

Tender Inviting Authority: India Trade Promotion Organization at New Delhi

Name of Work:Supply, Installation, Testing and Commissioning of Substation 11kV/433V substation with suitable rating transformers,Switch gear complete at ITPO Pragati Maidan, New Delhi.

Contract No:ITPO/CE(P)/Electrical/24-25/01

Name of the Bidder/ Bidding Firm / Company :						
PRICE SCHEDULE (This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only )						
NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	BASIC RATE with all taxes inclusive GST - In Figures To be entered by the Bidder in Rs. P	TOTAL AMOUNT with all taxes inclusive GST in Rs. P	TOTAL AMOUNT In Words
1	2	4	5	13	53	55
	Supply, installation, testing & commissioning of package type/unitised 11kV/ 433 V Outdoor sub-station, 2000 KVA made from G. I. enclosure complete as required conforming to IEC 62271-202 only and relevant IS specifications as applicable for the rating, Internal Arc of 21 KA/1 Sec. IAC A & B on HT Compartment including Civil foundation. 1:2:4 (1 cement :2 cores and : 4 Graded stone aggregate of 40 mm nominal size) PCC foundation of suitable size extending 500 mm all around the outdoor enclosure and 1000 mm height (above ground level) complete with suitable sizes of GI Pipes for incoming/outgoing cables/earthing strips etc. and consisting of following complete as required. Angle iron frame of size 40x40x5mm NS all along the corner of the foundation CSS shall be from OEMs only . Licensed / Authorized System Integrators of approved OEM are not allowed to supply. Vacuum Interrupter,RMUL/ LT Switchgear, Meters and CSS Enclosure shall be of same make to ensure life cycle optimization. Note :- LT Side have to provision of connection of Sandwich Bustrunking of 3200A.  Package substation will have the following equipment :-  HT SWITCHGEAR 11kV 630Amps 21KA/3 sec. Non-Extendable Ring Main Unit Compact switchgear consisting of 2 Nos fixed motorized Load Break switch & 1 no fixed motorized VCB module in SF6 insulated stainless steel enclosure and with Bus PT metering module . Interconnection between HT Switchgear and primary of transformer shall be done through 1C x 3R x 95 sq.mm Aluminium XLPE cable. - 1 No. Microprocessor based IDMT Relay for Circuit Breakers - Self Powered along with series trip coil (Modbus RS485 complaint) Capacitive voltage indication fixed type system with LED for all feeder and FPI in all load break switch feeder. SF6 Gas pressure indicator. Operating sequence of VCB must be O-0.3Sec-CO-3 Mins-CO CT shall be minimum 60/1A, 2.5VA ,core 1 is SP20 for protection- 3 nos. CT shall be minimum 60/1A, 2.5VA ,core 2 is calss 0.5 for metering - 3 nos. All the Load Break switch will have Fault Passage indicator 2X12V, 26AH Battery with Dual Charger - 1 Set 11kV/1.732/110V/1.732 Cast resin Bus PT single phase- 03 set Multifunction meter with Modbus RS485 port & class 0.5 accuracy for each VCB module All modules of the RMU shall be suitable for cable termination of 3C x 300 sq.mm Al XLPE Cable, incoming cable termination is included within the scope of work - 1 Set					
1.01	Transformer 2000 KVA 11kV/433V DYN-11 Oil type, hermetically sealed energy efficiency level-2 transformer (BEE Star Rated-2) with corrugated wall, without conservator, type of design & Top Bushings for HT & LT with Off/load tap switch of rating +5% to -5% @2.5%, Temp Rise - Oil/Winding 40/45 Deg cel. Losses (As per IS-1180 amended up to date) Max Losses @ 50% Load 4790W and Max Losses @ 100% Load 14100 W and Impedance of 6.25% (Subject to IS Tolerance (as per IS1180-2014) The transformer shall be conforming to IS: 2026 and IS: 1180(part-I), amended up to date. - One No. Winding Temperature Indicator with Alarm and trip Contact					
1.02	LT Panel LVS PANEL. 3200 AMPS 4 pole Aluminium BUSBAR (100% FOR PHASES AND 100% FOR NEUTRAL) . ; LT panel made up of 1.5/2 mm thick CRCA sheet					
1.03	Outgoing 3200 Amps 433V 4P 50Hz 50KA Drawout Manual Type Air Circuit Breaker (ACB) Multifunction meter with Modbus RS485 port & class 0.5 accuracy with Suitable CT. - 1 set Hard wiring from each equipment inside CSS for scada connectivity (monitoring & control) to be brought to one set of TBs and a space for FRTU to be given. All Civil works such as PCC/RCC: foundation, Platform, Filling trench and pedestal etc as per CSS manufacturer's recommendation are included in scope of work.					
