

Estimate of 400KV SOJA SUB-STATION				
A	(R1) - SWITCHYARD BOQ FOR 400KV SOJA SUB-STATION			
	SCOPE OF WORK:-			
	1) 2 NOS.. 400KV CHARAL LINE NO 1 & 2 BAYS ARE ADDED WITH BUS EXTENSION .			
	2) 1 NO. NEW 4th ,400/220KV, 500MVA ICT BAY ADDED UNDER EHV AUGMANTATION WORK.			
	3) 1 NO. EXISTING 220KV TORRENT LINE-1 BAY IS UTILIZING FOR PROP. LV SIDE (220KV SIDE) OF 400/220KV TCT-4 BAY WITH REQUIRED STRENGTENING AT JUMPER ,DROPPER ,FLYOVER WITH CLAMP-CONNECTOR ,HARDWARE SUITABLE TO TWIN AL-59 CONDUCTOR AT EXISTING EQUIPMENTS & STRUCTURE.			
	4) Prop. 1 NO. 220KV NEW LINE BAY ADDED IN EXISTING BUS ARRANGEMENT FOR UTILIZING OF 220KV TORRENT LINE No-2 WITH UTILIZING OF EXISTING CT(PROTECTION) , CT (METERING) ,PT (METERING),CVT , LA FROM EXISTING 220KV TORRENT LINE BAY LOCATION.			
5) PROP. 2 NOS 220KV LINE BAYS ARE ADDED AT OPEN SPACE AVAILABLE IN EXISTING 220KV BUS ARRANGEMENT IN BETWEEN				
Sr.No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
A	Supply and Erection of Equipments for 400kV Switch Yard (as per respective Technical Specifications and relevant special conditions) Suitable for Two Main Bus with Quad AL- Cond. and Transfer Bus with Twin AL-59 Conductor.			
1	400KV, SF6 Circuit Breaker , 3 Ph, 3150A 40kA 3 sec, 220V DC operating voltage with structure and both side Expansion type clamp connectors suitable to 4" IPS Al. Tube Sch.80 with Control Switching Device (With CSD type) & Spring – Spring Mechanism as per Technical Specification.	No.	1	1
2	400KV, SF6 Circuit Breaker , 3 Ph, 3150A 40kA 3 sec, 220V DC operating voltage with structure and both side Expansion type clamp connectors suitable to 4" IPS Al. Tube Sch.80 and Spring Spring Mechanism,& Without PIR type , as per Technical Specification.	No.	2	2
3	BPI- 8kN with structure and clamp connectors	No.	84	84
4	400KV, 3 Ph,Tendom Isolator without EB ,3150A 40kA, 3sec, 220V DC with structure and clamp connectors one side suitable to 4" IPS Sch 80 Al. Tube & other side suitable to Twin AL-59 Cond.as per Technical Specification.	Set	6	6
5	400KV, 3 Ph,Tendom Isolator without EB ,2000A 40kA, 3sec, 220V DC with structure and clamp connectors one side suitable to 4" IPS Sch 80 Al. Tube & other side suitable to Twin AL-59 Cond.as per Technical Specification.	Set	3	3
6	400KV ,3 Ph,HDB Isolator without EB , 2000A, 40kA, 3sec, 220V DC with structure and clamp connectors one side Rigid type & other side Expansion type suitable to 4" IPS Sch 80 Al. Tube as per Technical Specification.	Set	1	1
7	400KV ,3 Ph,HDB Isolator with ES , 3150A, 40kA, 3sec, 220V DC with structure and clamp connectors one side Rigid type & other side Expansion type suitable to 4" IPS Sch 80 Al. Tube as per Technical Specification.	Set	2	2
8	Polymer housed Surge Arrester 360KV, 20kA ,Designation SH with structure and clamp connectors suitable to Twin AL-59 Conductor as per Technical Specification.	No	6	6
9	Surge Arrester 360KV 20kA Class-4 with structure and clamp connectors suitable to Twin AL-59 Conductor as per Technical Specification.	No	3	3
10	CT 2000-1000-500/1 , 5 Cores with structure and clamp connectors Suitable to Twin AL-59 Conductor as per Technical Specification.	No.	3	3
11	CT 3000-2000-1000-500/1, 5 Cores with structure and clamp connectors Suitable to Twin AL-59 Conductor at One side & Other side suitable to 4" IPS Sch 80 Al. Tube as per Technical Specification.	No.	6	6
B	Supply and Erection of Material for 400kV Switch Yard (as per respective Technical Specifications and relevant special conditions) suitable for Two Main Bus with Quad Moose ACSR and Transfer Bus with Twin Moose ACSR Conductor.			
