



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TENDER CHANGE NOTE 05 (TCN – 05) DT: 05-08-2009

WITH REFERENCE TO THE NIT, PUBLISHED IN THE WEB SITES FOR SUPPLY, RECEIPT AT SITE, ALL HANDLING, TRANSPORTATION FROM STORE/STORE YARD TO ERECTION SITE, ERECTION, TESTING & COMMISSIONING OF EQUIPMENT & SYSTEMS FOR CONSTRUCTION POWER DISTRIBUTION SYSTEM INCLUDING OBTAINING CLEARANCES FROM VARIOUS AUTHORITIES AS WELL AS OPERATION & MAINTENANCE SERVICES FOR 1X500 MW BOKARO-A TPS, BOKARO, JHARKHAND, PLEASE NOTE THE FOLLOWING :

REF: TENDER DOCUMENT NO-PSER-SCT-BOK-E1024:09

FURTHER TO OUR TCN-04 LETTER PUBLISHED IN THE WEB, PLEASE NOTE THAT CONSIDERING THE QUERIES RAISED BY BIDDERS AND OTHER CHANGES, THE BILL OF QUANTITY CUM RATE SCHEDULE VIDE VOLUME-III A, REV-0 HAS BEEN REVISED AND NEW BOQ-CUM-RATE SCHEDULE VIDE VOL-III A, REV-1 IS ENCLOSED HEREWITH.

THE VOL-III A, REV-0 STANDS CANCELLED AND ALL THE BIDDERS ARE REQUESTED NOT TO CONSIDER THE SAME (VOL-III A, REV-0) FOR SUBMISSION OF BID.

THE REVISED VOL-III A, REV-1 SHALL HAVE TO BE CONSIDERED BY ALL BIDDERS TOWARDS PRICE BID/SCHEDULE.

BIDDERS TO NOTE THAT ALL TCNS WILL FORM PART OF TECHNICAL SPECIFICATIONS & SPECIAL CONDITION OF CONTRACT OF TENDER DOCUMENT.

ALL OTHER TERMS & CONDITIONS OF THE TENDER SHALL REMAIN UNCHANGED.

SDGM (SCT)

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

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VOLUME-III, REV-1	
PRICE/RATE SCHEDULE, REV-1	
JOB:	SUPPLY, RECEIPT AT SITE, ALL HANDLING, TRANSPORTATION FROM STORE / STORE-YARD TO ERECTION SITE, ERECTION, TESTING AND COMMISSIONING OF EQUIPMENT AND SYSTEMS FOR CONSTRUCTION POWER DISTRIBUTION SYSTEM INCLUDING OBTAINING CLEARANCES FROM VARIOUS AUTHORITIES AS WELL AS O & M WORK FOR 1X500 MW BOKARO TPS, JHARKHAND
TENDER NO :- PSER:SCT:BOK-E1024:09 (TCN-05)	
PREAMBLE	
01	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully in rates for various items. Clauses under this preamble shall be read in conjunction with various volumes of tender as per NIT together with subsequent changes/ modifications etc thereto as applicable as on date of submission of price offer.
02	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions. Drawings enclosed with this document are only preliminary for giving some idea of the work involved
03	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
04	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc equipment, strengthening of roads/culverts/bridges etc including arranging all clearances etc required for carrying out different activities & tests, materials, levies, taxes & duties (except service Tax), transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the tender document and this schedule.
05	The quantities of the various items mentioned in this schedule of items are approximate, based on the preliminary information and may vary to any extent or be deleted altogether. The quoted rates shall remain firm and valid throughout the period of execution including extension, for reasons what-so-ever, as long as variation in the total value of work executed under any part of this contract including extra items, if any but excluding any price variation, remains within thirty percent (+/-) 30% of the awarded contract value as per LOI.
06	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing and leveling etc including fixing of grid pillars, benchmarks etc required for commencement of site activities. No separate payment will be made towards the same.
07	Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English
08	The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
09	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.
10	Summation of quoted prices all the price/rate schedules shall be considered for evaluation.
11	All works item wise shall be measured upon completion and paid for at the rates quoted & accepted.
12	Evaluation/Awarding shall be done on overall L-1 price combining all the three BOQs. However, two separate order namely supply & Erection/Commissioning etc order as per SUPPLY BOQ (SECTION-A) & E&C BOQ SECTION –B(i) and O&M order as per Operation & Maintenance BOQ [(SECTION – B(ii)] shall be placed. Taxes/Duties/Levies shall be as per tender provision.

