

BREAK-UP OF MANDATORY SPARES

Sl.No.	Description	Unit	Quantity	
			Pusauli	Dehri
I	220/132kV Transformer (150MVA)			
1	245kV Bushing with metal parts & gaskets	No.	1	0
2	145kV Bushing with metal parts & gaskets	Nos.	1	0
3	Tertiary Bushing with metal parts & gaskets	Nos.	1	0
4	Neutral bushing with metal parts & gaskets	Nos.	1	0
5	Buchholz relay complete with float & contacts (Main tank)	Nos.	1	0
6	Local W.T.I. With contacts	Nos.	1	0
7	Remote W.T.I. with sensing device and matching unit	Nos.	1	0
8	Oil temp. indicator with contacts & sensing device	Nos.	1	0
9	Magnetic oil level gauge	Nos.	1	0
10	Pressure relief device	Nos.	1	0
11	Cooler fan with motor	Nos.	1	0
12	Set of valves (Set consisting of complete replacement for one Transformer)	Set	1	0
13	Fuses and Indicating lamps (Set consisting of complete replacement for one Transformer)	Set	1	0
14	Aux. Trf. For control of cooler control cabinet & OLTC(if applicable) (Set consisting of complete replacement for one transformer)	Set	1	0
15	Starters, contactors, switches & relays for electrical control panels (one no. of each type)	Set	1	0
16	Silica gel Breather assembly for conservator & OLTC	Nos.	1	0
17	Gas collecting device	Nos.	1	0
18	Remote tap position indicator	Nos.	1	0
19	Oil surge relay for OLTC	Nos.	1	0
20	Oil flow indicators with contacts	Nos.	1	0
21	Oil cooler pump with motor	Nos.	1	0
II-A	220kV SF6 Circuit Breaker			
1				
1	One pole complete with column and interrupter with operating mechanism and mechanism box but without support structure	Nos.	1	1
2	SF6 Gas	Kg	50	50
3	Trip coils with resistor	Nos.	3	3
4	Closing coils with resistor	Nos.	3	3

5	Molecular filter for SF6 Circuit for 1 pole of CB	Nos.	3	3
6	Density/Pressure monitor for SF6 circuit for 1 pole of CB	Nos.	1	1
7	Corona rings (1 no. of each type), if applicable	Set	1	1
8	Relays, power contactors, switch fuse units, limit switches, push buttons, timers & MCB (1 no. of each type)	Set	1	1
9	Closing Coil Assembly/valve	Nos.	1	1
10	Trip Coil Assembly/valve	Nos.	1	1
11	Set of control valves (1 No. of each type)	Set	1	1
12	Pressure switches (1 no. of each type)	Set	1	1
13	Pressure gauges and coupling devices (1 no. of each type)	Set	1	1
14	Aux. Switch assembly	Nos.	1	1
15	Operation counter	Nos.	1	1
16	Micro Filter set, if applicable (for one complete CB)	Set	1	1
17	Micro switches, if applicable (for 1 no. aux. Contact assembly)	Set	1	1
18	All types of coupling for SF6 gas (1 no. of each type)	Set	1	1
19	Pipe length (Copper & Steel) for one complete CB	Set	1	1
	Spring operating mechanism (If applicable)			
1	closing dashpot	No.	1	1
2	opening dashpot	No.	1	1
3	closing catchgear	No.	1	1
4	opening catchgear	No.	1	1
II-B	132kV SF6 Circuit Breaker			
1				
1	One pole complete with column and interrupter with operating mechanism and mechanism box but without support structure	Nos.	1	0
2	SF6 Gas	Kg	25	0
3	Trip coils with resistor	Nos.	3	0
4	Closing coils with resistor	Nos.	3	0
5	Molecular filter for SF6 Circuit for 1 pole of CB	Nos.	3	0
6	Density/Pressure monitor for SF6 circuit for 1 pole of CB	Nos.	1	0
7	Corona rings (1 no. of each type), if applicable	Set	1	0