1.04	OUTDOOR ENCLOSURE Outdoor type enclosure of 1.5 mm (For non load bearing members) & 2.0 mm (For load bearing members) thickness having modular construction of Galvanised Sheet Steel in suitable design for better heat dissipation and providing robust construction. The Enclosure shall have IP54 degree of protection for HT & LT switchgear compartment & IP 23 degree of protection for transformer compartment. The enclosure exterior shall be painted with epoxy based powder paint (colour RAL 7032). Each compartment will be provided with the door and pad locking arrangement. The design of the enclosure should be type tested for suitably handling any arcing inside the compartment for providing better safety to the operator. The compartment illumination lamp with door operated switch shall be provided for each compartment. Vacuum Interrupter,RMUL/ LT Switchgear, Multifunction meter and CSS Enclosure shall be of same make to ensure life cycle optimization.					
1.05	For Items mentioned above in 1.1,01,1.02,1.03,1.04,1.05	2.000	Sets		0.00	INR Zero Only
2	MAIN LT PANEL OUT DOOR TYPE Supplying, installation, testing & commissioning cubical type outdoor (IP-55) double door with canopy feeder pillar type construction locking arrangement with godown locks in front & back with rain cap cover suitable for 3 phase, 4 wire 415 volt 50Hz dust and vermin proof made out of design from CRCA sheet steel of 2mm thick for frame work and covers with provision for connections of incoming cable and outgoing cables, i/c providing & fixing following switch gears i/c powder coated with sinence gray paint after prepaint treatment, painting. Panel suitable for 415 Volt, 3 Phase, 4 wire, 50Hz AC supply system fabricated in compartmentialised , 3mm thick for gland plates i/c cleaning & finishing complete with 9 tank process for powder coating in approved shade, having 3200 Amps capacity extensible type FP Aluminium Alloy bus bars of high conductivity DMC/SMC bus bar supports, with short circuit with stand capacity of 31 MVA for 1 Sec., bottom base channel of MS section not less than 100mm x 50mm x 5mm thick, fabrication shall be done in transportable section, entire panel shall have a common copper earth bar of suitable size at the rear with 2 Nos. earth stud, solid connections from main bus bar to switch gears with required size of Al. bus bars and control wiring with 2.5 sqmm PVC insulated copper conductor single core cable, cable alleys, cable gland plates in two half, i/c providing and fixing following switch gears. old existing panel dismounting complete as per site requirement included.					
2.01	(i) Incomer (CSS 1 & 2) 2 Set. - 3200 Amps 4 pole horizontal drawout type air circuit breaker 433V AC, 50Hz AC operation of fault breaking capacity 50 kA (Ics = Icu = Icw =100%) for 1 sec. electrically operated (EDO), fitted with interlocked door, automatic safety shutters, mechanical ON/OFF and service/test/isolated position indicators, zone selective interlocking, ready to close,thermal memory and frame earthing contact, conforming to IEC 60947/IS-13947/Part-II/1993 latest version as amended up-to-date complete with following accessories for each ACB. a) Independent electrical and manual spring closing mechanism - 1 No. b)Microprocessor releases based release for adjustable setting for over current, short circuit and Earth Fault (LSIG) protection with 4 line LCD (R,Y,B,N) display with bar graph display for % loading of phases, all RYBN current and Voltage, release should self powered requiring no external power supply. LED fault indication on release. conforming to IEC:60947/ IS:13947, Part-II/1993. Make ABB/Schneider/Siemens - 1 set. c) Undervoltage