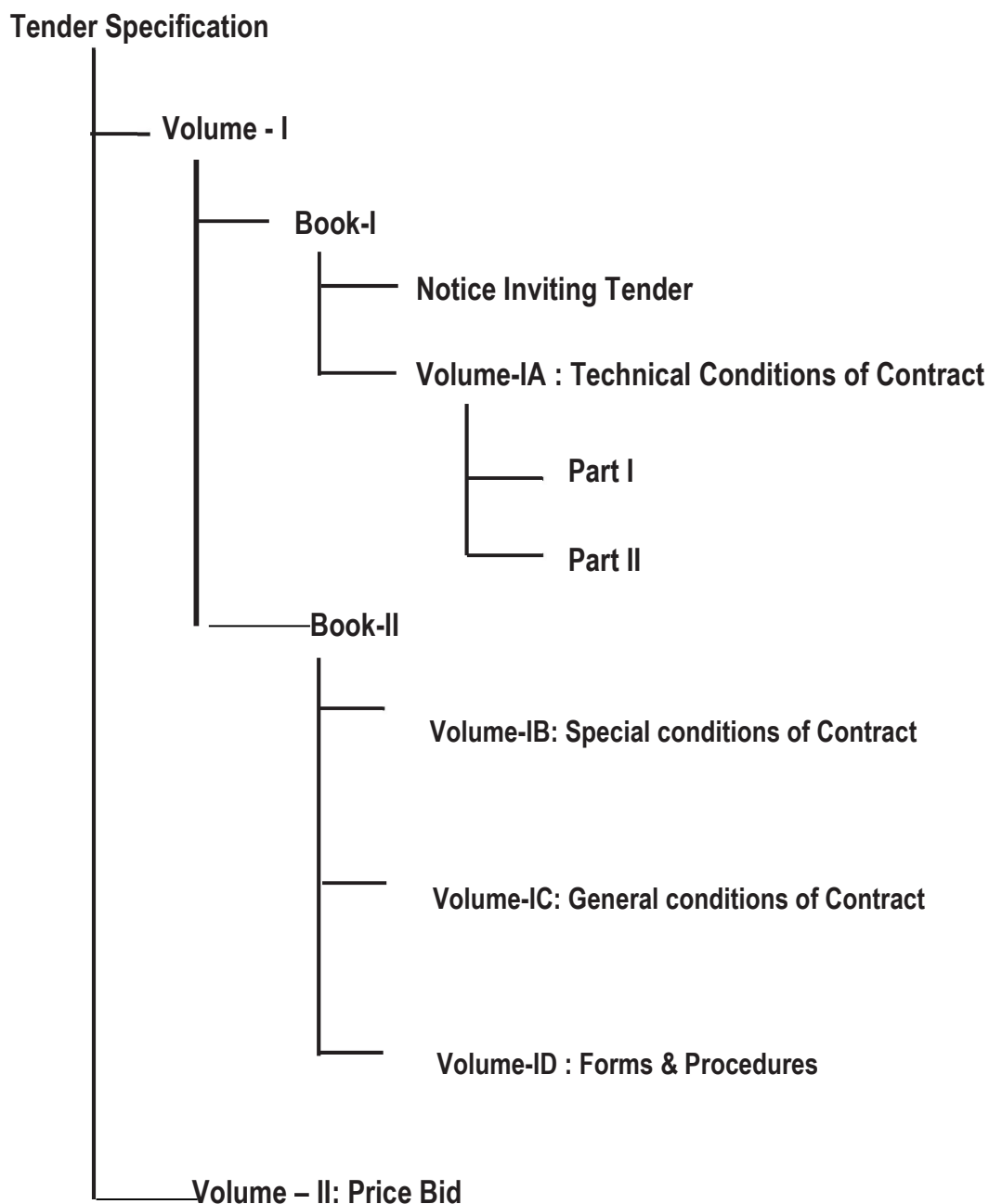
**Erection and Commissioning of Construction Power Supply, Area Lighting and Yard Lighting including supply of materials under Package-A and Operation and Maintenance of the same under Package-B at 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha.**

**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

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## PRICE BID

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### **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 at 3X800MW Talabira Thermal Power Project.

Package B broadly comprises of Operation and Maintenance of the Construction Power Supply, Area Lighting and Yard Lighting established 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 35.0 of NIT for "Mode of Award of Work".

**Part C : Bill of Quantities**

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| 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 |
|----------------------------------|---|---------------------|------|--|
| Bill of Quantities for Package A | --  | --                  |      |  |
| 1.0                              | PREPARATION OF DRAWING & OBTAINING STATUTORY APPROVAL   | --                  |      |  |
| 1.1                              | Route survey, preparation of route drawing, Detailed SLD for Underground Distribution Network /Overhead Distribution, any other calculation, 11kV/433V substation drawing, 11KV Pillar Box drawing, 11KV Switchboard drawing, 11kV distribution drawing, Two/Four/Six/Eight pole structure arrangement drawing (if applicable), Earthing details, Earthing Layout, Sag Calculation & 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    | .0179733   |
| 2.0                              | SUPPLY PORTION OF BOM   | --                  |      |  |
| 2.1                              | 11kV Supply Handling Items and BHEL Incoming Power Receiving Station  | --                  |      |  |
| 2.1.1                            | Supply of Heat shrink type HT Indoor termination kits of reputed make suitable for 3C X 185 sqmm 11kV Armoured Cables.  | Nos.                | 6    | .0006331   |
| 2.1.2                            | Supply of 2kVA 230V 1 phase sine wave UPS of reputed make with 2 nos. of exide make 150AH 12V tubular lead acid batteries. Make shall be approved by BHEL Engineer.   | Sets                | 2    | .0028137   |

