

Switchyard BOQ for 220kv Sagapara SS -STATCOM Project				
Sr. No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
A	Supply and Erection of 220kV Equipments considering 25mm/kV creepage distance (as per respective technical specifications and relevant special conditions) suitable for Two Main Bus and One Transfer Bus scheme with Twin AL59(61/3.50) conductor			
1	Surge Arrester 198kV, 10kA, Designation-SM with structure and clamp connectors(suitable to Twin AL-59) as per Technical spec	No.	3	3
2	BPI 8kN with structure and clamp connectors (suitable to Twin AL-59) as per Technical spec	No.	33	33
3	HBPI 8kN with structure and clamp connectors (suitable to Twin AL-59) as per Technical spec	No.	6	6
4	HDB Isolator without ES 1600A 40kA 3s with structure and clamp connectors (suitable to Twin AL-59) as per Technical spec	Set.	1	1
5	Tandem DB Isolator without ES 1600A 40kA 3s with structure and clamp connectors (suitable to Twin AL-59) as per Technical spec	Set.	3	3
6	CT conventional 1500-1200-600/1, 5C with structure and clamp connectors (suitable to Twin AL-59) as per Technical spec	No.	3	3
7	CB 2000A 40kA 3s with structure and clamp connectors (suitable to Twin AL-59) as per Technical spec	Set.	1	1
B	Supply and Erection of 220kV Materials considering 25mm/kV creepage distance (as per respective technical specifications and relevant special conditions) suitable for Two Main Bus and One Transfer Bus scheme with Twin AL59(61/3.50) conductor			
1	Stringing of bus with Twin AL59(61/3.50) conductor for all the three phases with required Silicon Rubber Insulators, hardwares and accessories, spacers provided at every 3.0 mtr. interval etc. complete as per relevant standards and approved drawings with Jumpers for continuous Bus Arrangement (It includes cost of Conductor, Silicon Rubber Insulators, hardwares and accessories, spacers etc.all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor.)			
a	Main Bus- I&II & Transfer Bus with 36Mtr span including bus jumpers	No. of Span	3	3
b	Transformer flyover bus with 75 Mtr span (For 220KV Side)	No. of Bay	1	1
c	Transformer flyover bus with 42.2 Mtr span (For MV Side)	No. of Bay	1	1
2	Droppers (including required suspension string with hardware and accessories if any) and Jumpers (including Equipment to Equipment) with Twin AL59(61/3.50) conductor as per standards and approved drawings with provision of required spacers (Suitable for 350mm spacing) at every 3.0 mtr. interval. (It includes cost of Conductor,Silicon Rubber Insulators, hardwares and accessories, Fire Wedge connectors, spacers etc.all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor)			
a	220/XX KV ,XXX MVA Coupling Transformer Bay (220KV Side)	No. of bay	1	1
3	Stringing of Earth Wire with 7/3.15 GS wire with required hardwares and accessories etc. complete as per standards and approved drawings for the shown span.(It includes cost of Earthwire,hardwares and accessories, etc. all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor			
a	75 Mtr. Of Span	No. of span	2	2
b	42.2 Mtr. of Span	No. of span	2	2
C	Supply and Erection of switchyard structure material considering 25mm/kV creepage distance as per respective technical specifications and relevant special conditions			
1	Gantry structures GI as per BOM, Steel (W/o A/B part) -220kv Switchyard	MT	23.80	22.8
2	Gantry structures GI as per BOM, Bolt nut part -220kv Switchyard	MT		1.00

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3	Gantry structures GI as per BOM, Steel (W/o A/B part) -MV Switchyard	MT	2.30	2.2
4	Gantry structures GI as per BOM, Bolt nut part -MV Switchyard	MT		0.10
5	Lighting Mast structure (25 Mtr) as per BOM, Steel part	MT	3.46	3.32
6	Lighting Mast structure (25 Mtr) as per BOM, Bolt nut part	MT		0.14

