

Tender Specification: BHE/PW/PUR/NTPRT-ELE/2474					
Job: Electrical Package of Unit#1 and BOP of 3x800MW PVUNL Patrattu Project.					
Chapter XII-BOQ and Percentage Weightage-2474					
S. No	DESCRIPTION	UOM	QTY	FACTOR FOR DERIVING ITEM RATE FROM ACCEPTED LUMPSUM	TERMS OF PAYMEN
E3	JUNCTION BOXES AND PUSH BUTTON				E3
E3.01	Start Stop Push Button Station	No	252	0.003523439689425930	
E3.02	Junction Box 12/ 24/ 26/ 48/ 96 way.	No	102	0.002188460276586880	
E3.03	Local Control box for panel type hopper heater.	No	120	0.002747716009507000	
E3.04	AC/ DC Fuse DB	No	36	0.004184454886000100	
E4	STRUCTURAL STEEL				E4
E4.01	Structural Steel fabrication & Installation (MS angle, Channel, Plate etc)/ Cable tray structural steel fabrication & installation.	MT	20	0.009926099438765780	
E5	SWITCHGEARS/ MCC/ PCC				
E5A	HT SWITCHGEAR				
E5A.01	11kV Unit Switchgear Board #1BA. Each board shall have 24 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.005578883069366850	
E5A.02	11kV Unit Switchgear Board #1BB. Each board shall have 24 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.005578883069366850	
E5A.03	11kV Station Switchgear Board #0BA. Each Board shall have 18 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.004184162302025140	
E5A.04	11kV Station Switchgear Board #0BB. Each Board shall have 18 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.004184162302025140	
E5A.05	11kV BOP Switchboard #OBG, OBH, OBJ. Each Board shall have 44 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.010227952293839200	

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E5A.06	11kV Misc Switchboard #OBK. Each Board shall have 25 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.005811336530590470	
E5A.07	11kV Colony Switchboard. Each Board shall have 17 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.004951167313309650	
E5A.08	11kV Earthing Breaker Trolley. Each Board shall have 17 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.004951167313309650	
E5A.09	3.3kV Unit Auxiliary Switchboard #1CA. Each Board shall have 41 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.008849052324282720	
E5A.10	3.3kV FGD Auxiliary Switchboard #1GA. Each Board shall have 27 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.005827424701356910	
E5A.11	3.3kV BOP Auxiliary Switchboard #OCL. Each Board shall have 39 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.008417391235293320	
E5A.12	3.3kV Earthing Breaker Trolley. Each Board shall have 22 panels. Approx. overall dimension of each panel is 820x2692x1831 to 2651 mm. Each shipping section weight is approximately 3MT.	Set	1	0.004748271978883410	
E5B	LT SWITCHGEAR (415/220V)				
E5B.01	415V LT Unit Emergency MCC #1DG (3000A). Approx overall dimension 25000x1700x2450mm.	Set	1	0.003255011185527370	
E5B.02	415V LT Boiler Service PMCC #1DA (3500A), Approx overall dimension 20000x1700x2450mm.	Set	1	0.002560616939866210	
E5B.03	415V LT Boiler Valve and Damper ACDB #1HA (250A). Approx overall dimensions 15000x1000x2450mm.	Set	1	0.001678069336712960	
E5B.04	415V LT Boiler ACDB #1HB (400A). Approx overall dimensions 14800x1000x2450mm.	Set	1	0.001655695078890120	