## Part C : Bill of Quantities

### 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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha

#### at 3X800 MW NLC Talabira TPP

| 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 |
|---------|---|---------------------|------|--|
| 2.1.3   | 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 the BHEL Incoming Power Receiving Station. Make shall be approved by BHEL Engineer.  | Nos.                | 1    | .0017586   |
| 2.1.4   | Supply of operator remote control desk/Relay control panel with chair for operating the 11kV 5 Panel Indoor VCB Switchboard consisting of 2 Incoming , 2 Outgoing and 1 Buscoupler sections complete with CTs , PTs including 230 AC to DC Power Pack for control circuit inside the panel and 1 No. 50kVA, 11kV/0.440kV Transformer. This remote control desk/relay control panel shall control all operation points of BHEL Incoming Power Receiving Station i.e control supply on status, UPS and battery healthiness, main supply on status for 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    | .0016413   |
| 2.1.5   | Supply of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3C X 185 sqmm 11kV Armoured Cables.   | Nos.                | 4    | .0004221   |
| 2.1.6   | Supply Pole ISMB-250 11 m for 11kV Height for Overhead line two/four pole steel structure at Sub Station.   | Nos.                | 8    | .0042393   |
| 2.1.7   | Supply of 11kV pin insulator with GI pin as per IS:731-1971 IS:2486 Part-II-1989. (Each set consist of all 3 Phases).   | Sets                | 4    | .0000763   |
| 2.1.8   | 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    | .0001139   |
| 2.1.9   | Supply of Lightning arrestor set suitable for 11kV as per ISS/IEC Spec No. IS:3070/2-1985/Latest. (Each set consist of all 3 Phases).   | Sets                | 2    | .0002279   |
| 2.1.10  | Supply of 11kV HG Fuse set as per IS (Each set consist of all 3 Phases).  | Sets                | 2    | .0003588   |
| 2.1.11  | 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    | .0003517   |

## Part C : Bill of Quantities

### 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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha

#### at 3X800 MW NLC Talabira TPP

| 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 |
|---------|---|---------------------|-------|--|
| 2.1.12  | Supply of 11kV 800A Air Break Switch (conventional) outdoor type, double break gang operated horizontally mounted, rotating type, complete with all accessories for assembly and operation as per IS:1818/1972 and IS:9920 (Part-I to IV)/ latest version and IS:9921 (part I to V)/ latest version. (Each set consist of all 3 Phases).                | Sets                | 1     | .0006632   |
| 2.1.13  | Supply of Structural steel ISMB 100, ISMC 100, ISA 75, ISA 50 for structural arrangement work   | MT                  | 5     | .0111376   |
| 2.2     | 11kV Ring Main Line Related Items.  | --                  |       |  |
| 2.2.1   | Supply of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3C X 185 sqmm 11kV Armoured Cables.   | Nos.                | 28    | .0029544   |
| 2.2.2   | Supply of Heat shrink type HT straight through jointing kits of reputed make for 3Cx 185 sqmm 11kV Armoured Cables.   | Nos.                | 8     | .0015007   |
| 2.2.3   | 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 (suitable for 3C X185 sqmm cable) including supply of all accessories required for complete erection of the pillar box. (including foundation bolts, nuts etc. required for completing the Civil Foundation) | Nos.                | 4     | .005393  |
| 2.2.4   | Supply of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3C X 120 sqmm 11kV Armoured Cables.   | Nos.                | 26    | .0023097   |
| 2.2.5   | Supply of Heat shrink type HT straight through jointing kits of reputed make for 3Cx 120 sqmm 11kV Armoured Cables.   | Nos.                | 7     | .001244  |
| 2.2.6   | Supply of ACSR RABBIT conductors as per IS:398/1961 (To meet 3 phases/lines)  | Mtrs                | 5,250 | .0052757   |
| 2.2.7   | Supply of 9 m long 280kg working load pre-stressed cement concrete poles (PSCC) as per IS:1678.   | Nos.                | 50    | .0066993   |
| 2.2.8   | Supply of 11kV V Cross arms/Straight Arm with suitable back clamps including supply of necessary fasteners as per IE specification.   | Nos.                | 50    | .0022409   |

