



BIHAR STATE POWER TRANSMISSION COMPANY LIMITED

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PREAMBLE

1	Schedule of Rate (SOR) are a set of information indicating Rates of various Materials / Equipments / Erection etc. The Rates mentioned in this SOR are indicative and to be used for preparation of Estimates and DPRs etc. It will bring uniformity and have less deviation in the costs of different estimates.
2	The Rates mentioned in this SOR are exclusive of any Taxes. Estimates should be framed after adding the following suitable components:- (a) Freight & Insurance (F&I) @4% (four percent) of Supply Price Component should be added for Supply of Materials. (b) Applicable GST (Goods & Service Tax) should be added on Supply components, F&I components and Erection components.
3	It is to be noted that, the Rates of Materials / Equipments / Labours etc. differ from State to State and Company to Company as there can be minor differences in specifications, different terms of payments, timelines for supply of materials etc.
4	Civil Works:-
i)	Rates of civil works are to be taken from curent SOR of BCD, Govt. Of Bihar. If required item rate is not available in SOR of BCD, rate of RCD, Govt. Of Bihar shall be applicable.
ii)	SOR of WRD is applicable for tower protection from flood water/river water.
iii)	For river crossing works, SOR of RCD, GOB shall be applicable.
iv)	If rates are not available in the aforesaid SOR, then rates shall be guided by CPWD SOR.

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES (SUPPLY) FOR CONSTRUCTION OF TRANSMISSION LINES			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Sl. No.	Description of items	Unit	Unit Supply Price (in Rs.)
1	TOWER STEEL		
	Fabrication, galvanizing and supply of various types of towers including M/C tower (if applicable) and it's body and leg extensions (complete) including stubs and hangers of 20 mm rod, U-bolt etc. (Payment shall be made for identified MT for complete towers.)		
1.1	High tensile steel	MT	108,619.00
1.2	Mild steel	MT	105,294.00
1.3	Hexagonal bolts and nuts including Step bolts	MT	138,927.00
1.4	Anti Theft Bolt	MT	138,927.00
2	Tower Earthing		
2.1	Pipe Type	Nos.	9,096.00
3	Tower Accessories		
3.1	Danger Plate	Nos.	429.00
3.2	Number Plate	Nos.	429.00
3.3	Phase Plate (set of 3)	Sets	334.00
3.4	Circuit Plate(set of 2)	Sets	334.00
3.5	Bird Guard (set of 3)	Sets	2,372.00
3.6	Anti Climbing Device	Sets	10,038.00
	132 KV Transmission Lines with ACSR Panther Conductor		
4	CONDUCTOR		
4.1	ACSR Panther Conductor	KM	241,048.00
5	LONG ROD POLYMER INSULATOR		
5.1	Long Rod Polymer Insulator 70 KN of light weight	Nos.	4,918.00
5.2	Long Rod Polymer Insulator 90 KN of light weight	Nos.	5,276.00
6	HARDWARE FITTINGS FOR ACSR PANTHER CONDUCTOR		
6.1	Single Suspension 'I' Fittings	Set	3,182.00
6.2	Single Suspension Pilot Fittings	Set	2,280.00
6.3	Double Suspension Fittings	Set	6,557.00
6.4	Single Tension Fittings	Set	3,383.00
6.5	Double Tension Fittings	Set	7,046.00
7	CONDUCTOR ACCESSORIES FOR ACSR PANTHER CONDUCTOR		
7.1	MSCJ for Conductor	Nos.	914.00
7.2	Repair Sleeve for conductor	Nos.	380.00
7.3	Vibration Damper for conductor	Nos.	947.00
7.4	PA Rod (complete set) for conductor	Nos.	1,271.00
	220 KV Transmission Lines with ACSR Zebra Conductor		
4	CONDUCTOR		
4.1	ACSR Zebra Conductor	KM	415,670.00
5	LONG ROD POLYMER INSULATOR		

Sl. No.	Description of items	Unit	Unit Supply Price (in Rs.)
5.1	Long Rod Polymer Insulator 90 KN of light weight	Nos.	5,276.00
5.2	Long Rod Polymer Insulator 120 KN of light weight	Nos.	5,633.00
6	HARDWARE FITTINGS FOR ACSR ZEBRA CONDUCTOR		
6.1	Single Suspension 'I' Fittings	Set	3,323.00
6.2	Single Suspension Pilot Fittings	Set	2,974.00
6.3	Double Suspension Fittings	Set	6,905.00
6.4	Single Tension Fittings	Set	4,425.00
6.5	Double Tension Fittings	Set	8,349.00
7	CONDUCTOR ACCESSORIES FOR ACSR ZEBRA CONDUCTOR		
7.1	MSCJ for Conductor	Nos.	1,254.00
7.2	Repair Sleeve for conductor	Nos.	506.00
7.3	Vibration Damper for conductor	Nos.	1,269.00
7.4	PA Rod (complete set) for conductor	Nos.	2,282.00
	132/220 KV Transmission Lines with ACSR Moose Conductor		
4	CONDUCTOR	Unit	
4.1	ACSR Moose Conductor	KM	464,564.00
5	LONG ROD POLYMER INSULATOR		
5.1	Long Rod Polymer Insulator 120 KN of light weight	Nos.	6,995.00
5.2	Long Rod Polymer Insulator 160 KN of light weight	Nos.	8,523.00
6	HARDWARE FITTINGS FOR ACSR MOOSE CONDUCTOR		
6.1	Double I Suspension-400kv QUAD Moose	Set	28,832.00
6.2	Single I SUS Pilot -400 kv QUAD Moose	Set	52,563.00
6.3	QUAD Tension String -400 kv QUAD Moose	Set	67,181.00
6.4	Single Suspension 'I' Fittings	Set	5,086.00
6.5	Single Suspension Pilot Fittings	Set	5,086.00
6.6	Double Suspension Fittings	Set	8,389.00
6.7	Single Tension Fittings	Set	16,360.00
6.8	Double Tension Fittings	Set	18,422.00
7	CONDUCTOR ACCESSORIES FOR ACSR MOOSE CONDUCTOR		-
7.1	MSCJ for Conductor	Nos.	2,076.00
7.2	Repair Sleeve for conductor	Nos.	745.00
7.3	Vibration Damper for conductor	Nos.	1,608.00
7.4	PA Rod (complete set) for conductor	Nos.	2,996.00
7.5	Bundle Spacer for conductor	Nos.	1,593.00
7.6	Rigid Spacer	Nos.	2,088.00
	132 KV Transmission Lines with HTLS Conductor		
8	HTLS CONDUCTOR		
8.1	HTLS Conductor Capacity - 240 MVA, 1050 A (equivalent to Panther)	KM	1,027,447.00
9	HARDWARE FITTINGS & ACCESSORIES FOR HTLS CONDUCTOR		

Sl. No.	Description of items	Unit	Unit Supply Price (in Rs.)
9.2	Single Suspension 'I' Fitting w/o Clamp	Set	5,215.00
9.3	Single Suspension Pilot Fittings w/o Clamp	Set	8,029.00
9.4	Double Suspension Fittings w/o Clamp	Set	11,736.00
9.5	Single Tension Fittings w/o Clamp	Set	5,360.00
9.6	Double Tension Fittings w/o Clamp	Set	13,432.00
9.7	Single Suspension Clamp	Set	9,955.00
9.8	Double Suspension Clamp	Set	26,516.00
9.9	Dead End Tension Clamp	Set	105,823.00
9.10	Double Tension Clamp	Set	121,017.00
9.11	Terminal Pad without Holes	Set	11,291.00
9.12	Terminal Pad with Holes	Set	11,034.00
9.13	MSCJ	Nos.	121,608.00
9.14	Repair Sleeve	Nos.	16,912.00
9.15	Vibration Damper	Nos.	15,301.00
Earth Wire			
10	GI Earthwire		
10.1	GI(7/10) SWG Earth Wire	KM	66,596.00
11	GI Earthwire accessories		
11.1	Mid span compression joint for Earthwire conductor	Nos.	215.00
11.2	Flexible copper bonds for Earthwire	Nos.	735.00
11.3	Vibration damper for earth wire	Nos.	525.00
11.4	Suspension clamp assembly for Earthwire	Set	654.00
11.5	Tension clamp assembly for earthwire	Set	645.00
OPGW			
12	24Fibre (DWDM) OPGW FO Cable	Km	182,188.00
1(a)	Hardware set for above 24 Fibre OPGW Fibre Optic cabling incl. all cable fittings& accessories except Joint Box	Set	37,213.00
1(b)	2/3/4 way Joint Box (24 Fiber) including Coiling bracket as per requirement for looping/coiling of 30 meters of cable as per technical requirement	No.	30,175.00
2	48Fibre (DWDM) OPGW FO Cable	Km	182,188.00
2(a)	Hardware set for above 48 Fibre OPGW Fibre Optic cabling incl. all cable fittings& accessories except Joint Box	Set	37,213.00
2(b)	2/3/4 way Joint Box (48 Fiber) including Coiling bracket as per requirement for looping/coiling of 30 meters of cable as per technical requirement	No.	30,175.00
3	UGFO cabling		-
3(a)	Unarmoured underground fiber optic cable-48 fibre DWDM	kM	91,476.00
3(b)	2/3/4 way Joint Box (48 Fiber) including Coiling bracket as per requirement for looping/coiling of 30 meters of cable as per technical requirement		30,175.00
3(d)	Unarmoured underground fiber optic cable-24 fibre DWDM	Km	80,457.00

Sl. No.	Description of items	Unit	Unit Supply Price (in Rs.)
3(e)	2/3/4 way Joint Box (24 Fiber) including Coiling bracket as per requirement for looping/coiling of 30 meters of cable as per technical requirement	No.	5,523.00
4	GI pipe 100mm(nominal bore), medium class including accessories as per technical specification	m	981.00
5	RCC hume pipe(NP3), 100mm diameter(inside) including accessories as per technical specification	m	1,118.13
6	PLB HDPE pipe O.D. 40mm including accessories as per technical specification	Km	69,324.07
8	Suspension Assembly (Grounding clamps are part of Suspension assembly)	Set	1,716.00
9	Tension Assembly (Dead end clamps and Grounding clamps are part of Tension assembly)	Set	2,612.00
10	Vibration Dampers for OPGW Cable	Nos.	397.00
11	Downlead clamps	Nos.	182.00
12	FODP		-
12(b)	FODP 48F Indoor type, rack mounted with FCPC coupling and pigtails	No.	69,032.00
12(c)	FODP 96F Indoor type, rack mounted with 32U floor mounted network rack (front & back opening facility & with PDU) and FCPC coupling and pigtails along with panel	Nos.	67,201.00
14	Fibre Optic Approach Cable including Hardware set(like ties, clips, cleats,conduits, ducts supports , fittings)		-
14(a)	24 Fibre (DWDM)	Km	130,490.00
14(b)	48 Fibre(DWDM)	Km	130,490.00
15	Hardware set for 24 Fiber optic approach cable	set	105,270.00
16	Hardware set for 48 Fiber optic approach cable	set	137,170.00
	Communication Equipments		-
17(i)	SDH Equipment(STM-4 MADM upto 5 MSP protected directions)		-
17(i) (a)	Base Equipment (Common cards, Cross connect/control cards, Optical base card, Power supply cards, power cabling, other hardware& accessories including sub-racks, patch cords,DDF etc. fully equipped including Cabinet etc. excluding (2)&(3) below)	No.	1,093,158.00
17(ii)	SDH Equipment(STM-16 MADM upto 3 MSP protected directions)		
17(ii) (a)	Base Equipment (Common cards, Cross connect/control cards, Optical base card, Power supply cards, power cabling, other hardware& accessories including sub-racks, patch cords,DDF etc. fully equipped including Cabinet etc. excluding (2)&(3) below)	No.	800,175.00
18	Optical cards		-
18(a)	S4.1	No.	8,861.75
18(c)	L4.1	No.	20,246.00

Sl. No.	Description of items	Unit	Unit Supply Price (in Rs.)
18(d)	L4.2	No.	49,196.00
18(f)	Optical Line Interface <150 KM	No.	401,175.47
18(g)	Optical Line Interface upto 250 KM	No.	829,204.00
19	Tributary Cards		-
19(a)	E1 interface card(Min. 32 nos.)	No.	91,736.00
19(b)	Ethernet interfaces 10/100 Mbps with Layer-2 switching (Min.16 nos. ports)	No.	102,415.00
20	Drop & Insert Multiplexer	No.	364,030.00
20(a)	2 wire (sub/sub) voice channel card	No.	53,240.00
20(b)	2 wire (sub/exch) voice channel card	No.	64,379.00
20(c)	4 wire E & M Voice channel card	No.	57,021.00
20(d)	Asynchronous sub-channel data card	No.	54,715.00
20(f)	Synchronous data card N*64 kbps	No.	56,133.00
21	Digital Access cross connect switch (DACS), 16*16 ports matrix , full equipped for minimum 16E-1 ports	No.	348,549.00
22	Equipment cabinets for SDH equipment, primary multiplexer, drop/insert and DACS/ Digital Protection coupler	No.	68,065.00
23	Laptop PC for above software tools alongwith interfacing hardware (Intel Core i7, 16GB RAM,1TB HDD, 15.6" display, Windows-10 professional with licensed MS office and Antivirus (Latest Version)	Nos.	103,884.00
24	Network Manager & Element Manager System		
	Hardware	Set	365,970.00
	Software	Set	32,988.00
	Printer (Laser jet)	No	69,710.00
	Furniture for NMS hardware	No	25,726.00
25	Remote Work Station		-
25(a)	Hardware	Set	140,307.00
25(b)	Software	Set	32,988.00
26	Synchronization Equipment		-
26(a)	GPS clock including all hardware & accessories	Set	504,371.00
27	VOIP telephone with license of existing exchange	Set	46,620.00

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED					
SCHEDULE OF RATES (SUPPLY) FOR CONSTRUCTION OF TRANSMISSION LINES					
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)					
Sl. No.	Description of items	Unit	Weight in kg	Unit Supply Price (in Rs.)	Unit Erection Price
	220kV Monopole				
1	Design, Fabrication, Galvanising and supply of transmission line steel monopole including anchor plate, amchor bolt, templates suitable for 220kV D/C line with ACSR zebra conductor having pole type-D/C PC+0 (15 to 30d) with span of 300mtr and bottom cross arm at 15.4 mtr.	EA	13522	3,762,605.00	423,690.00
2	Design, Fabrication, Galvanising and supply of transmission line steel monopole including anchor plate, amchor bolt, templates suitable for 220kV D/C line with ACSR zebra conductor having pole type-D/C PC+6 (15 to 30d) with span of 300mtr and bottom cross arm at 21.4 mtr.	EA	17922	5,042,923.00	574,860.00
3	Design, Fabrication, Galvanising and supply of transmission line steel monopole including anchor plate, amchor bolt, templates suitable for 220kV D/C line with ACSR zebra conductor having pole type-D/C PC+9 (15 to 30d) with span of 300mtr and bottom cross arm at 24.4 mtr.	EA	20812	5,526,472.00	693,450.00
4	Design, Fabrication, Galvanising and supply of transmission line steel monopole including anchor plate, amchor bolt, templates suitable for 220kV D/C line with ACSR zebra conductor having pole type-D/C PA+0 (0d) with span of 300mtr and bottom cross arm at 15.4 mtr.	EA	-	2,603,743.00	423,690.00
5	Design, Fabrication, Galvanising and supply of transmission line steel monopole including anchor plate, amchor bolt, templates suitable for 220kV D/C line with ACSR zebra conductor having pole type-D/C PD+0 (30 to 60d) with span of 300mtr and bottom cross arm at 15.4 mtr.	EA	18618	4,711,553.00	496,410.00
6	Design, Fabrication, Galvanising and supply of transmission line steel monopole including anchor plate, amchor bolt, templates suitable for 220kV D/C line with ACSR zebra conductor having pole type-D/C PD+6 (30 to 60d) with span of 300mtr and bottom cross arm at 21.4 mtr.	EA	25261	6,510,873.00	675,630.00

7	Design, Fabrication, Galvanising and supply of transmission line steel monopole including anchor plate, anchor bolt, templates suitable for 220kV D/C line with ACSR zebra conductor having pole type-D/C PD+9 (30 to 60d) with span of 300mtr and bottom cross arm at 24.4 mtr.	EA	28243	7,126,565.00	755,340.00
8	Design, Fabrication, Galvanising and supply of transmission line steel monopole including anchor plate, anchor bolt, templates suitable for 220kV D/C line with ACSR zebra conductor having pole type-D/C PE+0 (90d) with span of 300mtr and bottom cross arm at 15.4 mtr.	EA	-	5,465,355.00	734,430.00
9	Design, Fabrication, Galvanising and supply of transmission line steel monopole including anchor plate, anchor bolt, templates suitable for 220kV D/C line with ACSR zebra conductor having pole type-M/C MC+0 (0 to 40d) with span of 200mtr and bottom cross arm at 15.4 mtr.	EA	41760	11,751,279.00	1,243,320.00
10	Design, Fabrication, Galvanising and supply of transmission line steel monopole including anchor plate, anchor bolt, templates suitable for 220kV D/C line with ACSR zebra conductor having pole type-M/C MD+0 (90d) with span of 200mtr and bottom cross arm at 15.4 mtr.	EA	62770	16,001,102.00	1,968,360.00
11	Design, Fabrication, Galvanising and supply of transmission line steel monopole including anchor plate, anchor bolt, templates suitable for 220kV D/C line with ACSR zebra conductor having pole type-M/C MC+3 (0 to 40d) with span of 200mtr and bottom cross arm at 18.4 mtr.	EA	45395	12,654,314.00	1,346,970.00
	132kV Monopole				
12	DESIGN, FABRICATION, GALVANIZING AND SUPPLY OF TRANSMISSION LINE STEEL MONO POLE INCLUDING ANCHOR PLATE, ANCHOR BOLTS, TEMPLATES SUITABLE FOR 132kV-DC- PC(15-30D)_BXA@30m (SPAN=320M, ACSR PANTHER, OPGW, OLF=1.12, TENSION=22%)	EA	22810	5,634,070.00	1,117,690.00
13	DESIGN, FABRICATION, GALVANIZING AND SUPPLY OF TRANSMISSION LINE STEEL MONO POLE INCLUDING ANCHOR PLATE, ANCHOR BOLTS, TEMPLATES SUITABLE FOR 132kV-DC- PC30(15-30D)_BXA@20m (SPAN=320M, ACSR PANTHER, OPGW, OLF=1.12, TENSION=22%)	EA	15940	3,937,180.00	781,060.00
14	DESIGN, FABRICATION, GALVANIZING AND SUPPLY OF TRANSMISSION LINE STEEL MONO POLE INCLUDING ANCHOR PLATE, ANCHOR BOLTS, TEMPLATES SUITABLE FOR 132kV-DC- PC(15-30D)_BXA@16m (SPAN=320M, ACSR PANTHER, OPGW, OLF=1.12, TENSION=22%)	EA	10280	2,539,160.00	503,720.00
15	DESIGN, FABRICATION, GALVANIZING AND SUPPLY OF TRANSMISSION LINE STEEL MONO POLE INCLUDING ANCHOR PLATE, ANCHOR BOLTS, TEMPLATES SUITABLE FOR 132kV-DC- PC(15-30D)_BXA@13m (SPAN=320M, ACSR PANTHER, OPGW, OLF=1.12, TENSION=22%)	EA	9740	2,405,780.00	477,260.00

16	DESIGN, FABRICATION, GALVANIZING AND SUPPLY OF TRANSMISSION LINE STEEL MONO POLE INCLUDING ANCHOR PLATE, ANCHOR BOLTS, TEMPLATES SUITABLE FOR 132kV-DC-PB(2-15D)_BXA@15m (SPAN=320M, ACSR PANTHER, OPGW, OLF=1.12, TENSION=22%)	EA	9200	2,272,400.00	450,800.00
17	DESIGN, FABRICATION, GALVANIZING AND SUPPLY OF TRANSMISSION LINE STEEL MONO POLE INCLUDING ANCHOR PLATE, ANCHOR BOLTS, TEMPLATES SUITABLE 132kV-DC-PB(2-15D)_BXA@14m (SPAN=320M, ACSR PANTHER, OPGW, OLF=1.12, TENSION=22%)	EA	8680	2,143,960.00	425,320.00