VOLUME-III, REV-1**PRICE/RATE SCHEDULE, REV-1**

JOB: SUPPLY, RECEIPT AT SITE, ALL HANDLING, TRANSPORTATION FROM STORE / STORE-YARD TO ERECTION SITE, ERECTION, TESTING AND COMMISSIONING OF EQUIPMENT AND SYSTEMS FOR CONSTRUCTION POWER DISTRIBUTION SYSTEM INCLUDING OBTAINING CLEARANCES FROM VARIOUS AUTHORITIES AS WELL AS O & M WORK FOR 1X500 MW BOKARO TPS, JHARKHAND

TENDER NO. PSER:SCT:BOK-E1024:09 (TCN-05)

ABSTRACT OF QUOTED PRICE

Sl.no.	SECTION	DESCRIPTION	TOTAL AMOUNT AS PER QUOTED RATES (IN Rs.) (IN FIGURES AND IN WORDS)
1	Section -A	SUPPLY OF EQUIPMENT	
2	Section -B (i)	RECEIPT, HANDLING, ERECTION, TESTING, COMMISSIONING AND HANDING OVER	
3	Section -B (ii)	MANPOWER SERVICE FOR O&M OF THE SYSTEM AS PER SCC	
	GRAND TOTAL PRICE OF SECTION -A & SECTION -B (i) + SECTION-B (ii)- (ALL INCLUSIVE TOTAL PRICE)		
NOTE:			
1	QUOTED OVER ALL PRICE ONLY WILL BE CONSIDERED FOR BID EVALUATION PURPOSE AND SECTION WISE RATES ARE BEING OBTAINED FOR FACILITATING PRORATA BILLING.		
2	SERVICE TAX (AS APPLICABLE) WILL BE REIMBURSED BY BHEL EXTRA AGAINST SUBMISSION OF DOCUMENTARY EVIDENCES TO THE SATISFACTION OF BHEL. HOWEVER, CONTRACTOR SHALL OBTAIN PRIOR APPROVAL OF BHEL IN WRITING BEFORE DEPOSITING THE SERVICE TAX TO THE AUTHORITIES . AS SUCH BIDDERS QUOTED RATES SHALL NOT BE INCLUSIVE OF SERVICE TAX AND NO SEPERATE SERVICE TAX ARE REQUIRED TO BE QUOTED BY THE CONTRACTOR IN THE RATE SCHEDULES.		

VOLUME-III, REV-1

BOQ CUM RATE SCHEDULE (SUPPLY), REV-1

JOB: SUPPLY, RECEIPT AT SITE, ALL HANDLING, TRANSPORTATION FROM STORE / STORE-YARD TO ERECTION SITE, ERECTION, TESTING AND COMMISSIONING OF EQUIPMENT AND SYSTEMS FOR CONSTRUCTION POWER DISTRIBUTION SYSTEM INCLUDING OBTAINING CLEARANCES FROM VARIOUS AUTHORITIES AS WELL AS O & M WORK FOR 1X500 MW BOKARO TPS, JHARKHAND

TENDER NO. PSER:SCT:BOK-E1024:09 (TCN-05)

SUPPLY OF EQUIPMENT & MATERIAL (SECTION-A)

Sl.No.	Description of Items	Qty	Unit	Unit Rate (In Rs.)	Total Amount (In Rs.) (In Figs & In Words)
01a	Supply of PCC pole 9 M long (W/L - 400 kg) as per SEB Specification (Size as per drg. TOP-230mmx100mm & BOTTOM 410 mmx 100 mm)	34	No		
01b.	Supply of Rail Pole 45kg/M,12.8 m long	6	No		
2	7/4 mm STAY SET WITH TURN BUCKLE / BOW TIGHTENER/ BOW SET WITH TURN BUCKLES : Supply of stay set complete Galvanised with 19/20 mm dia x1.8 meter long stay rod, anchor plate size 45 cm x45 cm x7.5 mm thick, thimble, staty clamp, turn buckle,(20 mm x60 mm) /bow tightener, 7/4.00 mm dia. GI staty wire and strain insulator, clamps, hardware etc. as required	40	set		
3	Supply of 11 KV pin type insulators (10KN) & fittings as per relevant IS: 731, IS: 3188, IS: 2486(Part-I) as per specification, complete with large steel head GI pins, nuts, washer etc. as required Make - BHEL Banglore /WSI Chennai /Jayashree Insulator Halol/ Calcutta /Modern Insulator Abu Road	150	No		
4	Supply of 11 KV disc insulators (70KN) for 11 KV overhead line as per relevant IS: 731, IS: 3188, IS:2486(Part-I) as per specification with galvanised insulator fitting, ball and socket type and complete with galvanised strain clamps, bolts, nuts, washers etc. as required Make : BHEL Banglore /WSI Chennai /Jayashree Insulator Halol/ Calcutta /Modern Insulator Abu Road	150	No		
5	Supply of lightning arrester distribution class type non-linear resistor as per IS: 3070 type, suitable for 11 kv over head lines with rated voltage of 9 Kv (rms) with nominal discharge current rating of 5 KA and complete with galvanised bolts, nuts, washers, fitting etc. as required.	15	No		
6	Supply of 12 KV, rated current 100 Amps DO fuse assembly as per relevant IS complete with mounting base, harware, clamps insulators, operating rod, terminal connector including fuse rating suitable for 500 KVA,Transformer	5	set		
7	Supply of 11 KV out door type gang operated AB switch tripple pole 800 Amps rating , with 3 post pin insulators per phase, bimetallic connector, suitable for horizontal or vertical position mounting with adequate length of G.I. Pipe for operating handle erected on extended square shaft. with necessary clamps, hardware etc.	5	set		
8	Supply of 11 KV out door type gang operated AB switch tripple pole 400 Amps rating , with 3 post pin insulators per phase, bimetallic connector, suitable for horizontal or vertical position mounting with adequate length of G.I. Pipe for operating handle erected on extended square shaft. with necessary clamps, hardware etc.	8	set		
9	Supply of 11 KV out door type gang operated AB switch tripple pole 200 Amps rating , with 3 post pin insulators per phase, bimetallic connector, suitable for horizontal or vertical position mounting with adequate length of G.I. Pipe for operating handle erected on extended square shaft. with necessary clamps, hardware etc.	8	set		
10	Supply of Cradle type Cage gauard (along /across the road for 11 KV single circuit) shall run along the line made out of 6 SWG GI wire confirming to IS 2633 including netting, stretching and joining of cage including lacing by 10/12 SWG GI wire, binding by 14/16 SWG GI wire.	2	KM		
11	Supplying of 15 mm G.I. Pipe (Gr.B) 3 meter long for protection of earth wire	170	metre		
12	Supply of GI strip size 50 x 6 mm for earthing	250	metre		
13	Supply of GI strip size 25 x 3 mm for earthing	125	metre		
14	Supply of GI pipe (Gr.B) 50 mm dia	20	metre		

