

RANGANADI HYDRO ELECTRIC PROJECT
(405 MW)
(ARUNACHAL PRADESH)



ISO 9001, 14001, OHSAS 18001

33 kV & 33/11 kV SUBSTATIONS

ANNEXURE: A (REVISED)

SCHEDULE OF PRICES

NORTH EASTERN ELECTRIC POWER CORPORATION LTD.

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ANNEXURE-A (REVISED)

SCHEDULE-A SCHEDULE OF PRICES FOR SUPPLY (33kV SUB-STATION),HOZ,

Sl. No.	Description of the Item	Unit	Quantity	Rate (₹)	Amount (₹)
I	SCHEDULE OF PRICES FOR SUPPLY				
1	36kV , 1250 A, 12.5kA, 3-ph outdoor Vacuum Circuit Breaker along with support structure, marshalling box, terminal connectors and required accessories complete with 24V DC tripping/ closing coil etc. complete in all respect as per tender specification	Set	2		
2	33kV Control and Relay Panel suitable 24 Volt DC as per requirement along with O/C & E/F relays, digital kW and kWh meters, Voltmeter, Ammeter etc complete in all respect as per tender specification.	Set	2		
3	36 kV , 1-ph, 12.5kA, outdoor type Current Transformer along with terminal connectors, junction box etc. and including support structure complete in all respect as per tender specification.				
	a) 36kV Current Transformer 100 /1 (for protection)	No	6		
	b) 36kV Current Transformer 100 /1(for metering)	No	6		
	Please Refer note for CT details				
4	36kV , 1250A,12.5 KA, 3 ph, double break, centre rotating type (DBCR), Gang operated Isolator along with support insulators, operating mechanism, terminal connectors including support Structure and all required accessories complete in all respect as per tender specification.				
	a) with one Earth Switch	Set	6		
	b) with two Earth Switch	Set	1		
5	36 kV , 1-ph, 33kV/110V, Single core Outdoor type Potential Transformer along with terminal connectors, junction box including support Structure complete in all respect as per tender specification	No	6		
6	30kV , 10kA, 1-ph, Gapless Surge Arrester , complete with terminal connectors and including mounting structure as required complete in all respect as per tender specification	No	12		
7	a) 11 Mtr. Long steel Tubelar pole.	No.	20		
	b) Channels				
	b) (I) Supply of M. S Channel (100mm X50mm x6mm)= 9.2Kg; 210X9.2kg =1932 Kg.	M	210		

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	b)(II), Nut Bolts, Washer, Clamps for fixing of Channels.		As required		
8	Cable Ladder , Straight Tray 100mm H &400mm W.	Lot	1		
9	Earthing Pit				
	GI Pipe Earth Electrode				
	40 mm dia, 3000 mm long GI Pipe Electrode and other accessories to be buried below ground and to be connected with earth mat as required complete in all respect as per tender specification	No	11		
10	33 kV Insulator as per Tender Specification	Lot	1		
11	Control Cables				
	a) 4Cx2.5 sq mm	Lot	1		
	b) 7Cx2.5 sq mm	Lot	1		
	c) 10Cx2.5 sq mm	Lot	1		
	d) 4Cx4 sq mm	Lot	1		
12	AAAC conductor equivalent to ACSR Dog Conductor for 33kV Bus bars, Bays and jumpers/ dropper/ terminations for 33/11 kV outdoor type substations as per drawing.		As required		
13	Hardware & Fitting complete in all respect as per tender specification		As required		
14	GI Wire for Earthing & Grounding for equipment and poles complete in all respect as per tender specification	Lot	1		
15	Miscellaneous Items				
a)	33kV Danger Plates (size 250x200mm) as per tender specification.	Lot	1		
16	33kV grade, 3C x 185 sq mm stranded compact circular aluminium conductor screened XLPE insulated, insulation screened with extruded semi conducting compound aluminium round wire armoured and overall PVC sheathed (ST-2PVC) black cable IS-7098/II/85, cables for interconnection between 33 KV indoor panel and outdoor switchyard.	Mtrs	600		
17	a)Cable Termination kits for 33kV 3C x 185 sq mm, armoured XLPE, Aluminium cables suitable for termination at 33 KV indoor panel	Set	2		
	b)Cable Termination kits for 33kV 3C x 185 sq mm, armoured XLPE, Aluminium cables suitable for termination at 33 KV Outdoor Switchyard	Set	2		
	Sub-Total A(I)				

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SCHEDULE - A SCHEDULE OF PRICES FOR SUPPLY OF 33KV/11KV, HOZ.