1	Gantry structures GI as per BOM, Steel & A/B part	MT	169.9	163.2
2	Gantry structures GI as per BOM, Bolt nut part	MT		6.7
3	Stringing of bus with Quad AL-59 conductor for all the three phases with required insulators, hardwares & accessories, spacers provided at every 4.0 mtr. interval (Suitable for 450mm spacing) etc. complete as per relevant standards and approved drawings with Jumpers for continuous Bus Arrangement (It includes cost of Conductor, insulators, hardwares & accessories, spacers etc.all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor).			
i	Main Bus with 28Mtr. Span	Span	2	2
ii	Main Bus with 10Mtr. Span	Span	2	2
iii	Main Bus with 56Mtr. Span	Span	2	2
4	Stringing of bus with Twin AL-59 Conductor for all the three phases with required insulators, hardwares & accessories, spacers provided at every 4.0 mtr. interval (Suitable for 450mm spacing) etc. complete as per relevant standards and approved drawings with Jumpers for continuous Bus Arrangement (It includes cost of Conductor, insulators, hardwares & accessories, spacers etc.all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor)			
i	Transfer Bus with 28Mtr. Span	Span	1	1
ii	Transfer Bus with 10Mtr. Span	Span	1	1
ii	Transfer Bus with 56Mtr. Span	Span	1	1

Sr.No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
5	Stringing of bus with Twin AL-59 Conductor for all the three phases with required insulators, hardwares & accessories, spacers provided at every 4.0 mtr. interval (Suitable for 450mm spacing)etc. complete as per relevant standards and approved drawings with Jumpers for continuous Bus Arrangement (It includes cost of Conductor, insulators, hardwares & accessories, spacers etc.all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor)			
i	400/220KV Transformer Flyover Bus with 115 Mtr. Span (400KV Side)	No. of Bays	1	1
6	Installation of 4" IPS Heavy Duty Al. Tube (Sh.80) with required Corona Bell, Jointing Sleeves, Homogeneous argon welding jointing etc. arrangement as per standard and complete as per approved drawings for all three phases.			
i	400KV Line Bay	No. of Bays	2	2
ii	400/220kV Transformer Bay	No. of Bays	1	1
7	Droppers (including required suspension string with hardware & accessories, if any) & Jumpers (including Equipment to Equipment) with Twin AL-59 conductor as per standards and approved drawings with provision of required spacers (Suitable for 450mm spacing) at every 4.0 mtr. interval (It includes cost of Conductor, insulators, hardwares & accessories, Fire Wedge connectors, spacers etc.all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor)			
i	400kV Line Bay	No. of Bays	2	2
ii	400/220kV Transformer Bay	No. of Bays	1	1
8	Droppers Required for Bus earth switch (including required suspension string with hardware & accessories, if any) with Twin AL-59 conductor as per standards and approved drawings with provision of required spacers (Suitable for 450mm spacing) at every 4.0 mtr. interval (It includes cost of Conductor, insulators, hardwares & accessories, Fire Wedge connectors, spacers etc.all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor)			
i	Only droppers connection work is required at 400KV Bus Earth switch at 400kV Main Bus 1 & 2. Note:- Existing 400KV Bus earth switch shall be utilize and its shifting and erection work shall be carried out by field office .	No.	6	0
ii	Only droppers connection work is required at 400KV Bus Earth switch at 400KV Transfer bus Note:- Existing 400KV Bus earth switch shall be utilize and its shifting and erection work shall be carried out by field office .	No.	3	0
9	Stringing of Earth Wire with 7/3.66 GS wire with required hardwares accessories etc. complete as per standards and approved drawings for following Span. (It includes cost of Earthwire, hardwares & accessories etc. all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor.)			
i	115 mtr span	Span	3	3
ii	56 mtr span	Span	1	1
iii	28 mtr Span	Span	1	1
C	Supply and Erection of 220kV Switchyard equipments Suitable for Twin AL-59 Conductor as per respective Technical Specifications and relevant special conditions suitable at existing Two Main Bus with Quad ACSR Moose conductor and Transfer Bus with Twin ACSR Moose conductor scheme & relevant Flvover Bus with Twin ACSR Moose conductor.			
1	Surge Arrester 198kV, 10kA, CI-3 with structure and clamp connectors suitable to Single AL-59 cond. as per Technical spec	No.	9	9
2	BPI 8kN with structure and clamp connectors suitable to Twin AL-59 as per Technical spec	No.	75	75
3	HBPI (220 KV HBPI) 8kN with structure and clamp connectors suitable to Twin AL-59 cond.as per Technical spec	No.	12	12
4	HDB Isolator with one ES 1600A 40kA 3s with structure and clamp connectors suitable to Twin AL-59 as per Technical spec .	Set.	3	3
5	Tandem DB Isolator 1600A 40kA 3s with structure and clamp connectors as suitable to Twin AL-59 cond. as per Technical spec .	Set.	8	8
6	CT conventional 1500-1200-600/1, 5C with structure and clamp connectors suitable to Twin AL-59 cond.as per Technical spec (For LV Side of 400/220KV ICT-4 bay)	No.	9	9
7	CB 2000A 40kA 3s with structure and clamp connectors suitable to Twin AL-59 cond.as per Technical spec	Set.	3	3
D	Supply and Erection of 220kV Switchyard material as per respective Technical Specifications and relevant special conditions suitable for Two Main Bus with Quad ACSR Moose conductor and Transfer Bus with Twin ACSR Moose conductor scheme & relevant Flyover Bus with Twin ACSR Moose conductor.			
