

S.No.	Description	Unit Quantit (Nos)	Total Quantity (Nos)
A	220kV GIS Incomer feeder	1	2
1	Annunciation window	6	12
2	Voltmeter	1	2
3	Voltmeter Selector switch	1	2
4	Ammeter	1	2
5	Ammeter Selector switch	1	2
6	LED based Semaphor indicator for 220KV isolators & earth switches and CB	8	16
B	220kV GIS Bus-coupler	1	1
1	Annunciation window	6	6
2	Ammeter	1	1
3	Ammeter Selector switch	1	1
4	LED based Semaphor indicator for 220KV isolators & earth switches and CB	5	5
C	220kV GIS Outgoing feeder	1	4
1	Annunciation window	6	24
2	Ammeter	1	4
3	Ammeter Selector switch	1	4
4	LED based Semaphor indicator for 220KV isolators & earth switches and CB	7	28
D	220kV GIS Bus	1	2
1	Annunciation window	2	4
2	Voltmeter	1	2
3	Voltmeter Selector switch	1	2
4	Voltage and Freq recorder with voltage & frequency transducers	1	2
E	Generator	1	2
1	Annunciation window	72	144
2	Generator Voltmeter	1	2
3	Voltmeter Selector switch	1	2
4	Stator current Ammeter	3	6
5	MW meter	1	2
6	MVAR meter	1	2
7	MVA meter	1	2
8	PF meter	1	2
9	Frequency meter	1	2
10	Generator field current meter(Input: Shunt 0-60mV /20Amp)	1	2
11	Exciter field current meter (input 4-20mA)	1	2
12	Exciter field voltmeter (Input 4-20mA)	1	2
13	Null voltmeter (input 4-12-20mA)	1	2
14	Trivector meter (with RS484port/pulse o/p) 0.2s class ABT based tariff meter	1	2
15	Test Terminal Block for Trivector meter	1	2
16	Recorders(6 Ch.) for MW,voltage and frequency with transducers	1	2
17	Voltage transducer dual o/p	4	8
18	Current transducer dual o/p	3	6
19	Frequency transducer dual o/p	2	4
20	PF transducer dual o/p	1	2
21	MW transducer dual o/p	5	10
22	MVAR transducer dual o/p	3	6
23	Push Buttons	24	48

S.No.	Description	Unit Quantit (Nos)	Total Quantity (Nos)
24	Discrepancy switches (Illuminated type) for breaker control switches exciter field breaker control and gen. circuit breaker control	1	2
25	Emergency PB with flap (Lockable)	2	4
26	Signal Lamps	45	90
F	Generator Transformer	1	2
1	Annunciation window	12	24
2	Indicating Lamps	5	10
G	Grid/Power Transformer	1	8
1	Annunciation window	12	96
2	Digital Tap Position Indicator	1	8
3	Push Buttons	2	16
4	Indicating Lamps	5	40
H	66kV GIS Generator Incomer Feeder	1	2
1	Power monitor/multifunctional meter	1	2
2	Annunciation window	6	12
3	Voltmeter	1	2
4	Voltmeter Selector switch	1	2
5	Ammeter	1	2
6	Ammeter Selector switch	1	2
7	LED based Semaphor indicator for 66kV isolators & earth switches and CB	3	6
8	Undervoltage relay	2	4
9	Aux relays shall be suitable for make/break/continuous carry rating of 6A at 110V DC for brk contact multiplication	1	2
10	Aux. contactors for brk close & open command	2	4
11	Discrepancy switches (Illuminated type) for breaker control	1	2
12	Off/Dead Bus/Manual Synch/Auto Synch selector Switch	1	2
13	Indicating Lamps	3	6
14	Synchronization sockets	1	2
I	66kV GIS Grid Incomer Feeder	1	3
1	Power monitor/multifunctional meter	1	3
2	Annunciation window	6	18
3	Voltmeter	1	3
4	Voltmeter Selector switch	1	3
5	Ammeter	1	3
6	Ammeter Selector switch	1	3
7	LED based Semaphor indicator for 66kV isolators & earth switches and CB	3	9
8	Undervoltage relay	2	6
9	Aux relays shall be suitable for make/break/continuous carry rating of 6A at 110V DC for brk contact multiplication	2	6
10	Aux. contactors for brk close & open command	2	6
11	Discrepancy switches (Illuminated type) for breaker control	1	3
12	Off/Dead Bus/Manual Synch/Auto Synch selector Switch	1	3
13	Indicating Lamps	3	9
14	Synchronization sockets	1	3
J	66kV GIS Bus-coupler	1	4
1	Annunciation window	6	24
2	Ammeter	1	4
3	Ammeter Selector switch	1	4
4	LED based Semaphor indicator for 66kV isolators & earth switches and CB	4	16