8	Relays, power contactors, switch fuse units, limit switches, push buttons, timers & MCB (1 no. of each type)	Set	1	0
9	Closing Coil Assembly/valve	Nos.	1	0
10	Trip Coil Assembly/valve	Nos.	1	0
11	Set of control valves (1 No. of each type)	Set	1	0
12	Pressure switches (1 no. of each type)	Set	1	0
13	Pressure gauges and coupling devices (1 no. of each type)	Set	1	0
14	Aux. Switch assembly	Nos.	1	0
15	Operation counter	Nos.	1	0
16	Micro Filter set, if applicable (for one complete CB)	Set	1	0
17	Micro switches, if applicable (for 1 no. aux. Contact assembly)	Set	1	0
18	All types of coupling for SF6 gas (1 no. of each type)	Set	1	0
19	Pipe length (Copper & Steel) for one complete CB	Set	1	0
	Spring operating mechanism			
1	closing dashpot	No.	1	0
2	opening dashpot	No.	1	0
3	closing catchgear	No.	1	0
4	opening catchgear	No.	1	0
III-A	220kV Isolators			
1	One complete pole with support insulator alongwith operating mechanism for isolator(1600A) and earth switch but excluding support structure	Nos.	1	1
2	Copper contact fingers for female & male contacts (for one complete isolator(1600A))	Set	1	1
3	Copper contact fingers for female & male contacts (for one complete isolator(2500A))	Set	1*	1*
3	Relays, power contactors, MCBs, switch fuses, push buttons and resistors, timers and key interlock, Limit switch, Aux. switch for electrical control circuit as per approved schematic (1 no. of each type)	Set	1	1
4	Motor with bevel gear assembly 1 no. of each type)	Set	1	
5	Corona shield rings, if applicable (1 no. of each type)	Set	2	2
III-B	132kV Isolators			

1	One complete pole with support insulator alongwith operating mechanism for isolator(1250A) and earth switch but excluding support structure	Nos.	1	0
2	Copper contact fingers for female & male contacts (for one complete isolator(1250A))	Set	1	0
3	Copper contact fingers for female & male contacts (for one complete isolator(1600A)) .	Set	1*	0
4	Relays, power contactors, MCBs, switch fuses, push buttons and resistors, timers and key interlock, Limit switch, Aux. switch for electrical control circuit as per approved schematic (1 no. of each type)	Set	1	0
5	Motor with bevel gear assembly 1 no. of each type)	Set	1	0
6	Corona shield rings, if applicable (1 no. of each type)	Set	2	0
IV	220kV CT, 1600A, 120% extended current rating	Nos.	1	1
V	220kV CT, 1600A, 150% extended current rating	Nos.	1	0
VI	132kV CT, 800A, 120% extended current rating	Nos.	1	0
VII	220 kV CVT, 4400pF	Nos.	1	1
VIII	132 kV CVT, 4400pF	Nos.	1	0
IX	216 kV Surge Arrester	Nos.	1	1
X	120 kV Surge Arrester	Nos.	1	0
XI	Control, Relay and Protection panels			
1	Control panel Equipment spares			
1	Ammeter with Transducer (1no. of each type)	Set	1	1
2	Wattmeter with Transducer (1no. of each type)	Set	1	1
3	Varmeter with Transducer (1no. of each type)	Set	1	1
4	Voltmeter with Transducer (1no. of each type)	Set	1	1
5	Voltmeter selector switch	Nos.	1	1
6	Control switch for Breaker (1no. of each type)	Set	1	1
7	Control switch for Isolator	Nos.	1	1
8	Semaphore for earth switch	Nos.	1	1
9	Red/Green/White indicating lamp (with complete assembly) (1 no. for each colour)	Set	15	15
10	Annunciation windows with necessary annunciation relay	Nos.	6	6
11	Push button	Nos.	3	3
12	Trip transfer switch (if applicable)	Nos.	1	1
13	Synchronising socket	Nos.	1	1
14	Synchronising selector switch (if applicable)	Nos.	1	1

