

<b>BOQ - B for BOS-2(i.e 25 MW Site)</b>			
<b>Name of work : Supply, E&amp;C of BOS and O&amp;M (for Five years) of BOS" for 1x65MW of Solar PV plant of NLC at Neyveli, Cuddalore District, Tamilnadu.</b>			
<b>Item. NO</b>	<b>DESCRIPTION OF ITEM</b>	<b>UNIT</b>	<b>QTY</b>
<b>SUPPLY ITEMS</b>			
<b>1.00</b>	<b>Supply of HDPE conduits,cable ties, PVC pipes,hardware,tray supports etc</b>		
1.01	Supply of 200MM cable ties (1 PAC=100 Pcs)	PAC	830
1.02	Supply of 63MM Dia HDPE Pipe (double walled corrugated (DWC) pipe )	Meter	7500
1.03	Supply of PVC pipes (200mm Dia)	Meter	300
1.04	Supply of Aluminium Trefoil clamps for 33 KV (UE) 1Cx 300 Sq mm HT Cable	NO	3600
1.05	Supply of Aluminium Trefoil clamps for 1.1 KV 1CX630 Sq mm Cable	NO	1700
<b>2.00</b>	<b>Supply of 33KV Metering Yard Equipments</b>		
2.01	Supply of ACSR conductor for carrying 800A current at 33kV voltage level	Meter	180
2.03	Supply of Clamps & Connectors & bolts & nuts for interconnection of 33kV cables,CTs,PTs,GOS isolator,LA etc. with ACSR conductor as per attched metering yard layout (PY-LE-1-M088-2019-01) & TCC Cl. No 4.1(2).	SET	1
2.04	Supply of Surge Supressor for metering yard (1 phase)	NO	3
2.06	Supply of 500A, 25KA for 1sec GOS Isolator with Earth Switch	NO	1
2.08	Supply of 500A/5A Current Transformer (2Core),CL-0.2s (1 phase)	NO	9
2.09	Supply of Voltage Transformer 50VA with Jumper (1 phase) (33kV/110/√3V)	NO	9
2.10	Supply of GI Structural Steel for 33 KV metering yard for mounting of CTs,PTs,GOS isolator,LAs, supporting ACSR conductor, 33kV cable support etc.	KG	8000
<b>3</b>	<b>Supply items of module cleaning system:</b>		
3.01	Supply of Pipes & Fittings for Bore well	NO	4
3.02	Supply of 3Hp or higher submeesible pump with Motor shall meet required flow and pressure	NO	4
3.03	Supply of Single phase starter	NO	4
3.04	Supply of Storage Tank 1500L (Syntex or equavllent PVC storage tank)	NO	4
3.05	Supply of HDPE Pipe for Module Cleaning System,size shall be suitable require flow and pressure.	Meter	4000
3.06	Supply of 1/2 inch Nipple	NO	100
3.07	Supply of Hose 1/2 inch with gun	Meter	1500
3.08	Supply of Valves for Module Cleaning System as per the BOQ indicated in TCC (Cl.4.5) Sl no-4.	LOT	1
3.09	Supply of Reducer 2inch to 1/2 inch	NO	80
3.10	Supply of 3HP or Higher Booster pump with motor with starter arrangement shall meet required flow nad pressure	NO	4
3.11	Supply of Flow meter	NO	4

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3.12	Supply of Level indicater(Analog)	NO	4
3.13	Supply of Accessories for pipe fitting as per the BOQ indicated in TCC (Cl.4.5).	SET	4
3.14	Supply of 3C X 6 SQMM Cu flexible cable suitable for submerged in water.	Meter	750
<b>4</b>	<b>Supply fo Miscellanious items</b>		
4.01	Furniture items as per the BOQ indicated in TCC (Cl.4.11)	SET	1
4.02	Supply of Board for electric shock	NO	6
4.03	Supply of Board for artificial respiration	NO	6
4.04	Supply of Board displaying dos and donts.	NO	6
4.05	Supply of Board displaying fire extinguishers data	NO	6
4.06	Supply of No smoking board	NO	6
4.07	Supply of Board showing list of O&M staff with names	NO	1
4.08	Supply of Board showing list of contact details	NO	2
4.09	Supply of Danger boards with details such as value	NO	30
4.10	Supply of Identification boards, of suitable sizes	NO	10
4.11	Supply of Checkered plate 6mm thick width-1000mm	KG	750
4.12	Supply of DCP type 9kG capacity Fire Extinguishers with SBC powder cartridge operated (200GM, IS 4947) with controllable discharge mechanism class B rating 34B as per IS 15683. including all necessary statutory certificates	NO	12
4.13	Two fire bucket with suitable MS Stand sets	NO	6
4.14	Supply of safety gadgets as per BOQ indicated TCC (Cl.4.17)	SET	1
4.15	Supply of Hume pipe 200 mm dia ( Light duty non pressure NP3 class RCC pipes with collars jointed	RM	250
4.16	Insulating mat Class A 2mm thick upto 3.3kV class, 10x1m as per IS-15652	NO	20
4.17	Insulating mat Class C 3mm thick upto 33kV class, 10x1m as per IS-15652	NO	7
<b>Erection &amp;Commissioning of Items</b>			
<b>5</b>	<b>E&amp;C of Interconnection modules ,SMB's</b>		
5.01	Excavation ,laying,glinding etc of 6 sq.mm DC cables (Layin inside HDPE duct from PV modules to SMB)	^Meter	3000