VOLUME-III, REV-1

BOQ CUM RATE SCHEDULE (SUPPLY), REV-1

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TENDER NO. PSER:SCT:BOK-E1024:09 (TCN-05)

SUPPLY OF EQUIPMENT & MATERIAL (SECTION-A)

Sl.No.	Description of Items	Qty	Unit	Unit Rate (In Rs.)	Total Amount (In Rs.) (In Figs & In Words)
15	Supply of GI pipe (Gr.B) 75 mm dia	20	metre		
16	Supply of CC spun pipe of 300 mm dia.	10	metre		
17	Supply of 3/4" PVC Flexible pipe	100	MTR		
18	Supply of 40mm dia (OD) GI pipe for Fitting luminaires	40	mtr		
19	Supply of earth electrode 40 mm dia. 3 Mtr long GI pipe (grade -B)	36	No		
20	Supply of earth wire size 6.09 mm. Dia. GI wire	450	metre		
21	Supply of GI Earth Spike 1822 x 20 mm	80	No		
22	Supply of 8 SWG GI wire earthing.	600	mtr		
23	Supply of 14 SWG GI earth continuity wiring.	3300	mtr		
24	Supply of Overhead ACSR conductor 'Dog' as per specification [6/4.72mm AL+7/1.57mm Steel as per IS 398(Pt-2) 196 or latest release	2000	metre		
25 i)	11 KV Heat shrinkable XLPE cable Joint (Out Door) : Supplying outdoor cable end termination with heat shrinkable jointing kit complete with accessories including lugs suitable for cable size three core x 120 sqmm. Aluminium conductor. Make - Raychem or equivalent.	5	No		
25 ii)	Indoor type cable end termination kit (Raychem make heat shrinkable type) for 3Cx120 sqmm 11 KV grade XLPE cable.	5	NO		
26 i)	3.3 KV Heat shrinkable XLPE cable Joint (Out Door) : Supplying outdoor cable end termination with heat shrinkable jointing kit complete with accessories including lugs suitable for cable size 3C x 70 sqmm. Aluminium conductor. Make - Raychem or equivalent.	2	NO		
26 ii)	Indoor type cable end termination kit (Raychem make heat shrinkable type) for 3Cx70 sqmm 3.3KV grade XLPE cable.	2	NO		
27	Supply of HT danger notice plate of size 250 mm x 200 mm x 2 mm thk., made of mild steel plate painted with vitreous enamelled white on both side and inscription in Red colour on front side as required.	50	No		
28	Supply of Structural steel [IS] for 11KV accessories /support members/clamps & hardware	4	MT		
29	Supply of sheet metal (16SWG) iron clad busbar chamber (W=500mmxD=150mm) on angle iron frame duly painted on wall with 4 Al bars (25mmx5mmx600mm) 500V, with adequate nos of holes drilled for connection of incoming & outgoing ckts, bars are fixed on porcelain insulators including supply of required hardwares for connection, fitted with DANGER board all complete.	5	NO		
30	Earth pit as per IS:3043 including masonry work & cast Iron cover, GI pipe 50 mm dia 3 m long class B with funnel & holes in the body for watering, pit with alternative layer of charcoal & salt including supply of all materials complete.	10	no		
31	Supply of 200 amps indoor 415V 3 ph 4 wire type TPN wall mounted busbar with Incoming 250 A isolator & 5 nos outgoing main switch - 63 A complete with all wiring & terminations, mounting frames etc.	1	no		
32	Supply of MCB distribution board with sheet metal enclosure & front cover, indoor type, Incoming 32 amps DP MCB, outgoing 6 nos 16 amps SP MCBs (per phase) complete with internal busbars.	3	no		
33	Supply of MCB distribution board with sheet metal enclosure & front cover, indoor type, Incoming 100 amps TP MCB, outgoing 6 nos 32 amps SP MCBs (per phase) complete with internal busbars.	5	no		

