



INDIAN INSTITUTE OF TECHNOLOGY, MADRAS
ENGINEERING UNIT

CHENNAI – 600 036

Price Bid (Volume 2)

T. No 13/2013-14/Eldb

Name of the work : Providing substation equipments and power cables for
the new boys and girls Hostels at IIT Madras

Date of Submission of
Technical & Price bid : 03.00 pm on 10/06/2013

Date of opening of
Technical bid : 03.10 pm on 10/06/2013

Date of opening of
Price bid : Will be intimated later to the qualified tenderers.

Bid Submitted to : The Executive Engineer (E),
Engineering Unit,
Administrative Block III Floor,
IITM, Chennai-36

Signed-
Consultant (Elec)

Signed-
Executive Engineer (Elec)

INDIAN INSTITUTE OF TECHNOLOGY MADRAS
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<p>TENDER DOCUMENT</p> <p>FOR</p> <p>Providing substation equipments and power cables for the new boys and girls Hostels at IIT Madras</p>
<p>VOLUME-2 (PRICE BID)</p>
<p>BILL OF QUANTITIES</p>
<p>Other volume:</p>
<p>Vol-1: Notice inviting tenders, Conditions of Contract, Additional specifications, General Conditions of Contract , list of approved makes etc.,</p>

INDIAN INSTITUTE OF TECHNOLOGY MADRAS					
Name of work: Providing substation equipments and power cables for the New Boys and Girls Hostels at IIT Madras					
Tender No : 13/2013-14/Eldb					
<u>BILL OF QUANTITIES</u>					
Sl no	Description of Work	Qty	Rate	Per	Amount
I.	VCB Panels				
1	Supply ,Erection,Testing and Commissioning of 11kV cubicle board comprising of 11kV Draw out type VCB Panel complete with CTs, Numerical type protection relays with serial communication port as per the enclosed Technical Specification.				
1.1	Single Panel 11kV 800A HT VCB with required copper bus bars for interconnections.				
	(i) Supply	2		Set	
Rate in words Rupees.....)					
	(ii) Erection	2		Set	
Rate in words Rupees.....)					
II.	DISTRIBUTION TRANSFORMER				
2	Supply, Erection, Testing and Commissioning of 1000kVA 11/0.433kV Distribution type mineral oil filled ONAN type outdoor type transformer with complete fittings and accessories as per the enclosed Technical Specification.				
A	1000kVA Transformer (i) Supply	2		Nos	
Rate in words Rupees.....)					

	(ii) Erection	2		Nos	
Rate in words Rupees.....)					
III	BUS-TRUNKING				
3	Supply, Installation, Testing and Commissioning of 1600A TPN fabricated air insulated bus trunking suitable for 415V 3 phase 4 wire 50HZ AC supply system (between transformer LT side and up to the incomer of the MV Panel) of Aluminium busbars complete with bends, expansion joints, fire barriers, flexible etc end connections at both ends, earthing with 2 runs of copper earth of size 25 x 5mm strips etc including necessary supports etc as per specifications as required.	30		Mt	
Rate in words Rupees.....)					
IV	CABLES AND TERMINATIONS				
4	Laying of following sizes 11kV (E) HT UG Aluminium armoured XLPE Power cable in trench of 50cm wide and 100cm depth including earth work excavation in all soils and sub soils spreading 12cm thick river sand (at the bed of the trench 6 cm and after laying the cable another 6 cm) and brick cover protection top of the cable using burnt bricks and back filling, consolidated in a regular interval of 25cm thick rammed and complying with standard specification. The rate should be inclusive of cable route markers at every 50m interval as decided by the Engineer In-charge				
4.1	3C X 120 sqmm (Cable will be supplied by Department at free of cost)	70		Mt	
Rate in words Rupees.....)					

5	Supplying and Terminating the ends of the following 11kV (E) HT UG Aluminium armoured XLPE Power cable with suitable lug / Ferrules sockets and necessary jointing materials with Rhychem heat Shrinkable Joint Kit.				
Rate in words Rupees.....)					
5.1	3C X 120 sqmm	4		Nos	
Rate in words Rupees.....)					
6	Supplying& Laying of following sizes PVC XLPE insulated alu. Conductor armored LTUG cable in trench of 50cm wide and 75cm depth including earth work excavation in all soils and sub soils spreading 6cm thick river sand at the bed of the trench and brick cover protection top of the cable using burnt bricks and back filling, consolidated in a regular interval of 25cm thick rammed and complying with standard specification. The rate should be inclusive of cable route markers at every 50m interval as decided by the Engineer In-charge.				
6.1	3.5c X 400 sq.mm	500		Mt	
Rate in words Rupees.....)					
6.2	3.5c X 240 sqmm	700		Mt	
Rate in words Rupees.....)					
6.3	3.5c X 150 sqmm	500		Mt	
Rate in words Rupees.....)					