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<b>Item. NO</b>	<b>DESCRIPTION OF ITEM</b>	<b>UNIT</b>	<b>QTY</b>
5.02	Erection of SMB Mounting Structure frame	NO	216
5.03	Installation of SMB Box	NO	216
5.04	Interconnection of MC4 Connector for 6sq.mm cable	NO	5076
5.05	6sq.mm 'DC Cable Termination between string and SMB	NO	216
<b>6</b>	<b>Erection &amp;Testing of Cables</b>		
6.01	Excavation for burying of 33kV cables,1.1KV grade cables , DC cables, OFC cables, Signal cables etc as per the list given Annexure-2 of TCC. (Burying of cable shall be strictly done as per IS: 1255)	Meter	3200
6.02	'1Cx300 SQMM Al Armour,33kV (UE) grade HT cable.These cables shall be laid in trefoil formation by using trfoil clamps.	Meter	10000
6.03	1C X 240 sq.mm DC cable Copper conductor, EBXL XLPE insulated, Armored including glanding & termination	Meter	100000
6.04	1Cx 630 sqmm, LT power cable: Al conductor including glanding & termination	Meter	4000
6.05	4Cx70 sqmm, 'LT power cable: Al conductor including glanding & termination	Meter	400
6.06	4Cx35 sqmm, 'LT power cable,Al conductor including glanding & termination	Meter	800
6.07	4Cx25 sqmm, LT power cable Al conductor including glanding & termination	Meter	3200
6.08	4Cx16 sqmm,LT power cable Al conductor including glanding & termination	Meter	5600
6.09	4Cx10 sqmm, ,LT power cableAl conductor including glanding & termination	Meter	800
6.10	4Cx6 sqmm,LT power cable, Al conductor including glanding & termination	Meter	1600
6.11	:4Cx4 sqmm,,'LT power cable Al conductor including glanding & termination	Meter	2000
6.12	3Cx4 sqmm, 'LT power cableAl conductor including glanding & termination	Meter	2000
6.13	10Cx 2.5 sqmm,Control cable Copper conductor including glanding & termination	Meter	600
6.14	5Cx 2.5 sqmm,Control cable, Copper conductor including glanding & termination	Meter	1000

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<b>Item. NO</b>	<b>DESCRIPTION OF ITEM</b>	<b>UNIT</b>	<b>QTY</b>
6.15	2Cx 1.5 sqmm ,Control cable,Copper conductor including glanding & termination	Meter	4000
6.16	2Px0.5 sq.mm signal cable including glanding & termination	Meter	1000
6.17	5Px0.5 sq.mm signal cable including glanding & termination	Meter	1600
6.18	12Cx1.5 sq.mm signal cable laying glanding	Meter	400
6.19	CAT 5 ethernet cable including glanding & termination	Meter	1200
6.20	RS 485 communication cable including glanding & termination	Meter	14000
6.21	OFC cable for scada	Meter	6800
6.22	OFC cable for telephone system	Meter	6000
6.23	33KV,1Cx300Sq.mm (UE) Al cable Termination	Nos	120
6.24	Commissioning for the cables listed above Sl.No.6.02 to 6.22	Lot	1
<b>7</b>	<b>Erection and Testing Elec Panel in PCSS:</b>		
7.01	Power Conditioning Unit including base channel erection (1AU= 4 no. PCU, EACH PCU DIM:3800MM x1000MMx3000MM)	AU	4
7.02	33kV VCB Panel including base channel erection (1AU=2 I/C + 1 O/G=3 PNLs, 3900MMx2725MMx2600MM)	AU	4
7.03	415V ACDB including base channel erection (1AU= 1No ACDB, 3500MMx600MMx2400MM)	AU	4
7.04	110V DC VRLA Battery including base channel erection (1AU=55AH capacity having 54 cells, 750MMx450MM)	AU	4
7.05	110V DC 15A Battery charger including base channel erection (750MMx750MMx1500MM)	AU	4
7.06	SCADA RTU Panel including base channel erection (800MMx800MMx1600MM)	AU	4