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES (ERECTION/COMMISSIONING) FOR CONSTRUCTION OF TRANSMISSION LINES			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Sl. No.	Description of items	Unit	Unit Erection Price (in Rs.)
1	Survey & Soil Investigation		
1.1	Detailed complete survey works including preliminary survey, profiling, tower spotting & check survey, submission of survey sheets including soil investigations. (Rate per route KM)	RKM	31,685.00
1.2	Soil Investigation in all kinds of Soil except HR & FR	Location	19,600.00
2	Proto Assembly & Type Testing		
2.1	Proto assembly charges for all types of 132 KV Towers (suitable for ACSR Panther/ HTLS Conductor)	LS	1,500,000.00
2.1	Proto assembly charges for all types of 132 KV Towers (suitable for Single ACSR Moose Conductor)	LS	2,500,000.00
2.1	Proto assembly charges for all types of 220 KV Towers (suitable for ACSR Zebra Conductor)	LS	2,400,000.00
2.1	Proto assembly charges for all types of 220 KV Towers (suitable for Twin ACSR Moose Conductor)	LS	4,347,826.00
2.2.A	Type test charges for ACSR Panther Conductor	LS	53,618.00
2.2.B	Type test charges for ACSR Zebra Conductor	LS	325,829.00
2.2.C	Type test charges for ACSR Moose Conductor	LS	358,411.00
2.2.D	Type test charges for HTLS Conductor	LS	394,252.00
2.3	Type test charges for Long Rod Polymer Insulator	LS	846,950.00
2.4	Type test charges for Hardware Fittings	LS	319,747.00
2.5	Type test charges for Conductor Accessories	LS	464,943.00
3	TOWER ERECTION		
3.1	Complete Tower Erection of various types of towers including M/C tower (if applicable) including stub setting, tack welding up to the cross arm, fixing of hangers of 20 mm rod, U-bolt etc. complete in all respect as per Specification & requirement.	MT	16,292.00
4	Tower Earthing		
4.1	Pipe Type	Nos.	5,300.00
5	Tower Accessories		
5.1	Danger Plate	Nos.	110.00
5.2	Number Plate	Nos.	110.00
5.3	Phase Plate (set of 3)	Sets	110.00
5.4	Circuit Plate (set of 2)	Sets	110.00
5.5	Bird Guard (set of 3)	Sets	330.00
5.6	Anti Climbing Device	Sets	2,100.00
6	Earth work in excavation in foundation pits including back filling, shoring, shuttering, dewatering etc. (rate per cubic meter)		
6.1	Normal Dry Soil	Cu.M	
6.2	Wet Soil / Partially Sub-Merged / Fully Sub-Merged	Cu.M	
7	Concreting (Normal & Shallow Foundation) (Note:- Shallow foundation shall be decided by the concerned ESE during execution after Soil Investigation and shall be based upon site conditions)		
7.1	Concreting 1:1.5:3 (M20)	Cu.M	
7.2	Concreting 1:3:6 (M10)	Cu.M	
7.3	Reinforcement (Supply & Erection both)	MT	
7.4	Benching	Cu.M	
8	REVETMENT		
8.1	Random Rubble Stone masonry including excavation	Cu.M	

Civil SOR as per preamble

Sl. No.	Description of items	Unit	Unit Erection Price (in Rs.)
8.2	Backfilling and levelling of volumes enclosed in revetment	Cu.M	
8.3	M-15 (1:2:4) Concrete for top seal cover of revetment	Cu.M	
9	STRINGING		
A	STRINGING - 132 KV - Panther		
9.1	STRINGING of 132 KV S/C DCSS transmission line with 03 Phase ACSR Panther Conductor (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	131,426.00
9.1(a)	STRINGING of 132 KV S/C DCSS transmission line with 02 Phase ACSR Panther Conductor (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	89,372.00
9.2	2nd Circuit STRINGING (without 1st Circuit Live) of 132 KV S/C DCSS transmission line with 03 Phase ACSR Panther Conductor (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	131,426.00
9.2(a)	2nd Circuit STRINGING (with 1st Circuit Live) of 132 KV S/C DCSS transmission line with 03 Phase ACSR Panther Conductor (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	328,568.00
9.3	STRINGING of 132 KV D/C transmission line with 06 Phase ACSR Panther Conductor (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	262,855.00
9.4	STRINGING of 132 KV M/C transmission line with 12 Phase ACSR Panther Conductor complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	394,283.00
B	STRINGING - 132 KV - Single Moose		
9.1	STRINGING of 132 KV D/C transmission line with 06 Phase ACSR Moose Conductor (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	394,283.00
C	STRINGING - 132 KV - HTLS		
9.1	STRINGING of 132 KV D/C transmission line with 06 Phase HTLS Conductor (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	639,341.00
9.2	Reconductoring of 132 KV S/C transmission line with 03 Phase HTLS Conductor (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	426,226.00
9.3	Reconductoring of 132 KV D/C transmission line with 06 Phase HTLS Conductor (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	639,342.00
D	STRINGING - 220 KV - Zebra		
9.1	STRINGING of 220 KV D/C transmission line with 06Phase ACSR Zebra Conductor (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	315,047.00

Sl. No.	Description of items	Unit	Unit Erection Price (in Rs.)
9.2	STRINGING of 220 KV M/C transmission line with 12 Phase ACSR Zebra Conductor (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	472,570.00
E	STRINGING - 220 KV - Twin Moose		
9.1	STRINGING of 220 KV D/C transmission line with 06 Phase ACSR Twin Moose Conductor (total 12 nos. of Conductor) (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	630,094.00
9.2	STRINGING of 220 KV M/C transmission line with 12 Phase ACSR Twin Moose Conductor (total 24 nos. of Conductor) (without OPGW/ Eartwire) complete with all works including stringing of Conductor, Fitting of Hardwares, Hoisting of Insulators etc.	RKM	945,141.00
F	DE-STRINGING - 220 KV - Zebra		
9.1	De-Stringing of 220 KV S/C transmission line with 03 Phase ACSR Zebra Conductor (without OPGW/ Eartwire) complete in all respect including transportation and handing over the dismantled materials to the BSPTCL Stores.	RKM	89,360.00
9.2	De-Stringing of 220 KV D/C transmission line with 06 Phase ACSR Zebra Conductor (without OPGW/ Eartwire) complete in all respect including transportation and handing over the dismantled materials to the BSPTCL Stores.	RKM	178,722.00
G	DE-STRINGING - 132 KV - Panther		
9.1	De-Stringing of 132 KV S/C transmission line with 03 Phase Panther Conductor (without OPGW/ Eartwire) complete in all respect including transportation and handing over the dismantled materials to the BSPTCL Stores.	RKM	75,300.00
9.2	De-Stringing of 132 KV D/C transmission line with 06 Phase Panther Conductor (without OPGW/ Eartwire) complete in all respect including transportation and handing over the dismantled materials to the BSPTCL Stores.	RKM	150,600.00
H	STRINGING / DE-STRINGING - Earth-Wire		
9.1	Stringing of Earthwire only for 132 KV/220 KV S/C or D/C transmission line complete in all respect including transportation and handing over the dismantled materials to the BSPTCL Stores.	RKM	26,285.00
9.2	De-Stringing of Earthwire only from 132 KV/220 KV S/C or D/C transmission line complete in all respect including transportation and handing over the dismantled materials to the BSPTCL Stores.	RKM	10,514.00
10	OPGW & Communication		
10.1	Installation/Stringing of 24 F OPGW CABLE complete with all works excluding hardware assemblies and joint boxes (Rate per route KM)	RKM	94,335.00
10.2	Installation of Hardware assembly	Set	14,317.00
10.3	Installation of 24 F Joint Box	Nos	43,621.00
10.4	Installation, Testing & commissioning of complete OPGW and communication equipments	LS	55,252.00
10(a)	De-Stringing of OPGW & Communication		
10.1	Un-Installation/ De-Stringing of 24 F OPGW CABLE from 132 KV/220 KV S/C or D/C transmission line complete in all respect including transportation and handing over the dismantled materials to the BSPTCL Stores.	RKM	37,734.00
11	Other Works		

Sl. No.	Description of items	Unit	Unit Erection Price (in Rs.)
1	Cost Towards Crop Compensation & Tree Cutting & Compensation, PTCC Clearance, All Statutory Clearances, NH/SH/Road Crossing or Any Other Crossing etc. (except Railway Crossing & Forest Clearances) required for succesful commissioning of the complete line in all respect.	RKM	632,500.00
2	Forest clearance/ compensation including NPV, Cost of compensatory afforestation etc.	Hectare	1,521,450.00
3	Railway Crossing including Railway Block Charges, Cost of ROW, Required Clearance etc.	Nos. (Per Crossing)	6,900,000.00
12	Pile Foundations Works		
1	Design including Vetting Charges (if any) etc. for Pile Foundations (from CPRI /IIT/NIT/Equivalent)	LS	Civil SOR as per preamble
2	Earthing Installation (one set for each location)	Location	
3	Bored cast in situ M35 grade R.C.C Pile of 1000mm dia including concrete and excluding reinforcement complete as per drawing and technical specifications including removal of excavated earth using Concrete mixer including transportaion of all materials .	Meter	
4	Excavation for Structures (Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.) Mechanical Means depth upto 3 m	Cu.M	
5	Cement concrete for reinforced concrete in Pile Cap complete as per drawing and Technical Specification RCC M25 using concrete mixer including transportaion of all materials including Form works	Cu.M	
6	PCC 1:3:6 in Foundation (Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 20 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.) including transportaion of all materials .	Cu.M	
7	Supply fitting and placing HYSD bar reinforcement in Foundation complete as per drawing and technical specification	MT	
8	Providing steel liner 6/8/10 mm thick for curbs /steining of wells/ pile including fabricating and setting out as per detailed drawing	MT	
9	Conducting Standered Penetration Test (SPT) at various elevation in Pile Borehole.	Nos.	
10	Conducting integrity Test on Pile.	Nos.	

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED				
SCHEDULE OF RATES (SUPPLY AND ERECTION/COMMISSIONING) FOR CONSTRUCTION OF GRID SUB-STATIONS				
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)				
Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection price (in Rs.)
A-1	TRANSFORMER			
	500 MVA Three phase power transformer 400/220/33 KV Auto Transformer without oil complete with all accessories, marshalling boxes, terminal connectors etc. with detachable type/portable type on line oil filtration system	Nos.	145,959,121	1,107,461
	Transformer oil for the above with 10% extra oil.	Lot	8,792,051	479,802
	Type test charges including service tax etc. to be conducted on only one Transformer	LS		463,395
1.1	200 MVA Three phase power transformer 220/132/33 KV Auto Transformer without oil complete with all accessories, marshalling boxes, terminal connectors etc. with detachable type/portable type on line oil filtration system	Nos.	94,529,500	981,105
1.1.1	Transformer oil for the above with 10% extra oil.	Lot	5,618,620	87,525
1.1.2	Type test charges including service tax etc. to be conducted on only one Transformer	LS		292,896
1.2	160 MVA Three phase power Transformer 220/132/33 KV Auto Transformer without oil Complete with all accessories, marshaling boxes, terminal connectors etc.	Nos.	78,774,584	975,010
1.2.1	Transformer oil for the above with 10% extra oil.	Lot	4,896,226	73,065
1.2.2	Type test charges including service tax etc. to be conducted on only one Transformer	LS		234,318
1.3	80 MVA Three phase 132/33 KV Power Transformer without oil Complete with all accessories, marshaling boxes, terminal connectors etc.	Nos.	65,648,000	606,330
1.3.1	Transformer oil for the above with 10% extra oil.	Lot	5,661,000	59,140
1.3.2	Type test charges including service tax etc. to be conducted on only one Transformer	LS		223,008
1.4	50 MVA Three phase 132 /33 KV Transformer Complete with all accessories, marshaling boxes, terminal connectors etc.	Nos	38,809,756	449,692
1.4.1	Transformer oil for the above with 10% extra oil.	Lot	2,729,044	36,962
1.4.2	Type test charges including service tax etc. to be conducted on only one Transformer	LS		211,508
A-2	LT TRANSFORMER			-
1	630 KVA, 33/0.433kV LT transformer with oil, accessories and terminal connectors	Nos.	1,460,083	17,032
2	315KVA, 33/0.433KV LT, Sub station transformer with terminal connectors	No.	1,161,551	17,032
B-1	220 kV EQUIPMENT			-
1	Circuit breaker (3 phase)			-
i)	2500 A, 40 kA SF – 6 CB with support structure, marshalling boxes, terminal connectors etc.(current rating shall be equal to the current rating for which the short cuircuit test reports shall be furnished. (Spring-Spring Mechanism) (spring- spring)	No	1,832,070	21,342
2	ISOLATORS (3 phase), with solid core insulators, marshalling boxes, terminal connectors (Motor Operated) with moving contact of HDEC copper only.			-
i)	1600 A, 40 kA with two earth switch (Double break Isolator)	Nos.	682,728	19,664
ii)	1600 A, 40 kA with one earth switch (Double break Isolator)	Nos.	578,362	19,141
iii)	1600 A, 40 kA without earth switch (Double break Isolator) (Tandem arrangement)	Nos.	481,659	18,619
iv)	2500 A, 40 kA with two earth switch (Double break Isolator)	Nos.	765,242	18,619
v)	2500 A, 40KA without earth switch double breaker insulator (high level beam mounted) two nos of isolators shall be provided as sectionaliser of 220 KV main bus-1	Nos.	526,740	18,619
3	CURRENT TRANSFORMER 5 Core (1 phase) WITH MARSHALING BOXES TERMINAL CONNECTORS			-

Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection price (in Rs.)
i)	1600-800-400-200/1-1-1-1-1 A, 120% extended current rating, 40 kA, 0.2S class 5 core	Nos.	446,673	4,672
ii)	1600-800-400-200/1-1-1-1-1 A, 150% extended current rating, 40 kA, 0.2S class 5 core	Nos.	463,195	4,672
4	220 KV CVT 4400 pF CVTs (1 phase) for phase to phase coupling with all accessories, terminal connectors etc.	Nos.	314,835	4,672
5	216 kV Surge Arresters (1 phase) class-III with terminal connectors.	Nos.	69,097	2,592
6	Portable discharge rods	Nos.	14,200	59
B-2	ERECTION HARDWARE (220 kv)			-
1.1	Erection Hardware (Without BPI)			-
	Insulator strings antifog type & hardware, spacers, conductor (S), Bus bar material, cable trays, bay MB, Clamps, Connectors including, Junction box,PVC pipes for equipment and lighting, all accessories etc. for the following (The main I & main II buses shall be of quad Moose ACSR Conductor & TBC as well as Bus Coupler will be of double Moose conductor.			-
	220 kV, Double Main & Transfer bus type			-
i	Line bay	set	1,472,111	90,465
ii	Transformer bay	Set	1,690,435	99,106
iii	TBC bay	Set	1,633,088	85,944
iv	BC bay	Set	1,763,196	97,035
v	Bus (for fourteen bays-10 bays now and 4 bays for future extn) (one no each for main I, main II & transfer bus)	Set	1,466,177	165,219
1.2	220 kV Solid Core, Bus post Insulators (including requirement for wave trap) (break up of quantity to be furnished by bidder)	Nos	30,369	695
C-1	132 kv EQUIPMENT			-
1	Circuit breaker (3 phase)			-
i)	1250 A, 31.5 kA SF 6 CB with support structure, marshalling boxes, terminal connectors etc.(current rating shall be equal to the current rating for which the short circuit test reports shall be furnished.) (Spring- Spring)	Nos.	919,707	15,158
2	ISOLATORS (3 phase), with solid core insulators, marshaling boxes, terminal connectors (Motor Operated) with moving contact of HDEC copper only.			-
i)	1250 A, 31.5 kA with one earth switch (Double break Isolator)	Nos.	347,834	14,444
ii)	1250 A, 31.5 kA without earth switch (Double break Isolator)	Nos.	261,533	13,952
iii)	1250 A, 31.5 kA without earth switch (Double break Isolator)(Tandem arrangement)	Nos.	266,067	13,952
iv)	1600 A, 31.5 kA without earth switch (Double break high level beam mounted Isolator)	Nos.	304,494	13,952
3	Portable discharge rods (1 phase)	Nos.	16,002	59
4	Current Transformers 5 core (1 phase)			-
i)	1200 -600-300-150/1-1-1-1-1 A, 5 core 0.2S class ,31.5 kA with 120% extended current rating with marshalling boxes, terminal connectors etc.	Nos.	321,471	3,704
ii)	600-300-150/1-1-1-1-1 A, 5 core 0.2S class ,31.5 kA with 120% extended current rating with marshalling boxes, terminal connectors etc.	Nos.	321,471	3,704
5	8800 pF CVTs (1 phase) with marshalling boxes, terminal connectors etc .	Nos.	252,707	3,913
6	120 kV Surge arresters class-III (1 phase) with marshalling boxes, terminal connectors etc.	Nos.	48,937	1,374
7	132 KV, 0.2S Class Potential Transformer (1 Ph.)with marshalling boxes, terminal connectors etc.	Nos.	388,263	5,420

Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection price (in Rs.)
C-2	ERECTION HARDWARE (132 kV)			-
1.1	Insulator strings antifog type & hardware, spacers, conductor (S), Bus bar material, cable trays, bay MB, Clamps, Connectors including, Junction box,PVC pipes for equipment and lighting, all accessories etc. for the following (main bus shall be of quad Moose conductor and transfer bus shall be strung with double Moose conductor)			-
	132 kV Main & Transfer bay			-
i	Line bay	Set	688,550	72,174
ii	Transformer bay	Set	803,422	72,174
iii	TBC Bay	Set	537,285	48,969
iv	Bus for fifteen bays(for fifteen bays-10 bays now and 5 bays for future extn) (One for main bus & another for transfer bus)	Set	693,753	36,386
1.2	132 kV Solid Core, Bus post Insulators for erection hardware	Nos.	12,387	622
D	33 kV EQUIPMENT			-
1	Circuit Breaker (3 Phase)			-
i)	1250 A, 25KA Vacume CB with support structure, marshalling boxes, terminal connectors etc. (current rating shall be equal to the current rating for which the short circuit test report shall be furnished) (Spring-Spring)	Nos	311,077	6,384
2	ISOLATORS (3 phase), with solid core insulators, marshalling boxes, terminal connectors (Manually operated) with moving contact of HDEC copper only.			-
i)	1250 A, 25 kA with one earth switch (Double break Isolator)	Nos.	202,877	5,187
ii)	1250 A, 25 kA without earth switch (Double break Isolator)	Nos.	202,877	5,187
iii)	1250 A, 25 kA without earth switch (Double break Isolator)(Tandem arrangement)	Nos.	202,877	5,187
iv)	2500 A, 25 kA without earth switch (Double break high level beam mounted Isolator)	Nos.	202,877	5,187
3	1200A, Horn gap fuse (1 phase)	Nos.	30,800	1,640
4	Current Transformers (1 phase)			-
i)	600-300-150/1 A, 5 core 0.2S class 25 kA with 120% extended current rating with marshalling boxes terminal connectors	Nos.	78,169	1,429
ii)	1200 -600-300/1A, 5 core 0.2S class 25 kA with 120% extended current rating with marshalling boxes terminal connectors	Nos.	80,494	1,429
5	33 KV, 0.2S class Potential Transformer (1 phase) with marshalling boxes terminal connectors	Nos.	50,478	1,429
6	30 kV Surge arresters class 3 (1 phase) with marshalling boxes terminal connectors	Nos	12,980	4,977
7	Portable discharge rods.	Nos.	14,400	59
8	ERECTION HARDWARE (33 kV)			-
	ERECTION HARDWARE without Bus Post Insulators			-
8.1	Insulator strings & Hardware Spacers, conductor (s) bus- bar material, cable tray, Bay MB, clamps, connectors including Junction Box, PVC pipes for equipments & lighting, all accessories etc. for the following (The main bus shall be strung with quad moose ACSR conductor & 33 KV main bus shall be of double moose conductor)			-
i)	Line Bay	Set	380,220	11,431
ii)	Transformer Bay	Set	332,401	11,497
iii)	TBC Bay	Set	332,401	10,805
iv)	Bus (For eighteen bays-13 bays now and 5 bays for future extn)	Set	389,101	7,598
8.2	33 kV Solid core Bus post Insulators for erection hardware	Nos.	2,587	539
E	LT Switchgear			-
i	415 V Main switch Board	Set	1,585,370	5,745
ii	415 V ACDB (no of feeders shall be asper the requirement of the project plus 20% extra feeders)	Set	1,361,093	5,745
iii	415V MLDB	Set	1,083,654	5,745
iv	415V Emergency LDB	Set	579,951	3,558

Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection price (in Rs.)
v	250V DCDB (no of feeders shall be as per the requirement of the project plus 20% extra feeders)	Set	389,854	4,738
vi	48V DCDB	Set	334,532	3,558
F	CONTROL & RELAY PANELS			-
1	220 kV (Simplex panels)			-
1.1	Control Panel for Two bays. All indicating meters/ multifunctions meters shall be communicable type with 0.5 class accuracy.	Nos	514,650	4,040
1.2 a)	CB relay panel with A/R	Nos.	448,021	3,253
1.2 b)	CB relay panel without A/R	Nos.	389,324	3,253
1.3	Line protection panel with numerical distance protection relays and earth fault / overcurrent relays complying to IEC 61850 Protocol with optical fiber ports sufficient DI/DO ports for scheme with additional 6 DI/DO Ports for spare. All indicating meters/ multifunctions meters shall be communicable type with 0.5 class accuracy.	Nos.	1,034,870	3,253
1.4	Transformer protection panel HV and LV sides) with numerical differential protection relays with earth fault/ over current relay complying to IEC 61850 Protocol with optical fiber ports and sufficient DI/DO for scheme with additional 6 DI/DO ports for spare.	Nos.	893,635	3,253
1.5	Transfer bus coupler panel with distance protection relay scheme with all relays	Nos.	618,010	3,253
1.6	Bus coupler panel with all necessary relays etc.	Nos.	535,371	3,253
1.7	Bus bar protection panel (bus bar protection will be integrated type and not dishimble type and will have minimum 4 zones with numerical type of relays complying IEC 61850. Protocols as and where applicable.	Set	2,710,572	3,253
1.8	Time Synchronization equipment will have dual ethernet with RJ-45 port.	Set	267,375	2,094
2	132 kV (Duplex Panels)			-
2.1	Control, Relay & Protection Panel for			-
a)	132 KV line (with A/R) with numerical distance protection relays and earth fault / overcurrent relays complying to IEC 61850 Protocol with optical fiber ports sufficient DI/DO for scheme with additional 6 DI/DO for spare. All indicating meters/ multifunctions meters shall be communicable tpe with 0.5 class accuracy.	Nos.	1,123,147	6,005
b)	132/33 KV Transformer (without A/R) with numerical differential protection relays and earth fault / overcurrent relays complying to IEC 61850 Protocol with optical fiber ports sufficient DI/DO for scheme with additional 6 DI/DO for spare.	Nos.	1,415,465	6,005
c)	132 kV TBC (with A/R) with numerical distance protection relays and earth fault / overcurrent relays complying to IEC 61850 Protocol with optical fiber ports sufficient DI/DO for scheme with additional 6 DI/DO for spare. All indicating meters/ multifunctions meters shall be communicable tpe with 0.5 class accuracy.	Nos.	2,310,963	6,005
d)	Transformer (CB relay Panel without A/R)	Nos.	580,782	6,005
3	33 KV CONTROL & RELAY PANELS			-
	33 kV Panels (Duplex)			-
a)	Control, Relay & Protection Panel for Line with numerical type E.F & O/C relays complying to IEC 61850 protocol	Nos.	602,503	4,040
b)	TBC with numerical type E.F & O/C relays complying to IEC 61850 protocol	Nos.	504,211	4,040
4	Other / common equipment pertaining to C&R system			-

Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection price (in Rs.)
i)	Common equipment (digital voltage and frequency meters for 220 kV , 132 kV and 33 KV system) All indicating meters/ multifunctions meters shall be communicable tpe with 0.5 class accuracy.	Set	2,178,453	5,021
ii)	Relay test kit (Reputed manufactirer) Megger or Omicron make (Please furnished break upscheduls)	Nos.	2,787,689	3,095
G	PLCC			-
H-1	BATTERIES (VRLA TYPE)			-
1.1	250 V			-
a)	250V, 300 AH	Sets.	564,794	15,500
b)	250V, 500 AH	Sets.	1,198,926	18,031
c)	220V ,800 AH	Sets.	1,808,921	20,496
1.2	48 V			-
a)	48V, 300 AH	Sets.	105,037	14,645
b)	48V, 500 AH	Sets.	379,938	21,050
c)	48V, 800 AH	Sets.	379,938	24,710
H-2	BATTERY CHARGER SYSTEM			-
1.1	250 V			-
a)	250V, 30 A/20 A Float and Float Cum Boost	Set	781,200	7,787
b)	250 V, 60A/50A Float and float Cum Boost Charger	Nos.	420,824	9,611
c)	250 V, 80A/80A Float and float Cum Boost Charger	Nos.	591,978	15,778
1.2	48 V			-
a)	48V, 30A/20 A float and Float Cum Boost	Set	445,751	6,090
b)	48 V, 60A/50A Float and float Cum Boost Charger	Nos.	346,577	10,731
c)	48V, 100A Float and float Cum Boost Charger	Nos.	528,252	16,940
I-1	Diesel Generator Set along with control panel (40 kVA)	Set	995,070	14,372
I-2	Diesel Generator Set alongwith Control panel (100 kVA/125 kVA)	Set	2,095,637	30,378
I-3	Diesel Generator Set alongwith Control panel (250 kVA)	Set	3,269,483	105,637
I-4	Diesel Generator Set alongwith Control panel (500 kVA)	Set	4,294,169	109,962
J	Air conditioning of control room with High wall type 5 star rated Split Air conditioner Units of 2 TR capacity with stablizer.	Nos.	60,713	6,665
K	FIRE PROTECTION SYSTEM			-
1.1	Portable Fire Extinguishers			-
a	4.5 Kg DCP Type	Nos.	7,170	452
b	4.5 Kg CO2 Type	Nos.	10,042	452
c	22.5 Kg CO2 type	Nos.	25,477	845
d	12 Fire buckets with stand	Nos.	1,846	69
1.2	Complete pumping arrangement for HVWS system & hydrant system, complete with all piping, valves, fittings, etc. inside pump house. (Pump house separate from control room as well as water storage tank to be constructed)	Set	2,912,820	150,829
1.3	Smoke detection system with all accessories and fittings	Set	500,465	63,262
1.4	Hydrant system with complete U/G & O/G piping & accessories etc. (all items) out side the Pump House. Hydrant system shall cover the switchyard area, Transformers, control room, Stores etc. as per tender specification.	Set	1,339,545	194,905
1.5	Complete HVW spray system with complete O/G & U/G piping and accessories etc. (all items) with all required materials and equipments out side the pump house for 200/160 MVA, 2 Nos, 220/132/33 KV power transformers as per tender specification.	LS	2,355,836	119,108
1.6	FIRE PROTECTION SYSTEM - 132KV, 80 MVA, 3 PH T/F	LS	844,979	126,747

Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection price (in Rs.)
1.7	09 Litre high pressure water Mist system, Backpack type,(09 Litre main vessel made by ultralite carbon composite with PET Liner with an additional high pressure compressed air cylinder, volume 02 Lit, also made by ultralite carbon composite with PET Liner) with all accessories	Set	240,000	1,000
1.8	50 Litre high pressure water Mist system, Trolley mounted type,(09 Litre main vessel made by light weight anti-corrosive aluminium alloy with an additional high pressure compressed air cylinder, volume 06 Lit, also made by ultralite carbon composite with PET Liner) with all accessories	Set	300,000	1,000
L	ILLUMINATION SYSTEM			
L-1	CONTROL ROOM BUILDING:			
1	Lighting Panel			
a	Lighting Panel (Indoor) Type ACP-1 as per Tech. Specification	Nos.	35,495	2,873
b	Lighting Panel (Indoor) Type DCP as per Tech. Specification	Nos.	35,577	2,873
2	Lighting fixtures and receptacles (including accessories/ materials etc. as per requirement like junction box, cable/wires, flexible conduits (if required) from junction box to lighting fixtures, mounting arrangements)			
a	Lighting fixture Type- F1 as per Tech. Specification	Nos.	2,055	143
b	Lighting fixture Type- FF: as per Tech. Specification	Nos.	2,763	143
c	Lighting fixture Type- IF: as per Tech. Specification	Nos.	865	143
d	Lighting fixture Type- FB: as per Tech. Specification	Nos.	853	143
e	Lighting fixture Type- PF: as per Tech. Specification	Nos.	4,450	143
f	LED type			-
(i)	Lighting fixture Type- F1 as per Tech. Specification (BLRB218 LED+ 2 LED Tubes)	Nos.	1,799	500
(ii)	Lighting fixture Type- FF: as per Tech. Specification (BZBRSL GX 34W CW)	Nos.	3,263	500
(iii)	Lighting fixture Type- IF: as per Tech. Specification (BZSLO 18 W LED)	Nos.	1,096	500
(iv)	Lighting fixture Type- FB: as per Tech. Specification (BICDO 40W LED)	Nos.	2,761	500
(v)	Lighting fixture Type- PF: as per Tech. Specification (BRTFG 72W LED)	Nos.	6,525	500
g	5/15 A, 240V: Indoor Receptacles 3 pin type (type RI)	Nos.	1,378	143
h	15A, 240V: Out door receptacles 2 pole, 3 pin type (Type RO)	Nos.	3,783	170
i	63A, 415V : Interlocked switch socket outdoor Receptacles (Type RP)	Nos.	14,010	497
3	Switchboards			-
a	Modular switch board with 4 nos. 5Amp. Switches and 1 no. 5/15 Amp. receptacles	Nos.	988	162
b	Modular switchboard with 6 nos. 5Amp. Switches	Nos.	1,019	162
c	Modular switchboard with 2 nos. 5Amp. Switches	Nos.	742	162
d	Modular switchboard with 6 nos. 32 Amp MCB	Nos.	5,445	300
e	Modular switchboard with 1 no. 32 Amp. MCB	Nos.	1,111	300
4	Ceiling fans			-
a	1400 mm sweep with electronic step regulator	Nos.	2,537	289
5	Exhaust fans	Nos.	4,164	311
6	Wall mounted fans 400 mm sweep	Nos.	2,680	289
7	Conduits & wires			-
a	Heavy duty PVC conduits as of 20/25/32 mm size complete with all accessories for point wiring for Light points, Fans power points 5/15 amps. With 2.5 sq.mm/4 mm ² /6.0 mm ² copper for circuit wiring and 1.5 mm ² copper earth wire PVC insulated in green color including wiring for submains i.e. wiring from Lighting panel to switch board.	LS	284,232	79,911

Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection price (in Rs.)
b	Wiring from lighting panel to switch boards, from switchboard to junction boxes for light points with 2.5/4.0/6.0 mm ² copper wire as per technical specification, complete in all respect. 1.5 mm ² copper wire (green) will be used for earthing inside conduits	LS	288,724	65,269
c	Telephone sockets			-
c.1	Single socket outlet comprising RJ-11 socket	Nos.	593	89
c.2	Dual socket outlet comprising RJ-45 socket	Nos.	898	89
8	Junction boxes with 4 nos. of terminal blocks for indoor lighting excluding junction box supplied alongwith lighting fixture	Nos.	4,600	243
9	Lighting Transformer 40 kVA, 415/415, 3 phase, 50 Hz dry type as per Tech. Specification.	Nos.	302,329	9,519
10	Lighting Transformer 100 kVA, 415/415, 3 phase, 50 Hz dry type as per Tech. Specification.	Nos.	345,696	14,280
11	Self supported aluminium ladder as per technical specification	Nos.	45,732	72
L-2	FFPH Building			-
1	Lighting fixtures and receptacles (including accessories/ materials etc. as per requirement like junction box, cable/wires, flexible conduits (if required) from junction box to lighting fixtures, mounting arrangements)			-
a	Lighting fixture Type- F1: as per Tech. Specification	Nos.	2,055	143
b	Lighting fixture Type- IF: as per Tech. Specification	Nos.	865	143
c	Lighting fixture Type- FB: as per Tech. Specification	Nos.	853	143
d	Lighting fixture Type- PF: as per Tech. Specification	Nos.	4,450	143
e	5/15 A, 240V: Indoor Receptacles 3 pin type (type RI)	Nos.	2,071	143
2	Switchboards			-
a	Modular switch board with 4 nos. 5Amp. Switches and 1 no. 5/15 Amp. receptacles	Nos.	988	153
b	Modular switchboard with 6 nos. 5Amp. Switches	Nos.	973	153
c	Modular switchboard with 2 nos. 5Amp. Switches	Nos.	742	143
3	Ceiling fans			-
a	1400 mm sweep with electronic step regulator	Nos.	2,675	289
4	Exhaust fans	Nos.	4,164	507
5	Wall mounted fans 400 mm sweep	Nos.	2,634	289
6	Conduits & wires			-
a	Heavy duty PVC conduits as of 20/25/32 mm size complete with all accessories for point wiring for Light points, Fans power points 5/15 amps. With 2.5 sq.mm/4 mm ² /6.0 mm ² copper for circuit wiring and 1.5 mm ² copper earth wire PVC insulated in green color including wiring for submains i.e. wiring from Lighting panel to switch board.	LS	66,257	33,445
b	Wiring from lighting panel to switch boards, from switchboard to junction boxes for light points with 2.5/4.0/6.0 mm ² copper wire as per technical specification, complete in all respect. 1.5 mm ² copper wire (green) will be used for earthing inside conduits	Lot	65,290	21,140
7	Junction boxes with 4 nos of terminal blocks for indoor lighting excuding junction box supplied alongwith lighting fixtures.	Nos.	4,462	243
L-3	Outdoor lighting (Switchyard and street lighting)			-
1	Lighting panel			-
a	Lighting panel (Outdoor) Type ACP - 2	Nos.	38,934	2,873
b	Lighting panel (Outdoor) Type ACP - 3	Nos.	38,231	2,873
2	Lighting fixtures and receptacles (including accessories/ materials etc. as per requirement like junction box, cable/wires, flexible conduits (if required) from junction box to lighting fixtures, mounting arrangements)			
a	Lighting fixture Type- SF1: as per Tech. Specification	Nos.	21,041	332
b	Lighting fixture Type- SF2: as per Tech. Specification	Nos.	12,454	332
c	Lighting fixture Type- MP: as per Tech. Specification	Nos.	2,813	156
d	Lighting fixture Type- SC: as per Tech. Specification	Nos.	3,847	156

Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection price (in Rs.)
e	15A, 240V : Outdoor receptacles 2 pole, 3 pin type (Type RO)	Nos.	3,783	224
f	63A, 415V: Interlocked switch socket outdoor receptacles (Type RP)	Nos.	14,010	562
3	Lighting poles Type A1	Nos.	16,415	3,327
4	Lighting poles Type E1	Nos.	9,029	2,645
5	Cart wheel mounted aluminium ladder as per Tech. Specification	Nos.	67,651	230
M	Cables alongwith associated accessories like clamps, glands, lugs and straight joints etc.			-
1.1	Power cables (XLPE) 1.1 kV			-
a	1C X 630 mm ²	Km	1,000,938	33,061
b	3.5C X 300 mm ²	Km	1,474,675	85,675
c	3.5C X 150 mm ²	Km	983,007	42,838
d	3.5C X 95 mm ²	Km	661,433	39,388
e	1CX300 mm ²	Km	503,375	27,196
f	1C X 150 mm ²	Km	413,328	27,196
1.2	Power cables (PVC) 1.1 kV			-
a	3.5C X 70 mm ²	Km	374,217	39,114
b	3.5C X 35 mm ²	Km	309,538	31,087
c	4C X 16 mm ²	Km	174,102	25,675
d	4C X 6 mm ²	Km	114,245	20,822
e	2C X 6 mm ²	Km	64,186	12,515
1.3	Control cable (PVC) 1.1 kV			-
a	2C X 2.5 mm ²	Km	108,323	21,111
b	3C X 2.5 mm ²	Km	138,646	24,642
c	5C X 2.5 mm ²	Km	206,068	27,722
d	7C X 2.5 mm ²	Km	264,669	30,827
e	10C X 2.5 mm ²	Km	351,335	33,882
f	14C X 2.5 mm ²	Km	491,416	38,503
g	19C X 2.5 mm ²	Km	645,730	38,503
h	27C X 2.5 mm ²	Km	899,550	41,583
N	Materials for earthing mat with all materials and accessories as well as spikes as per requirement of design as per IEEE standards for complete earthing of grid Sub-Station with the followings. (The quantity is tentative and final quantity will depend on actual design):-			-
1	40 mm MS rod for main earth mat	MT	99,235	5,546
2	75x12 mm G.I Flats for risers for equipments, columns and structures	MT	103,840	6,348
3	50x6 mm G.I flats for risers for all other equipments etc.	MT	103,840	12,050
4	Materials for Earthing pits with supply of all earthing materials including base plate.	LS	1,540,360	197,448
O	Sub- Station galvanized Steel structure (220 kV, 132 KV & 33 KV) (The quantity is tentative and final quantity will depend on actual design):-			-
1	Lattice structure with fasteners etc.(HT)	MT	108,620	3,257
2	Lattice structure with fasteners etc.(MS)	MT	105,295	3,257
3	Standard structure for equipment support (other than CB)-(HT)	MT	108,620	3,257
4	Standard structure for equipment support (other than CB)-(MS)	MT	105,295	3,257
5	Pipe Type Structure	MT	108,620	3,257
P	Cable Racks as per design requirement.	MT	115,533	4,009
Q	11KV Disc Insulators (120/90KN)	Nos.	806	49
R	Sub- Station automation system comprising of necessary equipments & materials with networking and interfacing, complete in all respect (Break up of item to be given by contractor in technical data sheet with Part-I of the tender) wherever applicable, the communication protocol shall be preferably IEC61850.	LS	13,025,599	39,250

Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection price (in Rs.)
S	Remote Terminal Unit (minimum 512 points) with all equipments and cabling works required for connecting all 220KV,132KV & 33KV Bays with 20% extra	LS	3,500,000	58,302
T	Overhead shielding			-
1	Overhead shielding against lightning by galvanized steel wires and fittings as per requirement and design (excluding lightning cum lightning mast)	LS	186,784	28,375
2	Lighting cum lightning masts as per design	Sets.	1,570,523	45,955
3	GI Earthwire	KM	69,492	26,286
4	Earth Pit (Treated)	Nos.	17,638	13,112
5	Earth Pit (Non Treated)	Nos.	7,584	4,980
U	132KV XLPE Cable			-
1	132KV grade,1Cx1200sqmmXLPE insulated copper cable as per technical specification	km	18,000,000	600,000
2	132KV grade,1Cx630sqmmXLPE insulated copper cable as per technical specification	Km	12,026,326	318,420
3	Cable termination as per technical specification for interconnection with overhead transmission line for 132KV cables (including support insulators)	Nos.	363,190	58,006
4	Normal Straight Through Joint suitable for 132KV, 1200 sqmm X 1 Core Copper Cable as per technical specification.	Set	168,410	25,000
5	Cross Bonded Type Straight Through Joint suitable for 132KV, 1200 sqmm X 1 Core Copper Cable as per technical specification.	Set	171,617	25,000
6	Insulated Straight Through Joint suitable for 132KV, 1200 sqmm X 1 Core Copper Cable as per technical specification.	Set	171,617	25,000
7	Insulated Straight Through Joint suitable for 132KV, 630 sqmm X 1 Core Copper Cable as per technical specification.	Set	291,032	25,000
8	Aluminum Clamp for fixing Cable in Structure	No	2,118	1,000
9	Trifoil clamp used during laying of cable	No	1,258	1,000
10	LINK BOXES			
i)	Single phase link boxe without SVL	No	20,734	5,000
ii)	Single phase link boxe with SVL	No	26,902	5,000
iii)	Three Phase link boxes without SVL	No	46,072	5,000
iv)	Three Phase link boxes with SVL	No	64,648	5,000
11	33KV XLPE 1 Core, 630 sqmm cables (from Incomer gantry to outgoing feeder gantry),	Km	5,410,557	134,000
12	33KV Cable Sealing End termination system located at the gantry	Nos.	50,000	2,700
13	1Cx240 sqmm XLPE cable	Km	3,461,955	40,000
	Supply of HDPE Pipe (PN6 PE63 GRADE) through HDD Pipe of required Dimension and thickness	Mtr	1,800	1,500
	Alumunium Pipe tube (3inch) for arrangement of spare cables.		2,950	180
	Sheath Bonding and earthing Cable, 300 sqmm X 1 Core, Cu Conductor, XLPE Insulated and PVC Shetahed suitable to carry short ckt rating of 40kA for 1 sec.		2,700	160
	1100 Volts Grade 500 sqmm x 1 Core, Cu/XLPE/PVC Earth Continuty Cable		4,100	120
	Cable Route Marker		1,200	200
V	Supply of Godrej make furnitures for Control Room and Office etc.			-
1	Chairs	Nos.	31,258	-
2	Steel Table	Nos.	19,007	-
3	Table with chairs for confrence room with sitting capacity of 8 (eight) persons.	LS	73,544	-
4	Godrej B266 make Steel Almira	Nos.	35,210	-
W	Mandatory spares for 220/132/33 KV GSS (Break up of L.S items furnished separately in Technical Specification).		-	-
1	220/132/33 kV, 160 MVA Transformer	LS	1,229,199	-

Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection price (in Rs.)
2	132/33 KV 50 MVA Transformer	LS	703,048	-
3	220 kV CB	LS	1,008,856	-
4	132 kV CB	LS	376,316	-
5	33 kV CB	LS	233,444	-
6	220 kV Isolator	LS	430,528	-
7	132 kV Isolator	LS	244,583	-
8	33 KV Isolators	LS	146,546	-
9	220 kV CT, 1600A, 120% extended current rating	Nos.	384,523	-
10	220 kV CT, 1600A, 150% extended current rating	Nos.	395,284	-
11	132 kV CT, 1200A, 120% extended current rating	Nos.	246,504	-
12	132 KV CT 600A 120% extended	Nos.	186,763	-
12	33 KV CT, 1200A,	Nos.	61,928	-
13	33 KV CT, 600A,	Nos.	66,066	-
14	220 kV CVT, 4400 pF	Nos.	262,374	-
15	132 kV CVT, 8800 pF	Nos.	221,130	-
16	216 kV surge arrester	Nos.	64,083	-
17	120 kV surge arrester	Nos.	45,386	-
18	30 kV Surge arresters	Nos.	12,037	-
19	C&R Panels	LS	2,954,506	-
20	PLCC	LS	1,439,593	-
21	LT Transformer, 630 KVA	LS	77,367	-
22	Batteries (250V & 48V)	LS	172,646	-
23	Battery Charger (250 V & 48 V)	LS	238,511	-
24	DG Set	LS	137,087	-
25	LT Switchgear	LS	335,442	-
26	Fire fighting System	LS	280,625	-
27	Erection Hardware	LS	1,145,361	-
28	33 KV Potential Transformer	Nos.	39,839	-
29	Illumination	LS	295,340	-
X	Maintenance & Testing equipment for CB and transformer comprising of the following equipments:			
1	BDV Test kit (2.5/4 mm) - 100 KV Microprocessor based	No.	704,864	-
2	Megger 5 kv /Insulation tester, Micro processor based of Meggar make	No.	285,703	-
3	Digital multimeter (3½ digit)	No.	16,313	-
4	Oil sampling bottle	Nos.	10,299	-
5	Portable SF6 gas refilling device	No.	715,729	-
6	Capacitance and tan delta kit of Meggar/Eq. make	No.	2,372,644	-
7	Transformer winding resistance meter	No.	994,250	-
8	Automatic Transformer turns ratio meter (Micro processor based) of Meggar make.	No.	849,149	-
9	Kalfisher Dew point kit for SF6 gas.	No.	735,770	-
10	SF6 gas evacuating, filtering and drying plant	No.	2,431,331	-
11	Transformer oil filtration plant (4 KL / Hr. capacity) complete with all accessories	No.	1,853,184	-
12	Circuit breaker analyser	No.	3,145,432	-
13	Primary current injection kit	No.	793,099	-
14	Secondary current injection kit	No.	1,531,760	-
15	Relay operation timer	No.	292,181	-
16	Selective level meter	No.	475,494	-
17	Selective level generator	No.	391,084	-

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED				
SCHEDULE OF RATES (SUPPLY AND ERECTION/COMMISSIONING) FOR CONSTRUCTION OF GRID SUB-STATIONS				
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)				
Sl. No.	Description of Item	Unit	Unit Supply Price of (in Rs.)	Unit Erection price (in Rs.)
A-I	420kV Bus Reactors			
1	125MVAR, 420kV, 3-Ph, Shunt Reactor (Excluding Insulating oil) with all accessories	Nos.	52,132,034	289,268
2	Insulating oil for 125MVAR, 420kV, 3-Ph, Shunt Reactor with 10% extra Oil	Lot	4,824,519	161,264
3	On line insulating oil drying system (Cartridge type) (As per technical specification)	Sets	898,521	3,523
4	On line Dissolved Gas (Multigas) & Moisture analyser	Sets	2,191,578	3,523
B.	SWITCHYARD EQUIPMENT		-	
BI.A	400kV GIS EQUIPMENTS		-	
1	420kV, 3150 A, 63 kA, SF6 GIS ICT feeder bay module as per Technical specification.	Sets	27,775,000	432,839
2	420kV, 3150 A, 63 kA, SF6 GIS Reactor bay module as per Technical specification.	Sets	23,472,400	530,748
3	420 kV, 3150 A, 63 kA, SF6 GIS Line feeder bay module (without PIR) as per Technical specification	Sets	30,620,500	459,623
4	420kV, 3150 A, 63 kA, SF6 GIS Bus bar module as per Technical specification	Sets	11,740,000	469,907
5	420kV, 3150 A, 63 kA, SF6 GIS Tie bay module (without PIR) as per Technical specification	Sets	29,850,000	459,623
6	420kV, 3150 A, 63kA, Single phase, SF6 Gas Insulated Bus Duct (GIB) GIS Hall for line ,Transformer and Reactor from GIS unit.	M	74,200	2,710
8(a)	Controlled switching device for 420 kV, 500 MVA ICT	Sets	455,475	3,000
8(b)	Controlled switching device for 420 kV, 125 MVAR Reactor	Sets	455,475	3,000
8(c)	Controlled switching device for 420 kV, Tie Bay	Sets	455,475	3,000
9	420KV, 3150A, 63KA, 1 Sec Single Phase SF6 to Air Bushing	Set	621,440	242,884
BI.B	400kV AIS EQUIPMENTS			
11	Surge Arrester, 1-PH , 336 KV with terminal connectors and Surge Counter & Corona Ring	Nos.	228,426	5,760
12	420 kV, 4400 pF Capacitive Voltage Transformer (1-Phase)	Nos.	389,930	6,407
13	420 kV, 1 phase Bus Post Insulator	Nos.	44,871	2,008
	420kV Circuit Breakers (3-Phase) with support structure			
	3150A, 63KA without closing resistor	Nos.	5,464,611	33,696
	Control Switching Device	Nos.	921,966	7,122
	420kV (6 Core) Current Transformer (1-Phase)			
	3000A, 63KA with 120% extended current rating	Nos.	781,326	5,616
	ISOLATORS -420kV Isolator (3-phase) (Double Break)			
	2000A, 63KA, isolator with one E/S	Nos.	1,382,205	9,000
	3150A, 63KA, isolator with one E/S	Nos.	1,400,110	19,621
	3150A, 63KA, isolator with two E/S	Nos.	1,593,624	22,238
BII.A	220 kV GIS EQUIPMENTS		-	
1	245kV, 3000 A, 50 kA, SF6 GIS ICT feeder bay module as per Technical specification	Sets	23,052,000	338,914
2	245kV, 3000 A, 50 kA, SF6 GIS Line feeder bay module as per Technical specification	Sets	22,447,000	326,460
3	245 kV, 3000A, 50kA, SF6 GIS Bus bar module as per Technical specification	Sets	10,400,000	339,731
4	245kV, 3000 A, 50 kA, SF6 GIS Bus coupler bay module as per Technical specification	Sets	18,040,000	343,001
5	245kV,3000A, 50kA, Single phase, SF6 Gas Insulated Bus Duct (GIB) GIS Hall Associated Accessories from GIS Unit.	M	85,000	2,218
7	245kV, 3000A, 50KA 1 Sec Single Phase SF6 to Air Bushing	Set	820,000	19,354
BIII.A	132 kV GIS EQUIPMENTS		-	
1	145 KV, 2000A, 40 KA for 1 Sec, SF6 GAS-INSULATED Metal Enclosed Line ICT Bay Module as per Technical Specification	Sets	12,930,561	146,400
2	145 KV, 2000A, 40 KA for 1 Sec SF6 GAS-INSULATED Metal Enclosed Line Feeder Bay Module as per Technical Specification	Sets	11,023,600	146,400
3	145 KV, 2000A, 40KA, SF6 GIS BUS BAR Module as per Technical Specification	Sets	3,518,615	103,970

4	145KV, 2000 A, 40 KA, SF6 GIS Bus Coupler Bay Module as per Technical Specification	Sets	9,045,058	148,787
5	145KV, 2000A, 40KA, 3 Phase, SF6 Gas Insulated Bus Duct (GIB) GIS Hall Associated Accessories from GIS Unit.	M	77,500	1,500
6	145KV, 2000A, 40KA, 1 Sec Single Phase SF6 to Air Bushing	Nos.	620,400	17,500
BIV	33 kV GIS EQUIPMENTS(Double bus system each having 3000 A as per technical specification for 31.5kA/3sec) @40degC			
1	36KV (3-Phase) Indoor Switch Gear Panel, 2500A for Transformer Module ABT Energy Meter of CR Panels	Set	5,239,671	28,632
2	36KV (3-Phase) Indoor Switch Gear Panel, 1250A for Line Module ABT Energy Meter of CR Panels	Set	4,906,337	28,632
3	36KV (3-Phase) Indoor Switch Gear Panel for PT Module with suitable protective system & associated relays to be provided for protection of PT module in case of fault in incoming level	Set	3,191,593	28,632
4	36KV (3-Phase), 3000A Indoor Switch Gear Panel for Bus Sectionalizer Module with all necessary protection and provision of integration	Set	5,748,529	28,632
5	36KV, 3000A, SF6 GIS Bus Coupler Bay Module as per Technical Specification	Set	4,255,195	28,632
6	36KV, 31.5KA/3sec (3-Phase) Indoor Switch Gear Panel for LT Transformer Module.	Set	3,215,197	28,632
BV	33kV Indoor AIS Panel		-	
	36KV, 25kA/3 sec, Indoor switchgear Assembly with VCB, including protection relays and control equipment's and other accessories as per specification.		-	
1	160MVA, Tertiary bays connection	Nos	784,793	10,273
2	33kV feeder bays	Nos	784,793	10,273
3	Outgoing bays, for Station Transformer connection	Nos	784,793	10,273
4	Bus sectionalizer	Nos	869,017	10,273
5	36 KV (3-Phase) ,Inddor Switchgear Panel for PT Module	Sets	442,084	10,273
C	TESTING AND MAIN EQUIPMENT FOR GIS		-	
1	only one set of SF6 Gas Processing Unit having Minimum capacity as per technical specification is to be supplied against this project and the same shall be used for 400kV or 220KV or 132KV GIS station (DIL0 Make) (with all accessories suitable for 400KV, 220KV and 132KV) In case of 132KV system i.e. for three bus system the capacity of the temporary storage facilities shall at least be sufficient for storing the maximum quantity of gas for one complete bay (switchgear and associated equipment)	Sets	6,395,328	575
2	Partial Discharge Monitoring System		-	
a	online Partial Discharge Monitoring System for 400KV System with all accessories	Sets	16,132,993	575
b	Portable type Partial Discharge Monitoring System common for 220KV & 132KV system with all accessories	Sets	2,559,542	575
3	Dew Point Meter	Sets	381,647	575
4	SF6 Gas Leak Detector	Sets	61,249	575
5	EOT Crane for GIS Building for 400kV GIS station	Sets	2,728,347	282,639
6	EOT Crane for GIS Building for 220kV GIS Station	Sets	2,728,347	282,639
7	EOT Crane for GIS Building for 132kV GIS Station	Sets	1,830,537	120,583
D	RELAY AND PROTECTION PANEL		-	
1	400kV Circuit Breaker Relay Panel with Auto Reclose (with Automation)	Nos.	589,853	4,014
2	400kV Circuit Breaker Relay Panel without Auto Reclose (withAutomation)	Nos.	585,784	4,014
3	400kV Line Protection Panel (with Automation)	Nos.	860,613	4,014
4	400kV Transformer Protection Panel (For both HV & MV side)-(withAutomation)	Nos.	1,212,158	4,014
5	Reactor Protection Panel	Nos.	765,523	4,014
6	400kV Bus Bar Protection Panel (Duplicate)-(with Automation)	Sets	3,522,252	4,014
7	Time synchronisation equipment	Nos.	92,389	2,927

8	Three phase Automatic Relay measurement test kit with all necessary accessories, Industrial Grade Laptop and licensed software as per Technical specification.	Sets	3,188,296	2,927
H	ERECTION HARDWARE			
	Insulator strings antifog type & hardware, spacers, conductor (S), Bus bar material, 4" IPS Tube, BMK (Bay Marshalling Kiosk-One no. for each bay), Clamps, Connectors (Compression type except for IPS Tube, which may be bolted type) including, Junction box, heavy duty - PVC pipes for equipment and lighting, all accessories etc. for the following: (The Main-I & Main-II Buses, BC, Jumper & Jack Bus in BC bay shall be of Quad ACSR Moose Conductor. TBC as well as other Feeder & Jumper will be of double Moose conductor). (The BMK & Junction Boxes shall be erected 4ft above FGL and all cable connectors shall be supplied & erected accordingly) ACSR Moose conductor to be supplied by Tenderer. (Note - It is mandatory to furnish Billing Breakup Unit (BBU) schedule for each and every item during engineering and approval by ordering authority without which payment shall not be released.)			
	400 kV I-Type Layout (One & Half Breaker Scheme)			
	Line bay	Set	3,163,748	379,204
	Transformer bay	Set	3,163,748	379,204
	Bus reactor bay	Set	3,163,748	379,204
	Bus Work (For two diameters)	Set	3,163,748	379,204
	Bus for 13 bays (10 bays now and 1 transformer bay as well as 2 nos. Line bays for future extn) (one set each for Main-I, Main-II & Transfer Bus)	Set	3,163,748	379,204
	Erection Hardware for GIS			
	Insulator strings, Disc Insulators, Hardware, Conductor, bus-bar materials, IPS Tube, Cable trays, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, earthing material risers and all accessories etc. for the following: (Note:- (i) It is mandatory to furnish Billing Breakup Unit (BBU) schedule for each and every item during engineering and approval by ordering authority without which payment shall not be released.)			
1	400 KV - ICT Bays	Sets	269,258	22,739
2	400 KV - Reactor Bays	Sets	265,610	22,739
3	400 KV - Line/Feeder Bays	Sets	397,720	22,739
4	220 KV - ICT Bays	Sets	213,168	20,239
5	220 KV - Line/Feeder Bays	Sets	294,576	20,239
6	132 KV - ICT Bays	Sets	171,566	18,989
7	132 KV - Line/Feeder Bays	Sets	222,645	18,989
8	630kVA, 33/0.433kV LT Transformer	Sets	104,335	17,739
JII	GIS Switchgear and GIS building Earthing.		-	
1	100x10 mm Al Flat (For GIS Switchgear earthing, and HF Earthing	Metre	17,044	383
2	Bimetallic connectors and other accessories for HF earthing and GIS earthing	Lot	211,776	100,641
K	FIRE PROTECTION SYSTEM		-	
K.I	HVWS system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer / Reactor :		-	
1	500MVA , 400/220kV 3-phase Auto-Transformer	Nos.	824,916	38,300
2	125 MVAR, 420 kV 3-phase Bus Reactor	Nos.	679,121	35,344
K.II	Hydrant system, complete U/G piping and accessories etc. outside the Pump House for GIS Hall.		-	
1	For 400KV GIS Hall	Sets	1,644,962	28,601
2	For 220KV GIS Hall	Sets	1,369,656	28,601
3	For 132KV GIS Hall	Sets	755,488	28,601
	Note: The Hydrant shall cover SST & Store also.		-	
K.III	Portable and Wheel/ Trolley mounted Fire Extinguishers:		-	

1	For Control Room Building (including ACDB, DCDB, MLDB, Battery Room etc.)	Sets	132,943	730
2	For 400KV GIS Hall	Sets	108,545	730
3	For 220KV GIS Hall	Sets	79,622	730
4	For 132KV GIS Hall	Sets	57,671	730
K.IV	Smoke Detection System		-	
1	For Control Room Building	Sets	159,786	4,106
2	For 400KV GIS Hall	Sets	140,387	4,818
3	For 220KV GIS Hall	Sets	94,795	4,368
4	For 132KV GIS Hall	Sets	78,998	3,850
5	Fire Fighting Pump House Building	Sets	53,986	3,145
K.V	Fire Detection and Alarm System		-	
1	For Control Room Building	Sets	56,365	3,793
2	For 400KV GIS Hall	Sets	57,814	4,549
3	For 220KV GIS Hall	Sets	50,528	4,201
4	For 132KV GIS Hall	Sets	34,451	3,447
5	Fire Fighting Pump House Building	Sets	28,062	2,961
M	Visual Monitoring System for Watch & Ward		-	
1	For complete Substation Area (Indoor & Outdoor)	Sets	3,048,508	1,000
N	WAMS System		-	
1	WAMS Hardware - Time System (GPS receiver)	LS	170,963	5,000
2	WAMS Hardware - Substation Grade Layer-3 LAN Switches with minimum 4 x10/100 Mbps Ethernet ports and 2 x 1 Gbps Ethernet ports	LS	746,076	5,000
3	WAMS Miscellaneous - Armored Fibre Optic Cable and associated termination (e.g. L2 Switch) for connecting PMU panels located indifferent control room of a station	LS	81,473	5,000
4	Phasor Measurement Unit for 400 KV System	Nos.	391,150	5,000
5	TRIBUTARY INTERFACE- E1 INTERFACE (MINIMUM 16 NOS.)	Sets	325,566	5,000
6	ETHERNET INTERFACE 10/100 BASE T WITH LAYER-2 SWITCHING (MIN 8 INTERFACES PER CARD)	Nos.	111,191	5,000
7	VOIP TELEPHONE INSTRUMENT WITH ONE COMMON SWITCH (MIN. 8 PORT)	SET	1,091,666	5,000
O	Mandatory spares (L.S items break up of spares furnished separately at Annexure-I).			
1	Spare for 400/200/132kV GIS	LS	8,363,355	
10	Spares for 500MVA, 400/220/33 kV, Auto Transformer	LS	2,201,681	
12	Spares for 125 MVAR, 420kV, Reactor	LS	1,002,920	

