

SUB-SECTION D

GENERAL ANNEXURE C

Mandatory Spares

S. No.	Equipment/Material	Quantity (For each type and rating)
1	Battery Energy Storage System	
1.1	Battery Module	
	Connector (Each Positive and Negative)	0.30% of supply
	Fuse	0.20% of supply
	Socket	0.20% of supply
	Plug	0.30% of supply
	Fan (module)	0.10% of supply
1.2	Control Panel/Control Unit	
	MCB	0.30% of supply
	MCCB	0.30% of supply
	Switching supply	0.10% of supply
	Flood Sensor	0.10% of supply
	Intermediate relay	0.10% of supply
	Fan (control box)	0.10% of supply
	Surge Protection Device (SPD)	0.30% of supply
	Electricity meter	0.10% of supply
	Current Transformer	0.10% of supply
	Emergency stop button	0.10% of supply
	UPS	0.10% of supply
	UPS battery	0.10% of supply
	Indicator	0.10% of supply
	Fuse	0.20% of supply
	Internal Communication Cable of the Rack	0.20% of supply
	DC cable for internal rack	0.30% of supply
	AC/DC Power Source	0.10% of supply
	Main Control box	1
	E_CAN Driver	1
	Debug wiring harness including the connector	1
1.3	High Voltage Box	
	Connector (Each Positive and Negative socket)	0.30% of supply

S. No.	Equipment/Material	Quantity (For each type and rating)
	High Voltage relay	0.30% of supply
	Pre-charge resistor	0.20% of supply
	Fuse	0.20% of supply
	DC disconnecter	0.30% of supply
	Indicator	0.10% of supply
	Hall Sensor	0.10% of supply
	Pre-charge contactor	2
	Current Transducer	2
1.4	Fire Suppression System	
	Fire Alarm Control Panel	0.10% of supply
	Battery	0.10% of supply
	Manual release button	0.10% of supply
	Emergency stop button	0.10% of supply
	Horn/Strobe/Annunciator	0.10% of supply
	Alarm bell	0.10% of supply
	Smoke detector	0.20% of supply
	Thermal detector	0.20% of supply
	Aerosol	0.30% of supply
	Aerosol Bracket	0.10% of supply
	Hydrogen detector (H2)	0.10% of supply
	Electric ventilation louver	0.10% of supply
	Exhaust fan	0.10% of supply
	Ventilation system emergency start/stop button	0.10% of supply
	Sprinkler	0.10% of supply
	Dehumidifier	0.10% of supply
	Quick connector	0.10% of supply
1.5	Liquid Cooling System	
	Chiller Unit	0.05% of supply
	Anti-freeze Coolant	0.10% of supply
1.6	Battery Management System	
	Master Battery Management Unit	0.10% of supply
	Slave Battery Management Unit	0.10% of supply

S. No.	Equipment/Material	Quantity (For each type and rating)
	Central Battery Management Unit	0.10% of supply
1.7	Power Conditioning System	One set of spares for each type / rating of inverter subject to a minimum of spares corresponding to 1% of each type / rating of inverter rounded off to the next higher integer for the following items <ul style="list-style-type: none"> - IGBT modules for one complete inverter - AC and DC fuses - air filters - cooling fans - electronic cards of each type - harmonic filter units - digital display units - switches, push buttons and indication lamps - diodes of each type & rating - resistors of each type & rating
1.8	Energy Management System	
	EMS Controller	0.1% of supply
2	LT Switchgear	
	(i) ACB	1 no.
	(ii) MCCB	2 nos.
	(iii) MCB	2 nos.
	(iv) Fuse	10% of total supply
	(v) Relay	2 nos.
	(vi) Meter	2 nos.
	(vii) Current Transformer	2 nos.
	(viii) Voltage Transformer	2 nos.
	(ix) Contact Assembly	2 sets
	(x) Indicating lamp	10% of total supply
	(xi) Rotary switch	10% of total supply
3	DC Cables	1 Drum
4	Communication Cables	1 Drum
5	Forklift	1 No.

Spares, if used, during the O&M period shall be replenished by the Contractor. All the mandatory spares shall be handed over to the Employer in working condition at the end of O&M period along with list of utilized items and replaced items.