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<b>Item. NO</b>	<b>DESCRIPTION OF ITEM</b>	<b>UNIT</b>	<b>QTY</b>
7.07	230V 5KVA UPS including base channel erection (1320MMx750MMx1600MM)	AU	4
7.08	230V 5KVA UPS Battery including base channel erection (2550MMx800MM)	AU	4
7.09	2.5MVA.33KV/350V Inverter Transformer (1AU=2 nos,2.5MVA Trans.Each dimension:3200MMx3100MMx3500MM)	AU	4
7.10	25kVA,350V/433V aux transformer (1 AU= 2 nos. 25KVA Auxiliary Trafo.)	AU	4
7.11	Commissioning equipment from Sl.7.01 to 7.08	AU	4
7.12	commissioning of 2.5MVA and 25KVA Inverter Transformers (1 AU= 2 nos. 2.5MVA Trafos andf 2 nos. 25KVA Auxiliary Trafo.)	AU	4
7.13	Commissioning support for Fire alarm panel (Commissioning supervision by OEM)	AU	4
7.14	Oil filtrion of 2.5MVA Transformers (1AU=2 nos.2.5MVA transformers,oil capacity of each trafo around 1900 ltrs & 2 nos. 25kVA)	AU	4
<b>8</b>	<b>E&amp;C Elec Panel Installation in PESS</b>		
8.01	Power Conditioning Unit including base channel erection (1AU= 4 no. PCU, EACH PCU DIM:3800MM x1000MMx3000MM)	AU	1
8.03	33kV VCB Panel including base channel erection ( 1AU=6I/C+1BPT+1 O/G+1 Spare=9 PNLs 11700MMX2725MMx2600MM)	AU	1
8.04	415V ACDB including base channel erection (1AU= 1No ACDB, 3500MMx600MMx2400MM)	AU	1
8.05	SCADA at PESS including base channel erection associated HMI & Printers (1AU=1500MMx800MMx1600MM  (Includes all the panel & assciated cabling & Inegration as per Cl.4.37 of TCC)	AU	1
8.06	10kVA, 230V parallel redundant UPS including base channel erection ((1320MMx750MMx1600MM))	AU	1
8.07	10kVA, 230V parallel redundant UPS Batteries including base channel erection (2550MMx800MM)	AU	1
8.09	110V DC VRLA Battery (1AU=105AH capacity having 54 cells, 750MMx450MM)	AU	1

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8.11	110V DC 30A Battery charger including base channel erection (750MMx750MMx1500MM)	AU	1
8.12	2.5MVA.33KV/350V Inverter Transformer (1AU=2 nos,2.5MVA Trans.Each dimension:3200MMx3100MMx3500MM)	AU	1
8.13	Aux transformer 75KVA,350V/433V erection at PESS (1AU=2 nos,75KVA AUX Trafos.)	AU	1
8.14	IP based Tele phone exchange including base channel erection (800MMx800MMx2000MM)	AU	1
8.15	Weather Monitoring system. (Includes Pyranometer for solar irradiation, thermometer for ambient temperature, anemometer for wind velocity associated cabling works)	AU	1
8.16	'Clean agent gas extinguishing system such as IG 541 / IG 55 which includes I&C of cylinders,pipes & fittings,manifolds, supply of mouting structures,Pressure reliefe devices,Nozzles, ball valves,Release panels, associated batteries, associated cabling,manifolds etc as per TCC	AU	1
8.17	Commissioning of equipment from Sl.no.8.01 to 8.16	AU	1
8.18	commissioning of 2.5MVA and 75KVA Inverter Transformers (1 AU= 2 nos. 2.5MVA Trafos andf 2 nos. 25KVA Auxiliary Trafo.)	AU	1
8.19	Commissioning of Fire alarm panel	AU	1
8.20	Oil filtration of transformers at PESS. (1 AU= 2 nos. 2.5MVA Trafos andf 2 nos. 25KVA Auxiliary Trafo.)	AU	1
<b>9</b>	<b>E&amp;C: Erection &amp; Testing of 33kV metering yard:for 40MW (Refer Meetring yard layout:(PY-LE-1-M088-2019-01)</b>		
9.01	Erection of structure for metering yard (1AU=Activity Equivalent to 1 Nos of O/G Fdr)	AU	1
9.02	Erection of ACSR conductor erection and stringing of ACSR conductor upto gantry as per attached metering yard layout (PY-LE-1-M088-2019-01) (1AU=Activity Equivalent to 1 Nos of O/G Fdr)	AU	1
9.03	Erection of ' CTs, PTs, LAs, GOS Isolator etc. (1AU=Activity Equivalent to 1 Nos of O/G Fdr)	AU	1
9.04	Erection of ABT meter panel including calibration of meters in approved calibration centers of respective RLDC/State power utilities/CTU. It is the responsibility of the vendor to get ABT meters sealed by RLDC/ state power utilities/CTU.	Nos	3
9.05	Testing & commissioning of metering yard Equipment (1AU=Completed Metering yard)	AU	1