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED				
SCHEDULE OF RATES (SUPPLY AND ERECTION) FOR RELAYS, ENERGY METERS, BATTERY, CHARGER ETC.				
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)				
Sl. No	DESCRIPTION	Unit	Unit Supply Price (in Rs.)	Unit Erection Price (in Rs.)
1	Distance to fault locator (off line) with Signature Analyzer System suitable for 66 KV to 400 KV EHT line.	Sets	2,506,000.00	-
2	Numerical type differential protection scheme complete with all materials & relays suitable for :			
	(a) 220 KV	Sets	455,338.00	16,748.00
	(b) 132 KV	Sets	430,235.00	16,748.00
3	Numerical type Distance Protection Scheme with required relays for :			
	(a) 220 KV	Sets	308,668.00	14,018.00
	(b) 132 KV	Sets	308,668.00	14,018.00
4	Electronic/Static type of Trivector Meter of 0.2S Class.	Nos.	20,790.00	2,607.00
5	Other Supervision Relay.			
	(a) D.C. Supervision Relay.	Nos.	6,300.00	397.00
	(b) A.C. Supervision Relay.	Nos.	6,300.00	397.00
	(c) Trip Circuit Supervision Relay	Nos.	10,300.00	397.00
	(d) Circuit Breaker D.C Supply fail alarm Relay	Nos.	4,400.00	397.00
	(e) Circuit Breaker A.C Supply fail alarm Relay	Nos.	4,400.00	397.00
	(f) VAX-31	Nos.	4,400.00	397.00
	(g) ODS (10 Way)	Nos.	7,121.00	397.00
	(h) Tripping relay	Nos.	10,000.00	397.00
	(i) Under voltage relay	Nos.	4,400.00	397.00
	(j) Under & over frequency relay	Nos.	4,400.00	397.00
	(k) REF relay	Nos.	4,400.00	397.00
	(l) LBB relay	Nos.	4,400.00	397.00
6	Numerical Non-Directional E/F & O/C Relay.	Nos.	40,829.00	6,304.00
7	Numerical type Directional E/F & O/C Relay.	Nos.	54,395.00	6,303.00
8	Master Trip Relay Type:			
	VAJHM - 23	Nos.	6,169.00	397.00
	VAJHM - 33	Nos.	12,866.00	397.00
	VAJHM - 53	Nos.	16,231.00	397.00
9	Aux Relays Type:			
	VAA - 11	Nos.	6,600.00	397.00
	VAA - 12	Nos.	6,600.00	397.00
	VAA - 13	Nos.	6,600.00	397.00
	VAA - 33	Nos.	6,600.00	397.00
10	Electromech Non Directional E/F & O/C Relay CDG-11.	Nos.	6,249.00	567.00
11	Electromech Directional E/F & O/C Relay CDD21	Nos.	22,219.00	567.00
12	TNC Switch.	Nos.	4,260.00	113.00
13	Selector Switch for carrier.	Nos.	1,445.00	113.00
14	Selector Switch for Protection Transfer.	Nos.	7,121.00	113.00
	ABT Meters			

Sl. No	DESCRIPTION	Unit	Unit Supply Price (in Rs.)	Unit Erection Price (in Rs.)
15	3 Phase, 4 wire, 0.2S accuracy class Trivector static Energy ABT Meter (compatible to various protocols like TCP/IP, MODBUS and ICS DLMS)	Nos.	99,625.00	23,608.26
16	3 Phase, 4 wire, 0.2S accuracy class Trivector static Energy non-ABT Meter (compatible to various protocols like TCP/IP, MODBUS and ICS DLMS)	Nos.	99,625.00	23,608.26
17	Metering panel suitable to mount 4 nos of rack mounted meters	Nos.	100,550.00	50,354.14
18	DCU with Box as per specification	Sets	159,850.00	100,376.70
19	Network Switch 8 port 10/100 Mbps	Nos.	10,889.00	1,340.00
20	Router for Grid sub stations	Nos.	97,971.00	16,235.00
21	UPS - 2 KVA online with 60 min back up on 100% load	Nos.	94,494.00	15,928.00
22	Industrial Grade Client PC as per specification	Sets	139,125.00	22,365.00
23	7 core 2.5 sq mm armoured control cable for CT connection	Mtrs.	310.00	55.46
24	4 core 2.5 sq mm armoured control cable for PT connection	Mtrs.	197.80	48.38
25	2 core 2.5 sq mm armoured cable for AC/DC Aux supply	Mtrs.	125.70	44.84
26	Communication cable	Mtrs.	38.10	44.84
27	GPRS Modem suitable for AMR of Existing SEM Type energy meter (DLMS-ICS Compliant)	Nos.	4,550.00	6,641.04
28	BATTERIES			
(i)	250 V, 500 AH VRLA (valve-regulated lead-acid battery) TYPE Battery sets with inter cell, inter row, interbank and take off connector for complete with all accessories as indicated in Clause 2.6	Sets.	851,666.00	48,814.00
(ii)	250 V, 500 AH TUBULAR TYPE Battery sets with first filling electrolyte (10 % extra) with inter cell, inter row, interbank and take off connector for complete with all accessories as indicated in Clause 2.6	Sets.	1,025,150.00	52,068.00
(iii)	250 V, 300 AH VRLA (valve-regulated lead-acid battery) TYPE Battery sets with inter cell, inter row, interbank and take off connector for complete with all accessories as indicated in Clause 2.6	Sets.	547,067.00	48,814.00
(iv)	250 V, 300 AH TUBULAR TYPE Battery sets with first filling electrolyte (10 % extra) with inter cell, inter row, interbank and take off connector for complete with all accessories as indicated in Clause 2.6	Sets.	615,090.00	52,068.00
(v)	48 V, 500 AH VRLA (valve-regulated lead-acid battery) TYPE Battery sets with first filling electrolyte (10 % extra) with inter cell, inter row, interbank and take off connector for complete with all accessories as indicated in Clause 2.6	Sets.	167,900.00	43,390.00
(vi)	48 V, 500 AH TUBULAR TYPE Battery sets with first filling electrolyte (10 % extra) with inter cell, inter row, interbank and take off connector for complete with all accessories as indicated in Clause 2.6	Sets.	196,829.00	43,390.00

Sl. No	DESCRIPTION	Unit	Unit Supply Price (in Rs.)	Unit Erection Price (in Rs.)
(vii)	48 V, 300 AH VRLA (valve-regulated lead-acid battery) TYPE Battery sets with inter cell, inter row, interbank and take off connector for complete with all accessories as indicated in Clause 2.6	Sets.	105,037.00	43,390.00
(viii)	48 V, 300 AH TUBULAR TYPE Battery sets with first filling electrolyte (10 % extra) with inter cell, inter row, interbank and take off connector for complete with all accessories as indicated in Clause 2.6	Sets.	118,097.00	43,390.00
27	BATTERY CHARGER			
(i)	Battery charging equipment comprising of float & float cum boost charger unit for charging 125 nos cells of 2 volt per cell Battery sets.			
A.	Suitable for charging of VRLA Type battery bank			
a.	250V,60/50 A	Sets.	316,081.00	9,220.00
b.	250V, 45/30 A	Sets.	253,071.00	9,220.00
B.	Suitable for charging of Tubular Type battery bank			
a.	250V,60/50 A	Sets.	333,559.00	9,220.00
b.	250V, 45/30 A	Sets.	261,917.00	9,220.00
(ii)	Battery charging equipment comprising of float & float cum boost charger unit for charging 24 nos cells of 2 volt per cell Battery sets.			
A.	Suitable for charging of VRLA Type battery bank			
a.	48 V,60/50 A	Sets.	190,884.00	9,220.00
b.	48 V, 45/30 A	Sets.	179,603.00	9,220.00
B.	Suitable for charging of Tubular Type battery bank			
a.	48 V,60/50 A	Sets.	195,557.00	9,220.00
b.	48 V, 45/30 A	Sets.	181,496.00	9,220.00

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES (SUPPLY AND SERVICES/ERECTION) OF ULDC WORKS			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)
1	RTU		-
	RTU base equipment comprising panels, racks, sub-racks, Power Supply modules, Communication Modules, interfacing equipment, required converters & all other required items/accessories including complete wiring for all modules.	No.	743,395
2	LDMS system alongwith software including Anti virus(Min 8 core Intel latest processor, Clock speed 3.0 Ghz or more),15 MB or more Cache, RAM 16 GB, Two 24" wide screen (16:9 aspect ratio) , Full HD with min Resoulution (1920* 1080) reolution with anti-glare coating ,LED monitor, keyboard & optical mouse, Two nos. 1 Gbps Ethernet ports, USB Ports (2 nos.), HDMI Port, Display Port, Universal Audio Jack)	Set	372,170
3	Furniture for LDMS system (One table and One chair suitable for Computer operation of Godrej make)	Set	26,871
4	Inverter(min 2 kva)	No.	46,779
5	MODEMs	No.	77,905
6	Weather sensor	No.	238,503
7	OLTC transducer	No.	6,298
8	Heavy Duty Relay	No.	444
9	Contact Multiplying Relay (CMRs)	No.	328
10	Multi Function Meters (MFMs)	No.	10,641
11	Time Synchronisation equipment without display	No.	60,466
12	CPU	No.	38,282
13	Analog Input Module (4 channels/card)	No.	10,877
14	Digital Input Module (16 channels/card)	No.	10,820
15	Digital Output Module (8 channels/card)	No.	11,451
16	PVC Conduit (Suitable size as per site requirement)	Nos.	21,896
17	48V DC to 12V DC Converter	Nos.	3,909
18	Test Equipment for RTU		-
18(a)	Master Station cum RTU simulator & Protocol Analyser Software tool	No.	9,494

18(b)	Laptop PC for above software tools alongwith interfacing hardware (Intel Core i7, 16GB RAM,1TB HDD, 15.6" display, Windows-10 professional with licensed MS office and Antivirus (Latest Version)	No.	103,884
19	1.1KV Control Cables (Copper) for each C&R panels connection with RTU		-
19(a)	Communication Cable armoured (0.22 sq. mm) for MFT	KM	43,700
19(b)	14Cx1.5 sq.mm armoured control cable (Digital Input)	KM	595,328
19©	7Cx1.5 sq.mm armoured control cable (Digital Input)	KM	316,212
19(d)	4Cx2.5 sq.mm armoured control cable (Digital Output Trip/Close)	KM	207,222
20 €	PVC Conduit (Suitable size as per site requirement)	KM	109,908
21	Optical Time Domain relector (OTDR) for 1310/1550 nm with laser source (relevant accessories) of nake JDSU or better	Nos.	494,993
22	SDH analyser (make JDSU or better)	No.	1,298,823
23	Fusion Splicing Machine (FSM) along with standard accessories	Nos.	234,023
24	Optical Power Meter (JDSU or better)	Nos.	33,398
25	Handheld 2Mbps BER Tester (JDSU or better)	No.	257,472
26	Ethernet Tester (JDSU or better)	No.	430,661
27	Patch Cards (LC to LC/FC/PC) type 10 Mtrs length	Nos.	399
28	EPAX (16/16) with 2 E1 card wired for 128 ports along with 4 ft height stand	Nos.	123,718
29	2 Wire Telephone set	Nos.	5,322
30	Optical (1000 Mbps) to Ethernet converter		21,200
31	Training on SDH equipment,UX,DAC & NMS(for complete package)	Man-days	60,000
32	Maintenance Charges		
a	for communication equipment for one year during warranty per SDH	year	63,463
b	for communication equipment for one year after warranty per SDH	year	68,851

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED				
SCHEDULE OF RATES (SUPPLY AND SERVICES/ERECTION) OF SLDC/CONTROL CENTRE WORKS				
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)				
Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection Price (in Rs.)
A	Software			
1.1	SCADA	Lot	4,421,829.00	Included in Supply.
1.2	ICCP Communication	Lot	374,156.00	
1.3	CFE Communication	Lot	374,156.00	
1.4	Network Management System	Lot	136,057.00	
1.5	Information Storage & Retrieval (ISR)			
(a)	ISR Software	Lot	340,142.00	
(b)	Data Historian Software	Lot	510,212.00	
(c)	Software for SAN and NAS	Lot	178,797.00	
(d)	Report development and Generation Software	Lot	36,035.00	
1.6	EMS Functions			
(i)	Power System Applications			
(a)	State Estimation	Lot	680,283.00	
(b)	Contingency Analysis			
(c)	Optimal Power Flow			
(d)	Outage Scheduler			
(e)	Load Forecasting			
(f)	Inflow Forecasting			
1.7	Web Server Application			
(a)	Host based IDS for all machines	Lot	132,875.00	
(b)	Software for Data Replica server			
(c)	Software for Centralised Management System	Lot	1,143,927.00	
(d)	Software for Web Server	Lot	102,043.00	
(e)	Anti Virus Software for all machines	Lot	136,098.00	
1.8	Database development system (PDS) cum test bench for RTU and ICCP Integration	Lot	255,107.00	
1.9	Dispatcher Training Simulator	Lot	544,225.00	
(b)	Document Management System	Lot	1,787,968.00	
(c)	Identity Management Software			
B	Hardware			
2	Computer System Hardware			
2.1	SCADA Server	No.	284,128.00	31,570.00
2.2	EMS applications Server	Incl. in 2.1		
2.3	ISR Server with Auxiliary Memory	No.	920,552.00	102,284.00
(a)	Data Historian Sever	Incl. in 2.3		
(b)	SAN Box	No.	842,032.00	93,560.00
(c)	SAN Management Server	No.	264,734.00	29,415.00
(d)	NAS Box	No.	284,996.00	31,667.00
(e)	Tape Library	No.	577,564.00	64,174.00
(f)	SAN/NAS LAN	No.	289,058.00	32,118.00
2.4	ICCP server	No.	284,128.00	31,570.00
2.5	NMS server	No.	264,734.00	29,415.00
2.6	CFE Server	No.	284,128.00	31,570.00
2.7	Workstation Console			
(a)	Workstation Console integrated with dual Monitors	No.	188,245.00	20,917.00
(b)	Workstation Console integrated with single Monitor	No.	121,612.00	13,513.00
2.8	LAN Switch			
(a)	LAN Switch for SCADA/EMS LAN	No.	72,608.00	8,068.00

Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection Price (in Rs.)
(b)	LAN switch for Data Acquisition LAN	No.	72,608.00	8,068.00
(c)	LAN switch for PDS LAN	No.	40,930.00	4,548.00
(d)	LAN switch for ICCP LAN	No.	40,930.00	4,548.00
	LAN Switch for FEP LAN			
(e)	LAN Switch for External DMZ LAN	No.	40,930.00	4,548.00
(f)	LAN Switch for internal DMZ LAN	No.	40,930.00	4,548.00
(g)	24 Port L-3 LAN Switch for Management LAN	No.	40,930.00	4,548.00
2.9	Laptop for maintenance	No.	122,850.00	13,650.00
2.1	WAN Routers with Firewall			
(a)	WAN Router for RTU Communication (4 x G.703 ports configurable upto 2Mbps, 4 Ethernet ports)	No.	265,745.00	29,528.00
(b)	WAN Router for ICCP and Remote Consoles Communication (4 x G.703 ports configurable upto 2Mbps, 4 Ethernet ports)	No.	265,745.00	29,528.00
2.11	Printers			
(a)	Color Laser Printer	No.	440,367.00	48,930.00
(b)	Multi Functional Printer	No.	329,527.00	36,615.00
2.12	Time & Frequency System and External displays			
(a)	Time & Frequency System (GPS Based)	Lot	176,954.00	19,662.00
(b)	Digital Display for Day	No.	51,001.00	5,667.00
(c)	Digital Display for Time	No.	30,001.00	3,334.00
(d)	Digital Display for Frequency	No.	24,000.00	2,667.00
(e)	Digital Display for Display of ABT Time block	No.	15,833.00	1,760.00
2.13	Web System			
(a)	Web Servers	No.	284,128.00	31,570.00
(b)	Firewall with NIPS (Internal)	No.	82,333.00	9,149.00
(c)	Firewall with NIPS (External)	No.	82,333.00	9,149.00
(d)	Centralized Management console	No.	96,942.00	10,772.00
(e)	Data Replica Server	No.	264,734.00	29,415.00
(f)	Wan Router cum firewall for connectivity with ISP	No.	170,946.00	18,994.00
2.14	PDS and RTU and ICCP integration testing System consisting of			
(a)	PDS (Test and Development) Server	Lot	284,128.00	31,570.00
(b)	Workstation Console integrated with single Monitor	No.	147,360.00	16,374.00
(c)	WAN Router	No.	170,946.00	18,994.00
2.15	Video Projection System			
(a)	Video Projection System (70" LED based)	Module	1,221,157.00	135,685.00
(b)	Tower type video wall	No.	1,400,248.00	155,584.00
2.16	DTS Server	No.	284,128.00	31,570.00
2.17	Workstation Dual Screen (Training Console)	No.	175,108.00	19,457.00
2.18	42 U Server Rack with KVM switch & Rack mounted Monitor	No.	251,309.00	27,924.00
2.19	Remote Consoles with Single Monitor			
(a)	Remote Console with single Screen Monitor	No.	143,206.00	15,912.00
(b)	Colour Inkjet printer	No.	27,381.00	3,043.00
(c)	Router cum firewall	No.	165,875.00	18,431.00
(d)	Remote console with single 55" Screen Monitor	No.	164,616.00	18,291.00
2.21	Identity Server	No.	261,494.00	29,055.00
2.22	Server management Console	No.	125,224.00	13,914.00
2.23	Furniture			
(a)	U-type Workstation Desks	Nos.	52,232.00	Included in Supply.
(b)	Workstation Desks	Nos.	35,406.00	
(c)	Chairs	Nos.	6,507.00	
(d)	Fireproof Software storage box	Nos.	12,512.00	

Sl. No.	Description of Item	Unit	Unit Supply Price (in Rs.)	Unit Erection Price (in Rs.)
2.24	Video Conferencing system			
(a)	Multi-Point Conferencing Unit	Lot	3,520,945.00	391,217.00
(b)	Configuration Laptop with associate Accessories	Set	122,850.00	13,650.00
(c)	Video End Points	Lot	398,251.00	44,251.00
(d)	HD Camera	No	78,655.00	8,740.00
(e)	Microphone base Station	Set	534,125.00	59,348.00
(f)	wireless Microphone	No	26,865.00	2,985.00
(g)	Collar Microphone	No	26,865.00	2,985.00
(h)	LCD Video wall	No	409,835.00	45,538.00
(i)	Wall Mounted Line array speakers	No	31,159.00	3,463.00
(j)	Dual Channel Power Amplifiers	No	38,316.00	4,258.00
2.25	16 Port Terminal Servers	Set	49,935.00	5,549.00
2.26	Panel for servers with accessories	Set	39,409.00	4,379.00
C	Auxiliary Power Supply			
4.1	40 kVA (32kW at 0.8 pf) UPS running in parallel	No.	648,020.00	72,003.00
4.2	VRLA type Battery banks for above UPS (each bank of 76.8 kVAH)	No.	751,570.00	83,508.00
4.3	Input ACDB (150kVA rating)	No.	159,190.00	17,688.00
4.4	Output ACDB (100kVA rating)	No.	154,818.00	17,202.00
4.5	125 KVA DG Set	No.	785,648.00	87,295.00
4.7	Accessories for maintenance of VRLA type batteries	Set	329,641.00	36,627.00
4.8	UPS Control/Monitoring console	No.	120,257.00	13,362.00
D	Services			
3.1	Integration with control centres on ICCP	Lot	-	11,661.00
3.2	Integration with wams	Lot	-	191,222.00
3.3	Integration with the following:			
(a)	Metering applications	Lot	-	95,611.00
(b)	ABT based scheduling software	Lot	-	95,611.00
(c)	Open Access	Lot	-	95,622.00
3.4	Annual maintenance of round the clock comprehensive maintenance of software and hardware maintenance of overall EMS/SCADA System of BSPTCL	Per Year	-	1,802,977.00