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BOQ CUM RATE SCHEDULE (SUPPLY), REV-1					
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	TENDER NO. PSER:SCT:BOK-E1024:09 (TCN-05)				
SUPPLY OF EQUIPMENT & MATERIAL (SECTION-A)					
Sl.No.	Description of Items	Qty	Unit	Unit Rate (In Rs.)	Total Amount (In Rs.) (In Figs & In Words)
34	Supply of Switchboard wooden 150x100 mm with matching cutouts and interconnections.	40	NO		
35	Supply of Switchboard wooden 200x300 mm with matching cutouts and interconnections.	40	NO		
36	Supply of Indicator lamp for Switchboard (Anchor / Pritam)	40	no		
37	Supply of 5/ 6 A piano type switch.	150	NO		
38	Supply of 5/ 6 A flush type power socket.	80	NO		
39	Supply of Fuse - 5Amps / 6 amps	41	no		
40	Supply of Push button switch for call bell (box type)	33	no		
41	Supply of Calling Bell	16	no		
42	Supply of 15/ 16 A piano type switch.	44	NO		
43	Supply of 15/ 16 A flush type power socket.	41	NO		
44	Supply of 15/16 amps fuse & socket combined switch	22	no		
45	Supply of 230V 12" exhaust fan with external louvre	6	no		
46	Supply of local make approved quality Pedestal fan - 16" sweep.	55	NO		
47	Supply of CFL 2x36 W decorative false ceiling type, with box base & mirror type reflectors with fixing/ hanging material/ hardware.	70	NO		
48	Supply of CFL 2x36 watts with box base & vitrious enamelled reflectors with fixing/ hanging material/ hardware.	25	NO		
49	2x400W with lamp,control gear and all accessories.Model:Bajaj Equivalent of BJEF22CA.Aproved makes Bajaj/Phillips/Crompton/GE(sodium vapour lamps)	40	NO		
50	1x400W with lamp,control gear and all accessories.Model:Bajaj Equivalent of BJEF15S.Aproved makes Bajaj/Phillips/Crompton/GE(sodium vapour lamps)	20	NO		
51	Supply of 70 WATTS Bajaj make luminaire Model :BJFL 70SV with lamp or equivalent for outside all round illumination	20	no		
52	Supply of 3/4 " dia PVC conduit with bends/ tees/ ceiling roses with wooden base or boxes, fixing saddles/ clamps ECC tie wire etc.	1170	MTR		
53	Supply of 2.5mm Sqr. PVC wire for fixing of luminaries in open storage yard	150	metre		
54	Supply of Cable 3.5 core x 95 sqmm Aluminium 1.1 KV grade PVC Armoured	100	mtr		
55	Supply of cable 3.5 core x 70 sqmm Aluminium 1.1 KV grade PVC Armoured	100	mtr		
56	Supply of 3.5 core 25 sqmm PVC, armoured Aluminium cable of 1.1 KV grade. As per IS-1554.	1050	RM		
57	Supply of 1C x1.5 sqmm 650 V/ 1.1 KV grade PVC insulated copper wire.	3000	MTR		
58	Supply of 1Cx2.5 sqmm 650 V/ 1.1 KV grade PVC insulated copper wire.	1500	MTR		
59	Supply of 1Cx4 sqmm 650V/1.1 KV grade PVC insulated Copper wire	900	mtr		
60	Supply of straight thru joint kit for 1.1 KV (LT) cables.				
a)	3-1/ 2 core cables, 300 sqmm.	10	NO		
b)	3-1/ 2 core cables, 120 sqmm.	10	NO		
c)	3.5 core x 95 sqmm cables	10	NO		
d)	3.5 core x 70 sqmm cables	10	NO		
	GRAND TOTAL PRICE FOR SUPPLY				

VOLUME-III, REV-1

BOQ CUM RATE SCHEDULE (E&C and O&M), REV-1

JOB: SUPPLY, RECEIPT AT SITE, ALL HANDLING, TRANSPORTATION FROM STORE / STORE-YARD TO ERECTION SITE, ERECTION, TESTING AND COMMISSIONING OF EQUIPMENT AND SYSTEMS FOR CONSTRUCTION POWER DISTRIBUTION SYSTEM INCLUDING OBTAINING CLEARANCES FROM VARIOUS AUTHORITIES AS WELL AS O&M WORK FOR 1X500 MW BOKARO, JHARKHAND

TENDER NO. PSER:SCT:BOK-E1024:09

(TCN-05)