**Part C : Bill of Quantities**

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| 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 |
|---------|--|---------------------|------|--|
| 2.2.9   | Supply of 11kV GI stay (7/3.15mm) sets with Guy, Bow, Stay Rod, wire etc. as per I.E. Specifications.<br>(Each set consist of all 3 Phases).               | Sets                | 50   | .0035171   |
| 2.2.10  | Supply of 11kV top fittings (I Clamp) with suitable back clamps including supply of necessary fasteners as per IE specification.                           | Nos.                | 50   | .0007213   |
| 2.2.11  | Supply of 11kV pin insulator with pins as per IS: 2544/1963 AMD 125 & IEC 168/1969 Latest. (Each set consist of all 3 Phases).                             | Sets                | 50   | .0003182   |
| 2.2.12  | Supply of 11kV disc insulator with fixing & conductor and holding clamp as per IS: 3188/1965 & IEC 309/1969/Latest.<br>(Each set consist of all 3 Phases). | Sets                | 10   | .0002847   |
| 2.2.13  | Supply and fixing of anti climb device (barbed wire) roled on the poles at 2m height as per I.E. specification and numbering of poles.                     | Sets                | 50   | .0008095   |
| 2.2.14  | Supply of Pole ISMB-250 11 m for 11kV Height for Overhead line two/four pole steel structure at Sub Station.   | Nos.                | 12   | .006359  |
| 2.2.15  | Supply of Structural steel ISMB 100, ISMC 100, ISA 75, ISA 50 for structural arrangement work  | MT                  | 8    | .0178202   |
| 2.2.16  | Supply of 11kV 400A Air break switch-double break-horizontal/vertical mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.           | Nos.                | 9    | .0015827   |
| 2.2.17  | Supply of 11kV Lightning arrester set as per ISS/IEC Spec No. IS:3070/2-1985/Latest.<br>(Each set consist of all 3 Phases).                                | Sets                | 3    | .0003419   |
| 2.2.18  | Supply of 11kV HG fuse as per ISS/IEC Spec IS: 9385/Latest.<br>(Each set consist of all 3 Phases)  | Sets                | 3    | .0005382   |
| 2.2.19  | Supply of 11kV DO fuse as per ISS/IEC Latest.<br>(Each set consist of all 3 Phases)  | Sets                | 3    | .0004819   |
| 2.2.20  | Supply of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3C X 185 sqmm 11kV Cables.   | Nos.                | 6    | .0006331   |



## Part C : Bill of Quantities

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| 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 |
|---------|--|---------------------|-------|--|
| 2.2.21  | 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.                          | Mtrs                | 285   | .005537  |
| 2.2.22  | Supply and fixing of HT cable route markers standard size with 1m height angle support.  | Nos.                | 295   | .0044994   |
| 2.3     | Items required at Package Substation and for High Masts  | --                  |       |  |
| 2.3.1   | Supply of 4CX16 sqmm Aluminium Cable Armoured PVC insulated and PVC Sheathed cable confirming to IS 1554 (Part-I)  | Mtrs                | 2,000 | .020366  |
| 2.3.2   | Supply of double compression type brass cable glands of reputed make for 4C x 16 Sq. mm Aluminium Cable Armoured PVC insulated and PVC Sheathed LT cable                       | Nos.                | 32    | .0002194   |
| 2.3.3   | Supply of double compression type brass cable glands of reputed make for 3.5C x 185 Sq. mm Aluminium Cable Armoured XLPE insulated and PVC sheathed LT cable                   | Nos.                | 6     | .0002835   |
| 2.3.4   | Supply of double compression type brass cable glands of reputed make for 3.5C x 70 Sq. mm Aluminium Cable Armoured XLPE insulated and PVC sheathed LT cable                    | Nos.                | 40    | .000611  |
| 2.3.5   | Supply of 14 SWG Wire  | Mtrs                | 563   | .0002263   |
| 2.3.6   | Supply of 65x10 mm GI earth flat.  | Mtrs                | 210   | .0028325   |
| 2.3.7   | Supply of 50x6 mm GI earth flat.   | Mtrs                | 380   | .0024524   |
| 2.3.8   | Supply of 25x3 mm GI earth flat.   | Mtrs                | 535   | .0011708   |
| 2.3.9   | Supply of 8SWG GI wire   | Mtrs                | 3,600 | .0016882   |
| 2.3.10  | 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                  | 75    | .000211  |

## Part C : Bill of Quantities

### 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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha

#### at 3X800 MW NLC Talabira TPP

| 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 |
|---------|--|---------------------|------|--|
| 2.3.11  | 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.  | Mtrs                | 500  | .0140686   |
| 2.3.12  | Suppy and Fixing of 11kV and 440 V danger board of standard size.  | Nos.                | 92   | .00113   |
| 2.3.13  | 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                | 92   | .0075501   |
| 2.3.14  | 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.                | 21   | .0040307   |
| 2.3.15  | Supply and fixing of LT cable route markers standard size with 1m height angle support.  | Nos.                | 310  | .0038075   |
| 2.3.16  | 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                | 5    | .0014069   |
| 2.4     | FOR AREA LIGHTING Related Items.   | --                  |      |  |
| 2.4.1   | For Contruction Power Supply Area & its Route  | --                  |      |  |
| 2.4.1.1 | 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)         | Nos.                | 114  | .0400955   |
| 2.4.1.2 | Supply of Electrical junction box (GI/PVC)of good quality to suit with opening availabe in above lighting pole,one connector block for 3Phase 4 wire incoming and outgoing cable to next street light pole with 01 no 6A SP MCB for street light and earthing etc.<br>Make shall be approved by BHEL/ Engineer . | Nos.                | 114  | .005537  |