release for each ACB's-1 No d) Digital type Multifunction Meter (IV,KW,KWH,KVA,PF,HZ), 96mm square flush pattern with one set of 4 nos. CT's of 3200/5A Class I accuracy and 15 VA burden - 1 Set. e) 3 Nos. Phase indication LED lamps and breaker ON/OFF,TRIP indicating light , test terminal block set, circuit wiring as perstandard practice, auxiliary contacts for positive interlocking of the breaker as reqd. f) Electrical Interlocking - 1 No. g)Aux. Contactor + Add On Block 2no+2nc - 3 Nos. h)4P high protection 70kA, surge protectors with MPCB for incomer -1 Nos. i) 2A SP Control MCB's for protection of control circuit -7 Nos. j) A/M Selector Switch (1P, 2way With Off) -1 Nos. k) 06A DP MCB 10kA -3 Nos. l) 25A Breaker Control Switch -1 Nos. m) 3 Nos. CT 3200/5A Class I accuracy for APFC relay sensing					

2.02	<p><b>(ii) BUS COUPLERS :</b>  1 Set - 3200 Amps four pole horizontal drawout type air circuit breaker of fault breaking capacity 50 kA (Ics = Icu = Icw=100%) for 1 sec. electrically operated (EDO) without release, fitted with interlocked door, automatic safety shutters, mechanical ON/OFF and service/test/isolated position indicators and frame earthing contact, conforming to IEC 60947/IS-13947/Part-II/1993 latest version as amended up-to-date complete with following accessories for each ACB. (Make Schneider/ABB/Siemens)</p> <p>a) Independent electrical and manual Spring closing mechanism - 1 No.  b) Breaker ON/OFF Indicating LED indicating light, test terminal block, circuit wiring as per standard practice, auxiliary contact for positive electrical interlocking of breakers, etc. as reqd.-1 set.  c) Under Voltage release-220 V AC - 1 No.  d) Electrical Interlocking - 1 No.  e) Aux. Contactor +Add On Block 2no+2nc-3 Nos.  f) 6A SP MCB -4 Nos.  g)25A Breaker Control Switch-1 Nos.  h) On Delay Timer (240VAC)-2 Nos.  i) A/M Selector Switch (1P, 2way with Off) -1 Nos.</p>					
2.03	<p><b>(iii) BUS BARS:</b>  TPN aluminium bus bars of minimum of 3200A capacity with heat shrinkable coloured sleeves and i/c DMC/SMC bus bars supports at required intervals complete, for cross section, size supports &amp; their Spacing etc. for withstanding fault level of 31 MVA for 1 Sec. (For this the current capacity/density shall not be the limiting factor).</p>					
2.04	<p><b>(iv) OUTGOING:-</b>  <b>Section -1</b>  a) 1 Set. 400A FP MCCB 50kA With Thermal Magnetic release with adjustable setting overload setting upto 70% of rated current and Extended Handle + 1 C/O Aux. Contact (ICS=ICU=100%) with Digital Meter VAF ,Metering CT-400/5Amp - CL-1.0 ( 3 Nos ) , ON/OFF Indicating LED. (Make Schneider/ABB/Siemens)  b) 4 Set. 250A FP MCCB 50kA With Thermal Magnetic release with adjustable setting overload setting upto 70% of rated current and Extended Handle + 1 C/O Aux. Contact (ICS=ICU=100%) with Digital Meter VAF ,Metering CT-250/5Amp - CL-1.0 ( 3 Nos ) , ON/OFF Indicating LED.</p>					
2.05	<p><b>APFC Section for CSS 1 -900KVAR</b>  1600A TP Pole + N, horizontal drawout type air circuit breaker upto 433V AC, 50Hz AC operation of fault breaking capacity 50 kA (Ics = Icu = Icw =100%) for 1 sec. electrically operated (EDO), fitted with interlocked door, automatic safety shutters, mechanical ON/OFF and service/test/isolated position indicators and frame earthing contact, Microprocessor releases based release for adjustable setting for over current &amp; short circuit protection with 4 line LCD (R,Y,B,N) display with bar graph display for % loading of phases. all RYBN current and Volatge. release should self powered requiring no external power supply. LED faults Indication on release. conforming to IEC:60947/ IS:13947, Part-II/1993</p> <p>a) 12 Stage APFCR Relay -1 Nos.  b) Louver With Fan -2 Nos.  c) Timer ON Delay -1 Nos.  d) Aux. Contactor +Add On Block 2no+2nc -5 Nos.  e) Digital VAF Meter -1 Nos.  f) C.T's 1600/5Amp , CL-1.0 -3 Nos.  g) C.T Shorting Link -4 Nos.  h) A/M Selector Switch-1 Nos.  i)R,Y,B, ON and OFF Phase Indicating LED -5 Nos.  k) 6A SP MCB -7 Nos.</p>					