ERECTION OF 11 KV OVER HEAD LINE , EQUIPMENTS & ACCESSORIES { SECTION B (i) }

Sl. No.	Description of Items	Qty	Unit	Rate	Total Amount (In Rs) (In Figs & In Words)
1a.	Erection of PCC Poles :: Excavation (in all types of soil) including disposal of excess earth as per direction of engineer, for poles pit size 60 cms x 60 cms.x 1.5/1.8 Mtrs deep, erection of PCC poles [including supply & erection of anticlimbing devices] in true plumb, back filling the pit after erection with jhama brick bats of size 63 mm to 40 mm and down including watering, if necessary duly compacted in layers. The rate inclusive of excavation including disposal, supply of jhama bricks, labour, tools & tackles, etc all complete in the approved manner.	34	Nos.		
1b.	Erection of Rail Pole : Providing cement concrete foundation including excavation (In all types of soil) for poles pit size 60 cmsx60 cms.x 1.8/2 Mtrs deep in 1:3:6 cement concrete (1 cement, 3 coarse sand, 6 graded stone aggregate 40 mm nominal size) including form work , concrete foundation of 20mm thick all around the pole foundation and upto 20 cms above the ground level and tapered suitably into collar, hieght plinth duly plastered and with necessary curing and fishing, back filling etc. in the approved manner.	6	Nos.		
2	Dismantling , Removal & return to BHEL store of 9 to 12 mtr PCC/rail pole alongwith all accessories /stay set for 11KV /LT O/H lines with refilling of the void and disposal of rubbish	8	Nos.		
3	Erection of stay set complete with turn buckle, stay rod, anchor plate, thimble, stary clamp, bow tightener, stary wire and strain insulator, clamps , hardware etc. as required in cement concrete 1:3:6 (1 cement : 3 Coarse sand ; 6 Graded stone aggregate 40 mm nominal size) in foundation including excavation in all type of soil and back filling etc. as required including supply of cement & all other civil materials.	40	sets.		
4	Erection of 11 KV pin type insulators complete with large steel head GI pins, nuts, washer etc. as required	150	Nos.		
5	Erection of 11 KV disc insulators for 11 KV overhead line with galvanised insulator fitting, ball and socket type and complete with galvanised strain clamps, bolts, nuts, washers etc. as required	150	Nos.		
6	Erection of lightning arrester distribution class type, suitable for 11 kv over head lines complete with galvanised bolts, nuts, washers, fitting, etc. as required for 500KVA transformer	15	Nos.		

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BOQ CUM RATE SCHEDULE (E&C and O&M), REV-1

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TENDER NO. PSER:SCT:BOK-E1024:09

(TCN-05)

ERECTION OF 11 KV OVER HEAD LINE , EQUIPMENTS & ACCESSORIES { SECTION B (i) }

Sl. No.	Description of Items	Qty	Unit	Rate	Total Amount (In Rs) (In Figs & In Words)
7	Dismantling & return of 11 KV LA set (three nos) complete in all respect.	2	SET		
8	Installation of 11 KV DO fuse assembly complete with mounting base, hardware , clamps insulators, operating rod, terminal connector, etc.	5	Sets		
9	Installation of 11 KV out door type gang operated AB switch tripple pole 200 / 400 / 800 Amps rating with 3 post pin insulators per phase, bimetallic connector mounted horizontal or vertical position on provided cross arm with adequate length of G.I. Pipe for operating handle erected on extended square shaft. The operating handle provided with lock & key at suitable height from ground level with necessary clamps, hardware etc.	8	Sets		
10	Dismantling of 11 KV pole mounted GOAB switch with accessories/ DO fuse assembly etc.	3	SET		
11	Installation of Cradle type Cage gauard (along /across the road for 11 KV single circuit) shall run along the line made out of 6 SWG GI wire confirming to IS 2633 including netting, stretching and joining of cage including lacing by 10/12 SWG GI wire, binding by 14/16 SWG GI wire.	2	KM		
12	Dismantling & return of existing cradle guard of overhead line (span length wise).	0.5	KM		
13	Installation of 15 mm G.I. Pipe 3 meter long for protection of earth wire lead to earth electrode with suitable clamping arrangement and hardware.	170	Mtrs.		
14	Installation [including welding, etc & supply of matching hardwares like nut, bolts, washers, etc] of GI strip size 50 x 6 mm for interconnecting the earth pits ion sub station, transformer netrual earthing etc.	250	Mtrs		
15	Installation of GI strip size 25 x 3 mm [including welding, etc & supply of matching hardwares like nut, bolts, washers, etc] for earthing AB swtich, DO fuse assembly etc,	125	Mtrs.		
16	Installation of GI pipe 50 mm dia including clamps, hardware etc.	20	Mtrs.		
17	Installation of GI pipe 75 mm dia including clamps, hardware etc.	20	Mtrs.		
18	Laying below ground in excavated trench (as per specification) of CC spun pipe of 300 mm dia. Wherever cable laid through pipe for road crossing purpose.	10	Mtrs.		
19	Installation of 3/4" PVC Flexible pipe	100	MTR		

VOLUME-III, REV-1

BOQ CUM RATE SCHEDULE (E&C and O&M), REV-1

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TENDER NO. PSER:SCT:BOK-E1024:09

(TCN-05)