Sl. No.	Description of the Item	Unit	Quantity	Rate (₹)	Amount (₹)
II	SCHEDULE OF PRICES FOR SUPPLY OF 33KV/11KV,SUB-STATION,HOZ.				
1	12kV , 400 A, 8kA, 3-ph outdoor Vacuum Circuit Breaker along with support structure, marshalling box, terminal connectors and required accessories complete with 24V DC tripping/ closing coil etc complete in all respect as per tender specification.	Set	4		
2	36kV , 1250A, 12.5kA, 3 ph, double break, centre rotating type (DBCR), Gang operated Isolator along with support insulators, operating mechanism, terminal connectors with one Earth Switch including support Structure and all required accessories complete i	Set	2		
3	12kV , 3 pole, 400A, 3 ph, double break, centre rotating type (DBCR), Gang operated Isolator along with support insulators, operating mechanism, terminal connectors with one Earth Switch including support Structure and all required accessories complete in	Set	4		
4	12kV , 3 pole, 400A, 3 ph, double break, centre rotating type (DBCR), Gang operated Isolator along with support insulators, operating mechanism, terminal connectors without Earth Switch including support Structure and all required accessories complete in a	Set	1		
5	12kV , 1-phase, 8kA, outdoor type Current Transformer along with terminal connectors, junction box etc. and including support structure complete in all respect as per tender specification.				
	i) Transformer feeder 100/1 – 1 – 1	Nos	6		
	ii) Outgoing feeder 50-100/1-1	Nos	6		
6	12kV , 1-phase, 11kV/110 volt, Single core outdoor type Potential Transformer along with terminal connectors, junction box including support Structure complete in all respect as per tender specification	Nos	6		
7	11kV Control and Relay Panel suitable for 24V DC as per requirement along with O/C & E/F relays, digital kW and kWh meters, Voltmeter, Ammeter etc complete in all respect as per tender specification.	Set	4		
8	30kV , 10kA, 1-ph, Gapless Surge Arrester , complete with terminal connectors and including mounting structure as required complete in all respect as per tender specification	No	6		

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9	9kV, 10kA, 1-ph, Gapless Surge Arrester , complete with terminal connectors including mounting structure as required complete in all respect as per tender specification	No	6		
10	9kV, 10kA, 1-ph, Gapless Surge Arrester , complete with terminal connectors to be mounted on beam as shown in the drawing as required complete in all respect as per tender specification	No	6		
11	Earthing Pit				
	GI Pipe Earth Electrode 40 mm dia, 3000 mm long GI Pipe Electrode and other accessories to be buried below ground and to be connected with earth mat as required complete in all respect as per tender specification.	No	18		
12	33 kV Insulator as per Tender Specification	Lot	1		
13	11kV Insulator as per Tender Specification	Lot	1		
14	AAAC conductor equivalent to ACSR Dog Conductor for 33kV & 11kV Bays and jumpers/ dropper/ terminations for 33/11 kV outdoor type substations as per drawing.	Lot	1		
15	Hardware & Fitting complete in all respect as per tender specification		As required		
16	GI Wire for Earthing & Grounding for equipment and poles complete in all respect as per tender specification	Lot	1		
17	Miscellaneous Items				
a)	33kV and 11kV Danger Plates (size 250mmx200mm) as per tender specification.	Lot	1		
18	33kV 3Cx185 sq mm armoured XLPE Aluminium cables	Mtrs.	100		
19	Cable Termination kits of 33kV, armoured XLPE, Aluminium cables (cable size: 3Cx185 sq mm)	Set	2		
	Sub-Total A(II) =				