7	Supplying and making end termination for following sizes alu. Conductor LT UG cable using suitable compression gland with required copper ferules / socket and other jointing materials				
7.1	3.5c X 400 sq.mm	6		Nos	
Rate in words Rupees.....)					
7.2	3.5c X 240 sqmm	12		Nos	
Rate in words Rupees.....)					
7.3	3.5c X 150 sqmm	12		Nos	
Rate in words Rupees.....)					
V	EARTHING				
8	Supply, Erection, Testing and Commissioning of Cast iron pipe and copper plate earth as per IS - 3043 - 1987 including excavation of soil and sub soil , back filling with equal layers of salt and charcoal and the excavated soil , ramming, consolidating, Masonry construction, heavy duty cover slab etc. The CI pipe should be 100mm dia and 3mt long bolted with 600 x 600 x 3 mm thick copper plate at the bottom. 2R of 50 x 3 mm copper flats should be taken from the copper plate to the top of the CI pipe and clamping with suitable clamps	8		Nos	
Rate in words Rupees.....)					
9	Earthing the installation with the following sizes of earth wires. The rate shall be inclusive of spacer clamp for main earth flat suitable clamping with the MS flats for earth wires including crimping of socket etc. or laying below 0.5m from ground level including earth work excavation and refilling the excavated soil.				

9.1	50 x 10 mm GI Flat	60		Mt	
Rate in words Rupees.....)					
9.2	50 x 5 mm GI Flat	120		Mt	
Rate in words Rupees.....)					
9.3	25 x 5mm GI flat	250		Mt	
Rate in words Rupees.....)					
VI	MV PANELS				
10	Supply , Erection, Testing and commissioning of suitable size extendable floor mounting cubical type following LT Main Panel board suitable for 415V 3ph 4 wire 50Hz AC supply system fabricated in a compartmentalized design from CRCA sheet steel of 2mm thick for frame works and cover with 3mm thick removable gland plate ,cleaning and finishing with 7 tank process for powder coating with Siemens grey having extensible type TPN copper alloy bus bar of suitable capacity as per the incomer ACB /MCCB/SDF ratings with DMC/SMC bus bar supports with short circuit withstand capacity of 31MVA / 1Second , bottom base channel of 100mmX 50mm X 5mm. .The In/Out going Cable entry should be from the rear side of the panel.				

	BUS BARS				
	Bus bars will be electrolytic copper , air insulated , R,Y,B, N(Black) PVC sleeved capable of carrying full load current for all the 3 phases and neutral continuously. The current density of copper shall be designed for 1.2A per sqmm. The bus chamber should have proper air ventilators.				
	EARTHING				
	2 separate run of 25 x 3 mm copper earth bus painted in green colour should be provided all along the panel and connected to the main grid. Inter connections should be taken to metering chamber, MCCB's, ACB's, FSU's etc so that all current carrying components are effectively earthed.				
	ADDITIONAL SCOPE OF WORK				
	The scope of work includes removal of existing industrial/cubical type panel after disconnection of cable and reconnecting them to the new panel by excavation of earth outside the building, minor civil works like breaking of concrete floors, construction of masonry trench and suitable MS 'II' type channels for the proposed panel as per the instruction from the Engineer in-charge. Necessary Panel drawings, QAP and GTP to be got approved from the Engineer in-charge before fabrication.				
A	PANEL I (BOYS HOSTEL)				
	Incomer				
	1600A TP ACB 50kA -1no (MDO independent manual spring closing mechanism-1no, microprocessor release for o/c , e/f and short circuit protection-1no, breaker ON/OFF/Trip indication Lamps) .				