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<b>10</b>	<b>E&amp;C: Earthing &amp; lightning system system: PCSS building ,PESS building,Metering yard,DC arrayard etc</b>		
10.01	75x10mm earth stripLaying of earth strip below ground -	Mtrs	2400
10.02	75x10mm Earth strip-Laying of earth strip above ground with equipment connections	Mtrs	1000
10.03	50x6 mm earth strip-Laying of earth strip above ground with equipment connections	Mtrs	960
10.04	25x3mm earth strip-Laying of earth strip below ground	Mtrs	5000
10.05	25x3mm earth strip-Laying of earth strip above ground with equipment connections	Mtrs	9000
10.06	8swg-Laying of earth wire above ground with equipment connections	Mtrs	2000
10.07	35x6 mm earth strip-Laying of earth strip above ground for lightnin gprotection system	Mtrs	500
10.08	65mm GI Pipe electrode-Installation of Earth Pit including filling with charcoal and salt	Mtrs	65
10.09	40mm GI Rod electrode-Installation of Earth Pit including filling with charcoal and salt	Mtrs	50
10.10	Installation of vertical air termination rods	Nos	12
10.11	Installation Lightning Protection(ESE)	NO	20
<b>11</b>	<b>E&amp;C of cable Trays</b>		
11.01	600W Ladder type GI cable tray including support erection	Mtrs	600
11.02	300W Peforated cable tray including support erection	Mtrs	320
<b>12</b>	<b>Erection&amp;Commissioning: Outdoor area Lighting system (refer attached outdoor area illumination layout)</b>		
12.01	120W LED Flood Light Fixture	NO	2
12.02	40 W LED Batton Fixture	NO	10.00
12.03	30 W LED street Fixture	NO	407.00
12.04	Poles 2.2 Mtrs & 4.2 Mtr Poles	NO	410.00

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12.05	Poles 11 Mtrs Poles	NO	2.00
12.06	JBs/Welding receptacles/TPN Socket/Surface mounted board/	NO	20
12.07	Commissioning of Illumination system	LOT	1
13	<b>E&amp;C:Module Cleaning system:</b> '1 AU = Activity equivalent to 1 out of 13 No 5 MW Site.	AU	5
14	<b>E&amp;C: Construction of bore wells:</b> '1 AU = Activity equivalent to 1 out of 11 No bore well.	AU	4
15	<b>E&amp;C: Commissioning , state clearance</b> '1 AU = Activity equivalent to 1 out of 2 Sites.	AU	1
16	<b>Operation &amp; Maintenance</b>		
16.01	<b>Operations and Maintenace per Momnth ( five years)</b> (1 AU = Activity equivalent to 1 Months out of 60 Months)	AU	60
<b>Notes:</b>			
1	<b>The successful bidder will be required to provide Operation &amp; Maintenance services for the entire 25 MW site under this contract.</b>		
2	<b>The unit rate for item no. 6.24,8.17,12.07 &amp; 16.01 derived from the weightage % indicated in price bid format will be reduced to 38.46% for arriving at unit rate for contract for 25 MW site(Ref. BOQ-B)</b>		