Sr. No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
D	Supply and Erection of All MV Equipments as per design (i.e. Circuit breakers, CT, PT, HDB isolators, Surge arresters, BPI, Reactor etc.) with structures and clamp connector considering 25mm/kV creepage distance as per respective technical specifications and . Note: Any other equipment/ item/ accessories necessary for satisfactory operation of STATCOM unit shall be in the scope of bidder.	Package	LS	LS
E	Droppers and Jumpering (equipment to equipment) with conductor/ suitable IPS pipe/ UG cable as per standards. The scope includes the cost of accessories i.e. spacers, fire wedge connectors, pipe bus connectors if any, SRI insulators with hardware and accessories etc. required for satisfactory operation of STATCOM Unit.	Package	LS	LS
F	Supply, Erection, Testing and commissioning of 220/XX KV, XXX MVA Step down coupling Transformer with NIFPS system and all necessary accessories as per design of STATCOM unit and as per all relevant standards	Nos.	1	1
G	Supply and Erection of General purpose equipments and materials as per respective technical specifications and relevant special conditions.			
1	DG set 250 KVA suitable for Outdoor plinth mounting with required panels and accessories and necessary earthing arrangement.	Set	1	1
2	11kV/415V,500 kVA Distribution Transformer as per Technical specification.	No	2	2
3	Suitable arrangement of 11KV connection : (A) From separate 11 KV express feeder (feeder termination shall be arranged by GETCO) to 11kV/415V, 500 kVA distribution transformer with support structure, Single Dog conductor and DP structure with DO fuse,9kV LA, AB Switch, 22kV Pin insulator arrangement etc. suitable to distribution transformers. (B) From existing 66/11kV Station TR to 11kV/415V, 500 kVA distribution transformer with support structure, Single Dog conductor and DP structure with DO fuse,9kV LA, AB Switch, 22kV Pin insulator arrangement etc. suitable to distribution transformers.	Package	LS	LS
4	3T Capacity Split AC (reputed make)			
	Valve Room	No	0	13
5	1.5T Capacity Split AC (reputed make)			
	SCADA Panel Room	No	0	5
	Cooling Room	No	0	5
6	Providing of Insulating Mat as per IS 15652:2006(Size2000x1000x2mm)	No.	0	10
7	Supply and installation of ISI marked fire extinguishers of various types as per requirement			
O	Fire Detection and Alarm System as per Technical Specification	Lump sum	LS	LS
H	Supply and installation of Portable and wheel/trolley mounted fire extinguishers for Control room, panel room, valve room ,Transformers and other Strategic locations as per relevant standards			
	Supply and installation of ISI marked fire extinguishers of various types required for STATCOM Bays and Building.			
1	Dry chemical powder type of 9 Kg. capacity.	No.	0	2
2	Dry chemical powder type of 25 Kg. capacity.	No.	0	1
3	Dry chemical powder type of 50 Kg. capacity.	No.	0	1
4	Carbon dioxide (CO2) gas type of capacity 6.5 Kg. capacity	No.	0	4
5	Carbon dioxide (CO2) gas type of capacity 22.5 Kg. capacity	No.	0	1
6	Mechanical Foam type of capacity 9 LT.	No.	0	2
7	Mechanical Foam type of capacity 60LT.	No.	0	2

Sr. No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
I	EOT Crane for Valve room(if required) of suitable capacity as per design for safe working load with single hook and double girder arrangement . VFD shall be provided for all three i.e CT,LT & Hoist movement. Cordless remote as well as remote control with cord (as Back up) shall be provided. Contractor shall submit the capacity calculation of the crane. There shall be provision for lifting arrangement of EOT crane for maintenance purpose.	No.	1	1
J	Visual Monitoring System (VMS) as per technical specification. (Alongwith local PC monitoring set up and remote end PC monitoring set up shall be in the scope of supply)	Lump sum	LS	LS
L	Indoor Lighting			
	Supply and installation of materials for Illumination system in all respect as per respective specifications and special conditions (Important Note: Concealed wiring shall be considered for Indoor Illumination)			
1	Providing and Fixing of Energy Efficient LED type (Technical spec CI No. 2.10.4.8-I LED 3 type) Indoor decorative luminaries as per design calculation, with respect to required lux level and relevant tender drgs.as per technical spec. Scope also includes providing and fixing of 15/5 A plug, Portable Emergency Light, Bell, Fan, Ex- Fan, DC Point,Occupancy and Light Level Sensor with requisite MCBs and DC 100W lamp , DC Plug etc all items as per Ann-4 in following rooms (with safety device ELCB)			
i	Valve Room	Package	LS	LS
ii	SCADA Panel Room	Package	LS	LS
iii	Cooling Room			
2	Providing and Fixing of Energy Efficient LED Type (Technical spec CI No. 2.10.4.8-I LED 1 or I LED 2 type) Indoor decorative luminaries as per design calculation, with respect to required lux level and relevant tender drgs.as per technical spec. Scope also includes providing and fixing of 15/5 A plug, Portable Emergency Light, Bell, Fan, Ex- Fan, DC Point, Occupancy and Light Level Sensor with requisite MCBs and DC 100W lamp , DC Plug etc all items as per Ann-4 in following rooms (with safety device ELCB)			
i	Battery Room	Package	LS	LS
ii	LV Room	Package	LS	LS
iii	Store Room	Package	LS	LS
iv	Ramp Slope	Package	LS	LS
vi	Toilet Gents	Package	LS	LS
viii	Toilet Ladies	Package	LS	LS
ix	Passage (Corridor)	Package	LS	LS
M	Outdoor Lighting			
i	Providing and fixing of flood light luminaries as per design for STATCOM (220 and MV) switch yard area with Philips/CGL/Bajaj/GE/Oshram make HPSV 150/250/400W lamp with energy efficient type choke (HF) with control gear box and ancillaries and suitable for mounting on structure at appropriate height (as per design) as per specifications TS illuminations cl. no 2.10.4.8 with necessary GI fabrication and GI bolt nuts to fix control gear box at the structure with complete internal and external wiring to J. box ,Dist panel/section feeder pillar etc with supply of required 3 c x 2.5 mm2 copper armoured cable (as per spec) .The scope includes supply and erection of all the materials required for satisfactory functioning of above work.	Package	LS	LS