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES (SUPPLY OF TELECOM EQUIPMENTS)			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Serial No.	Description of items	Unit	Unit Supply price (in Rs.)
1	CVT/CC with connecting clamps		
a	420 KV , 4400 pF	No.	389,929.00
b	245 KV , 4400 pF	No.	258,313.00
c	145 KV , 4400 pF	No.	237,192.00
2	Wavetrap along with connecting clamps, connector, insulators and structure suitable for pedestal mounting etc.		
a	400 kV, 0.5 mH, 3150A	No.	401,036.00
b	220 kV, 0.5 mH, 1600A	No.	329,913.00
c	132 kV, 0.5 mH, 1250 A	No.	328,809.00
3	75 ohms/125 ohms Co-axial cable	KM	168,501.00
4	Single Channel PLCC Panel (with Speech and Data support and inbuilt Protection)		581,479.00
5	Twin Channel PLCC Panel (with Speech and Data support and inbuilt Protection)		675,911.00
6	VFT Modem	No.	188,460.00
7	Protection Signalling Equipment		
a	Analog Protection Coupler	No.	190,851.00
b	Digital Protection Coupler	No.	437,179.00
8	Print Testing Kit	No.	101,027.00
9	EPAX (24/8) with 24 telephones	No.	488,601.00
10	Telephone set		
a	Four Wire Telephone Set	Set	8,376.00
b	Two Wire Telephone Set	Set	2,233.00
11	48V DCDB	Set	235,251.00
12	VRLA BATTERY SET		
a	48V/200AH VRLA Battery	No.	62,004.00
b	48V/300AH VRLA Battery	No.	114,142.00
c	48 V/400AH VRLA Battery	No.	131,231.00
d	48 V/500AH VRLA Battery	No.	197,745.00
13	FLOAT CUM BOOST CHARGER(SCR TYPE)		
a	50 V/50Amps	No.	179,889.00
b	50 V/75Amps	No.	220,498.00
c	50 V/100Amps	No.	255,888.00
d	50 V/125Amps	No.	281,294.00
14	SMPS based Battery charger of 50A suitable for 48 volt VRLA battery and upgradation facilities	No.	135,378.00
15	SMPS based Battery charger of 75A suitable for 48 volt VRLA battery and upgradation facilities	No.	154,909.00

16	SMPS based Battery charger of 125A suitable for 48 volt VRLA battery and upgradation facilities	No.	199,423.00
17	VHF Transreceiver with battery charger	No.	7,512.00
18	25sq.mm Multistrand Single Core DC Power Supply Cable	Mtr.	210.00
19	Jelly Filled Armoured Telephone Cable		
a	25 pair	Mtr.	240.00
b	10 pair	Mtr.	147.00
c	5 pair	Mtr.	89.00
20	Coupling Device	No.	129,043.00
21	Armoured control Cable		
a	2Core, 2.5 mm2	KM	95,173.00
b	5 Core, 2.5 mm2	KM	176,260.00
c	14 Core,2.5mm2	KM	416,840.00
22	Isolation Transformer		
a	Rated capacity minimum 10 kVA	No.	72,412.00
b	Rated capacity minimum 20kVA	No.	106,749.00
23	Earthing for communication equipments		11,897.00
24	Selective Level Meter-cum-Level Generator/Oscillator (Make " ELECTRONIKA" or Equivalent)	No.	567,737.00
25	Digital Multimeter(Make " FLUKE" or Equivalent)	No.	114,472.00
26	Level Generator/Oscillator	No.	316,787.00
27	Frequency Counter	No.	111,680.00
28	Dual Trace Oscilloscope	No.	256,865.00
29	Tools & Tackle (Make " TAPARIA"/ Equivalent)		
a	Screw Driver set no. with neon type	Each	312.00
b	Digital line tester	Each	187.00
c	Insulated Cutting Plier	Each	312.00
d	Long Nose Plier 1430 6"	Each	262.00
e	Wire stripping WS06	Each	80.00
f	Double Ended Spanner	set	375.00
g	Small Screw Driver Bit 31 Nose Bit Set BS-31	set	500.00
h	Nut bolts and screw(small size)	per cent	125.00
i	Toggle Switches	No.	37.00
j	Push Button switch	No.	37.00
k	3 to 27 v DC buzzer	No.	62.00
l	Hookup wire	Mtr.	12.00
m	Flexible wire	Mtr.	12.00

n	PVC Adhesive tape	No.	50.00
o	Solder wire	kg	5,000.00
p	Tweezer	No.	62.00
q	Wire cutter	No.	187.00
r	Multimeter SANWA N-300(Analog)	No.	2,500.00
s	AC millivoltmeter Analog	No.	6,250.00
t	Soldering Iron 65 watt,35 watt	Each	500.00
u	Desoldering wick	kg	1,250.00
v	Desoldering Pump "TONY " Make	Each	250.00

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES (SERVICE/ERECTION OF TELECOM EQUIPMENTS)			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Sl. No.	Description of Item	Unit	Unit Erection price (in Rs.)
1	Erection of Wavetrap		
a	Fixing of Wavetrap on pedastal mounting insulator stack in 400KV	Each	6664
b	Fixing of Wavetrap on pedastal mounting insulator stack in 220KV	Each	5400
c	Fixing of Wavetrap on suspension mounting including jumpering in 132KV	Each	3218
2	Erection of PLCC Panel		
a	Erection of Single channel PLCC Panel	Each	7820
b	Erection of Twin channel PLCC Panel	Each	7976
3	Erection of LMU	Each	1150
4	Erection of 48V DCDB	Each	8050
5	Erection of 48V DC/50A,75A Charger	Each	7820
6	Erection of 48V DC/100A, 125A Charger	Each	9578
7	EPAX (24/8) with 24 telephones	Each	6361
8	Erection of Protection Signalling Equipment		
a	Analog Protection Coupler	Each	5180
b	Digital Protection Coupler	Each	6209
9	Erection,Commissioning and testing of 48V/200AH,300AH Battery Set	Each	8050
10	Erection,Commissioning and testing of 48V/400AH,500AH Battery Set	Each	9925
11	Laying of Coaxial Cable from switchyard gantry tower to communication room in existing trench	KM	15806
12	Laying of 6 pair telephone cable in the trenches in 132KV, 220KV, 400KV	KM	11500
13	Laying of cat 5E/6 cables in offices	KM	6900
14	Laying of cat 5E/6 cables with conduit pipes along with accessories in offices	KM	13365
15	Fixing of 6UX19 inch rack in offices for ERP works	Each	371
16	Laying of single pair telephone cable in the trenches in 132KV, 220KV, 400KV	KM	11500
17	Laying of 25 sq.mm battery cable in control room in 132KV, 220KV, 400KV	KM	18934
18	Laying of 5 pair telephone cable on overhead poles LT & HT	KM	11500
19	Laying of single pair telephone cable on overhead poles LT & HT	KM	11500

20	Laying of RF cable in 132KV, 220KV, 400KV SS	KM	18176
21	Erection of Earth pit as per standards in 132KV, 220KV SS for communication purpose	Each	14343
22	Erection of Earth pit as per standards in 400KV SS	Each	14343
23	Erection of VSAT equipments in 132KV, 220KV, 400KV SS	Each	5906
24	Loading/Unloading of DCDB	Each	6792
25	Loading/Unloading charges of PLCC Panel in 132KV,220KV,400KV SS in to vehicle		
a	Single Channel PLCC Panel	Each	1150
b	Twin Channel PLCC Panel	Each	1150
26	Loading/Unloading charges of 48v/50A,75A Battery Charger	Each	1150
27	Loading/Unloading charges of 48v/100A,125A Battery Charger	Each	1380
28	Loading/Unloading charges of 48v Battery Set		
a	200AH	Each	1150
b	300AH	Each	1150
c	400AH	Each	1380
d	500AH	Each	1380
29	Loading/Unloading charges of LMU	Each	346
30	Loading/Unloading charges of EPAXs	Each	346
31	Loading/Unloading charges of Wavetrap		
a	132KV	Each	690
b	220KV & 400KV	Each	1150
32	Dismantling of DCDB	Each	4830
33	Dismantling of 48V PLCC Battery Charger		
a	50A,75A	Each	4692
b	100A,125A	Each	4789
34	Dismantling of 48V/200AH,300AH Battery Set	Each	4830
35	Dismantling of 48V/400AH,500AH Battery Set		4963
36	Dismantling of PLCC Panel	Each	4692
37	Dismantling of LMU	Each	690
38	Dismantling of EPBAXs	Each	2070
39	Dismantling of Wavetrap		
a	Wavetrap on pedastal mounting insulator stack in 400KV	Each	3332
b	Wavetrap on pedastal mounting insulator stack in 220KV	Each	2700
c	Wavetrap on suspension mounting including jumpering in 132KV	Each	1610
40	Battery Set Maintenance Items		
a	Distilled water	liter	17
b	petroleum jelly	liter	1150

c	cotton	pcs	46
d	maintenance and cleaning labour charge	Each Set	1150
41	services charges for PLCC		
a	Engineer Service charge	per engineer/day	36000
b	Travelling,Boarding,Lodging and fooding charges		
42	services engineer charges for PLCC (including Travelling,Boarding,Lodging and fooding charges)	per engineer/day	50000
43	services engineer charges for 48V battery charger (including Travelling,Boarding,Lodging and fooding charges)	per engineer/day	20000
44	Installation charge of Air Condition	Each	2500
45	Dismantling charge of Air Condition	each	1500
46	Air Condition Maintenance charges		
a	Services charge(indoor and outdoor)	Each	1000
b	Gas Filling Charge	Each	4000
c	Annual Maintenance with all spares	Each	8000
d	Annual Maintenance without spares	Each	5000

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES (SUPPLY AND SERVICES/ERECTION) OF ULDC/RTU WORKS			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Sl. No.	Description of Item	Unit	Unit erection Price (in Rs.)
1	RTU base equipment comprising panels, racks, sub-racks, Power Supply modules, Communication Modules, interfacing equipment, required converters & all other required items/accessories including complete wiring for all modules for locations mentioned in Appendix-A	No.	62,500.00
	(a) Splitter for RTU Communication	No.	Included in above cost.
	(b) MODEMS	No.	
	(d) Weather sensor	No.	
	(d) OLTC transducer	No.	
	(e) Heavy Duty Relay	No.	
	(f) Contact Multiplying Relay (CMRs)	No.	
	(g) Multi Function Transducers (MFTs)	No.	
	(h) Supervisory Interface cubicles(SIC) panel for mounting MFTs, relays	No.	
	(i) Time Synchronisation equipment without display	No.	
	(j) CPU	No.	
	(k) Analog Input Module	No.	
	(l) Digital Input Module	No.	
	(m) Digital Output Module	No.	
	(n) LDMS system alongwith software	Set	4085
	(i) Furniture for LDMS system (one table and One chair)	Set	
	(ii) Inverter	No.	
2	Test Equipment for RTU		
	(a) Master Station cum RTU simulator & Protocol Analyser Software tool	No.	27,858
	(b) Laptop PC for above software tools alongwith interfacing hardware (Intel Core i7, 16GB RAM,1TB HDD, 15.6" display, Windows-10 professional with licensed MS office and Antivirus (Latest Version)	No.	10,957
3	1.1KV Control Cables (Copper) for each C&R panels connection with RTU		
	(a) Communication Cable armoured (0.22 sq. mm) for MFT	mts	32.00
	(b) 14Cx1.5 sq.mm armoured control cable (Digital Input)	mts	32.00
	(c) 7Cx1.5 sq.mm armoured control cable (Digital Input)	mts	32.00
	(d) 4Cx2.5 sq.mm armoured control cable (Digital Output Trip/Close)	mts	32.00
	(e) PVC Conduit (Suitable size as per site requirement)	mts	32.00
4	GPRS based Modem for data connectivity from RTU to SLDC		
	(a) For control centre location		
	(i) Industrial grade 16 port serial server, 230V AC Power Input(19" Rack mount type)	No.	33,977.00
	(ii) Ethernet Module	No.	
	(b) For remote location(Grid Sub-stations)		
	(i) RTU site equipments: Industrial grade GPRS based Cellular server, one RS232 Port, one no. 10/100 Ethernet port, IP 30 Protected Case support DTU functions, routing Firewall	No.	35,524
	(ii) 48V DC to 12V DC Supply	No.	
5	Laying of optical fibre approach cable in swithyard of 400kv,220kv,132kv including hardware:24 fiber	km	53199

Sl. No.	Description of Item	Unit	Unit erection Price (in Rs.)
6	Laying of optical fibre approach cable in swithyard of 400kV,220kV,132kv including hardware: 48 Fiber	km	55835
7	Laying of HDPE pipe in trenches in 400kV,220kV,132kv gss	km	11,958
8	Laying of 48/24 OPGW cable on 400kV,220kv, 132 kV including splicing fixing of hardware accessories	km	88,142
9	Stringing of DWSM type optical fibre cable on 132kV, 220kV line sections:		
i	For plane area	km	34,652
ii	For agency or tribal area(25% extra on plane area)	km	43,314
iii	For Hill area(40% extra on plane area)	km	48,513
iv	For interior area(40% extra on plane area)	km	48,513
v	for municipal corporation area(upto 12 km from municipality)(25% extra for plane area)	km	43,314
vi	for municipalites (upto 12 km from municipality)(20% extra for plane area)	km	41,582
10	Fixing of tension clamp set of OFC on 132kV & 220 kV towers	per set	2,375
11	Fixing of suspension clamp set of OFC on 132kV & 220 kV towers	per set	1,956
12	Fixing of tension clamp set of OPGW on 400kV lines	per set	2,874
13	Fixing of suspension clamp set of OPGW on 400kV lines	per set	2,454
14	Fixing of splice box on 132kV & 220 kV towers	each	3,574
15	Fixing of splice box on 400kV towers	each	4,468
16	Fixing of vibration dampers on 132kV & 220 kV towers	per set	1,111
17	Fixing of vibration dampers on 400 kV towers	per set	1,416
18	Splicing charges for OFC fibers laid on 132kV, 220kV, 400 kV lines in plane areas/forest/ Hill areas/ municipal areas separetaly for each		-
i	For plane area	each fibre splicing	565
ii	For agency or tribal area	each fibre splicing	706
iii	For Hill area	each fibre splicing	789
iv	For interior area	each fibre splicing	789
v	for municipal corporation area(upto 12 km from municipality)	each fibre splicing	706
vi	for municipalites (upto 12 km from municipalities)	each fibre splicing	677
19	Erection of RCC Joint Chambers	no	4,687
20	Blowing(laying) unarmoured UG OFC 24/48 (DWSM) in the existing HDPE duct in the case of underground works	km	26,403
i	Fixing of DWSM type Ofc to the tower members with ties , clamps etc		-
ii	for 220kV/132kV	each	1,949
iii	for 400kV	each	2,437
iv	Laying of areal type OFC on 33kV/11kV/ HT/LT poles	km	11,479
v	Laying of Cat5E/6 cables	km	8,688
vi	Laying of Cat5E/6 cables in with conduit pipes along with accessories	each	13,365
21	Fixing of 6U*19 inch rack in offices	each	371
22	Loading/unloading charges for RTU/OLTE/Mux equipment	each	1,040
23	Dismantling of RTU/OLTE/Mux equipment:		-
i	RTU	each	9,061
ii	OLTE/Mux	each	3,565
iii	Dismantling of 24/48F ADSS cable from 132kV, 220kV S/S line	each	17,326
iv	Dismantling of 24/48F OPGW cable from 132kV, 220kV, 400kV S/S line	each	36,810

Sl. No.	Description of Item	Unit	Unit erection Price (in Rs.)
v	Dismantling of bringing down splice box on 132kV, 220kV towers	each	1,786
vi	Dismantling of bringing down splice box on 400kV towers	each	2,233
24	Hiring charge of 5 KVA Diesel generator per day for attending OFC break down work	each	1,055
25	Hiring charge of 230V Ac inverter(2kVA) battery back up for attending OFC breakdown work	each	1,055
26	Hiring charge of tent 8*8*10 cubic fit close tent shutter for attending splicing work for attending OFC breakdown work	each	742
27	UFG cableing works rates		
i	Survey of route providing as built drawing documentation for unarmoured underground optical fibre cable	KM	20,315
28	Excavation and Backfilling		
i	All types of soil, road, footpath, including PCC, sand, warning brick/ stone, semi circular RCC split cover etc. For underground fibre optic cable	km	162,500
ii	warning tape including supply and installation	km	25,253
iii	laying of PLB HDPE pipe O.D. 40mm	km	27,130
29	Installation of HDPE pipe by trenchless drilling		
i	0-10 mtrs	mtr	775
ii	>10 and upto 30 mtrs	mtr	775
iii	More than 30 mtrs	mtr	775
30	Laying of GI pipe 100mm nominal bore , including accessories	mtr	215
31	laying of RCC hume pipe (NP3), 100mm diameter(inside), including accessories	mtr	321
32	Laying of unarmoured underground optical fibre cable 24F DWDM	km	146,250
34	Installation of joint box in underground (including splicing and testing) 24 Fibre	no	5,504
35	Erection of RCC Joint Chambers	no	32,500
36	Installation of PLB HDPE pipe on wall in building premises including routing of OFC through it	mtr	425
37	Reinstatement of excavated area/damage (in road, footpath etc.)	sq.mtrs	1,700
38	Erection of RTU panel	No.	16,565
39	Comprehensive Annual maintenance charge of RTU including repair of faulty cards etc.	No.	57,500
40	Pre Connectorized Optical fibre Patch Cords(10mtrs)-Pack of six(6) patch cord	Set	13,529
41	Services charges for Engineers on Call Basis for RTU/OPGW/FOTE/GPRS Modem/PLCC etc.		-
42	Fixed Cost per call (one time) (Inclusive of Travelling, Boarding, Lodging and fooding charges etc.)	per engineer/ per call	28,750
a	Engineer Service charge	per engineer/day	11,500
43	OPGW		
	OPGW cable & Accessories		
i	Installation of 24 Fibre OPGW (Live Line) including Hardware sets for above 24 Fibre OPGW Fibre Optic cabling incl. all cable fittings & accessories except Joint Box	Km	88,142

Sl. No.	Description of Item	Unit	Unit erection Price (in Rs.)
ii	Installation of 24 Fibre OPGW (Off-Line) including Hardware sets for above 24 Fibre OPGW Fibre Optic cabling incl. all cable fittings& accessories except Joint Box	km	53,818
iii	2/3/4 way Joint Box (24 Fiber) including Coiling bracket as per requirement for looping/coiling of 30 meters of cable as per technical requirement	No.	6,928
iv	Installation of 48 Fibre OPGW (Live Line) including Hardware sets for above 48 Fibre OPGW Fibre Optic cabling incl. all cable fittings& accessories except Joint Box	Km	6,928
v	2/3/4 way Joint Box (48 Fiber) including Coiling bracket as per requirement for looping/coiling of 30 meters of cable as per technical requirement	No.	9,850
44	FODP		
i	FODP 48F Indoor type, rack mounted with FCPC coupling and pigtails	No.	74,560
ii	FODP 96F Indoor type, rack mounted with FCPC coupling and pigtails	No	77,285
45	SDH Equipment (STM-4 MADM upto 5 MSP protected directions)		
i	Base Equipment (Common cards, Cross connect/control cards, Optical base card, Power supply cards, power cabling, other hardware& accessories including sub-racks, patch cords, DDF etc. fully equipped including Cabinet etc. & excluding (2) to (8) below	No.	7,158
45(i)	SDH Equipment(STM-16 MADM upto 3 MSP protected directions)		
	Base Equipment (Common cards, Cross connect/control cards, Optical base card, Power supply cards, power cabling, other hardware& accessories including sub-racks, patch cords,DDF etc. fully equipped including Cabinet etc. excluding (2)&(3) below)		57,347
46	Optical cards		
i	S4.1	No.	2,854
ii	L4.1	No.	2,854
iii	L4.2	No.	2,854
iv	Optical Line Interface <150 KM	No.	5,546
47	Tributary Cards		
i	E1 interface card(Min. 63 nos.)	No.	10,960
ii	Ethernet interfaces 10/100 Mbps with Layer-2 switching (Min.16 nos.)	No.	495
48	TMN		
	Craft Terminal		
i	Hardware	Set	72
ii	Software	Set	72
49	Network Manager & Element manager system		
i	Hardware	Set	34,846
ii	Software	Set	72
50	Remote Work Station		
i	Hardware	Set	3,143
ii	Software	Set	124
51	Synchronization Equipment		