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E5B.05	415V LT Station Services PMCC #0DA (4000A). Approx overall dimensions 20800x1700x2450mm.	Set	1	0.002663041617460850	
E5B.06	415V LT Air Washer MCC #0SA (800A). Approx overall dimensions 10800x1700x2450mm.	Set	1	0.002035259486073840	
E5B.07	415V LT Ventilation MCC #1TA (1000A). Approx overall dimensions 14800x1700x2450mm.	Set	1	0.002814681634113210	
E5B.08	415V LT Misc Services MCC #0QA (400A). Approx overall dimensions 13800x1000x2450mm.	Set	1	0.001544654701012280	
E5B.09	415V LT Air Conditioning MCC #0TA (630A). Approx overall dimensions 10800x1700x2450mm.	Set	1	0.002035259486073840	
E5B.10	415V LT Turbine Service PMCC #1DB (3500A). Approx overall dimensions 21000x1700x2450mm.	Set	1	0.002564564673551820	
E5B.11	415V LT Turbine Service ACDB #1QA (630A). Approx overall dimensions 15800x1700x2450mm.	Set	1	0.002037996051536150	
E5B.12	415V LT Turbine Valve DB #1KA (250A). Approx overall dimensions 19000x1000x2450mm.	Set	1	0.002080249853617400	
E5B.13	220V LT Main DCDB #1FA (1600A). Approx overall dimensions 23000x1700x2450mm.	Set	1	0.004438326541211990	
E5B.14	415V ESP & ID Fan Area MCC #1HD (250A). Approx overall dimensions 9000x1000x2450mm.	Set	1	0.001003024566545080	
E5B.15	415V ESP A/C & VENT MCC #1TB (400A). Approx overall dimensions 6000x1000x2450mm.	Set	1	0.000665117479109097	
E5B.16	415V Soot Blower MCC-1 (63A). Approx overall dimensions 30000x1000x2450mm.	Set	1	0.003429789769707680	
E5B.17	415V LT CPU & DM PMCC #0DH (3500A). Approx overall dimensions 19800x1700x2450mm.	Set	1	0.002366565015635060	
E5B.18	415V LT Raw Water PMCC #0DF (3500A). Approx overall dimensions 20800x1700x2450mm.	Set	1	0.002663041617460850	
E5B.19	415V LT CPU MCC (1000A). Approx overall dimensions 11800x1700x2450mm.	Set	1	0.001461368782981390	

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E5B.20	415V LT Workshop / O&M Store MCC (1000A). Approx overall dimensions 11800x1700x2450mm.	Set	1	0.001461368782981390	E5
E5B.21	415V LT ACWT & CL02 MCC (400A). Approx overall dimensions 8800x1700x2450mm.	Set	1	0.001683454978242990	
E5B.22	415V LT CSSP MCC (630A). Approx overall dimensions 9800x1700x2450mm.	Set	1	0.001874756680316060	
E5B.23	415V LT PT Plant MCC (1600A). Approx overall dimensions 13800x1700x2450mm.	Set	1	0.002625912991720880	
E5B.24	415V STP MCC (400A). Approx overall dimensions 13800x1700x2450mm.	Set	1	0.002625912991720880	
E5B.25	415V Admin Building PMCC #0DD (3000A). Approx overall dimensions 19800x1700x2450mm.	Set	1	0.002366565015635060	
E5B.26	415V FWPH/ AUX Boiler Service PMCC #0DP (1600A). Approx overall dimensions 19800x1700x2450mm.	Set	1	0.002366565015635060	
E5B.27	415V LT FOPH MCC #0DK (2500A). Approx overall dimensions 17800x1700x2450mm.	Set	1	0.003383596810731600	
E5B.28	415V LT Clarified MCC (630A). Approx overall dimensions 15800x1700x2450mm.	Set	1	0.003003417393795470	
E5B.29	415V LT ESP Switchgear Panel (4000A). Approx overall dimensions 18000x1700x2450sqmm.	Set	6	0.020101782796008100	
E5B.30	415V LT Standby PMCC A (4000A). Approx overall dimensions 2000x1700x2450sqmm.	Set	1	0.000218815487113750	
E5B.31	415V LT Standby PMCC B (4000A). Approx overall dimensions 3000x1700x2450sqmm.	Set	1	0.000328223230670625	
E5B.32	415V LT FGD PMCC (4000A). Approx overall dimensions 21800x1700x2450sqmm.	Set	1	0.002662262375401420	
E5B.33	415V LT FGD Common PMCC (4000A). Approx overall dimensions 28800x1700x2450sqmm.	Set	1	0.003749772885727530	
E5B.34	415V LT FGD Emergency MCC (1600A). Approx overall dimensions 9800x1700x2450sqmm.	Set	1	0.001856709919849010	
E5B.35	415V LT Canteen ACDB (1400A). Approx overall dimensions 5800x1000x2450sqmm.	Set	1	0.000373273478017574	

