

Project : 726.6MW combined cycle power project Pallatana Tripura -400/132kV Substation		
Customer :ONGC-Tripura Power company private Ltd.		
		Rev.00
Mandatory Spare		
S.No.	Description	Quantity
A	125 MVA,400/132/33kV Autotransformer	
1	400kV Bushing with parts & gaskets	2 nos.
2	Local and Remote Winding temp. indicators with contacts	1 no.
3	Oil Temperature Indicator with contacts	1 no.
4	Oil flow indicators with contacts	1 no.
5	Pressure Relief Device	1 no.
6	Magnetic Oil level gauge	1 no.
7	Cooler pump with motor /cooling fan (as applicable)fan with motor	2 nos.
8	Buchholz relays complete	1 no.
9	LV and IV bushing with metal parts & gaskets	2 nos.
10	Neutral bushing with metal parts	1 no.
11	Sets of valves	1 set(complete replacement for one transformer)
12	Tap changer diverter switch contacts	DO
13	Expansion joint	DO
14	Oil surge relay for OLTC	1 no.
B	Circuit Breaker (420kV and 132kV)	
1.	One pole of CB complete support structure and operating mechanism box etc	1 no. each type
2.	Relays, Power contactors & switch fuses for electrical control circuit(consisting of one no. each of all types)	1 set
3	Set of gasket , rings & seals	1 set
4.	Molecular filter for SF6 circuit	1 set
5.	Insulating nozzles	1 set
6.	Support insulator stacks	1 set
7.	Tripping and closing coil	4 nos. each type
8.	Density monitoring system for circuit breaker	1 set
9.	Spring charging motors (if applicable)	2 nos. each type
C	Isolator (400kV and 132kV)	
1	One complete Pole of Isolator with 2 E/S alongwith operating mechanisms etc.	1 number each type
2	Copper contact fingers for female contacts	2 sets
3	Relays, power contactors, switch fuses for electrical control circuit (one nos of each type and rating)	1 set
4	Rotary bearing for Isolator	1 set
5.	Limit switch and aux. switch	1 set
D	Surge Arrester(360kV and 120kV)	
1	Surge Arrester complete in all respects with surge counter etc.	01No. each type
2	Surge counters monitor	01No. each type

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3	Terminal connector for above (a)	01No. each type
E	Control and Relay panel	
1	Protective relay	
1.1	EHV line protection	
(i)	Main -1 protection	1 set
(ii)	Main -2 protection	1 set
(iii)	Other protection relay	01No. each type
1.2	EHV Bus bar protection	01No. each type relay
1.3	Breaker failure relay	03 Nos. single pole relay
1.4	Trip relay	2 nos.
1.5	Aux. relay	2 nos of each type
1.6	Contact multiplication relay	2 nos.
1.7	trip circuit supervision relay	2 nos.
1.8	Event logger module of each type and rating	01 each
1.9	Interconnecting transformer	one relay of each type
2	Meters and Recorders	
2.1	Voltmeter (1 no. each for different range)	1 no.
2.2	Ammeter (1 no. each for different range)	1 no.
2.3	MW meter (1 no. each for different range)	1 no.
2.4	MVAR (1 no. each for different range)	1 no.
2.5	MW transducer	2 nos.
2.6	MVAR Transducer	2 nos.
2.7	MWH meter	2 nos of each type
2.8	MVARH meter	01No. each type and accuracy
2.9	frequency meter	2 nos.
2.10	Synchroscope	1 no.
2.11	MW Transducer (Summation)	1 no.
2.12	MVAR Transducer (Summation)	1 no.
2,13	Aux. PT associated with generator unit synchronisation (single phase)	01 No. of each type
3	Other	
3.1	Control switches	01 no. each type
3.2	Semaphore indicators	01 no. each type and rating
3.3	Push buttons	01 no. each type and rating
3.4	Lamps and indicators	01 no. each type
3.5	Lamps complete with fixtures	03 nos . each type and rating
3.6	Annunciation module	01 no. each type
4	Sub -Station Automation system for 400kV & 132kV Switchyard	
4.1	Bay control unit(complete with all components)	2 nos.
4.2	Interface relays used in the system	10% of each type of total population (min. 1 no.)
4.3	Operator work station (OWS) alongwith software , monitors , mouse, keyboards etc.	1 no.
4.4	Complete server(if included in main package)	1 no.
4.5	Complete programming station alongwith software , monitor etc.	1 no.
4.6	Hard discs for OWS	1 no.