Sl. No.	Description of Item	Unit	Unit erection Price (in Rs.)
i	GPS clock including all hardware & accessories	Set	6,056
ii	Ip phone (Alcatel/Lucent make alogwith license) (installaton at control room table and laying of CAT 6 cable for IP Phone from SDH equipment to Control room table)	Set	2,656
iii	Integration & commissioning of new (future) bays with the existing/new RTU & control centres (Main, Back-up) including supply,installation and commissioning of required quantity of MFT, cables, CMR and all required necessary hardwares during the AMC period.	No.	169,121
iv	Comprehensive Integration & commissioning of new RTU/SAS in the upcoming GSS at the EMS/SCADA of control centres (Main, Back-up) during the AMC period.	No.	264,252
52	Digital Protection Coupler	No.	6,209

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES (SUPPLY) OF GSS/ TRANSMISSION LINE ITEMS FOR O&M WORKS			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Sl. No.	Description of items	Unit	Unit Supply Price (in Rs.)
1	Supply of 33 kV male contact of Isolator 800 A	Nos.	7,705
2	Supply of 33 kV male contact of Isolator 1250 A	Nos.	8,855
3	Supply of 33 kV female contact of Isolator 1250 A	Nos.	9,430
4	Supply of 132 kV female contact of Isolator 1250 A	Nos.	10,005
5	Supply of 220 kV female contact of Isolator 1600 A	Nos.	11,155
6	Supply of 220 kV female contact of Isolator 2000 A	Nos.	16,643
7	Copper terminal plate for 132 kV female contact	Nos.	1,754
8	PG clamp for Moose to Moose	Nos.	1,806
9	T-connector for Moose to Moose	Nos.	1,748
10	Palm connector for Moose to Moose	Nos.	2,460
11	PG clamp for Zebra to Zebra	Nos.	1,373
12	T-connector for Zebra to Zebra	Nos.	1,465
13	Palm connector for Zebra to Zebra	Nos.	1,914
14	PG clamp for Panther to Panther	Nos.	1,748
15	T-connector for Panther to Panther	Nos.	1,340
16	Palm connector for Panther to Panther	Nos.	899
17	Single suspension fittings for panther	Nos.	3,745
18	Double suspension fittings for panther	Nos.	7,075
19	Suspension fittings for Earth wire	Nos.	1,024
20	Double suspension fittings for Zebra	Nos.	9,139
21	Single tension fittings for Zebra(Compression type)	Nos.	6,808
22	Double tension fittings for Panther(bolted type)	Nos.	7,308
23	Mid span joint for panther	Nos.	1,182
24	Mid span joint for Zebra	Nos.	1,773
25	Mid span joint for Earth wire	Nos.	533
26	T-connector for Zebra to Zebra	Nos.	1,465
27	T-connector for Moose to Panther	Nos.	1,661
28	T-connector for Moose to Dog	Nos.	1,814
29	T-connector for Zebra to Dog	Nos.	1,465
30	T-connector for Zebra to Moose	Nos.	1,914
31	PG clamp for Zebra to Moose	Nos.	1,748
32	PG clamp for Moose to Wolf	Nos.	1,856
33	PG clamp for Moose to Wolf(Horizontal)	Nos.	1,856
34	CT connector for zebra conductor with Bronze mounting	Nos.	4,411
35	CT connector for Moose conductor with Bronze mounting	Nos.	4,744
36	CT connector for Moose conductor T type with Bronze mounting	Nos.	4,744
37	Tripping Coil (with flange)	Nos.	3,662
38	Closing Coil (with flange)	Nos.	3,662
39	Supply of Silica gel	per kg	624
40	Tounge tester clamp meter Range 0 to 300 A	Nos.	38,287
41	Multimeter range current 0 to 10 A, 60 Mohm, Frequency 60 Hz - 60 MHz	Nos.	20,642
42	AC Gas Filling (Charging)	Nos.	2,530
43	AC Compressor supply and installation	Nos.	10,925
44	Supply of Stabilizer of AC	Nos.	5,267

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES (SUPPLY) OF GSS/ TRANSMISSION LINE ITEMS FOR O&M WORKS			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Sl. No.	Description of items	Unit	Unit Supply Price (in Rs.)
1	S.S.T 315 KVA 33/0.4 kV	Nos.	954,750
	S.S.T 630 KVA 33/0.4 kV	Nos.	1,319,450
2	Circuit Breaker :-		
	220KV SF-6 Circuit breaker	sets	1,465,664
	132KV SF-6 Circuit breaker	sets	744,726
	33KV Vacuum Circuit breaker	sets	270,498
	25KV VCB	sets	250,705
3	Isolators:-		
	(i) 220KV L/L Isolator With E/S	Nos.	578,366
	(ii) 220KV L/L tandom Isolator	Nos.	481,662
	(iii) 220KV H/L Isolator	Nos.	526,744
	(iv) 132KV L/L Isolator With E/S	Nos.	285,329
	(v) 132KV L/L Isolator w/o E/S	Nos.	226,110
	(vi) 132KV L/L tandom Isolator	Nos.	266,070
	(vii) 132KV H/L Isolator	Nos.	282,637
	(viii) 33KV L/L Isolator With E/S	Nos.	109,519
	(ix) 33KV L/L Isolator w/o E/S	Nos.	92,365
	(x) 33KV L/L tandom Isolator	Nos.	202,878
	(xi) 33KV H/L Isolator	Nos.	102,921
4	LA (Porcelain):-		
	(i) 220KV LA	Nos.	53,075
	(ii) 132KV LA	Nos.	30,559
	(iii) 33KV LA	Nos.	8,625
	(iv) 25 KV LA	Nos.	8,625
5	LA (Polymer):-		
	(i) 220KV LA	Nos.	89,741
	(ii) 132KV LA	Nos.	56,563
	(iii) 33KV LA	Nos.	15,457
6	CT (Porcelain):-		
	(i) 220KV 1600/800/400/200/1 A	Nos.	359,155
	(ii) 220KV 1200/600/300/150/1 A	Nos.	347,500
	(iii) 132KV 1600/800/400/200/1 A	Nos.	189,667
	(iv) 132KV 1200/600/300/150/1 A	Nos.	184,785
	(v) 33KV 1600/800/400/200/1 A	Nos.	84,450
	(vi) 33KV 1200/600/300/150/1 A	Nos.	80,261
	(vii) 25 kV CT	Nos.	59,870
7	CT (Polymer):-		
	(i) 220KV 1600/800/400/200/1 A	Nos.	437,122
	(ii) 132KV 800/400/200/1 A	Nos.	258,912
	(iii) 132KV 1200/600/300/150/1 A	Nos.	258,912
	(iv) 33KV 800/400/200/1 A	Nos.	109,617

	(v) 33KV 600/300/150/1 A	Nos.	109,617
8	PT:-		
	(i) 220KV PT	Nos.	301,561
	(ii) 132KV PT	Nos.	139,000
	(iii) 33KV PT	Nos.	56,232
	(iv) 25KV PT	Nos.	53,960
9	CVT:-		
	220 kV CVT	Nos.	275,980
	132 kV CVT	Nos.	206,985
10	Capacitor Bank 12 MVAR		2,418,000
11	SF-6 Gas		
	(a) 52 Kg Gas cylinder	Nos.	68,834
	(b) 26 Kg Gas Cylinder	Nos.	36,767
12	Protective Relays		
	(a) Diffrential relay	Nos.	195,389
	(b) Distance prot. Relay	Nos.	147,015
	(c) O/C & E/F relay	Nos.	94,000
	(d) Master Trip Relay (VAJ) 86	Nos.	11,103
	(e) Tripping Relay	Nos.	5,453
	(f) Auxiliary Relay (Type -VAA)	Nos.	4,203
	(g) AC Supervision Relay	Nos.	2,377
	(h)DC Supervision Relay	Nos.	2,377
	(i) Under Voltage Relay	Nos.	55,779
	(j)Over and under frequency Relay	Nos.	55,112
	(k)REF Relay	Nos.	51,349
	(i) LBB Relay	Nos.	52,290
	(m) ODS Switch	Nos.	4,279
	(n)Trip Ckt. Supervision Relay (VAX) (95)	Nos.	3,540
13	Control &Relay Panel		
	(i) 220/132KV Transformer control & protection Panel	Nos.	1,564,495
	(ii) 220 KV Bus coupler control & protection Panel	Nos.	865,295
	(iii) 220KV Line control & protection panel	Nos.	868,745
	(iv) 132/33KV Transformer Panel	Nos.	1,043,545
	(v) 132 KV Bus coupler control & protection Panel	Nos.	465,095
	(vi) 132KV Line control & protection panel	Nos.	466,245
	(vii) 132/25KV Transformer Panel B/C Panel	Nos.	1,035,000
	(vii) 25 KV line feeder Panel	Nos.	345,000
	(viii) 33KV Line control & protection panel	Nos.	345,759
(ix) 33KV Bus coupler control & protection panel	Nos.	330,809	
14	Measuring Instrument		
	(a)Digital multimeter	Nos.	14,260
	(b)Tongue tester/ Clamp meter	Nos.	26,450
	(c)Battery resistance tester	Nos.	322,000
	(d) Battery specific gravity tester	Nos.	920
	(e) IR tester 5 KV	Nos.	322,000
	(f) IR tester 10 KV	Nos.	625,000
	(g)BDV oil test kit(100KV)	Nos.	690,000
	(h) Leakage current analyger for surge arrestor(LA)	Nos.	681,500
	(i) Tower footing impedance/resistance test kit	Nos.	349,600
	(j) DC earth fault locator	Nos.	270,000

	(k)Punctured insulator disk detection test kit	Nos.	1,265,000
	(l) CT & PT test kit	Nos.	2,281,433
	(m) Transformer winding resistance meter	Nos.	653,750
	(n) Transformer turns ratio meter	Nos.	638,500
	(o) CB time interval meter	Nos.	115,000
	(p) Contact resistance meter 100A (CB, Isolators etc)	Nos.	322,025
	(q) Digital earth resistance meter	Nos.	299,300
	(r) CB analyser with dynamic contact resistance meter(DCRM)	Nos.	3,317,575
	(s) Automatic relay test kit	Nos.	3,122,846
	(t) Phase sequence meter	Nos.	5,750
	(u) sf6 gas leakage detector	Nos.	67,850
	(v) sf6 gas refilling device with evacuation capacity	Nos.	563,500
	(w) sf6 gas evacuation and, drying, filling plant	Nos.	3,427,000
	(x) Thermovision Camera High end (640x480 pixels)	Nos.	2,305,000
	(y) Thermovision Camera Low end (320x240 pixels)	Nos.	1,054,000
	(z) Capacitance and tan delta test kit	Nos.	2,933,147
	(aa) Primary current injection test kit upto 2000A	Nos.	887,762
	(ab) Contactless type Potential detector	Nos.	30,483
	(ac) Leakage insulator detector cum Tower footing impedance measuring kit	Nos.	2,321,158
	(ad) Multifunction test kit	Nos.	9,160,333
15	Rechargeable long range search light model-AEL 5W-LED-5 model	Nos.	24,150
	HT Cable & Connector		
16	132kV XLPE Copper Power Cable 1C x 630 sq.mm.	KM	10,873,943
17	132kV 1C x 630 sq.mm. Cable End Termination kits	Nos.	250,183
18	132kV 1C x 630 sq.mm. Cable Jointing kits (Straight Through Joints)	Nos.	232,825
19	33kV XLPE Copper Power Cable 1C x 630 sq.mm.	KM	5,454,447
20	33kV XLPE Copper Power Cable 1C x 240 sq.mm.	KM	4,474,242
21	33kV 1C x 630 sq.mm. Cable End Termination kits	Nos.	16,790
22	33kV 1C x 240 sq.mm. Cable End Termination kits	Nos.	13,070
23	33kV 1C x 630 sq.mm. Cable Jointing kits (Straight Through Joints)	Nos.	15,626
24	33kV 1C x 240 sq.mm. Cable Jointing kits (Straight Through Joints)	Nos.	12,164

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES (SUPPLY) OF GSS/ TRANSMISSION LINE ITEMS FOR O&M WORKS			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Sl. No.	Description of items	Unit	Unit Supply Price (in Rs.)
25	EHV Grade Transformer Oil (Type-II uninhibited) in non returnable drums	KL	83,266
26	Tower Steel		
	Fabrication, galvanizing and supply of various types of towers including M/C tower (if applicable) and it's body and leg extensions (complete) including stubs and hangers of 20 mm rod, U-bolt etc. (Payment shall be made for identified MT for complete towers.)		
	(i) High tensile steel	MT	108,645
	(ii) Mild steel	MT	105,319
	(iii) Hexagonal bolts and nuts including Step bolts	MT	138,959
	(iv) Anti Theft Bolt	MT	138,959
27	GI Earth Wire		
	GI(7/10) SWG Earth Wire	KM	66,597
28	Emergency restoration system including structures, hardwares, tool sets and storage container (suitable of 16 suspension/tension towers)	set	195,640,357
29	Maintenance free Battery Bank (VRLA)		
	(i) 250V, 300 AH	Nos.	629,127
	(ii) 250V, 500 AH	Nos.	979,416
30	Lead acid Battery Bank		
	(i) 250V, 300 AH	Nos.	707,354
	(ii) 250V, 500 AH	Nos.	1,178,923
31	Battery charging equipment comprising of float & float cum boost charger unit for charging 125 nos cells of 2 volt per cell Battery sets.		
	Suitable for charging of VRLA Type battery bank		
	(i) 250V,60/50 A	Sets.	433,246
	(ii) 250V, 45/30 A	Sets.	346,879
	Suitable for charging of Tubular Type battery bank		
	(i) 250V,60/50 A	Sets.	457,203
	(ii) 250V, 45/30 A	Sets.	359,004
32	Control Cable :-		
	(i) 2C X 2.5 mm ²	KM	108,323
	(ii) 3C X 2.5 mm ²	KM	138,646
	(iii) 5C X 2.5 mm ²	KM	206,069
	(iv) 7C X 2.5 mm ²	KM	264,669
	(v) 10C X 2.5 mm ²	KM	351,335
	(vi) 14C X 2.5 mm ²	KM	491,416
	(vii) 19C X 2.5 mm ²	KM	645,730
	(viii) 27C X 2.5 mm ²	KM	899,551
33	Power Cable:-		
	3.5C X 300 mm ²	KM	1,254,509
	3.5C X 150 mm ²	KM	605,540
	3.5C X 70 mm ²	KM	374,217

	3.5C X 35 mm ²	KM	309,539
	4C X 16 mm ²	KM	174,103
	4C X 6 mm ²	KM	114,246
	2C X 6 mm ²	KM	64,187
34	Long rod Polymer insulator (ACSR Panther Conductor)		
	(i) Long Rod Polymer Insulator 70 KN of light weight	No.	4,919
	(ii) Long Rod Polymer Insulator 90 KN of light weight	No.	5,277
35	Long rod Polymer insulator (ACSR Zebra Conductor)		
	(i) Long Rod Polymer Insulator 90 KN of light weight	No.	5,276
	(ii) Long Rod Polymer Insulator 120 KN of light weight	No.	5,634
36	Long rod Polymer insulator (ACSR Moose Conductor)		
	(i) Long Rod Polymer Insulator 120 KN of light weight	No.	5,634
	(ii) Long Rod Polymer Insulator 160 KN of light weight	No.	8,524
37	Long rod Porcelain insulator (ACSR Panther Conductor)		
	(i) Long Rod Porcelain Insulator 70 KN of light weight	No.	6,149
	(ii) Long Rod Porcelain Insulator 90 KN of light weight	No.	6,596
38	Long rod Porcelain insulator (ACSR Zebra Conductor)		
	(i) Long Rod Porcelain Insulator 90 KN of light weight	No.	6,595
	(ii) Long Rod Porcelain Insulator 120 KN of light weight	No.	7,042
39	Long rod Porcelain insulator (ACSR Moose Conductor)		
	(i) Long Rod Porcelain Insulator 120 KN of light weight	No.	7,042
	(ii) Long Rod Porcelain Insulator 160 KN of light weight	No.	10,654
40	Diesel Generator Set along with control panel (40 kVA)	Set	995,070
41	Portable Fire Extinguisher:-		
	(i) 4.5 kg DCP type	No.	6,097
	(ii) 4.5 kg Co ₂ type	No.	8,586
	(iii) 22.5 kg Co ₂ type	No.	25,477
	(iv) Trolley mounted DCP type capacity-25kg with CO ₂ gas cylinder (capacity-1 kg) fitted outside	No.	27,750
	(v) CO ₂ type wheel mounted capacity-6.5kg	No.	11,712
	(vi) Complete set of FB5x	No.	13,500
	(vii) Mechanical foam of 20 litre capacity	No.	19,460
	(viii) Trailer mounted mechanical foam type extinguisher of capacity 150 litre with CO ₂ gas cylinder (capacity-2 kg) fitted on trailer	No.	81,600
	(ix) High Pressure Water Mist 9 litre back pack type with composite PET linear vessel and 2 litre composite with PET linear air cylinder	No.	500,000
	(x) High Pressure Water Mist 50 litre trolley mounted carbon composite with PET linear vessel and 6.8 litre composite with PET linear air cylinder	No.	800,000
42	Conductor:-		
	(i) ACSR Panther Conductor	KM	241,048
	(ii) ACSR Zebra Conductor	KM	415,668
	(iii) ACSR Moose Conductor	KM	464,563
	(iv) HTLS Conductor [Capacity - 240 MVA, 1050 A] (equivalent to Panther)	KM	1,027,447
	(v) AL-59 Zebra Conductor	KM	427,000
43	HARDWARE FITTINGS & ACCESSORIES FOR HTLS CONDUCTOR		
	(i) Single Suspension 'I' Fitting w/o Clamp	Set	5,215
	(ii) Single Suspension Pilot Fittings w/o Clamp	Set	8,029
	(iii) Double Suspension Fittings w/o Clamp	Set	11,736