S.No.	Description	Unit Quantit (Nos)	Total Quantity (Nos)
5	Aux relays shall be suitable for make/break/continuous carry rating of 6A at 110V DC for brk contact multiplication	2	8
6	Aux. contactors for brk close & open command	2	8
7	Discrepancy switches (Illuminated type) for breaker control	1	4
8	Off/Dead Bus/Manual Synch/Auto Synch selector Switch	1	4
9	Indicating Lamps	3	12
10	Synchronization sockets	1	4

S.No.	Description	Unit Quantit (Nos)	Total Quantity (Nos)
K	66kV GIS Outgoing Feeder	1	18
1	Power monitor/multifunctional meter	1	18
2	Annunciation window	6	108
3	Ammeter	1	18
4	Ammeter Selector switch	1	18
5	LED based Semaphor indicator for 66kV isolators & earth switches and CB	3	54
6	Undervoltage relay	2	36
7	Aux relays shall be suitable for make/break/continuous carry rating of 6A at 110V DC for brk contact multiplication	2	36
8	Aux. contactors for brk close & open command	2	36
9	Discrepancy switches (Illuminated type) for breaker control	1	18
10	Indicating Lamps	3	54
L	66kV GIS Bus	1	4
1	Annunciation window	2	8
2	Voltmeter	1	4
3	Voltmeter Selector switch	1	4
4	Voltage and Freq recorder with voltage & frequency transducers	1	4
M	33kV GIS Grid Incomer Feeder	1	2
1	Power monitor/multifunctional meter	1	2
2	Annunciation window	6	12
3	Voltmeter	1	2
4	Voltmeter Selector switch	1	2
5	Ammeter	1	2
6	Ammeter Selector switch	1	2
7	LED based Semaphor indicator for 33kV isolators & earth switches and CB	2	4
8	Undervoltage relay	2	4
9	Aux relays shall be suitable for make/break/continuous carry rating of 6A at 110V DC for brk contact multiplication	2	4
10	Aux. contactors for brk close & open command	2	4
11	Discrepancy switches (Illuminated type) for breaker control	1	2
12	Off/Dead Bus/Manual Synch/Auto Synch selector Switch	1	2
13	Indicating Lamps	3	6
N	33kV GIS Buscoupler	1	1
1	Annunciation window	6	6
2	Ammeter	1	1
3	Ammeter Selector switch	1	1
4	LED based Semaphor indicator for 33kV isolators & earth switches and CB	4	4
5	Aux relays shall be suitable for make/break/continuous carry rating of 6A at 110V DC for brk contact multiplication	2	2
6	Aux. contactors for brk close & open command	2	2
7	Discrepancy switches (Illuminated type) for breaker control	1	1
8	Selector switch 4pos.	1	1
9	Indicating Lamps	3	3
O	33kV GIS Outgoing Feeder	1	12
1	Power monitor/multifunctional meter	1	12
2	Annunciation window	6	72
3	Ammeter	1	12
4	Ammeter Selector switch	1	12

S.No.	Description	Unit Quantit (Nos)	Total Quantity (Nos)
5	LED based Semaphor indicator for 33kV isolators & earth switches and CB	3	36
6	Undervoltage relay	2	24
7	Aux relays shall be suitable for make/break/continuous carry rating of 6A at 110V DC for brk contact multiplication	2	24
8	Aux. contactors for brk close & open command	2	24
9	Discrepancy switches (Illuminated type) for breaker control	1	12
10	Indicating Lamps	3	36
P	33kV GIS Bus	1	2
1	Annunciation window	2	2
2	Voltmeter	1	2
3	Voltmeter Selector switch	1	2
4	Voltage and Freq recorder with voltage & frequency transducers	1	2
Q	11kV Switchboard Feeder and DG isolating breaker	1	14
1	Annunciation window	6	84
2	Voltmeter	-	10
3	Voltmeter Selector switch	-	10
4	Ammeter	-	10
5	Ammeter Selector switch	-	10
6	Undervoltage relay	2	28
7	Aux relays shall be suitable for make/break/continuous carry rating of 6A at 110V DC for brk contact multiplication	2	28
8	Aux. contactors for brk close & open command	2	28
9	Discrepancy switches (Illuminated type) for breaker control	1	14
10	Off/Dead Bus/Manual Synch/Auto Synch selector Switch	-	6
11	Indicating Lamps	3	42
12	Synchronization sockets	-	6
R	11kV Switchboard Buscoupler	1	5
1	Annunciation window	6	30
2	Ammeter	1	5
3	Ammeter Selector switch	1	5
4	Aux relays shall be suitable for make/break/continuous carry rating of 6A at 110V DC for brk contact multiplication	2	10
5	Aux. contactors for brk close & open command	2	10
6	Discrepancy switches (Illuminated type) for breaker control	1	5
7	Selector switch 4pos.		2
8	Indicating Lamps	8	40
9	Synchronization sockets	-	2
S	11kV Switchgear Bus	1	8
1	Annunciation window	2	16
2	Voltmeter	1	8
3	Voltmeter Selector switch	1	8
4	Voltage and Freq recorder with voltage & frequency transducers	1	8
T	COMMON FOR SCAP		
1	Push Buttons	-	20
2	DC fail monitoring relay for source-1 and source-2 Type:VAA11	-	4
3	Electronic Hooter	-	2
4	Electronic Bell (for DC fail)	-	2
5	Digital Clock	-	1
6	Flasher Relay	-	2