	Outgoing				
	1250A 4P ACB 50kA (MDO independent manual spring closing mechanism-1no, microprocessor release for o/c , e/f and short circuit protection-1no, breaker ON/OFF/Trip indication Lamps) -1 no as BUS COUPLER				
	630A TP ACB 50kA (MDO independent manual spring closing mechanism-1no, microprocessor release for o/c , e/f and short circuit protection-1no, breaker ON/OFF/Trip indication Lamps with 96sqmm digital Ammeter with required CT's)-2 set				
	400A TPN MCCB 36kA with micro processor based trip units ,front operated handle and with ON/OFF/TRIP indications-5set				
	1600A copper bus bars for 3phases and neutral				
	3 phase indication lamps with toggle switch-1set, microprocessor based digital multi function meter with communication port and the facility for active and reactive power measurements -1set with required CTs and control fuses etc. Necessary Spreaders / extended copper bus bars of suitable rating with required holes should be provided for the cable and bus bar terminations. The handle should be pad lockable type in both ON/OFF positions. The work should be inclusive of providing interlocking arrangement with the existing MV panel and the new MV panel by providing 3 lock and 2 key arrangement				
	(i) Supply	1		Set	
Rate in words Rupees.....)					
	(ii) Erection	1		Set	
Rate in words Rupees.....)					

B	PANEL II				
	Incomer				
	1600A TP ACB 50kA -2nos (MDO independent manual spring closing mechanism-1no, microprocessor release for o/c , e/f and short circuit protection-1no, breaker ON/OFF/Trip indication Lamps) .				
	Outgoing				
	1600A 4P ACB 50kA (MDO independent manual spring closing mechanism-1no, microprocessor release for o/c , e/f and short circuit protection-1no, breaker ON/OFF/Trip indication Lamps) -1 no as BUS COUPLER				
	630A TP ACB 50kA (Fixed type independent manual spring closing mechanism-1no, microprocessor release for o/c , e/f and short circuit protection-1no, breaker ON/OFF/Trip indication Lamps with 96sqmm digital Ammeter with required CT's)- 6 set				
	400A TPN MCCB 36kA with micro processor based trip units ,front operated handle and with ON/OFF/TRIP indications-4 set				
	250A TPN MCCB 36kA with micro processor based trip units front operated handle and with ON/OFF/TRIP indications-1 No				
	1600A copper bus bars for 3phases and neutral				
3 phase indication lamps with toggle switch-1set, microprocessor based digital multi function meter with communication port and the facility for active and reactive power measurements -1set with required CTs and control fuses etc. Necessary Spreaders / extended copper bus bars of suitable rating with required holes should be provided for the cable and bus bar terminations. The handle should be pad lockable type in both ON/OFF positions. The work should be inclusive of providing interlocking arrangement by providing 3 lock and 2 key arrangement					

	(i) Supply	1		Set	
Rate in words Rupees.....)					
	(ii) Erection	1		Set	
Rate in words Rupees.....)					
C	PANEL III (Non- Extendable Type)				
	Incomer				
	250A TPN MCCB 36kA with micro processor based trip units front operated handle and with ON/OFF/TRIP indications-1 No				
	Outgoing				
	125A TPN MCCB 36kA with fixed thermal and magnetic based trip units front operated handle and -3 Nos				
	63 A TPN MCCB 36kA with fixed thermal and magnetic based trip units front operated handle and -6Nos				
	250A copper bus bars for 3phases and neutral				
	3 phase indication lamps with toggle switch-1set, microprocessor based digital multi function meter with communication port and the facility for active and reactive power measurements -1set with required CTs and control fuses etc. Necessary Spreaders / extended copper bus bars of suitable rating with required holes should be provided for the cable and bus bar terminations. The handle should be pad lockable type in both ON/OFF positions.				
	(i) Supply	1		Set	
Rate in words Rupees.....)					
	(ii) Erection	1		Set	
Rate in words Rupees.....)					

11	Shifting of the following substation equipments from existing substation by removal of existing HT /LT UG Cables completely from the soil or subsoil up to end terminations, earth connections etc and reerect them in other substation and reterminating the existing/new HT/LT cables with required terminations (new HT/LT cables will be supplied by IIT if required) with minor trench civil works. The rate should be inclusive of transport, labour/ Machineries and all tools as required.	1		Job	
	a) 500kVA 11/0.433kV Distribution Transformer-1No,				
	b) 3 Panel 800A HT VCB- 1 Set,				
	c)110V DC Battery and Battery Charger- 1 Set				
	d)MS Channels				
Rate in words Rupees.....)					
		TOTAL			

Total Amount in words Rupees

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Signature of the Contractor

**Signed-
Consultant (Elect)**

**Signed-
Executive Engineer (E)**