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E5C	STARTER PANEL/BOXES/POWER DISTRIBUTION BOX/MARSHALLING BOXES				
E5C.01	Electronic Control Panel, overall approx dimenions are 600mm (L)x550mmx2300mm. Approx overall weight of each panel is 0.25MT.	No	120	0.018984946938737600	
E5C.02	IOS PANEL with approx overall dimension 1000x650x2050; approx. weight of panel 0.3MT along with loose accessories such as IOS PC, Computer Furniture, Data Logger PC, Printer, PC termination box, peripheral cables etc.	Set	1	0.000362298235014213	
E5C.03	SAS-2 Panel in Plant Control Room; approx dimensions 2200x800x800.	No	2	0.000316415782312294	
E5C.04	ALI Control Panel	No	1	0.000089564567656341	
E5C.05	3D Acoustic level transmitter for first field ESP along with probe head assembly, electronic unit, JB, etc.	No	12	0.002833775935607240	
E5C.06	DC motor starter panels, etc (DC JOP, DC EOP, Seal oil panel, DC Scanner fan), including resistance boxes. Approx weight 0.5 MT and approx. dimension 1000x800x2200 mm each.	No	7	0.002468126074862360	
E5C.07	Local Motor Starter Panels Suitable for (0.37KW/0.55KW/0.75KW, 1.1kW/1.5kW/2.2kW/3.7kW/5.5kW)	No	306	0.001644626217367390	
E5D	DRY TYPE TRANSFORMER				
E5D.01	2500kVA, 11/0.433kV DTT with off load tap switch, including all loose accessories of transformer etc.	No	4	0.009208215060614030	
E5D.02	2000kVA, 11/0.433kV DTT with off load tap switch, including all loose accessories of transformer etc.	No	2	0.005373200708280160	
E5E	PANELS				
E5E.01	Generator, Generator Transformer, UAT Transformer, Control, protection & Metering panels (4 Panels). Approx dimension of each panel 2295x1000x1000, approx weight 500kg each panel	Set	1	0.002114436825028180	
E5E.02	Station Transformer Control, protection & Metering panels. Approx dimension of each panel 2295x1000x1000, approx weight 500kg each panel	Set	1	0.001502158642390690	
E5E.03	BTS Panel. Approx. overall dimension of each panel 2295x1000x1000mm, weight of each panel is approximately 300kg. Each set contains 3 panels.	Set	1	0.000893292933125363	