## Part C : Bill of Quantities

### 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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha

#### at 3X800 MW NLC Talabira TPP

| 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 |
|---------|---|---------------------|-------|--|
| 2.4.1.3 | Supply of weather proof LED street light fitting 90 watt of Bajaj, Crompton, Philips, Havells or equivalent make 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 accessories, cabling upto Junction Box & termination of items supplied.  | Nos.                | 114   | .0162673   |
| 2.4.1.4 | Supply of 2Cx2.5sqmm size Armoured copper PVC insulated cable flexible cable of reputed make confirming to IS 1554 (Part-I) .   | Mtrs                | 5,890 | .0180196   |
| 2.4.1.5 | Supply of 50mm NB 3.6mm thick medium class standard GI pipe for incoming and outgoing cables.   | Mtrs                | 228   | .0043278   |
| 2.4.1.6 | 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.                | 19    | .0167065   |
| 2.4.2   | For Open Storage Yard   | --                  |       |  |
| 2.4.2.1 | 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)  | Nos.                | 227   | .0798393   |
| 2.4.2.2 | Supply of Electrical junction box (GI/PVC)of good quality to suit with opening available in above lighting pole,one connector block for 3Phase 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.                | 227   | .0093779   |

**Part C : Bill of Quantities**

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| <b>Ref.No.</b> | <b>Description</b>  | <b>Unit of Measurement</b> | <b>Qty.</b> | <b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b> |
|----------------|---|----------------------------|-------------|---|
| 2.4.2.3        | Supply of weather proof LED street light fitting 150 watt of Bajaj, Crompton, Philips, Havells or equivalent make, complete with one piece of appropriate driver (integral/non-integral) and suitable for directly slipping over light mounting bracket made out of 40 mm OD pipe, cabling of luminaire upto Junction Box and termination of items  | Nos.                       | 227         | .0396408  |
| 2.4.2.4        | Supply of 50mm NB 3.6mm thick mediumclass GI pipe for incoming and outgoing cables.   | Mtrs                       | 454         | .0086176  |
| 2.4.2.5        | Supply of outdoor type metal clad Lighting distribution board (LDB) IP -55 Protection with one incomer with 250A TPN CHANGE OVER SWITCH for EB supply & DG SET POWER SUPPLY and 3Nos outgoing feeders with 32 A TPN MCBs with timer & contactors for auto on/ off area lighting , 3Nos outgoing feeder with 40A 4POLE ELCB 100 mA tripping and 2 Nos outgoing feeders with 63 A TPN MCBs, 3 indicating lamps with fuse for indication bus supply ON, VOLT METER &VSS 0-500V, etc. Sufficient space should be provided for the removable cable gland plate to accommodate the power cable and all outgoing cables from suitable connectors from each MCB / ELCB. Neutral link bar for incoming and outgoing neutrals | Nos.                       | 2           | .0120141  |
| 2.4.2.6        | Supply of out door type Metal clad Lighting distribution board (LDB) IP -55 protection Double door type with one incomer with 200A TPN MCCB and 03 nos 63A TPN MCB out going feeders,3Nos outgoing feeders with 40A 4pole ELCB 100 mA tripping, 6 No outgoing feeders with 32 A TPN MCBs and Timer & contactors for auto on /off street lights and 3 indicating lamps with fuse for indication bus supply ON, Digital Volt meter &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.                       | 4           | .0173346  |
| 2.4.2.7        | Supply of Double compression type brass cable glands of reputed make for 3.5C x 185 Sq. mm LT cable   | Nos.                       | 6           | .0003344  |

### Part C : Bill of Quantities

#### 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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha

#### at 3X800 MW NLC Talabira TPP

| 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 |
|----------|---|---------------------|-------|--|
| 2.4.2.8  | Supply of Double compression type brass cable glands of reputed make for 3.5C x 70 Sq. mm LT cable  | Nos.                | 114   | .0029913   |
| 2.4.2.9  | Supply of Double compression type brass cable glands of reputed make for 3.5C x 25 Sq. mm LT cable  | Nos.                | 114   | .0010667   |
| 2.4.2.10 | Supply of 4CX16 sqmm Aluminium Cable Armoured PVC insulated and PVC Sheathed cable confirming to IS 1554 (Part-I)   | Mtrs                | 1,350 | .013747  |
| 2.4.2.11 | Supply of Double compression type brass cable glands of reputed make for 4C x 16 Sq. mm LT cable  | Nos.                | 8     | .0000711   |
| 3.0      | Erection, Testing and Commissioning BOQ Items.  | --                  |       |  |
| 3.1      | 11kV Supply Handling Items and BHEL Substation at Incomer Side  | --                  |       |  |
| 3.1.1    | Erection of Heat shrink type HT Indoor termination kits suitable for 11kV 3Cx185 sqmm Armoured Cables.  | Nos.                | 6     | .0004718   |
| 3.1.2    | Laying of 11KV HT cables of size 3CX 185 Sq.mm  | Mtrs                | 200   | .0006387   |
| 3.1.3    | Erection, Testing & Commissioning of 11kV 5 Panel Indoor VCB Switchboard with 2 Incoming , 2 Outgoing and 1 Buscoupler sections complete with CTs , PTs including 230 AC to DC Power Pack for control circuit inside the panel. (OEM will provide commissioning supervision)                    | Nos.                | 1     | .003439  |
| 3.1.4    | Erection, Testing & Commissioning 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     | .0002808   |
| 3.1.5    | Erection, Testing and Commissioning including oil filtration 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 BHEL Incoming Power Receivng Station | Nos.                | 1     | .0009436   |

