

ANNEXURE-D VI Summary & Scope of Workshop Equipment			
Sr. No.	Description	HMEL's Scope	O&M Contractor's Scope
Electrical			
1	Circuit Breaker operational Analyser	x	√
2	Relay testing kit with Phase Angle Meter	x	√
3	Transformer Oil BDV Tester	x	√
4	Thermovission Camera	x	√
5	Single Phase variac (10 A), 24V LED Hand Lamps, Blower	x	√
6	Three Phase Variac (25 A)	x	√
7	LR meter	x	√
8	Crimping tool (up to 1000 sqmm)	x	√
9	Industrial Battery cell charging kit	x	√
12	High Voltage Detector	x	√
13	Transformer Oil Filtration Machine	x	√
14	Circuit Breaker Contact Resistance Kit	x	√
15	Circuit Breaker Timing Tester	x	√
16	Cable Fault Locater (Capable of Testing of Cable up to 33KV Voltage)	x	√
19	Tan Delta Kit	x	√
21	Transformer Resistance (DLRO)	x	√
22	Megger - 500V, Motor checker etc.	x	√
23	Megger - 5KV Motorised	x	√
24	Hygro Meter	x	√
25	SF6 Gas Purity Meter	x	√
26	SF6 Gas Leakage Detector	x	√
27	Vaccum Meter	x	√
30	Special Tools & Tackle for GIS	√	x
31	Digital Power Meter & Calibration Tool	x	√
32	Multi Channel Analyser & Recorder	x	√
33	Clip on Ammeters, Multimeter, Earthmeter etc.	x	√
34	True RMS Digital Meters	x	√
35	Harmonic Analyser	x	√
36	Digital Phase Angle Meter	x	√
37	Dual Trace Portable Storage Oscilloscope	x	√
38	Rhesotats/Variac	x	√
39	Burden Box	x	√
40	Moisture Content Test Kit for Transformer Oil	x	√
41	Buchholtz gas Analyser	x	√
42	Three Phase Sequence Testing Meter	x	√
43	Higher range (400/1000A) clamp on meters	x	√
45	CT analyser	x	√
46	Motor checker	x	√
47	Flood lights (for safe & hazardous area), extension boards, DB upto 63A (including braided cable)	x	√
48	All types of ladders (FRP, aluminum etc.) for substations/field/switchyard jobs shall be in scope of O&M contractor. Ladders shall be procured from HMEL approved vendors.	x	√
Instrumentation & Gontrol			
1	Ultrasonic Flow Meter (Range above 150Deg C)	x	√
2	Non-Contact Type Temperature Guns (Range upto 500Deg C)	x	√
3	Digital Temperature Indicators	x	√
4	Thermal Temperature Scanner	x	√
5	Dead weight tester (Up to 300 Kg/cm2)	x	√
6	Temperature Bath	x	√
7	Portable Pressure Calibrator (-1 .0 to 25 Bar)	x	√
8	SS & Copper Tube Cutter & Bender (1/4" & 1/2" OD Tubes)	x	√
9	Decade Resistance Box (0.01 Ohm to 1.0 MOhms)	x	√
10	Low Pressure calibration pump	x	√
11	Digital Master Pressure Gauge (-10000 to +10000 mmwc)	x	√

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Sr. No.	Description	HMEL's Scope	O&M Contractor's Scope
12	Digital Master Pressure Gauge (-1.0 to 100 Bar)	x	√
13	Table mounted mV Calibrator	x	√
14	Table mounted Thermocouple / RTD Calibrator	x	√
15	Table mounted mA Calibrator	x	√
16	Table mounted DC voltage regulator (- 5 V to 150 V) DC	x	√
17	Soldering Station (160 Deg C to 230 Deg C)	x	√
18	De-Soldering Station (160 Deg C to 230 Deg C)	x	√
Mechanical			
1	Bench Grinder	√	x
2	Stand drill Machine up to bit size of 30 MM	√	x
3	Set of dial gauges with Magnetic stand	x	√
4	Portable grinder (AG5)	x	√
5	Bearing Pullers	x	√
6	Induction heaters for bearing	x	√
7	Hydraulic Press	√	x
8	Hydraulic Jacks with Pump (up to 100 tones)	√	x
9	Button Hydraulic Jack	x	√
10	Gas Cutter Set	x	√
11	Bench Vice	x	√
12	Welding Machine	x	√
13	Shaper Machine	√	x
14	Lathe Machine	√	x
16	Bending Machine	x	√
18	Power Hack Saw	√	x
19	Chain Pulley Blocks	x	√
20	Slings/Wire Ropes	x	√
21	D-Shackles	x	√
22	Special Tools for Boiler Feed Water Pumps Cartridge Replacement	√	√
23	Pneumatic Grease Gun & Pneumatic /Hydraulic torque tightening tool	x	√
24	Drill Machine Portable	x	√
Mechanised Housekeeping			
1	Industrial Vacuum Cleaner	x	√
2	Mechanised Mopper	x	√
3	Housekeeping consumables and chemicals	x	√
4	Vacuum Trucks & Road cleaner , Water spray tankers for Dust control	x	√
Measuring Instruments			
1	Outside Micrometer - As per plant requirement	x	√
2	Inside Micrometer - As per plant requirement	x	√
3	Dial Bore Gauge, Dial Gauges etc.	x	√
4	Vernier Barrel Gauge	x	√
5	Depth Micrometer	x	√
6	Digital Vernier Caliper	x	√
7	Analog Vernier Caliper	x	√
8	Height Vernier Gauge	x	√
9	Stop Watch	x	√
10	Digital Tachometer 0.5 to 20,000rpm	x	√
Remarks:			
1. Special Tools & Tackles specific to equipments shall be in the scope of owner2.			