2	Breaker Relay panel spares			
1	Breaker failure relay	Nos.	1	1
2	Trip circuit supervision relay	Nos.	2	2
3	Self reset trip relay (1 no. of each type)	Set	1	1
4	Hand reset trip relay (1 no. of each type)	Set	1	1
5	Timer relay (1 no. of each type)	Set	1	1
6	DC Supervision relay (1 no. of each type)	Set	1	1
7	Flag relays (1 no. of each type)	Set	1	1
8	Auxiliary relays (1 no. of each type)	Set	1	1
3	Line Protection Panel Equipment spares			
1	Main-I Numerical distance relay (excluding external trip relay)	Nos.	1	1
2	Main-II Numerical distance relay (excluding external trip relay)	Nos.	1*	1*
3	Directional Back-up protection relay with 3 O/C and 1 E/F element	Set	1	1
4	Under frequency relay	No.	1	1
5	Energy meter	Nos.	1	1
4	Transformer Protection Panel spares			
1	Transformer differential protection relay including all aux. CTs	Nos.	1	0
2	Restricted earth fault protection relay with non-linear resistor	Nos.	1	0
3	Directional Back-up protection relay with 3 O/C and 1 E/F element	Set	1	0
4	Over Fluxing relay, if stand alone	Nos.	1	0
5	Over load relay with timer, if stand alone	Nos.	1	0
XII	PLCC Equipments			
1	Coupling Device (Ph to Ph) without base plate	No.	1	1
2	Telephone 4 wire with necessary connecting cable	Nos.	1	1
3	Co-axial connector	Nos.	10	10
4	Set of prints for carrier terminal (1 no. of each type)	Set	1	1
5	Set of prints for protection coupler (1 no. of each type)	Set	1	1
6	Set of prints for EPAX (24/8) (1 no. of each type)	Set	1	1
XIII	LT Switchgear			
1	Relays (1 no. of each type)	Set	1	0
2	CT, PT (1 no. each type)	Set	1	0

3	Switch, Push buttons, meters (1 no. of each type)	Set	1	0
4	TPN Switch/MCCB/MCB (1 No. of each rating)	Set	1	0
XIV	Batteries		250V, 48V	
1	Cells	Nos.	10 5	0
2	Inter cell connectors (with bolt & nuts)	Nos.	10 10	0
XV	Battery Charger		250V, 48V	
1	Set of control cards (All PCB cards)	Set	1 1	0
2	Set of relays (1 no. of each type)	Set	1 1	0
3	Set of contactor (1 no.of each type)	Set	1	0
4	Micro switches (if applicable)	Set	1	0
5	Filter capacitor	Nos.	1 1	0
6	Three phase full wave bridge rectifier (Thyristor/diode)	Nos.	1 1	0
7	Set of wound resistor (1 no. of each type), if applicable	Set	1 1	0
8	Set of switches (1 no. of each type)	Set	1 1	0
9	Potentiometer	Nos.	1 1	0
10	Fuses of thyristor with indicator	Nos.	6 6	0
XVI	DG Set			
1	Set of filters (Lub oil/fuel/air)	Set	1	0
2	Solenoid Coil assembly	Nos.	1	0
3	Self starter assembly with clutch engaging and disengaging arrangements complete with motor	Nos.	1	0
4	Lube oil pressure safety control	Nos.	1	0
5	High water temp. safety control	Nos.	1	0
6	Diode	Nos.	2	0
XVII	L.T.Transformer (630kVA)			
1	All Bushings with metal parts (1 no. of each voltage rating)	Set	1	0
2	OTI & WTI with sensing device (1 no. each)	Set	1	0
3	Diaphragm for pressure relief vent	Nos.	1	0
4	Tap changer contacts (for one complete LT transformer)	Set	1	0
5	Set of valves (1 no. of each type)	Set	1	0
6	Buchholz relay	Nos.	1	0
7	Silicagel container	Nos.	2	0
XVIII	Fire Fighting System			
1	HVW Pumps			
1	Shaft Sleeves (for one pump)	Set	1	0

2	Gland Packing (for one pump)	Set	1	0
2	Diesel engine drive			
1	Self Starter assembly	No.	1	0
2	Lubricating oil filter elements (for one engine)	Set	1	0
3	Jockey Pumps			
1	Shaft Sleeves (for one pump)	Set	1	0
2	Gland Packing (for one pump)	Set	1	0
4	General			
1	Quartzoid bulb detector, % of total population	No.	10	0
2	Projectors (Nozzles), % of total population	No.	10	0
3	Smoke detectors			
a)	Photo electric type, % of total population	No.	10	0
b)	Ionisation type, % of total population	No.	10	0
4	Heat detectors, % of total population	No.	10	0
5	Level switch	No.	1	0
6	Pressure switch	No.	1	0
7	Bronze pipe fitted with nozzle and guide coupling	No.	2	0
8	Hydrant valve	No.	1	0
9	Isolation valves, no. for each type	Set	1	0
10	Annunciation printed circuits (for solid state annunciation), no. for each type	Set	1	0
XIX	Erection Hardware Items	Lot	1	1
5% spares of the actual quantities for Insulator string & hardwares, clamps & connectors (including equipment connectors), spacers, corona bell, welding sleeves;				