**Part C : Bill of Quantities**

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| 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 |
|---------|---|---------------------|------|--|
| 3.1.6   | Erection, testing and Commissioning of operator remote control desk/Relay control panel with chair for operating the 11kV 5 Panel Indoor VCB Switchboard consisting of 2 Incoming , 2 Outgoing and 1 Buscoupler sections complete with CTs, PTs including 230 AC to DC Power Pack for control circuit inside the panel and 1 No. 50kVA, 11kV/0.440kV Transformer. This remote control desk/relay control panel shall control all operation points of BHEL Incoming Power Receiving Station i.e control supply on status, UPS and battery healthiness, main supply on status for 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. | Set                 | 1    | .0004493   |
| 3.1.7   | Laying of 11KV HT cables of size 3CX 185 Sq.mm  | Meters              | 100  | .0003193   |
| 3.1.8   | Erection of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3C X 185 sqmm 11kV Cables.  | Nos.                | 4    | .0003145   |
| 3.1.9   | Erection of Pole ISMB-250 11m 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.                | 8    | .0020723   |
| 3.1.10  | Erection of 11kV pin insulator with GI pin as per IS:731-1971 IS:2486 Part-II-1989. (Each set consist of all 3 Phases).   | Sets                | 4    | .000018  |
| 3.1.11  | Erection 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    | .0000749   |
| 3.1.12  | Erection of Lightning arrestor set suitable for 11kV as per ISS/IEC Spec No. IS:3070/2-1985/Latest. (Each set consist of all 3 Phases).   | Sets                | 2    | .0001618   |
| 3.1.13  | Erection of 11kV HG Fuse set as per IS (Each set consist of all 3 Phases).  | Sets                | 2    | .0000494   |

## Part C : Bill of Quantities

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| 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 |
|---------|--|---------------------|-------|--|
| 3.1.14  | 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     | .0005167   |
| 3.1.15  | Erection of 11kV 800A Air Break Switch (conventional) outdoor type, double break gang operated horizontally mounted, rotating type, complete with all accessories for assembly and operation as per IS:1818/1972 and IS:9920 (Part-I to IV)/ latest version and IS:9921 (part I to V)/ latest version. (Each set consist of all 3 Phases). | Sets                | 1     | .0007302   |
| 3.1.16  | Fabrication and erection of Structural steel including final painting with aluminium paint.  | MT                  | 5     | .0039995   |
| 3.2     | 11kV Ring Main Related Items.  | --                  |       |  |
| 3.2.1   | Laying of 11KV HT cables of size 3CX 185 Sq.mm   | Meters              | 4,500 | .0143701   |
| 3.2.2   | Erection Heat shrink type HT Outdoor termination kits of reputed make suitable for 3C X 185 sqmm 11kV Armoured Cables.   | Nos.                | 28    | .0022016   |
| 3.2.3   | Erection of Heat shrink type HT straight through jointing kits of reputed make suitable for for 3Cx 185 sqmm 11kV Armoured Cables.   | Nos.                | 8     | .0007169   |
| 3.2.4   | Erection and Commissioning 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 (suitable for 3C X185 sqmm cable) including all accessories required for complete erection of the pillar box. (except the civil works of the Pillar Box)                    | Nos.                | 4     | .0005392   |
| 3.2.5   | Laying of 11KV HT cables of size 3CX 120 Sq.mm   | Meters              | 1,200 | .0026797   |
| 3.2.6   | Erection of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3C X 120 sqmm 11kV Armoured Cables.  | Nos.                | 26    | .0017052   |
| 3.2.7   | Erection of Heat shrink type HT straight through jointing kits of reputed make for 3Cx 120 sqmm 11kV Armoured Cables.  | Nos.                | 7     | .0005471   |
| 3.2.8   | Stringing of ACSR RABBIT conductors as per IS:398/1961 (To meet 3 phases/lines)  | Meters              | 5,250 | .0037516   |

**Part C : Bill of Quantities**

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| 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 |
|---------|--|---------------------|------|--|
| 3.2.9   | Erection of 9m long 280kg working load pre-stressed cement concrete poles (PSCC). 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.                | 50   | .0055392   |
| 3.2.10  | Erection of 11kV V Cross arms/Straight Arm with suitable back clamps including supply of necessary fasteners as per IE specification.  | Nos.                | 50   | .0006811   |
| 3.2.11  | Erection of 11KV GI stay (7/3.15mm) sets with Guy, Bow, Stay Rod, wire etc. as per I.E. Specifications. The erection includes excavation of earth of size 0.8x0.8x1.0M depth , grouting with concrete of ratio 1:4:8 for size of 0.8x0.8x1.0M depth including supply of cement, sand, metal etc                            | Sets                | 50   | .0025279   |
| 3.2.12  | Erection of 11kV top fittings (I Clamp) with suitable back clamps including supply of necessary fasteners as per IE specification.   | Nos.                | 50   | .0001686   |
| 3.2.13  | Erection of 11kV pin insulator with pins as per IS: 2544/1963 AMD 125 & IEC 168/1969 Latest.<br>(Each set consist of all 3 Phases).  | Sets                | 50   | .0005828   |
| 3.2.14  | Erection of 11kV disc insulator with fixing & conductor and holding clamp as per IS: 3188/1965 & IEC 309/1969/Latest.<br>(Each set consist of all 3 Phases).   | Sets                | 10   | .0001871   |
| 3.2.15  | Erection of Pole ISMB-250 11m.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.                | 12   | .0031085   |
| 3.2.16  | Fabrication and erection of Structural steel including final painting with aluminium paint.  | MT                  | 8    | .0063992   |
| 3.2.17  | Erection of 11kV 400A Air break switch-double break-horizontal/vertical mounting rotating type as per ISS/IEC Spec No.4710/1968-265-C/1970/Latest.   | Nos.                | 9    | .0023253   |