2.06	<p><b>OUTGOINGS:-</b>  <b>STEP DETAILS 100 KVAR - 7 Nos.</b>  1) 7 Set 250A TP MCCB 25kA Thermal Magnetic release with adjustable setting for overload and short circuit Protection &amp; Rom with following accessories each capacitor bank (Feeder)  a) 100KVAR 440V AC CAPACITOR duty Contactor  b) START/STOP Push Button -2 Nos.  c) ON/OFF Indicating Lamp -2 Nos.  d) 440V AC CAPACITOR MPP TYPE Heavy duty-100KVR -1 Nos. ABB/Schneider/Siemens  e) 32A Neutral Link -1 Nos.  f) 6A SP MCB -1 Nos.  <b>STEP DETAILS 50 KVAR - 3 Nos.</b>  1) 3 Set 100A TP MCCB 18kA Thermal Magnetic release with adjustable setting for overload and short circuit Protection &amp; Rom with following accessories each capacitor bank (Feeder)  a) 50KVAR 440V AC CAPACITOR duty Contactor -1 Nos.  b) START/STOP Push Button -2 Nos.  c) ON/OFF Indicating Lamp -2 Nos.  d) 440V AC CAPACITOR MPP TYPE Heavy duty -25KVR -1 Nos.  e) 32A Neutral Link -1 Nos.  f) 6A SP MCB -1 Nos.  <b>STEP DETAILS 25 KVAR - 2 Nos.</b>  1) 2 Set 63A TP MCCB 18kA Thermal Magnetic release with adjustable setting for overload and short circuit Protection &amp; Rom with following accessories each capacitor bank (Feeder) :-  a) 25KVAR 440V AC CAPACITOR duty Contactor -1 Nos.  b) START/STOP Push Button -2 Nos.  c) ON/OFF Indicating Lamp -2 Nos.  d) 440V AC CAPACITOR MPP TYPE Heavy duty -25KVR -1 Nos.  e) 32A Neutral Link -1 Nos.  f) 6A SP MCB -1 Nos.</p>					
2.07	<p><b>SECTION-2</b>  a) 1 Set. 400A FP MCCB 50kA With Thermal Magnetic release with adjustable setting overload setting upto 70% of rated current and Extended Handle + 1 C/O Aux. Contact (ICS=ICU=100%) with Digital Meter VAF ,Metering CT-400/5Amp - CL-1.0 ( 3 Nos ) , ON/OFF Indicating LED,  b) 4 Set. 250A FP MCCB 50kA With Thermal Magnetic release with adjustable setting overload setting upto 70% of rated current and Extended Handle + 1 C/O Aux. Contact (ICS=ICU=100%) with Digital Meter VAF ,Metering CT-250/5Amp - CL-1.0 ( 3 Nos ) , ON/OFF Indicating LED,</p>					
2.08	<p><b>APFC Section for CSS 2 -900KVAR</b>  1600A TP Pole + N, horizontal drawout type air circuit breaker upto 433V AC, 50Hz AC operation of fault breaking capacity 50 kA (Ics = Icu = Icw =100%) for 1 sec. electrically operated (EDO), fitted with interlocked door, automatic safety shutters, mechanical ON/OFF and service/test/isolated position indicators and frame earthing contact, Microprocessor releases based release for adjustable setting for over current &amp; short circuit protection 4 line LCD (R,Y,B,N) display with bar graph display for % loading of phases. all RYBN current and Volatge. release should self powered requiring no external power supply. LED faults Indication on release. conforming to IEC:60947/ IS:13947, Part-II/1993</p> <p>a) 12 Stage APFCR Relay -1 Nos.  b) Louver With Fan -2 Nos.  c) Timer ON Delay -1 Nos.  d) Aux. Contactor +Add On Block 2no+2nc -5 Nos.  e) Digital VAF Meter -1 Nos.  f) C.T's 1600/5Amp , CL-1.0 -3 Nos.  g) C.T Shorting Link -4 Nos.  h) A/M Selector Switch-1 Nos.  i)R,Y,B, ON and OFF Phase Indicating LED -5 Nos.  j) 32A Neutral Link -2 Nos.  k) 6A SP MCB -7 Nos.</p>					