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SCHEDULE - A SCHEDULE OF PRICES FOR SUPPLY OF COMMON ITEMS OF 33KV, 33KV/11KV, HOZ

Sl. No.	Description of the Item	Unit	Quantity	Rate (₹)	Amount (₹)
III	SCHEDULE OF PRICE FOR SUPPLY OF COMMON ITEMS OF 33KV & 33KV/11KV.				
1	Earthing and Grounding Material				
	a) 50mm x 6mm MS Flat or M S Rod of suitable size (2.36 kg/mtr.)	M	1500		
	b) MS strip of suitable size as per tender specification for equipment earthing.		As required		
2	415V AC Distribution Board, 200Amp nominal current rating and at least 5(Five)Nos. of outgoing Feeders including Meters, Control switch, Indication Lamps, Switch-Fuse Units/ MCCB etc complete as per Specification	set	1		
3	Station Lighting System complete for switchyard, main gate & substation boundary comprising of Luminaries, Fixtures, LDB, JB, Conduits, cables etc. in complete accessories for 33/11 kV Outdoor type substation complete in all respect as per tender specification .	Lot	1		
4	Fire Protection System comprising of Fire Extinguishers, Sand bucket, Danger Plate etc. for 33/11 kV outdoor type substation complete in all respect as per tender specification.	Lot	1		
(a)	Sand Bucket (09 Ltr. capacity) with covered steel stand				
(b)	45 ltrs. Foam type extinguishers				
(c)	02 ltrs Foam type extinguishers				
5	Fencing with main Entrance Gate complete in all respect as per tender specification.	Lot	1		
6	24V, Station DC battery (Lead Acid plant type or Nickel-Cadmium type) of capacity not less than 100Ah, battery charger & DCDB complete with all accessories as per tender specification	Set	1		
	Sub-Total A(III) =				

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SCHEDULE - A SCHEDULE OF PRICES FOR SUPPLY OF SPARES OF 33KV, 33KV/11KV, HOZ

S.No	Description of the Item	Unit	Quantity	Rate (₹)	Amount(₹)
IV	SCHEDULE OF PRICES FOR SUPPLY OF SPARES.				
1	36kV, 1250 A, 12.5kA, 3-ph outdoor Vacuum Circuit Breaker as per tender specification.				
	a) Interrupter	No	2		
	b) Spring charging motor if applicable	No	1		
	c) Tripping coil	No	1		
	d) Closing coil	No	1		
2	12kV, 400 A, 8kA, 3-ph outdoor Vacuum Circuit Breaker as per tender specification.				
	a) Interrupter	No	2		
	b) Spring charging motor if applicable	No	1		
	c) Tripping coil	No	1		
	d) Closing coil	No	1		
3	33kV Control and Relay Panel				
	a) Relay 1 (One of each)	No	1		
	b) Control fuse 10(Ten of each)	No	10		
	c) Indicating Lamp	No	10		
4	11kV Control and Relay Panel				
	a) Relay 1(One of each)	No	1		
	b) Control fuse 10(Ten of each)	No	10		
	c) Indicating Lamp	No	10		
5	30kV, 10kA, 1-ph, Gapless Surge Arrester	No	3		
6	9kV, 10kA, 1-ph, Gapless Surge Arrester	No	3		
7	36 kV, 1-ph, 12.5kA, outdoor type Current Transformer along with terminal connectors, junction box etc. as per tender specification.				
	a) 36kV Current Transformer 100 /1 (for protection)	No	1		
	b) 36kV Current Transformer 100 /1(for metering)	No	1		
8	36kV, 1250A,12.5 KA, 3 ph, double break, centre rotating type (DBCR), Gang operated Isolator along with support insulators complete for one three phase isolator,.				
	a) with one Earth Switch	Set	1		
	b) with two Earth Switch	Set	1		
9	36 kV, 1-ph, 33kV/110V, Single core Outdoor type Potential Transformer along with terminal connectors, junction box as per tender specification	No	1		
10	12kV,3 Pole, 400A, 3ph, double break, centre rotating (DBCR), Gang operated Isolator.				
	a) Support insulator complete for one three phase Isolator	set	1		