## Part C : Bill of Quantities

### 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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha

#### at 3X800 MW NLC Talabira TPP

| 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 |
|---------|---|---------------------|-------|--|
| 3.2.18  | 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                | 3     | .0002426   |
| 3.2.19  | Erection of 11kV HG fuse as per ISS/IEC Spec IS: 9385/Latest. (Each set consist of all 3 Phases)  | Sets                | 3     | .0000742   |
| 3.2.20  | Erection of 11kV DO fuse as per ISS/IEC Latest. (Each set consist of all 3 Phases)  | Sets                | 3     | .0000742   |
| 3.2.21  | Erection of Heat shrink type HT Outdoor termination kits of reputed make suitable for 3C X 185 sqmm 11kV Cables.  | Nos.                | 6     | .0004718   |
| 3.2.22  | Erection 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. (Excavation is not included here) | Mtrs                | 285   | .0024057   |
| 3.2.23  | Erection, testing and commisioning of 500kVA, 11kV/433V Compact Package Substations (consisting of dry type transformers) as per BHEL Technical Specifications.                           | Nos.                | 17    | .0504606   |
| 3.2.24  | Erection, testing and commisioning, including oil filtration and submission of oil test report of 500kVA, 11kV/433V transformer as per BHEL specifications                                | Nos.                | 2     | .006249  |
| 3.3     | Items required at Package Substation and for High Masts   | --                  |       |  |
| 3.3.1   | Laying of 4CX16 sqmm Aluminium Cable Armoured PVC insulated and PVC Sheathed cable confirming to IS 1554 (Part-I)   | Meters              | 2,000 | .0013845   |
| 3.3.2   | Making end termination for 4C x 16 Sq. mm Aluminium Cable Armoured PVC insulated and PVC Sheathed LT cable including supplying of Aluminium lugs  | Nos.                | 32    | .000218  |
| 3.3.3   | Laying of 3.5CX185 sqmm Aluminium Cable Armoured XLPE insulated and PVC sheathed LT cable   | Meters              | 500   | .0005471   |
| 3.3.4   | Making end termination for 3.5CX185 sqmm Aluminium Cable Armoured XLPE insulated and PVC sheathed LT cable including supplying of Aluminium lugs  | Nos.                | 6     | .0001088   |

**Part C : Bill of Quantities**

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| 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 |
|---------|--|---------------------|-------|--|
| 3.3.5   | Laying of 3.5CX70 sqmm Aluminium Cable Armoured XLPE insulated and PVC sheathed LT cable   | Meters              | 2,000 | .0012505   |
| 3.3.6   | Making end termination for 3.5CX70 sqmm Aluminium Cable Armoured XLPE insulated and PVC sheathed LT cable including supplying of Aluminium lugs  | Nos.                | 40    | .0003439   |
| 3.3.7   | Erection of 14 SWG Wire  | Meters              | 563   | .0000629   |
| 3.3.8   | Erection of 65x10 mm GI earth flat.  | Meters              | 210   | .0004502   |
| 3.3.9   | Erection of 50x6 mm GI earth flat.   | Meters              | 380   | .000594  |
| 3.3.10  | Erection of 25x3 mm GI earth flat.   | Meters              | 535   | .0005974   |
| 3.3.11  | Erection of 8SWG GI wire   | Meters              | 3,600 | .000402  |
| 3.3.12  | 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.(Excavation is not included here) | Meters              | 500   | .0028137   |
| 3.4     | FOR AREA LIGHTING Related Items.   | --                  |       |  |
| 3.4.1   | For Construction Power Supply Area & its Route   | --                  |       |  |

## Part C : Bill of Quantities

### 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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha

#### at 3X800 MW NLC Talabira TPP

| 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 |
|---------|---|---------------------|-------|--|
| 3.4.1.1 | 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 erection of items like Junction Box, fuse, etc. and minor fabrication as below:<br>i) Drilling 20 mm dia hole at about 2.5 mtr from ground level for wire leads from junction box to light fixture.<br>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.<br>iii) Welding required holes for fixing pole cap of street light bracket.<br>iv) Welding diametrically 10 mm MS round 30 mm below pole top edge for clipping wire leads . | Nos.                | 114   | .0192204   |
| 3.4.1.2 | Erection of 90W LED street light fitting with all accessories along with cabling and termination  | Nos.                | 114   | .0007688   |
| 3.4.1.3 | Cable Laying and Termination of 2Cx2.5sqmm size copper PVC/ XLPE insulated cable including supply of lugs, glands, etc.   | Mtrs                | 5,890 | .0018414   |
| 3.4.1.4 | Erection of 50mm NB 3.6mm thick medium class standard GI pipe for incoming and outgoing cables.   | Nos.                | 228   | .0003819   |