ERECTION OF 11 KV OVER HEAD LINE , EQUIPMENTS & ACCESSORIES { SECTION B (i) }

Sl. No.	Description of Items	Qty	Unit	Rate	Total Amount (In Rs) (In Figs & In Words)
20	Installation of 40mm dia (OD) GI pipe for Fitting luminaires	40	mtr		
21	Installation of earth electrode 40 mm dia. 3 metre long GI pipe directly driven into earth including earth excavation if required..	36	Nos.		
22	Installation of earthwire 6.09 mm dia including supply of clamps, cleats, etc	450	metre		
23	Erection of Earth Spike	80	No		
24	Installation of 8 SWG GI wire earthing.	600	mtr		
25	Installation of 16 SWG GI earth continuity wiring.	3300	mtr		
26	Fixing of HT danger notice plate on tubulat pole / DP structure of size 250 mm x 200 mm x 2 mm thk., made of mild steel plate painted with vitreous enamelled white on both side and inscription in Red colour on front side as required.	50	Nos.		
27	Fixing of sheet metal (16SWG) iron clad busbar chamber(W=500mmxD=150mm) on angle iron frame duly painted on wall with 4 Al bars (25mmx5mmx600mm) 500V, with adequate nos of holes drilled for connection of incoming & outgoing ckts, bars are fixed on porcelain insulators including supply of required hardwares for connection, fitted with DANGER board all complete.	5	NO		
28	Making the earth pit as per IS 3043 including earth/ massonary work, (size of electrode 50 mm dia. G.I. Pipe, 3 Meter long, class 'B'). Pit shall be filled with alternative layer of charcoal & salt. GI Pipe shall be with funnel with wire mesh for watering. Mansonry block C.I.cover coplete as per IS. All the earth pits are to be inter connected with GI strip of size 50x6 mm including all the material arranged by the contractor.	10	Nos.		
29	Installation of 5/ 6 A piano type switch.	150	NO		
30	Installation of 5/ 6 A flush type power socket.	80	NO		
31	Installation of Fuse - 5Amps / 6 amps	41	no		
32	Installation of 15/ 16 A piano type switch.	44	NO		
33	Installation of 15/ 16 A flush type power socket.	41	NO		
34	Installation of 15/16 amps fuse & socket combined switch	22	no		
35	Installation of 70 WATTS Bajaj make luminaire Model :BJFL 70SV with lamp or equivalent for outside all round illumination	20	no		

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JOB: SUPPLY, RECEIPT AT SITE, ALL HANDLING, TRANSPORTATION FROM STORE / STORE-YARD TO ERECTION SITE, ERECTION, TESTING AND COMMISSIONING OF EQUIPMENT AND SYSTEMS FOR CONSTRUCTION POWER DISTRIBUTION SYSTEM INCLUDING OBTAINING CLEARANCES FROM VARIOUS AUTHORITIES AS WELL AS O&M WORK FOR 1X500 MW BOKARO, JHARKHAND

TENDER NO. PSER:SCT:BOK-E1024:09

(TCN-05)

ERECTION OF 11 KV OVER HEAD LINE , EQUIPMENTS & ACCESSORIES { SECTION B (i) }

Sl. No.	Description of Items	Qty	Unit	Rate	Total Amount (In Rs) (In Figs & In Words)
36	Installation of 2x400W HPSV luminaire with lamp, control gear and all accessories	40	no		
37	Installation of 1x400W luminaire with lamp, control gear and all accessories	20	no		
38	Installation of Fluorescent 2x 36 W decorative false ceiling type, with box base & mirror type reflectors with fixing/ hanging material/ hardware.	70	NO		
39	Installation of Fluorescent 2x 36 watts with box base & vitrious enamelled reflectors with fixing/ hanging material/ hardware.	25	NO		
40	Stringing ACSR conductor of size "Dog" conductor [6/4.72 mm Al + 7/1.57 mm Steel] for over head line with stringing binding with proper size of aluminium conductor, jumpering and suitable size of P.G. clamps for jumpering from overhead lines to lightning arrestors/ AB switch/ DO fuse assembly and transformer HT terminal as per the arrangement, etc. as required. [Rate inclusive of supply of accessories]	2000	Mtrs.		
41	Dismantling of DOG ACSR conductor with insulators, returning to store.	0.5	Mtrs.		
42	Laying of cable which includes excavation of trench in all kind of soil, laying below ground providing sand layer below/above the cable, brick lining both sides and above the cable and back filling as per specification				
i)	1.1KV LV grade PVC LT Cable				
a)	3.5CX300sqmm	750	Mtrs.		
b)	3.5CX120sqmm	750	Mtrs.		
c)	4CX6sqmm	1750	Mtrs.		
ii)	3.3 KV grade PVC HT Cable				
a)	3Cx70sqmm	500	Mtrs.		
iii)	11KV grade XLPE HT cable				
a)	3C-120sqmm	500	Mtrs.		
43	Laying of cable on existing structure, wall, floor etc providing support /clamps etc				
i)	1.1KV LV grade PVC LT Cable				
a)	3.5CX300sqmm	750	Mtrs.		
b)	3.5CX120sqmm	750	Mtrs.		
c)	4CX6sqmm	1750	Mtrs.		
ii)	3.3 KV grade PVC HT Cable				