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11	12KV, 1-phase, 8KA, outdoor type Current Transformer				
	a) Transformer feeder 100/1 – 1 – 1	No	1		
	b) Outgoing feeder 50-100/1-1	No	1		
12	12KV, 1-phase, 11KV/110Volt, Single core outdoor type Potential Transformer.	No	1		
	Sub -Total A(IV) =				
	Total Amount A(I+II+III+IV) =				

SCHEDULE - B SCHEDULE OF PRICES FOR CIVIL WORKS

S. No.	Descriptions of item	Unit	Qty.	Rate (₹)	Amount (₹)
1	2	3	4	5	6
I	SCHEDULE OF PRICES FOR 33KV CIVIL WORKS				
	Equipment Foundation				
1	Design, Engineering, Supply of labour, material and construction of RCC footing of any depth, pedestals including the cost of excavation, concreting, cement reinforcement steel, form work, grouting, underpinning etc. for the following equipments & Busbar structure/Gantry all complete as per Technical Specification:				
a.	36 KV Circuit Breaker	Sets	2		
b.	36 KV Isolator	Sets	7		
C	36 KV CT	No.	12		
d	33/11KV, 2.5MVA Power Transformer	No.	2		
e	36 KV PT	No.	6		
f	11 Mtr Long Steel Tubular Pole	No.	18		
g	30 KV LA	No.	12		
h	12 KV Circuit Breaker	Sets	4		
i	12 KV Isolator	Sets	5		
j	36 KV Isolator	Sets	2		
k	12KV CT	No.	12		
l	12KV PT	No.	6		
2	Site surfacing antiweed treatment & Gravel filling in the Switch Yard Area	LS	1		
3	Providing , supplying and laying two layers of broken uncrushed /crushed stone fill, the first layer after compaction shall make minimum 50mm thick course layer of 20nn thick normal size, material fill consolidated / compacted and rolled as per specification to achieve the surface suitable for laying second layer having minimum 50mm compacted thickness of material fill of 20mm normal size including dressing, rolling, compacting complete as per specification the stone used shall be free from dirt or any organic material.	LS	1		

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4	Supply, Fitting & fixing chain link fencing including corner and end post with MS angle of size 50X50X5 mm and length not less than 1800mm, intermediate post of MS angle of size 40X40X5 mm and length not less than 1800 mm at 2000 mm apart and stay post of MS angle of size 35X35X5 mm and length not less than 1800 mm with three horizontal line of 10 SWG GI wire at top, middle and bottom and with one vertical line to each fencing post including the cost of primer painting of MS angle iron post in PCC base etc. and 2 (two) coats of Al. paint on new and other steel surface including foundation of posts with PCC work of 1:2:4	RM	150		
5	Design, engineering and construction of Drainage System in Switchyard premises including supply of T&P, labour, cement, reinforcement steel, steel angles, flats, form work, excavation etc.,all complete as per Technical Specification and approved drawing.	LS	1		
	Total Amount of -B (I) =				

SCHEDULE-C SCHEDULE OF PRICES FOR ERECTION, TESTING AND COMMISSIONING.

Sl. No.	Description of the Item	Unit	Quantity	Rate (₹)	Amount (₹)
I	Erection, Testing and Commissioning of 33KV Sub-Station, Hoz				
1	36kV , 1250 A, 12.5kA, 3-ph outdoor Vacuum Circuit Breaker along with support structure, marshalling box, terminal connectors and required accessories complete with 24V DC tripping/closing coil etc. complete in all respect as per tender specification	Set	2		
2	33kV Control and Relay Panel suitable 24 Volt DC as per requirement along with O/C & E/F relays, digital kW and kWh meters, Voltmeter, Ammeter etc complete in all respect as per tender specification.	Set	2		
3	36 kV , 1-ph, 12.5kA, outdoor type Current Transformer along with terminal connectors, junction box etc. and including support structure complete in all respect as per tender specification.				
	a) 36kV Current Transformer 100 /1 (for protection)	No	6		
	b) 36kV Current Transformer 100 /1(for metering)	No	6		

