

**Project : 220 kV Switchyard for 1x100 MW Replacement Power Project Namrup,  
Customer : Assam Power Generation Corporation Ltd. (APGCL).**

## **ANNEXURE-A**

### **List of Mandatory Spares**

<b>Sl. No.</b>	<b>Item / Description</b>	<b>Unit</b>	<b>Quantity</b>
<b>1</b>	<b>LT SWITCHGEAR</b>		
1.1	Push buttons: Start and stop	Nos.	5
1.2	Selector switches: Ammeter and Voltmeter	Nos.	18
1.3	Indication lamps		
	a. Indicating lamp holders with series resistors for 110V control centers	Nos.	10
	b. Lens covers of colours: Red; Green; Amber	Nos.	10
1.4	Ammeters (approx. 10% of total no. for all ranges)	Nos.	5
1.5	Voltmeters	Nos.	6
1.6	Main Switches: AC & DC: for each rating	Nos.	18
1.7	Fuses:		
	a. Power circuit fuses of each rating	Nos.	8
	b. Control circuit fuse	Nos.	8
1.8	Contactors: AC & DC contactors: for each rating	Nos.	5
1.9	Total no. of bimetal thermal overload relays of each range	Nos.	5
1.10	a. Auxiliary relays: Device nos.: 94; 30; 74; and 86	Nos.	1
	b. Meters: kW; and Kwh	Nos.	1
1.11	Main power contacts (moving) for each rating	Nos.	2
1.12	Arc. chutes (of each type)	Nos.	1
1.13	Arcing contacts fixed and moving (of each type)	Nos.	1
1.14	Bus support insulators (of each type)	Nos.	1
1.15	Protection relays:		
	i. IDMTL over-current relay	Nos.	3
	ii. IDMTL earth-fault relay	Nos.	3
	iii. Instantaneous under-voltage relay	Nos.	3
	iv. Definite time relay	Nos.	3
1.16	Spring charge motors	Nos.	2
1.17	Control transformers	Nos.	2
1.18	Fuse bases of each size	Nos.	10
1.19	Rows of terminal blocks of each type	Nos.	20
1.20	DC resistance elements	Nos.	2
1.21	Microprocessor based motor protection relay	Nos.	1
1.22	Static energy meter	No.	1
<b>2.00</b>	<b>BATTERY CHARGER</b>		
2.1	Controller cards of each type used	Set	1
2.2	SCR, diodes, capacitors, resistors etc.	Sets of each type	3
2.3	AC fuse links	Nos. of each type	2
2.4	DC fuse links	Nos. of each type	2
2.5	Contactors, contactor coil and contact kit	Set of each type	1
2.6	Indicating lamps, toggle switches, push buttons etc.	Nos.	3

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<b>Sl. No.</b>	<b>Item / Description</b>	<b>Unit</b>	<b>Quantity</b>
2.7	Potentiometers	Nos.	3
3.00	<b>BATTERY</b>		
3.1	Containers with covers	Nos.	5
3.2	Level indicators	Nos.	5
3.3	Inter cell connectors	Nos.	5
3.4	Nuts, bolts, washers	Sets	5
4	<b>220 KV SWITCHGEAR EQUIPMENT</b>		
4.1	<b>220 kV breaker:</b> Closing coil & tripping coil	No.	1 each(offered quantity 2 Nos.
4.2	220 kV Isolators:		
	i. Fixed contact assemblies	Nos.	2
	ii. Moving contact assemblies	Nos.	2
	iii. Auxiliary switches	Nos.	2
4.1	Supporting insulators	No.	Min. 10% or 1 no. (whichever is greater) for
4.2	CTs & PTs	No.	1 No. of each type
4.3	<b>220 kV Relay/Control Panel:</b>		
4.4	Breaker control switch	No.	1
4.5	Voltmeter selector switch	No.	1
4.6	Ammeter selector switch	No.	1
4.7	Push button	No. of each type	1
4.8	Semaphore indicator	No.	1
4.9	Line protection relay	No. of each type	1
4.10	CTs & PTs of each type	No	1
4.11	Metering system	Set	1
5	<b>Relay Test kit</b>	Sets	1