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Sl. No.	Description of Items	Qty	Unit	Rate	Total Amount (In Rs) (In Figs & In Words)
a)	3CX70sq mm	500	Mtrs.		
iii)	11KV grade XLPE HT cable				
a)	3C-120sqmm	500	Mtrs.		
44	Termination of cablearmoured cables including glanding,drilling the hole in gland plate & making termination with double compression cable gland and aluminium lugs for aluminium armoured cable (including supply of cable glands (COMET make /equivalent) and aluminium lugs)				
i)	1.1KV LV grade PVC LT Cable				
a)	3.5CX300sqmm	40	NOS		
b)	3.5CX120sqmm	20	NOS		
c)	4CX6sqmm	20	NOS		
d)	3.5CX25sqmm	20	NOS		
e)	3.5CX70sqmm	20	NOS		
f)	3.5CX95 sqmm	20	NOS		
45	Removal of existing buried cable after excavataion and back filling returning to store after coiling.				
a)	3-1/ 2 core cables, 300 sqmm.	300	MTR		
b)	3-1/ 2 core cables, 120 sqmm.	300	MTR		
c)	3-1/ 2 core cables, 95 sqmm.	150	MTR		
d)	3-1/ 2 core cables, 70 sqmm.	150	MTR		
e)	3-1/2 core cables, 25 sqmm.	350	MTR		
f)	4 core cables, 6 sqmm	400	MTR		
g)	3 core 120 sqmm 11 KV grade cable.	250	MTR		
h)	3 core 70 sqmm 3.3 KV grade cable.	250	MTR		
46	Removal of existing cable laid in open/ on tray in trench, returning to store after coiling.				
a)	3-1/ 2 core cables, 300 sqmm.	300	MTR		
b)	3-1/ 2 core cables, 120 sqmm.	300	MTR		
c)	3-1/ 2 core cables, 95 sqmm.	150	MTR		

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Sl. No.	Description of Items	Qty	Unit	Rate	Total Amount (In Rs) (In Figs & In Words)
d)	3-1/ 2 core cables, 70 sqmm.	150	MTR		
e)	3-1/2 core cables, 25 sqmm.	350	MTR		
f)	4 core cables, 6 sqmm	400	MTR		
g)	3 core 120 sqmm 11 KV grade cable.	250	MTR		
47A	Erection of Indoor termination including supply of heat shrinkable termination kit of apporved make for 11KV HT XLPE Cable	5	NOS		
47 B	Erection of Outdoor termination including supply of heat shrinkable termination kit of approved make 11KV HT XLPE Cable	5	NOS		
47C	Erection of Indoor termination including supply of heat shrinkable termination kit of apporved make for 3.3KV HT PVC Cable	2	NOS		
47D	Erection of Outdoor termination including supply of heat shrinkable termination kit of approved make 3.3 KV HT PVC Cable	2	NOS		
48	Installation of 3/4 " dia PVC conduit with bends/ tees/ ceiling roses with wooden base or boxes, fixing saddles/ clamps ECC tie wire etc.	1170	MTR		
49	Installation of 3.5 core 25 sqmm PVC, armoured Aluminium cable of 1.1 KV grade. As per IS-1554.	1050	RM		
50	Installation of cable 3.5 core x 70 sqmm Aluminium 1.1 KV grade PVC Armoured	100	mtr		
51	Installation of Cable 3.5 core x 95 sqmm Aluminium 1.1 KV grade PVC Armoured	100	mtr		
52	Installation of 1C x1.5 sqmm 650 V/ 1.1 KV grade PVC insulated copper wire.	3000	MTR		
53	Installation of 1Cx2.5 sqmm 650 V/ 1.1 KV grade PVC insulated copper wire.	1500	MTR		
54	Installation of 1Cx4 sqmm 650V/1.1 KV grade PVC insulated Copper wire	900	mtr		
55	Installation of 2.5mm Sqr. PVC wire for fixing of luminaries in open storage yard	150	mtr		
56	Installation of Calling Bell	16	no		
57	Installation of Push button switch for call bell (box type)	33	no		
58	Installation ,testing and commisioning of 11/0.433KV transformer ,including assembly of loose supplied accessories ,oil filling,drying out/oil filtration etc				
a)	500 KVA transformer	5	Nos		

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ERECTION OF 11 KV OVER HEAD LINE , EQUIPMENTS & ACCESSORIES { SECTION B (i) }