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4	36kV , 1250A, 12.5 KA, 3 ph, double break, centre rotating type (DBCR), Gang operated Isolator along with support insulators, operating mechanism, terminal connectors including support Structure and all required accessories complete in all respect as per tender specification.				
	a) with one Earth Switch	Set	6		
	b) with two Earth Switch	Set	1		
5	36 kV , 1-ph, 33kV/110V, Single core Outdoor type Potential Transformer along with terminal connectors, junction box including support Structure complete in all respect as per tender specification	No	6		
6	30kV , 10kA, 1-ph, Gapless Surge Arrester , complete with terminal connectors and including mounting structure as required complete in all respect as per tender specification	No	12		
7	a) Erection of 11 Mtr. Long steel Tubular pole .	No.	20		
8	Cable Ladder , Straight Tray 100mm H & 400mm W.	Lot	1		
9	Earthing Pit				
	GI Pipe Earth Electrode				
	40 mm dia, 3000 mm long GI Pipe Electrode and other accessories to be buried below ground and to be connected with earth mat as required complete in all respect as per tender specification	No	11		
10	Laying, Fixing of glands, lugs, ferrules, termination etc. for 11KV grade PVC insulated Cu conductor control cables as per cable schedule of following sizes (including Supply of Glands, Lugs, Ferrules Etc.)				
	a) 4Cx2.5 sq mm	Lot	1		
	b) 7Cx2.5 sq mm	Lot	1		
	c) 10Cx2.5 sq mm	Lot	1		
	d) 4Cx4 sq mm	Lot	1		
11	Erection of Bus bar, installation of all droppers, jumpers and interconnections with all outdoor equipment using ACSR Dog conductor, insulator, hardware, clamp etc. complete.		As required		
	Sub-Total C(I) =				

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SCHEDULE-C SCHEDULE OF PRICES FOR ERECTION, TESTING AND COMMISSIONING OF 33KV/11KV, HOZ.

Sl. No.	Description of the Item	Unit	Quantity	Rate (₹)	Amount (₹)
II	33KV/11KV Erection, Testing and Commissioning.				
1	12kV , 400 A, 8kA, 3-ph outdoor Vacuum Circuit Breaker along with support structure, marshalling box, terminal connectors and required accessories complete with 24V DC tripping/ closing coil etc complete in all respect as per tender specification.	Set	4		
2	36kV , 1250A, 12.5kA, 3 ph, double break, centre rotating type (DBCR), Gang operated Isolator along with support insulators, operating mechanism, terminal connectors with one Earth Switch including support Structure and all required accessories complete i	Set	2		
3	12kV , 3 pole, 400A, 3 ph, double break, centre rotating type (DBCR), Gang operated Isolator along with support insulators, operating mechanism, terminal connectors with one Earth Switch including support Structure and all required accessories complete in	Set	4		
4	12kV , 3 pole, 400A, 3 ph, double break, centre rotating type (DBCR), Gang operated Isolator along with support insulators, operating mechanism, terminal connectors without Earth Switch including support Structure and all required accessories complete	Set	1		
5	12kV , 1-phase, 8kA, outdoor type Current Transformer along with terminal connectors, junction box etc. and including support structure complete in all respect as per tender specification.				
	i) Transformer feeder 100/1 – 1 – 1	Nos	6		
	ii) Outgoing feeder 50-100/1-1	Nos	6		
6	12kV , 1-phase, 11kV/110 volt, Single core outdoor type Potential Transformer along with terminal connectors, junction box including support Structure complete in all respect as per tender specification	Nos	6		
7	11kV Control and Relay Panel suitable for 24V DC as per requirement along with O/C & E/F relays, digital kW and kWh meters, Voltmeter, Ammeter etc complete in all respect as per tender specification.	Set	4		
8	30kV , 10kA, 1-ph, Gapless Surge Arrester , complete with terminal connectors and including	No	6		