**Part C : Bill of Quantities****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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha****at 3X800 MW NLC Talabira TPP**

| 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 |
|---------|--|---------------------|------|--|
| 3.4.1.5 | 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.                | 19   | .0021342   |
| 3.4.1.6 | Erection, Earthing and Charging of High Mast (20 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)   | Set                 | 4    | .0095265   |
| 3.4.1.7 | 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)   | Set                 | 4    | .0127019   |
| 3.4.2   | For Open Storage Yard  | --                  |      |  |

## Part C : Bill of Quantities

### 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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha

#### at 3X800 MW NLC Talabira TPP

| 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 |
|---------|---|---------------------|------|--|
| 3.4.2.1 | 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 minor fabrication as below :<br>i) Drilling 20 mm dia hole at about 2.5 mtr from ground level for wire leads from junction box to light fixture.<br>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.<br>iii) Welding required holes for fixing pole cap of street light bracket.<br>iv) Welding diametrically 10 mm MS round 30 mm below pole top edge for clipping wire leads . | Nos.                | 227  | .035697  |
| 3.4.2.2 | Installation/Erection & Commissioning of LED street light fitting 150 W complete with one piece of appropriate driver (integral/non-integral) and suitable for directly slipping over light mounting bracket made out of 40 mm OD pipe, all accessories along with cabling and termination  | Nos.                | 227  | .0028032   |
| 3.4.2.3 | Erection of 150mm NB 4.8 mm thick medium class GI pipes for make use of cable crossing where ever required such as existing culverts, trenches and road etc.  | Metres              | 454  | .0025549   |

## Part C : Bill of Quantities

### 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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha

#### at 3X800 MW NLC Talabira TPP

| 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 |
|---------|---|---------------------|-------|--|
| 3.4.2.4 | Erection of of outdoor type metal clad Lighting distribution board (LDB) IP -55 Protection with one incomer with 250A TPN CHANGE OVER SWITCH for EB supply & DG SET POWER SUPPLY and 3Nos outgoing feeders with 32 A TPN MCBs with timer & contactors for auto on/ off area lighting , 3Nos outgoing feeder with 40A 4POLE ELCB 100 mA tripping and 2 Nos outgoing feeders with 63 A TPN MCBs, 3 indicating lamps with fuse for indication bus supply ON, VOLT METER &VSS 0-500Vetc. Sufficient space should be provided for the removable cable gland plate to accommodate the power cable and all outgoing cables from suitable connectors from each MCB / ELCB. Neutral link bar for incoming and outgoing neutrals including all necessary civil works. | Nos.                | 2     | .0010362   |
| 3.4.2.5 | Erection of out door type Metal clad Lighting distribution board (LDB) IP -55 protection Double door type with one incomer with 200A TPN MCCB and 03 nos 63A TPN MCB out going feeders,3Nos outgoing feeders with 40A 4pole ELCB 100 mA tripping, 6 No outgoing feeders with 32 A TPN MCBs and Timer & contactors for auto on /off street lights and 3 indicating lamps with fuse for indication bus supply ON, Digital Volt meter &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 including all necessary civil works  | Nos.                | 4     | .0015542   |
| 3.4.2.6 | Laying of 3.5CX185 sqmm aluminium armoured PVC/XLPE insulated cable   | Meters              | 1,000 | .0010942   |
| 3.4.2.7 | Making of end termination of 3.5Cx185 sq.mm LT Power cable including supply of Aluminium lugs   | Nos.                | 6     | .0001088   |
| 3.4.2.8 | Laying of 3.5CX70 sqmm aluminium armoured PVC/XLPE insulated cable  | Meters              | 2,700 | .0016882   |

**Part C : Bill of Quantities**

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| 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 |
|----------|--|---------------------|-------|--|
| 3.4.2.9  | Making of end termination of 3.5Cx70 sq.mm LT Power cable including supply of Aluminium lugs   | Nos.                | 114   | .0009801   |
| 3.4.2.10 | Laying of 3.5CX25 sqmm aluminium armoured PVC/XLPE insulated cable   | Meters              | 5,200 | .0017418   |
| 3.4.2.11 | Making of end termination of 3.5Cx25 sq.mm LT Power cable including supply of Aluminium lugs   | Nos.                | 114   | .0007765   |
| 3.4.2.12 | Erection, Earthing and Charging of High Mast (20 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) | Set                 | 1     | .0023816   |
| 3.4.2.13 | 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) | Set                 | 1     | .0031755   |
| 3.4.2.14 | Laying of 4CX16 sqmm aluminium armoured PVC/XLPE insulated cable   | Mtrs                | 1,350 | .0009346   |
| 3.4.2.15 | Making of end termination of 4Cx16 sq.mm LT Power cable including supply of Aluminium lugs   | Nos.                | 8     | .0000545   |
| 4.0      | SUPPLY & ERECTION PORTION OF BOM FOR CIVIL RELATED WORKS.  | --                  |       |  |
| 4.1      | For 11kV Incomer Station Related Civil Works   | --                  |       |  |