Sl. No.	Description of Items	Qty	Unit	Rate	Total Amount (In Rs) (In Figs & In Words)
59	Dismantling ,re-erection ,testing and commisioning of 3.3/0.415KV transformer, including assembly of loose supplied accessories, oil filling,drying out/oil filtration etc				
a)	750 KVA transformer	2	Nos		
60	Oil filtration/ dry out of 500 KVA transformer at different occassions alongwith changing/ replacement of gaskets/ arresting leakages by dismantling & gas welding/ brazing as & when required.	5	NO		
61	Installation, testing and commissioning of LT distribution out door kiosk with all the provision as per specification.				
a)	a] Type - A (Incomer 800 Amps, Outgoing 400 Amps - 2 Nos., Outgoing 200 A - 1 No & Outgoing 100 Amps - 2 Nos.)	5	Nos.		
62	Fixing of luminaries/lights on rail/PCC poles with suitable fixtures/hardwares and wiring thereon in open storage (Necessary luminaries,hardwares,wires etc. shall be supplied by BHEL free of cost)	36	Nos.		
63	Fabrication, installation of various structural members such as cross arms, top adaptors, etc for poles, straight line DP structure/ sub-station DP structure/ DP structure for Line Tap-Offs, bracings member , clamps, bracket for gaurd wire or any other fabrication if required and not specified elsewhere in the tender specification etc; including supply of required matching hardwares and painting of one coat of red oxide & two coats of aluminium paint. This also includes the fabrication of other items as required.	8	MT		
64	Installation of 200 amps indoor 415V 3 ph 4 wire type TPN wall mounted busbar with Incoming 250 A isolator & 5 nos outgoing main switch - 63 A complete with all wiring & terminations, mounting frames etc.	1	no		
65	Installation of MCB distribution board with sheet metal enclosure & front cover, indoor type, Incoming 32 amps DP MCB, outgoing 6 nos 16 amps SP MCBs (per phase) complete with internal busbars.	3	no		
66	Installation of MCB distribution board with sheet metal enclosure & front cover, indoor type, Incoming 100 amps TP MCB, outgoing 6 nos 32 amps SP MCBs (per phase) complete with internal busbars.	5	no		

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Sl. No.	Description of Items	Qty	Unit	Rate	Total Amount (In Rs) (In Figs & In Words)
67	Installation of Switchboard wooden 150x100 mm with matching cutouts and interconnections.	51	NO		
68	Installation of Switchboard wooden 200x300 mm with matching cutouts and interconnections.	60	NO		
69	Installation of Indicator lamp for Switchboard (Anchor / Pritam)	41	no		
70	Installation of local make approved quality Exhaust fan with louvers - 12 " sweep.	6	NO		
71	Installation of local make approved quality Pedestal fan - 16" sweep.	55	NO		
72	Installation of 30m high lighting mast complete with accessories such as head frame,steel wire,trailing cable,double drum winch galvanized lantern carriage, luminaries and their control gear boxes (16 Nos of 2X400W)	6	NOS		
73	Fixing from roof truss with suitable clamp arrangement, flexible wire for connection between ceiling rose & fitting and commissioning of type HPSV luminaries medium bay industrial type, model BJMBI-150SV of BAJAJ or equivalent of PHILIPS / CROMPTON.	180	NO		
74	Fixing of sheet metal (16SWG) iron clad busbar chamber (W=500mmxD=150mm) on angle iron frame duly painted on wall with 4 Al bars (25mmx5mmx600mm) 500V, with adequate nos of holes drilled for connection of incoming & outgoing ckts, bars are fixed on porcelain insulators including supply of required hardwares for connection, fitted with DANGER board all complete.	5	NO		
75	Erection of straight thru joint kit for 1.1 KV (LT) cables.				
a	3-1/ 2 core cables, 300 sqmm.	10	NO		
b	3-1/ 2 core cables, 120 sqmm.	10	NO		
c	3.5 core x 95 sqmm	10	NO		
d	3.5 core x 70 sqmm	10	NO		
	GRAND TOTAL PRICE FOR E&C				

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Sl. No.	Description of Items	Qty	Unit	Rate	Total Amount (In Rs) (In Figs & In Words)
76	MAN POWER SERVICE FOR OPERATION & MAINTENANCE OF THE SYSTEM AS PER SCC { SECTION B(ii) }				
a	Supervisor experienced in 33/ 11KV substation & overhead line maintenance {on lumpsum monthly pay basis, with paid weekly off & 10 + 2 (optional) holidays in a calender year.	25	MAN-MONTH		
b	Skilled electrician having experience in 33/ 11KV substation & overhead lines (minimum 5 years experience or ITI with one year experience) alongwith necessary tools, insulation tapes as required for the work [8 hrs shift per day, with paid weekly off & 10 + 2 (optional) holidays in a calender year].	75	MAN-MONTH		
c	Semiskilled electrician/ helper (minimum 3 years experience) alongwith necessary hand tools & miscellaneous consumables like insulation tape/ emery papers/ drill bits etc as required for the work [8 hrs shift per day, with paid weekly off & 10 + 2 (optional) holidays in a calender year].	100	MAN-MONTH		
d	Unskilled helper alongwith hand tools as required for the work [one shift of 8 hrs per day, with paid weekly off & 10 + 2 (optional) holidays].	100	MAN-MONTH		
GRAND TOTAL PRICE FOR MANPOWER SERVICE FOR O&M					