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	mounting structure as required complete in all respect as per tender specification				
9	9kV , 10kA, 1-ph, Gapless Surge Arrester , complete with terminal connectors including mounting structure as required complete in all respect as per tender specification	No	6		
10	9kV , 10kA, 1-ph, Gapless Surge Arrester , complete with terminal connectors to be mounted on beam as shown in the drawing as required complete in all respect as per tender specification	No	6		
11	Earthing Pit				
	GI Pipe Earth Electrode	No	18		
	40 mm dia, 3000 mm long GI Pipe Electrode and other accessories to be buried below ground and to be connected with earth mat as required complete in all respect as per tender specification.				
12	Erection of Bus bar, installation of all droppers, jumpers and interconnections with all outdoor equipment using ACSR Dog conductor, insulator, hardware, clamp etc. complete.		As required		
13	GI Wire for Earthing & Grounding for equipment and poles complete in all respect as per tender specification	Lot	1		
14	Erection , Laying Termination of 33KV power XLPE Cable from 7.5MVA Transformer to outdoor 33KV Substation.				
	a) Laying of 3 Core, 185 Sqmm 33KV power XLPE Cable.	Mtrs	420		
	b) Erection, Termination of 3 Core, 185 Sqmm 33KV power XLPE Cable. Outdoor Type.	Set	3		
	c) Erection, Termination of 3 Core, 185 Sqmm 33KV power XLPE Cable. Indoor Type.	Set	3		
	Sub - Total C(II) =				

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SCHEDULE -C SCHEDULE OF PRICES FOR ERECTION, TESTING AND COMMISSIONING OF COMMON ITEMS 33KV, 33KV/11KV, HOZ

Sl. No.	Description of the Item	Unit	Quantity	Rate (₹)	Amount (₹)
III	ERECTION, TESTING AND COMMISSIONING OF COMMON ITEMS OF 33KV & 33KV/11KV.				
1	Earthing and Grounding Material				
	a) 50mm x 6mm MS Flat or M S Rod of suitable size (2.36 kg/mtr.)	M	1500		
	b) MS strip of suitable size as per tender specification for equipment earthing.		As required		
2	415V AC Distribution Board, 200Amp nominal current rating and at least 5(Five)Nos. of outgoing Feeders including Meters, Control switch, Indication Lamps, Switch-Fuse Units/ MCCB etc complete as per Specification	set	1		
3	Station Lighting System complete for switchyard, main gate & substation boundary comprising of Luminaries, Fixtures, LDB, JB, Conduits, cables etc. in complete accessories for 33/11 kV Outdoor type substation complete in all respect as per tender specification .	Lot	1		
4	Fire Protection System comprising of Fire Extinguishers, Sand bucket, Danger Plate etc. for 33/11 kV outdoor type substation complete in all respect as per tender specification.	Lot	1		
5	24V, Station DC battery (Lead Acid plant type or Nickel-Cadmium type) of capacity not less than 100Ah, battery charger & DCDB complete with all accessories as per tender specification	Set	1		
	Sub-Total C(III) =				
	Total Amount C(I+II+III) =				

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TOTAL AMOUNT FOR CONSTRUCTION OF 33KV, 33/11KV OUTDOOR SUBSTATION AT DIKRONG POWER HOUSE, RHEP,HOZ.

SL. NO	SCHEDULE	AMOUNT (₹)
1	SECTION-(A) = SCHEDULE OF PRICES FOR SUPPLY ITEMS,	
2	SECTION-(B) = SCHEDULE OF PRICES FOR FOUNDATION & CIVIL WORKS,	
3	SECTION-(C) = SCHEDULE OF PRICES FOR ERECTION, TESTING AND COMMISSIONING,	
	TOTAL AMOUNT = (A) +(B)+(C) =	

RUPEES(_____) ONLY.