

ANNEXURE-III
BREAK-UP OF MANDATORY SPARES_Rev 01

Mandatory Spares Break up for Nagarjunasagar Substation

A)	420kV Circuit Breaker (420KV, 3150A, 63KA CB W/O CR)		
SI.NO.	LongText	Unit	Quantity
1	Aux. Switch/contact assembly for 420kV SF6 Circuit Breaker	SET	1
2	Density/Pressure monitoring system for 420kV Circuit Breaker	EA	1
3	Relays, Power contactors, SFU, limit switches, push buttons, timers & MCB etc. (1 No of each type) for 420kV Circuit Breaker	SET	1
4	Corona rings (1 No of each type) for 420 kV Circuit Breaker	SET	1
5	Molecular filter for 420kV SF6 Circuit Breaker	EA	2
6	Terminal pad for 420kV SF6 Circuit Breaker	EA	2
7	Closing coil with resistor for 420kV SF6 Circuit Breaker	EA	1
8	Trip coil with resistor for 420kV SF6 Circuit Breaker	SET	2
9	Rubber gasket, O rings and seals for SF6 gas (complete replacement for one 420kV SF6 Circuit Breaker)	SET	1
10	COMPLETE SPRING OPERATING MECHANISM FOR 420 KV SF6 CIRCUIT BREAKER	EA	1
11	One Pole of circuit breaker with/without closing resistor, grading capacitor complete with pole column and interrupter with mechanism box and operating mechanism but without support structure	SET	1
12	SF6 Gas	KG	40
B)	420kV Isolator (420KV, 3150A, 63KA 3PH DB ISOLATOR+1E/S)		
SI.NO.	LongText	Unit	Quantity
1	Corona shield rings for 420kV DB Isolator for 1-pole	SET	3

2	Limit switch for 420kV Isolator	SET	2
3	Open / Close contactor assembly, timers, key interlock push button switch & auxiliary switches for 420kV Isolator	SET	1
4	Terminal pads & connectors for 420kV Isolator	EA	3
5	One Complete Pole of Double Break Isolator including support Insulator with 1 E/s (excluding structure) with Motor Operating Mechanism for 420kV, 3150A, 63kA main Isolator and one E/S	EA	1
6	Copper contact fingers for female & male contacts 420KV DOUBLE BREAK ISOLATOR	SET	2
C)	336kV Surge Arrester		
SI.NO.	LongText	Unit	Quantity
1	Surge Arrester, 1-PH, 336kV	EA	1
2	surge Monitor-1ph	EA	5
D)	420kV Current Transformer (420KV, 3000A, 63KA, 1-PH, CT-120% RATING)		
SI.NO.	LongText	Unit	Quantity
1	420 kV, 3000A, 63KA, 1-Phase Current Transformer with 120% extended current rating	EA	1
E)	420kV Capacitive Voltage Transformer (420KV, 4400PF, 1PH CVT)		
SI.NO.	LongText	Unit	Quantity
1	420 kV, 4400pf Capacitive Voltage Transformer (1- Phase)	EA	1
F)	Relay & Protection Panels		
SI.NO.	LongText	Unit	Quantity
1	Transformer differential protection relay	EA	1
2	Restricted earth fault relay type with non-linear resistor and associated software in case of numerical relay	EA	1
3	Line distance protection relay of each make	SET	1

4	NUMERICAL BACKUP IMPEDANCE RELAY WITH IEC61850 PROTOCOL AS PER TECHNICAL SPECIFICATION	EA	1
5	Numerical LBB relay	EA	1
6	Control switching device - 420KV CB	EA	1
G)	Substation Automation System (SCADA)		
SI.NO.	LongText	Unit	Quantity
1	Bay control unit (IED) of each type	EA	1
2	Ethernet switch of each type	SET	1
Mandatory Spares Break up for Raichure Substation			
A)	765kV Circuit Breaker (765KV, 3150A, 50KA CB)		
SI.NO.	LongText	Unit	Quantity
1	Complete Pole (1-Phase) of circuit Breaker with closing resistor, grading capacitor (if applicable), Pole column, interrupter, operating mechanism, marshaling box, corona ring (if applicable) but without support structure.	SET	1
2	Grading Capacitor (if applicable)	EA	2
3	Rubber Gasket "O Ring" and seals (complete replacement for 1-phase of 765kV breaker)	SET	1
4	Trip coils with resistor (as applicable)	SET	2
5	Closing coils with resistor (as applicable)	SET	2
6	Terminal Pads (One No of each type) with connector	SET	2
7	Molecular filter	EA	2
8	Corona Rings (if applicable) (complete replacement for 1-pole of 765kV breaker)	SET	1
9	Relay, Power contactors, switch fuse units, limit switches fuse units, limit switches, push buttons, timers & MCB etc (1No. of each type/rating)	SET	1
10	Pressure Switch of each type	SET	1
11	Auxiliary Switch assembly	SET	1
12	Operation Counter	NO	1
13	Complete Drive Mechanism	SET	1

14	SF6 Gas	KG	Equivalent to 2 poles
B)	765kV Isolator (765KV,3150A, 50KA VKDB ISOLATOR+1E/S)		
SI.NO.	LongText	Unit	Quantity
1	One Complete Pole including support insulator, earth switch, Motor operating mechanism (MOM) & EOM but excluding support structure	SET	1
2	Copper contact fingers for male & female contact (complete replacement for 1 ph. Of Isolator)	SET	2
3	Open/Close contactor assembly, timers, key interlock push button switch & Auxiliary switches (1No. of each type)	SET	1
4	Limit Switch	SET	2
5	Terminal Pads with connectors (1 of each type)	EA	3
6	Corona Shield rings (if applicable) (1No. of each type)	SET	2
C)	624kV Surge Arrester		
SI.NO.	LongText	Unit	Quantity
1	Surge Arrester,1-PH, 624kV	EA	1
2	surge Monitor-1ph	EA	5
D)	765kV Current Transformer (765kV,3000A, 50Ka,1-Ph CT-120% Rating)		
SI.NO.	LongText	Unit	Quantity
1	420 kV, 3000A, 63KA, 1-Phase CurrentTransformer with 120% extended currentrating	EA	1
E)	765kV Capacitive Voltage Transformer (765KV, 8800PF, 1PH CVT)		
SI.NO.	LongText	Unit	Quantity
1	420 kV, 4400pf Capacitive Voltage Transformer (1- Phase)	EA	1
F)	Relay & Protection Panels		

SI.NO.	LongText	Unit	Quantity
1	Numerical distance relay (Main I)	EA	1
2	Numerical distance relay (Main II)	EA	1
3	CONTROLLED SWITCHING DEVICE-765KV CB	EA	1
4	Numerical LBB relay	EA	1
G)	Substation Automation System (SCADA)		
SI.NO.	LongText	Unit	Quantity
1	Bay control unit (IED) of each type	EA	1
2	Ethernet switch of each type	SET	1