2.09	<p>OUTGOINGS:-</p> <p>STEP DETAILS 100 KVAR - 7 Nos.</p> <p>1) 7 Set 250A TP MCCB 25kA Thermal Magnetic release with adjustable setting for overload and short circuit Protection &amp; Rom with following accessories each capacitor bank (Feeder) :-</p> <p>a) 100KVAR 440V AC CAPACITOR duty Contactor -1 Nos.</p> <p>b) START/STOP Push Button -2 Nos.</p> <p>c) ON/OFF Indicating Lamp -2 Nos.</p> <p>d) 440V AC CAPACITOR MPP TYPE Heavy duty -100KVR -1 Nos.</p> <p>e) 32A Neutral Link -1 Nos.</p> <p>f) 6A SP MCB -1 Nos.</p> <p>STEP DETAILS 50 KVAR - 3 Nos.</p> <p>1) 3 Set 100A TP MCCB 18kA Thermal Magnetic release with adjustable setting for overload and short circuit Protection &amp; Rom with following accessories each capacitor bank (Feeder) :-</p> <p>a) 50KVAR 440V AC CAPACITOR duty Contactor -1 Nos.</p> <p>b) START/STOP Push Button -2 Nos.</p> <p>c) ON/OFF Indicating Lamp -2 Nos.</p> <p>d) 440V AC CAPACITOR MPP TYPE Heavy duty -50KVR -1 Nos.</p> <p>e) 32A Neutral Link -1 Nos.</p> <p>f) 6A SP MCB -1 Nos.</p> <p>STEP DETAILS 25 KVAR - 2 Nos.</p> <p>1) 2 Set 63A TP MCCB 18kA Thermal Magnetic release with adjustable setting for overload and short circuit Protection &amp; Rom with following accessories each capacitor bank (Feeder) :-</p> <p>a) 25KVAR 440V AC CAPACITOR duty Contactor -1 Nos.</p> <p>b) START/STOP Push Button -2 Nos.c) ON/OFF Indicating Lamp -2 Nos.</p> <p>d) 440V AC CAPACITOR MPP TYPE Heavy duty -50KVR -1 Nos.</p> <p>e) 32A Neutral Link -1 Nos.</p>					
2.1	For items mentioned in 2.2.01, 2.02, 2.03, 2.04, 2.05, 2.06, 2.07, 2.08, 2.09	1.000	set		0.00	INR Zero Only
3	Supplying of following sizes of XLPE insulated PVC sheathed armoured Al. cond. Power Cable of 11 KV grade as required.					
3.01	3C x 300 sq mm	1500.000	Mtr		0.00	INR Zero Only
4	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing masonry open duct as required.					
4.01	Above 120 sq. mm and upto 400 sq. Mm	1200.000	Mtr		0.00	INR Zero Only
5	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :					
5.01	300 sq. Mm	4.000	Each		0.00	INR Zero Only
6	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :					
6.01	300 Sq.m	4.000	Each		0.00	INR Zero Only
7	Supplying and installing following size of perforated painted with powder coating M.S. cable trays with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.					
7.01	200 mm width X 50 mm depth X 1.6 mm thickness	1500.000	Mtr		0.00	INR Zero Only
8	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	6.000	Set		0.00	INR Zero Only
9	Providing and fixing earth bus of 50 mm X 5 mm copper strip on surface for connections etc. as required.	30.000	Mtr		0.00	INR Zero Only
10	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	2.000	Each		0.00	INR Zero Only
11	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. Pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	20.000	Mtr		0.00	INR Zero Only
12	Supplying, installing by suspension on ceiling, testing and commissioning of following capacity Sandwich Type Rising Main for use on 3 phase 4 wire 415 volts, 50Hz A.C. supply with metal clad enclosure having IP-66 rating. Glass Re inforced Polyester material is used, made of minimum 1.5mm thick steel sheet duly powder coated in convenient sections complete with 4 Nos aluminium Rectangular bus bars having current density of 130 A/ sq cm at nominal current rating, necessary joints, elbow joints & expansion joints and bends, fire barrier at each floor, provision of tapping at every metre, adopter box and copper flexible for joints, continuous earthing with integral earthing including, G.I. clamping brackets, suspenders, angle iron bracket, steel fasteners, connecting to earthing system etc. as required. OEM has to produce IP66 certification while drawing approval/TDS.					
12.01	3200 A, Isc= 50kA for 1 sec	30.000	Mtr		0.00	INR Zero Only
Total in Figures					0.00	INR Zero Only
Quoted Rate in Words		INR Zero Only				