Sr. No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
ii	<p>Providing and fixing of street light luminaries for STATCOM Building road as per design with Philips/CGL/Bajaj/GE/Oshram or Similar make LED lamp and ancillaries suitable for mounting on 7.0 mtr swaged poles as per spec. TS illuminations cl. no 2.10.4.8 (S-LED) at appropriate height with necessary GI fabrication and GI bolt nuts to fix control gear box with complete internal and external wiring to J. box, dist panel/section feeder pillar, fixing terminal etc with supply of required 3 c x 2.5 mm² copper armoured cable (as per spec). This also includes the supply and erection of 7.0 mtr swaged pole and foundation work as per spec. and painting with two coats of primer and two priming of zinc chromate as well as earthing with main mesh. The scope includes supply and erection of all the materials required for satisfactory functioning of above work.</p>	Package	LS	LS

Sr. No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
iii	Supply and Erection of main lighting Panel ACP-1 as per Specifications. Set comprises minimum 2 nos.of such panels qty may be more if required as per design.Scope also includes the providing and erection of cable size (as per design requirement) and 25x6 GI strip for earthing with main mesh	Set	1	1
iv	Supply and Erection of main lighting Panel ACP-3 as per Specifications Set comprises minimum 2 nos.of such panels qty may be more if required as per design.Scope also includes the providing and erection of cable size (as per design requirement) and 25x6 GI strip for earthing with main mesh	Set	1	1
v	Supply and Erection of main lighting Panel ACP-4 as per Specifications Set comprises minimum 2 nos.of such panels qty may be more if required as per design.Scope also includes the providing and erection of cable size (as per design requirement) and 25x6 GI strip for earthing with main mesh	Set	1	1
vi	Supply and Erection of main Yard light Dist. Board as per designed capacity ratings.Scope also includes the providing and erection of cable size (as per design requirement) and 50x6 GI strip for earthing with main mesh	Nos	1	1
viii	Providing of concreting in 1:2:4 mix including muffing for erection of pole and Dist boxes panels including excavation of HR/SR as per approved drawing.	Package	LS	LS
viii	Providing and fixing of ' B ' Class ISI marked GI pipe of 25 mm inner diameter for cable looping, road crossing with necessary elbow / band to J. Box etc.	Package	LS	LS
ix	Providing and fixing of GI clamp (25mm wide GI strip with 6 mm GI nut bolts) on structure at approx. 1/2 Mtr. Interval for clamping of cable . Clamp should be fix in such a way that cable can be easily mount inside it and sustain standing on structure. This also includes required other materials ,accessories required for complete functioning of Illumination system of whole project (switch yard and all buildings, structures) those are not covered in this schedule for Illumination. Please refer the drawing "General Schematic for Illumination" in the TS Illumination.	Package	LS	LS
N	Supply and installation of materials for DSLP and Earthing system in all respect as per respective specifications and special conditions (Successful bidder has to submit the complete design and BOQ for approval)			
1	Supply and Installation of earthing strips/round bars as shown below including digging of 600 mm depth and 450 mm wide trench fixing on structure as per std equipment earthing philosophy including fixing arrangement with two bolt arrangement, jointing, welding etc. complete.			
	a) 75 x 10 mm GI strip.	RMt.	1500	1500
	b) 50 x 6 mm GI strip.	RMt.	2000	2000
	c) 40 mm dia steel rod (For Mesh type earthing)	RMt.	1600	1600
	d) 40mm dia 3mtr long steel rod	Nos.	30	30
	e) 7/3.15 earth wire for earthing of towers with peak	RMtr.	114	114
	f) Lightning Spike - 40mm Dia, 1M long, GI Rod	Nos.	4	4
2	Supply, Installation, Testing and Commissioning of maintenance free treated earth electrodes, as per attached drawing no. GETCO/E/STD/P-021 (1 OF 2) R3 dated 29.05.20 and Technical specifications GETCO/E/TS-Maintenance free earth pits /R1 dated 04-06-15.	Nos.	17	17
3	Providing BB masonry inspection chamber (man hole) incl.light type CI cover as per GETCO drawing.	Nos.	17	17

NOTES:

- The scope includes all the material / equipments, whether mentioned or not but required to complete the STATCOM System in all respects.
- Package' includes all the material in required quantity to complete the SVC/STATCOM System as per latest standards and best practices.
- DSLP for Control room building etc. shall be done as per IEC 62305 / IS 2309 .