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E5E.04	HT Data Concentrator Package including:- Panel, HMI (3 per set), Printer, Laptop, Communication cables, furnitures. Approx. Dimension 2295x800x800mm. Each set shall have 5 panels.	Set	1	0.001013747425234810	
E5F	220V DC BATTERY & BATTERY CHARGER SYSTEM				
E5F.01	220Volt DC Battery Charging System with battery (2x170cells) with DC Battery Charger. Approx total weight of battery system -23MT, approx total weight of battery charger - 2MT)	Set	2	0.006694295740499770	
E5F.02	220Volt DC Battery Charging System with battery (170cells), with DC Battery Charger.	Set	2	0.005612040686307880	
E5G	DIGITAL AUTOMATIC VOLTAGE REGULATOR FOR BRUSHLESS EXCITATION SYSTEM				
E.5G.01	Transportation from store / storage yard to erection site, Erection, Assembly, Testing & Commissioning of Digital Excitation Equipments / System, System consist of DAVR panels.	Set	1	0.002653946185360590	
E5H	VARIABLE FREQUENCY DRIVE SYSTEM FOR CEP				
E5H.01	Transportation from stores/ storage yards to erection site, erection, assembly, testing & commissioning of Variable Frequency Drive System consisting of IGBT based VFD Panel and accessories including transformer for CEP-A, B, C (complete for Unit-1)	Set	1	0.024717914270722500	
E5I	MISCELLANEOUS EQUIPMENT				
E5I.01	Ash Level Indicator comprising of level probe with extension lagging pipe, Electronic Unit, Interconnecting PTFE Cabling, Conduit, etc.	Set	120	0.003237742888776960	
E5I.02	Opacity Monitor consisting of Transmitter & Receiver, Electronic Unit, Air Blower unit, Weather Proof housings, Junction boxes, flexible hoses, mounting flanges with pipe for Transmitter, Receiver & Air blower, interconnected cables etc. for mounting on ESP outlet duct.	Set	6	0.001738555389408110	
E7	BUS DUCTS				
E7A	LT BUS DUCTS (NSPBD)				
E7A.01	415V, 1000A/ 1600A/ 2500A/ 3200A/ 4000A, LT Bus Duct (NSPBD) (For MCC/Emergency MCC/ PMCC/ FGD PMCC/ ESP/DG Boards only). Loose items like silicagel Breather pipe, GI Channel Supports and associated accessories.	Meter	600	0.039037641644630700	

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E7B	LT BUS DUCTS (SANDWICH BD)				E7
E7B.01	415V, 3000A, LT Bus Duct (Sandwich BD) (For MCC/Emergency MCC/ PMCC/ FGD PMCC/ ESP/DG Boards only). Loose items like silicagel Breather pipe, GI Channel Supports and associated accessories.	Meter	280	0.018217566100827600	
E7C	BUS DUCT (SPBD)				
E7C.01	11kV, 1000A/ 3150A/ 4000A, SPBD from ST-1 to 11kV STN SWBD-0BA. Indoor: Enclosure: 500x1500, Conductor: 2x177 Al Channel Box. Outdoor: Enclosure: 600x1800, Conductor: 2x177 Al Channel Box. (Including erection of Support structure, duct earthing, support insulator, space heater etc. supplied by manufacturing unit)	Meter	531	0.071253974685312000	
E7C.02	11kV, 1000A/ 3150A/ 4000A, SPBD from ST-3 to 11kV STN SWBD. (Including erection of Support structure, duct earthing, support insulator, space heater etc. supplied by manufacturing unit)	Meter	35	0.004696589668523390	
E7C.03	3.3kV, 1000A/ 2500A/ 3000, SPBD from UAT-3A to 3.3kV Unit SWBD-3CA. Enclosure: 400x1200, Conductor: 2x127 Al Channel Box. (Including erection of Support structure, duct earthing, support insulator, space heater etc. supplied by manufacturing unit)	Meter	245	0.016598313749487300	
E7C.04	NEUTRAL GROUNDING RESISTOR				
E7C.04.1	Neutral Grounding Resistor including NGR support structure 11kV (approx dimensions: NGR- 1510x1110x1855, weight-1MT; support structure- 1400x1000x2500, weight-0.3MT) & 3.3kV (approx dimensions: NGR- 1510x635x1405, weight-0.4MT; support structure-1400x525x2400, weight-0.25MT)	Set	10	0.007483323858608730	
E7D	BUS DUCTS (IPBD)				