	(iv) Single Tension Fittings w/o Clamp	Set	5,360
	(v) Double Tension Fittings w/o Clamp	Set	13,432
	(vi) Single Suspension Clamp	Set	9,955
	(vii) Double Suspension Clamp	Set	26,516
	(viii) Dead End Tension Clamp	Set	105,823
	(ix) Double Tension Clamp	Set	121,017
	(x) Terminal Pad without Holes	Set	11,291
	(xi) Terminal Pad with Holes	Set	11,034
	(xii) MSCJ	Nos.	121,608
	(xiii) Repair Sleeve	Nos.	16,912
	(xiv) Vibration Damper	Nos.	15,301
44	DLMS compliant 0.2s Class ABT type Energy meter with implementation of 100% metering, data acquisition and online ABT monitoring for transmission & sub-transmission substations upto 33KV level, monthly energy accounting	No.	99,625
45	Time Synchronization Equipment	No.	185,370
46	200 MVA Three phase power transformer 220/132/33 KV Auto Transformer with oil complete with all accessories, marshalling boxes, terminal connectors etc. with detachable type/portable type on line oil filtration system	No.	100,148,120
47	160 MVA Three phase power transformer 220/132/33 KV Auto Transformer with oil Complete with all accessories, marshaling boxes, terminal connectors etc.	No.	83,670,809
48	80 MVA Three phase 132/33 KV Power Transformer with oil Complete with all accessories, marshaling boxes, terminal connectors etc.	No.	71,309,000
49	50 MVA Three phase 132/33 KV Power Transformer with oil Complete with all accessories, marshaling boxes, terminal connectors etc.	No.	41,538,801
50	200 MVA Three phase power transformer 220/132/33 KV Auto Transformer with oil complete with all accessories, marshalling boxes, terminal connectors etc. with detachable type/portable type on line oil filtration system [With Price Variation]	No.	90,133,308
51	160 MVA Three phase power transformer 220/132/33 KV Auto Transformer with oil Complete with all accessories, marshaling boxes, terminal connectors etc. [With Price Variation]	No.	75,303,728
52	80 MVA Three phase 132/33 KV Power Transformer with oil Complete with all accessories, marshaling boxes, terminal connectors etc. [With Price Variation]	No.	64,178,100
53	50 MVA Three phase 132/33 KV Power Transformer with oil Complete with all accessories, marshaling boxes, terminal connectors etc. [With Price Variation]	No.	37,384,921
54	Hydraulic Compressor machine (Suitable for ACSR Moose, Zebra & Panther Conductor with separate die sets)	No.	859,342
55	3-Pole neutral switch	No.	8,593
56	Portable Emergency light with Inflatable ballon	No.	190,112

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES (SUPPLY) OF GSS/ TRANSMISSION LINE ITEMS FOR O&M WORKS			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Sl. No.	Description of items	Unit	Unit Supply Price (in Rs.)
57	Fire extinguisher accessories		
	(i) Hose pipe for CO2 type (4.5 kg)	Nos.	675
	(ii) Hose pipe for CO2 type (22.5 kg)	Nos.	2,339
	(iii) Hose pipe for DCP type (25 kg)	Nos.	1,380
	(iv) DCP to CO2 pressure pipe (25 kg)	Nos.	923
	(v) DCP wheel assembly (25 kg)	Nos.	2,530
	(vi) CO2 wheel assembly (22 kg)	Nos.	2,530
	(vii) Hose pipe for foam type (50 L)	Nos.	1,380
58	Clamps and Connectors		
	(i) 132 kV CT connector for twin moose	Nos.	3,048
	(ii) 33 kV BPI connector for twin moose	Nos.	1,685
	(iii) 33 kV LA connector for twin moose	Nos.	1,774
	(iv) Palm connector for LA to single moose as per sample	Nos.	1,478
	(v) Palm connector for double moose	Nos.	2,040
	(vi) Palm connector suitable for quad moose	Nos.	3,546
	(vii) Interconnector for twin moose to single moose (T type outer horizontal and inner vertical) as per sample	Nos.	2,100
	(viii) T-connector for 3" IPS tube ACSR Moose conductor	Nos.	2,415
	(ix) T-connector for 3" IPS tube ACSR Panther conductor	Nos.	2,040
	(x) T-connector for double ACSR Moose to Single ACSR Moose conductor	Nos.	3,200
	(xi) T connector for moose-to-moose 1600 A.	Nos.	1,553
	(xii) 33kV 1600 A palm Connector isolator to twin moose.	Nos.	2,040
	(xiii) 33kV 1600 A Palm Connector isolator to twin moose (Horizontal take off)	Nos.	2,040
	(xiv) 33kV 1600A Palm Connector for isolator to single moose. (Horizontal Take off)	Nos.	1,700
	(xv) 33kV 1600 A CT stud to twin moose (Horizontal Take off)	Nos.	3,565
	(xvi) Terminal connector suitable for isolator to receive 3" IPS AL Tube Rigid (through type for tandem isolator), 1600 A rated (3" IPS AL Tube dimension OD-88.9mm, Thickness - 7.62mm, Isolator terminal Pad Type (dimension - 100*100*20mm)	Nos.	1,910
	(xvii) Palm connector to double ACSR Moose	Nos.	2,000
	(xviii) Transformer Bushing connector	Nos.	6,250
59	CT/CVT junction box	Nos.	5,000
60	BMK	Nos.	20,000
61	33 kV 2500 A female contact of HL isolator with Cu terminal	Nos.	10,800
62	33 kV 2500 A male contact of HL isolator	Nos.	11,550
63	132 kV 2500 A male contact of HL isolator	Nos.	18,050

64	132kV 1600A Female contact for high level isolator with Cu terminal	Nos.	9,700
65	Aluminium terminal pad straight type for 250x100x12mm for 33/132kV female contact.	Nos.	1,220
66	Aluminium terminal L-type for jumper size (125+125)x100x12mm for 132kV female contact	Nos.	1,220
67	Aluminium terminal T-type for 33kV 2500A high level isolator size (250+125)x100x12mm for 33kV female contact.	Nos.	1,830
68	12 W pathfinder precision pipe & cable locator with GPS/BT	Nos.	311,850
69	Silica gel breather(Big size)	Nos.	7,130
70	Silica gel breather(small size)	Nos.	5,233
71	Hydraulic/Gear conductor cutter suitable for ACSR Moose,Zebra,Panther etc. (Pressure 15kg)	Nos.	65,550
72	Top Blade for this cutter	Nos.	14,375
73	Cutting Blade	Nos.	5,175
74	Safety belt	Nos.	1,610
75	Hand Gloves	Nos.	1,208
76	Gum Boot	Nos.	1,121
77	Rain Coat	Nos.	1,898
78	Battery (AH-150 / 12V) suitable for DG Set	Nos.	15,685
79	132kv Digital Voltmeter	Nos.	2,300
80	33kv Digital Voltmeter	Nos.	2,300
81	132kv Digital MVAR meter	Nos.	4,934
82	33kV kv Digital MVAR meter	Nos.	4,934
83	132kv Digital frequency meter	Nos.	2,530
84	33KV Digital ampere meter	Nos.	2,530
85	132Kv Digital ampere meter	Nos.	2,530
86	132kV Digital Megawatt meter	Nos.	4,934
87	33 kV Digital Megawatt meter	Nos.	4,934
88	Circuit breaker TNC switch	Nos.	9,200
89	Circuit breaker L/R switch	Nos.	5,750
90	Indication lamp LED Red	Nos.	403
91	Indication lamp LED Green	Nos.	403
92	Indication lamp LED Blue	Nos.	403
93	Indication lamp LED White	Nos.	403
94	32Amp AC TPN	Nos.	1,386
95	20Amp AC MCB	Nos.	1,351
96	20 Amp DC MCB	Nos.	1,035
97	10A DC MCB	Nos.	2,176
98	Contactoer 63A TPN	Nos.	2,070
99	6A MCB Havells make	Nos.	437
100	20A MCB Havells make	Nos.	667
101	Choke/ ballast 400W	Nos.	2,468
102	Ignitor Havells	Nos.	108
103	400W HPSV lamp	Nos.	510
104	PVC tape (10 mtr.)	Nos.	15
105	AC outdoor unit stand	Nos.	2,000

106	RO water purifier (10 litre storage)	Nos.	20,000
107	Water Cooler (60 litre/hour)	Nos.	30,000

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES FOR MAINTENANCE WORK OF GRID SUB STATION AND TRANSMISSION LINES			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Sl. No.	Name of Work	Unit	Unit Erection Price (in Rs.)
A	GRID SUB STATION		
1	Erection, testing and commissioning of 132 KV SF6 Breakers excluding foundation.	Nos.	42,458
2	Erection, testing and commissioning of 132 KV CVT/PT	Nos.	7,549
3	Erection of 132 KV LL Isolator	Nos.	10,969
4	Erection, testing and commissioning of 132 KV Transformer's control & Relay panel.	Nos.	7,549
5	Erection, testing and commissioning of 33 KV VCB	Nos.	16,512
6	Erection, testing and commissioning of 33 KV CT	Nos.	2,477
7	Erection, testing and commissioning of 33 KV LA	Nos.	1,416
8	Erection, testing and commissioning of 33 KV LL Isolator.	Set	2,948
9	Erection, testing and commissioning of 220 KV CB	Nos.	100,249
10	Erection, testing and commissioning of 220 KV CT	Nos.	10,615
11	i) Erection, testing and commissioning of 220 KV Isolator.	Set	10,969
	ii) Erection, testing and commissioning of 132 KV Isolator	Set	10,969
12	i) Erection, testing and commissioning of 220 KV LA.	Nos.	3,302
	ii) Erection, testing and commissioning of 132 KV LA.	Nos.	3,302
13	Laying of cables		
	i) 10C X 2.5mm ² to 18C X 2.5mm ² and 10C X 6 mm ²	Per mtr.	40
	ii) 2 C X 2.5mm ² to 4C X 2.5mm ²	Per mtr.	31
14	Erection of Sub-station structure	Per MT	6,486
15	Erection of 33 KV Post Insulator	Nos.	1,416
16	Jumper connection in GSS.	Per Jumper	136
17	Replacement of 33 KV bushing of 33 KV VCB	Nos.	3,951
18	Replacement of 132 KV bushing of 145 KV breaker	Nos.	10,260
19	Dismantling of Sub-station structures	Per MT	14,153
20	Dismantling of cables.	Per mtr.	24
21	Improvement of earthing of Sub-station	Per mtr.	43
22	Erection, testing and commissioning of 33/0.4KV, 315 KVA Transformer (SST).	1No.	13,563
23	Erection, testing and commissioning of 33/0.4KV, 630 KVA Transformer (SST).	1No.	16,275
24	Replacement of bus-bar 220/132 KV	Per mtr.	206
25	Spray painting of Power Transformers	per sq m	108
26	Filtration of Transformer Oil, if m/c supplied by firm	per ltr.	7
27	Filtration of Transformer Oil, if m/c is supplied by BSPTCL (25% deduction)	per ltr.	5
28	Connection of jumper of HV and LV bushing.	Per Jumper	139
29	Erection, testing and commissioning of 10 MVA Power transformer	Nos.	349,125
30	Erection, testing and commissioning of 20 MVA Power transformer	Nos.	425,910
31	Erection, testing and commissioning of 50 MVA Power transformer	Nos.	469,244

32	Erection, testing and commissioning of 80 MVA Power transformer	Nos.	632,692
33	Erection, testing and commissioning of 100 MVA Power transformer	Nos.	722,125
34	Erection, testing and commissioning of 150 MVA/160 MVA Power transformer	Nos.	975,010
35	Erection, testing and commissioning of 200 MVA Power transformer	Nos.	1,170,000
36	(i) Construction of Treated Earth Pit having 4x10ft depth (including supply of all materials) (40 mm dia pipe)	Nos.	31,440
	(ii) Construction of 1x10 ft Treated Earth Pit (including supply of all materials) (40 mm dia pipe)	Nos.	8,560
37	Replacemnt of Gasket of main tank top cover	Nos.	281,900
38	Rate for replacement of gasket of the Transformer along with supply of gasket of :		
	a) Radiator	Nos.	6,397
	b) HV Bushing	Nos.	13,926
	c) LV Bushing	Nos.	7,903
	d) HV/LV Neutral Bushing	Nos.	10,541
	e) Tertiary bushing	Nos.	6,397
	f) Conservator Tank	Nos.	10,915
	g) Oil level guage	Nos.	904
	h) Silica gel	Nos.	1,506
	i) Replacement of gasket of door of marshalling box & OLTC control cable	job	13,553
	j) Inspection cover, manhole cover, valves, connecting pipes, Tightening & terminal arrangement of Bucholz relay, OTI, WTI	job	83,980
39	Erection of Time Synchronization Equipment	Job	147,125
B	TRANSMISSION LINES		
1	Replacement of Insulator String in Transmission Lines		
a	In 220 KV lines	Each string	9,641
b	In 132 KV lines	Each string	8,677
2	Repairing of damaged conductor with repair sleeve	1No.	4,304
3	Repairing of broken conductor.	1No.	9,641
4	Repairing of cross arm.	1No.	6,428
5	Repairing of stub.	1No.	13,622
6a	Dismantling of tower (including conductor) during tower collapse for reuse of tower mmbbers.	Per MT	17,691
6b	Dismantling of tower (including conductor) during tower collapse for not reuse of tower mmbbers..	Per MT	10,614
7	Erection of Tower	Per MT	7,076
8a	Fabrication of Tower members for other than missing tower members replacement	Per MT	9,435
8b	Fabrication of Tower members for missing tower members replacement	Per MT	18,870
9a	Restoration (Opening and closing both) of Jumper in lines.	per jumper	4,819
9b	Tightening of jumper of transmission tower		
	(i) Upto 25 jumper	per jumper	2,000
	(ii) Beyond 25 jumper to 50 jumper	per jumper	1,500
	(iii) Beyond 50 jumper	per jumper	1,000

10	Replacement of conductor (Including Lowering & Re-stringing and re-sagging work) Per conductor per span		
a	1 no. Moose conductor	per span	15,990
b	1 no. Zebra conductor	per span	12,624
c	1 no. Panther conductor	per span	10,098
11	Stringing and other associated work of Earth wire	per span	7,184
12	Minor repairing of conductors without lowering the conductor	per point of defect	3,231
13a	Mobilisation of Labourers	Per Gang	12,973
13b	Demobilisation of Labourers (One Gang should consists of 40 persons)	Per Gang	12,973
14	Nut-bolts tightening of 220 KV towers	Per Tower	1,831
15	Nut-bolts tightening of 132 KV towers	Per Tower	1,470
16	Tack welding of the 220 KV towers	Per Tower	3,500
17	Tack welding of the 132 KV towers	Per Tower	2,800
18	First coat Painting of tower footings without cost of paint & brush	Per Tower	1,115
19	Second coat Painting of towers without cost of paint & brush	Per Tower	632
20	Rate for ERS installation (Erection, Jointing, Jumpering) per set complete in all respect.	Nos.	237,326
21	Rate for ERS Dismantling includng conductor lowering per set complete in all respect.	Nos.	237,326
22	Erection of cable and joints	Job	3,335
23	Lowering of ACSR Moose Conductor	Per Conductor	3,198
24	Lowering of ACSR Zebra Conductor	Per Conductor	2,525
25	Lowering of ACSR Panther Conductor	Per Conductor	2,020
26	Raising of ACSR Moose Conductor	Per Conductor	3,838
27	Raising of ACSR Zebra Conductor	Per Conductor	3,030
28	Raising of ACSR Panther Conductor	Per Conductor	2,424

NOTE:- 1. All above electrical equipments for which erection, testing , commissioning rate has been mentioned , Erection charges and Testing & Commissioning charges shall be 70% and 30% respectively.

2. Dismantling of GSS Equipments like Transformer, Breaker, CT, CVT, PT, LA, Panel etc. shall be 60% of Erection charges

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED			
SCHEDULE OF RATES FOR MAINTENANCE WORK OF GRID SUB STATION AND TRANSMISSION LINES			
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)			
Sl. No.	Name of Work	Unit	Unit Erection Price (in Rs.)
29	Refilling of fire extinguishers		
	(i) CO2 type	per kg	320.00
	(ii) DCP type	per kg	218.00
	(iii) Mechanical foam	per ltr.	128.00
	(iv) Water CO2 type	per ltr.	108.00
30	Fixing/Adjustment of vibration damper	Nos.	450.00
31	Jointing of broken conductor/Earth wire	/conductor/s pan	9,600.00
32	Fixing/Installation of Dead end fitting	Set	1,800.00
33	Fixing/installation of Suspension fitting	Set	1,200.00
34	Hiring charge of Dry Air plant	/day	1,500.00
35	Hiring charge of Vaccum Machine	/day	1,500.00
36	Hiring charge of 20KL oil tanker	/day	1,100.00
37	Erection of Busbar/jack bus	km	175,000.00
38	Jointing of 132kV XLPE Cable		
	(i) Excavation of wet soil (for identification of damaged cable)	cum	211.00
	(ii) Erection of water proof isolation tent (45'x20') with air conditioning facility to facilitate cable jointing work to maintain moisture/dirt free cool ambience	per day	60,000.00
	(iii) Charges of service engineer with 05 nos. assistant for jointing of 132 kV XLPE cable with straight through jointing tool kit (including travelling charges, fooding and lodging)	per day	90,000.00
	(iv) Provision of site lighting and DG set with round the clock security guard to facilitate cable jointing work	day	10,000.00
	(v) Local sand filling in normal soil trench	cum	192.50
	(vi) 100 A1 grade brick flat soiling	sq. m.	227.60
	(vii) Extra carriage cost of material for local sand	cum	233.16
	(viii) Dismantling and laying of 132 KV XLPE cable	m	500.00
	(ix) Supply of "x1" wooden block for providing support to 132 KV XLPE cable	Nos.	500.00
	(x) Provision of LPG cylinder for heat shrink purpose	Nos.	1,500.00
	(xi) Back filling of soil	cum	66.40

BIHAR STATE POWER TRANSMISSION COMPANY LIMITED								
RATE FOR TRANSPORTATION OF POWER TRANSFORMERS OF VARIOUS CAPACITIES AND OTHER ASSOCIATED WORK.								
(ALL PRICES ARE WITHOUT TAXES AND GST SHALL BE PAID EXTRA AS APPLICABLE)								
Sl. No.	Description	All prices in Rupees						
		10/12.5 MVA	20 MVA	50 MVA	80 MVA	100 MVA	150 MVA / 160 MVA	200 MVA
1	Removal from plinth/existing position and dragging of transformer from its position to the point of loading (dragging up to 100 feet).	75,896	79,510	95,171	98,785	102,400	108,423	114,447
2	Dragging of transformers beyond 100 feet. (Rate per feet):							
	(i) Beyond 100 feet upto 300 feet, per feet @	422	422	482	524	572	572	602
	(ii) Beyond 300 feet upto 700 feet, per feet @	398	398	452	482	512	512	542
	(iii) Beyond 700 feet, per feet @	373	373	422	452	482	482	512
3	Unloading of the transformer from Railway wagon and dragging to the point of loading (dragging upto 100 feet).	63,849	63,849	75,896	80,113	84,329	84,329	86,738
4	Loading of transformer on low bed Tractor and making arrangement against skidding & tilting of the transformer from its position during transportation.	60,235	60,235	72,282	72,282	72,282	78,306	84,329
5	Safe transportation of transformer from point of loading to the place of destination (including inter state transportation):							
	(i) Upto first 50 Kms.	72,282	84,329	106,014	115,651	125,289	138,541	144,564
	(ii) Beyond 50 Km upto 150 Kms (rate per Kms).	253	313	379	398	422	446	482
	(iii) Beyond 150 Kms upto 300 Kms (rate per 10 Kms).	2,530	3,132	3,795	4,006	4,216	4,457	4,819
	(iv) Beyond 300 Kms upto 500 Kms (rate per 20 Kms).	4,819	6,024	7,228	7,529	7,831	8,433	9,035
	(v) Beyond 500 Kms (rate per 50 Kms).	9,638	9,638	11,445	12,047	12,649	13,854	14,456
6	Unloading of transformer from low bed trailer and placing safely on wooden sleepers/nearby place. (Dragging upto 100 meter)	63,849	67,463	75,896	83,124	90,353	96,376	102,400
7	Removal of transformer from sleepers, dragging (upto 100 feet) and placing it on plinth including fixing and fitting of wheels etc.	67,463	72,282	85,534	87,943	90,353	102,400	108,423
8	Transportation of Transformer accessories/fittings, other GSS equipment, Transmission line materials inclusive ERS through Truck /Pick up including loading , unloading of the equipment/materials in proper packing (before loading) & unpacking (after loading)	Loading Capacity of Truck/Pick up (Commercial)						
	Inside State	Upto 9 MT		Upto 6 MT		Upto 3 MT		
	(i) Upto first 50 km	18,974		9,497		4,754		
	(ii) 50 km < Distance < 500 km (Rate per km)	70		45		25		
	(iii) Beyond 500 km (Rate per km)	45		30		18		