S.No.	Description	Unit Quantit (Nos)	Total Quantity (Nos)
7	2 pos selector siwtch	-	6
8	3 pos .selector switch	-	20
9	4pos. Selector switch	-	6
U	Synchronization with trolley		1
1	Communicable type auto synchroniser (M/s Areva/ABB model)	-	1
2	Dual frequency meter (Analog)	-	1
3	Dual Voltmeter (Analog)	-	1
4	Check sync relay(Type SKE:11,Preset 10 degree)	-	1
5	Guard relay	-	1
6	synchroscope on/off switch	-	1
7	Microprocessor based synchroscope	-	1
8	phase reversing transformer	-	2
9	Isolation transformer	-	2
10	Push Buttons	-	4
11	Signal Lamps	-	3
12	Multiplication contactors	-	3
13	Auto/Manual/Off Selector switch	-	1
14	Synchronization sockets	-	2
15	Cable for Synchronising trolley (meters)	-	5
V	MISCELLANEOUS		
1	Aux relays shall be suitable for make/break/continuous carry rating of 6A at 110V DC for brk contact multiplication	-	72
2	Multiplication contactors	-	72
3	Cable Lugs - 2.5 Sqmm	-	15000
4	Cable glands for 2Px2.5 sqmm cable	-	300
5	Cable glands for 3Px2.5 sqmm cable	-	700
6	Cable glands for 4Px2.5 sqmm cable	-	700
7	Cable glands for 6Px2.5 sqmm cable	-	50
8	Cable glands for 8Px2.5 sqmm cable	-	50
9	Cable glands for 10Px2.5 sqmm cable	-	300
10	Cable glands for 12Px2.5 sqmm cable	-	200
11	SCAP Panels Structure	-	18
12	Mosiac tiles	-	4500
14	Trolley panel Structure	-	1
15	MCB	-	72
W	ECS Interface Panels	-	
1	ECS INTERFACE Panels Structure	-	7
2	Voltage transducer dual o/p	-	15
3	Current transducer dual o/p	-	50
4	Frequency transducer dual o/p	-	5
5	MW transducer dual o/p	-	20
6	MVAR transducer dual o/p	-	20
7	Interposing relay make/break/continuous carry rating of 6A at 110V DC	-	550
8	TB 50 terminals	-	80
9	110V/24V DC POWER CONVERTER	-	6

S.No.	Description	Unit Quantit (Nos)	Total Quantity (Nos)
	<u>1. ABOVE LIST IS FOR INDICATIVE/QUOTING PURPOSE ONLY WHICH COVERS NAMELY FRONT FACIA COMPONENTS. ALL OTHER ITEMS/COMPONENTS TO RELAIZE THE SCHEMES/FUNCTIONALITY/SAFETY SHALL BE CONSIDERED BY VENDOR TO MEET THE FUNCTIONAL REQUIREMENTS OF THE SCAP.</u> <u>2. Apart from the above list vendor shall also consider other items mentioned in the Technical specification which are not explicitly mentioned in the above list.</u>		
	NOTES		
1	Makes of the above equipments shall be as per customer approved vendor list which will be standard EIL projects approved vendor and subjected to approval by BHEL.		
2	Meter Ranges shall be as per SLDs enclosed as Various Annexures along with this specification.		
3	Vendor shall quote unit rates as per the format enclosed with this specification		
4	240V single ph AC, 110V DC supply will be provided for SCAP at one point. Further distribution to all the equipments of SCAP shall be in vendor's scope.		
5	DC supply in the panel shall be provided with auto changeover facility and DC fail monitoring relays.		
6	All control and selector switches mentioned above shall be suitable for mosaic mounting (miniature type).		
7	Input to all the above meters is CT/PT input unless mentioned otherwise.		
8	CT and PT signals for each equipment are provided at one point only. Further distribution to all the equipments of SCAP shall be in vendor's scope.		
9	All PT signals shall be provided with fuses.		
10	All Descrepency switches shall be wired to Flasher relay. Flashing descrepency shall be shown on SCAP, if tripping/closing operation is failed at switchboard.		
11	All recorders shall be provided with dual type transducers		
12	All transducers shall be dual output type		
13	Aux. Supply for meters, transducers, lamps, control ckt,annunciation windows,recorders,TPI, switches etc shall be DC.		