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E7D.01	Isolated Phase Bus Duct (27kV) 22250A for Main Run (interconnection of Generator, Generator Transformers) along with all accessories and auxiliaries.(Enclosure size: 1600mm o/d, 8tk; Conductor size: 800mm o/d, 16tk.) Isolated Phase Bus Duct (27kV) 13000A for Delta Run along with all accessories and auxiliaries. (Enclosure size: 1200mm o/d, 6.35tk.; Conductor size: 450mm o/d, 15tk.) Isolated Phase Bus Duct (24kV) 2800A for Tap-off Run along with all accessories and auxiliaries. (Enclosure size: 876mm o/d, 4.78 tk.; Conducotr size: 2x203mm o/d channel box.) (Including support structure, conductor, shunt & enclosure weting (Al.), CT, LAVT, NG Cubicel along with NG Transformer & Resistance, Earthing of duct, support insulator, etc.)	Set	1	0.067904352548581300	
E8	OIL FILLED TRANSFORMERS (GT, UT, UAT & ST)				E8
E8.01	Single Phase 315MVA, 420/27kV, ODAF cooled YNd11 (after 3-ph bank formation), Generator Transformer (GT) including all accessories, piping, cabling etc.	Set	4	0.129333652361841000	
E8.02	144/72/72 MVA, 3-phase, 400/11.5/11.5kV Station Transformer (ST), OLTC, ONAN/ ONAF (60%/100%) including all accessories, piping, cabling etc.	Set	2	0.056028892701271800	
E8.03	65MVA, 27/11.5kV Unit Transformer (UT) including all accessories, piping, cabling etc.	Set	2	0.036449872944749200	
E8.04	10/12.5/16MVA, 11/11.5kV / 11/3.5kV UAT, FGD Auxiliary, Miscellaneous Transformer including all accessories, piping, cabling etc.	Set	4	0.031926767410677400	
E8.05	630/ 1000/ 1600/ 2000/ 2500/ 5000 kVA, 11/0.433kV Auxiliary Transformer including all loose accessories of transformer etc. (approx weight 4.2MT)	No	26	0.122007345799592000	
E9	ONLY TESTING & COMMISSIONING				

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E9.01	Heating elements for Hopper Heater of ESP.	No	1500	0.010442586522960500	E9
E9.02	Heating elements for Support Insulator Heater, Shaft Insulator Heaters of ESP.	No	600	0.004740235703009530	
E9.03	High Voltage Rectifier Transformers (95kV peak, 1000 mA) including oil filtration.	No	240	0.034106676619771700	
E9.04	Testing & Commissioning of Collecting, Emitting, GD Screen Motor	No	252	0.004588893088465570	
E9.05	Testing and commissioning of 3.3kV, 6.6kV & 11kV HT motors including dryout.	No	106	0.018570073979517500	
E9.06	Testing and commissioning of 415V LT motors including dry out.	No	300	0.007095897369142240	
E9.07	Generator System Testing	No	1	0.004013152148812800	
E9.08	Testing & Commissioning of Soot Blower Control Panel, including mounting of mimic	No	1	0.000159253953363974	
E9.09	Testing & Commissioning of Wall, Long Retractable, Air Heater Soot Blower	No	150	0.001612378644477830	
E9.10	Testing & Commissioning of Furnace Temperature Probe (including Solenoids, Thermocouples, JB etc)	No	2	0.000020776959714077	
E9.11	Thermostats including Calibration	No	132	0.000833242655199953	
E9.12	Electrically (LT) Operated Valves, Dampers and Gates with Actuators, Limit Switches, etc. (Regulating & ON/OFF Type).	No	466	0.009782918052038520	
E9.13	Electrical Operated Hoist at various area like ESP, Mill, IDF, PAF, FDF, Vacuum Pumps, BFP, CW & ACW area	No	24	0.001483662287511170	
E9.14	Testing and Commissioning of H2 Drier Panels.	No	2	0.000223857312474931	
E9.15	2000kVA, 3-Phase, 415V Diesel Generator set. approx. overall weight 43MT.	Set	2	0.000318507906727947	
E9.16	1750 kVA, 3-phase, 415V Diesel Generator set with approx. weight 34MT.	Set	1	0.000159253953363974	
E10	MISCELLANEOUS				E10
E10.01	NAS Filtration and Particle counting for 400kV or above Oil filled transformers inclusive of transportation	Ltrs	340600	0.019936289477448600	