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4.7	Hard discs for servers(if supplied)	1 no.
4.8	Lamps /LED used in the system	100% of total quantity
4.9	Power supply modules used in the system	2 nos of each type
4.10	Fuses	100% o each type and rating
4.11	terminal blocks	5 nos. of each type make , modele & rating
4.12	Interface cables containing standard length of each type odf cable and its connectors for each type of peripheral	2 sets
4.13	MCBs	50% of each type make , model used in the system
F	LT Switchgear	
1	Circuit breaker components (set means replacement of for each breaker rating)	
(i)	Spring charging motor	4 nos.
(ii)	Primary disconnect (power complete sets of each type)	6 sets
(iii)	Auxiliary contact set	6 sets
(iv)	Limit switch	6 nos.
(v)	Arc chutes for each rating	2 nos.
(vi)	Moving contact for each ratings	3 sets
(vii)	Fixed contact for each ratings	3 sets
(viii)	Arcing contact of each ratings	3 sets
(ix)	Closing coil of each type	6 nos.
(x)	Tripping coil of each type	6 nos.
(xi)	Bus bar moulded support insulator	5% of total installed
2	Instruments Transformer	
(i)	Current Transformers	2 nos. of each type and rating
(ii)	Voltage Transformers	2 nos. of each type and rating
3	Control supply Transformer	1 no of each type and rating
4	Meters	
(i)	Ammeters	2 nos. of each type and range or 10% whichever is more

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S.No.	Description	Quantity
(ii)	Voltmeters	2 nos. or 5% of each type and range , whichever is more
5	Relays (protection aux. relays interposing relays & timers etc)	1 number or 5% of each type and rating , whichever is more
6	Contactors	
(i)	Contactors and auxiliary contactors	2 nos. or 10% of each rating , & type whichever is more
(ii)	Coils for the above contactors & auxiliary contactors	5 nos. each for the above (i)
(iii)	Main and auxiliary contacts sets for the above contactors and auxiliary contactors	5 set each for the above (i)
7	Control isolating & selectors switches	5% of each type and rating
8	Push buttons of various colours	5 number of each type and colour
9	Maintenance tools and accessories for maintenance(bidder to list maintenance tools and accessories)	2 sets
10	Terminal block	10% of total installed
11	Carbon brushes for spring charging motor	2 set of each type
12	Spring charging motors	2 nos. of each type
G	Battery Charger(48V and 220V)	
1	SCRs	4 nos
2	Fuses	2 nos of each type
3	Blocking diode	6 Nos
4	Potentiometer	2sets
5	Electronic cards(with all component mounted)	1 set of each type and rating
H	LT Transformer (400kVA)	
1	Bushing with metal parts & gaskets	
	7.2 kV	3 Nos. of each type
	1.1kV	3 Nos. of each type
2	Pressure relief device(if applicable)	1 no.
3	Diaphragm for explosion vent	1 no.
4	Buchholz relay/sudden pressure relay (as applicable)	1 no.
5	Contact of tap changer	1 set of each type
I	Current Transformers (400kV and 132kV)	
a	Current Transformers complete in all respect	1 no each type
b	Terminal connector for above (a)	1 no each type
J	CVT (400kV)	
a	CVT complete in all respect	1 no each type
b	Terminal connector for above (a)	1 no each type
Remarks-	(1)For CT , CVT and Surge Arrestor number means complete replacement of one pole /phase of the equipment (2) Set means complete replacement for one circuit breaker of each type	
Notes:		
1	Loading / Unloading, verification, handling, shifting to & from stores, proper storage,assembly and handing over to customer ONLY are included in the scope for the quantities mentioned under 'Mandatory Spare.	