**Part C : Bill of Quantities**

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| 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 |
|---------|--|---------------------|-------|--|
| 4.1.1   | Leveling of incomer yard, supply and spreading of 40mm size stone aggregate of 75 mm thick, supply and construction of brick work with cement mortar 1:6, plastering the brick work in CM 1:6 etc. Details specified below is tentative and may vary as per site conditions  | --                  |       |  |
| 4.1.1.1 | Brickwork (10x2+10x2)x0.230  | CUM                 | 4     | .0004776   |
| 4.1.1.2 | 40 mm size stone aggregate or pebbles  | CUM                 | 5     | .0003389   |
| 4.1.2   | Excavation of cable trench size 0.4x1.0 m depth in all types of soil for HT cable and 0.4x0.8 m / 0.4x0.6m depth for LT cable. After cable laying, the trench will be back filled with excavated earth materials / other outside earth materials with compaction.  | CUM                 | 72    | .0003762   |
| 4.1.3   | Supply & Erection and spreading of river sand in cable trench of 300 mm thick for protection of the underground cables   | CUM                 | 22    | .0004397   |
| 4.1.4   | Supply and laying of red/ ash bricks in the cable trench for protection of HT Power cable.   | Nos.                | 1,800 | .0003216   |
| 4.1.5   | 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. (Earthing shall be carried out by using supplied earth flats, i.e. rate for supply and erection of earth flat is excluded here and paid separately) | Nos.                | 6     | .0022242   |



## Part C : Bill of Quantities

### 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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha

#### at 3X800 MW NLC Talabira TPP

| 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 |
|---------|---|---------------------|------|--|
| 4.1.6   | Supply and fixing of 3.15mm GI chain linked wire fencing height 2 m. 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. (Supply and erection of Earthing flat and 8SWG wire is excluded here and paid separately). | Meters              | 40   | .0046994   |
| 4.1.7   | Supply and installation of 1m x 2m 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.  | Nos.                | 1    | .0001974   |
| 4.1.8   | 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 Lightning protection. 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.   | Sets                | 2    | .0007414   |
| 4.2     | For Package Substation (PSS) Related Civil Works and for 11KV Ring Main related items   | --                  |      |  |
| 4.2.1   | 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.  | --                  |      |  |
| 4.2.1.1 | Excavation (8mx6mx0.3m)-Earthwork   | CUM                 | 274  | .0007648   |
| 4.2.1.2 | Backfilling (8x6x0.4)-Earthwork   | CUM                 | 365  | .0008884   |

**Part C : Bill of Quantities****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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha****at 3X800 MW NLC Talabira TPP**

| 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 |
|---------|---|---------------------|------|--|
| 4.2.1.3 | Brickwork (8x2+6x2)x0.230   | CUM                 | 53   | .0063284   |
| 4.2.1.4 | PCC M10 (1:3:6)   | CUM                 | 91   | .0101363   |
| 4.2.1.5 | Plastering the brick work 12mm thk  | SQM                 | 239  | .0012222   |
| 4.2.1.6 | Paint white wash  | SQM                 | 239  | .0002188   |
| 4.2.2   | 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) 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. | --                  |      |  |
| 4.2.2.1 | RCC M20 (1:1.5:3)   | CUM                 | 184  | .0250891   |
| 4.2.2.2 | Reinforcement (Fe 500 TMT)  | MT                  | 20   | .0340214   |
| 4.2.2.3 | Shuttering  | SQM                 | 167  | .0026403   |

**Part C : Bill of Quantities**

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| <b>Ref.No.</b> | <b>Description</b>  | <b>Unit of Measurement</b> | <b>Qty.</b> | <b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b> |
|----------------|---|----------------------------|-------------|---|
| 4.2.3          | Supply and fixing of 3.15mm GI chain linked wire fencing height 2m for the substation of size 8m x 6m including grouting of 3m height ISA 75 fabricated posts at an interval of 1.5m (2m 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) (Supply and erection of Earthing flat and 8SWG wire is excluded here and paid separately).). | Meters                     | 420         | .0493433  |
| 4.2.4          | Supply and installation of 1m x 2m 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.                       | 19          | .0037507  |
| 4.2.5          | 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, i.e. rate for supply and erection of earth flat is covered separately)   | Nos.                       | 114         | .0422594  |
| 4.2.6          | 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.                       | 38          | .011074   |

**Part C : Bill of Quantities**

**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 3 X 800 MW NLC Talabira TPP, Jharsuguda, Odisha**

**at 3X800 MW NLC Talabira TPP**

| 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 |
|------------------------|--|---------------------|--------|--|
| 4.2.7                  | 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                | 38     | .0140865   |
| 4.2.8                  | 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, i.e. rate for supply of earth flat is covered separately) | Nos.                | 46     | .017052  |
| 4.2.9                  | Excavation of cable trench size 0.4x1.0 m depth in all types of soil for HT cable and 0.4x0.8 m / 0.4x0.6m depth depth for LT cable. After cable laying, the trench will be back filled with excavated earth materials / other outside earth materials with compaction.  | CUM                 | 5,346  | .0279354   |
| 4.2.10                 | Supply & Erection and spreading of river sand in cable trench of 300 mm thick for protection of the underground cables   | CUM                 | 2,209  | .0441498   |
| 4.2.11                 | Supply and laying of red/ ash bricks in the cable trench for protection of HT Power cable.   | Nos.                | 18,405 | .003288  |
| <b>TOTAL Weightage</b> |  |                     |        | 1.0  |