1	Gantry structures GI as per BOM, Steel & A/B part	MT	14.6	14.3
2	Gantry structures GI as per BOM, Bolt nut part	MT		0.3

Sr.No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
3	Stringing of bus with Twin AL-59 Conductor for all the three phases with required insulators, hardwares & accessories, spacers provided at every 3 mtr. interval etc. complete as per relevant standards and approved drawings with Jumpers for continuous Bus Arrangement (It includes cost of Conductor, insulators, hardwares & accessories, spacers etc.all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor)			
i	Transformer flyover bus with 102Mtr Span - by Twin AL-59 conductor, For 220kV Side,400/220kV ICT-4 bay.	No. of Bay	1	1
ii	Transformer flyover bus existing Single Moose conductor is replace (existing to be dismantled) and strengthening by Twin-AL Conductor -58Mtr span (For LV Side of (220kV Side) of 400/220kV ICT-4 bay)	No. of Bay	1	1
iii	Transformer flyover bus existing Single Moose conductor is replace (existing to be dismantled) (strengthening) by Twin-AL Conductor -32Mtr span (For LV Side of 220kV Side,400/220kV ICT-4 bay)	No. of Bay	1	1
iv	Line bay Flyover Bus with 29 Mtr. Span by Single -AL Conductor and to connection with Existing Single Moose Flyover Bus for 220kV Torrent Line-2 bay	No. of Bay	1	1
4	Droppers (including required suspension string with hardware & accessories if any) & Jumpers (including Equipment to Equipment) with Twin AL-59 conductor as per standards and approved drawings with provision of required spacers (Suitable for 350mm spacing) at every 3 mtr. interval (It includes cost of Conductor, insulators, hardwares & accessories, Fire Wedge connectors, spacers etc.all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor)			
i	220KV Line Bay	No. of bay	3	3
ii	400/220KV ICT Bay (220KV Side)- Single Moose conductor is replace (strengthening) by Twin-AL Conductor at Droppers and Jumpers including with all equipments new Clamp connector are to be required suitable to Twin AL -59 Conductor. Note:-Looking to existing bay shall be utilized for 220KV Side (LV Side) of ICT -4 Bay , which is required to strengthening by Twin AL-59 Conductor and Clamp -Connector also replace and required suitable Twin AL-59 Conducto at all equipment .	No. of bay	1	1
iii	All Clamp Connectors are replace & to provide suitable to Twin AL -59 Conductor at Prop. 400/220KV ICT Bay (220KV Side)-i.e at all equipments of as CT,CB,Isolator W/O ES etc. Note:-Looking to existing bay shall be utilized for 220KV Side (LV Side) of ICT -4 Bay , which is required to strengthening by Twin AL-59 Conductor and Clamp -Connector also replace and required suitable Twin AL-59 Conducto at all equipment .	Job Work	1	1
5	Droppers (including required suspension string with hardware & accessories if any) & Jumpers with Single AL-59 conductor as per standards and approved drawings (It includes cost of Conductor, insulators, hardwares & accessories, Fire Wedge Connectors, etc.all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor)			
i	220kV Line Bay-LA & CVT	No. of Bays	3	3
ii	400/220KV Transformer Bay (220KV Side) - LA	No. of Bays	1	1
6	Stringing of Earth Wire with 7/3.15 GS wire with required hardwares accessories etc. complete as per standards and approved drawings for following Span. (It includes cost of Earthwire, hardwares & accessories etc. all items required for satisfactory functioning. Any variation in quantities shall be absorbed by contractor.)			
i	102 mtr span	Span	2	2
ii	30 mtr span	Span	1	1
E	Supply and Erection of General purpose equipments and materials as per respective technical specifications and relevant special conditions.			
1	415V AC LT Distribution Box - 800A incomer with Change over switch arrangement and 02 Nos. of 800A Outgoing Feeders as per Ref .Drg No. GETCO/E/02S- STD/P-031/LTD R0 Dtd. 11.03.15.	No.	2	2
F	Supply and installation of materials for Illumination system in all respect as per respective specifications and special conditions (Sucessful bidder has to submit the complete design and BOQ for approval)			
1	Providing and fixing of flood light luminaries as per design for (400 and 220 kV) switch yard area with Philips/CGL/Bajaj/GE/Oshram with control gear box and ancillaries or Equivalent make LED 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
2	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
3	Supply and Erection of main lighting Panel ACP-2 as per Specifications Set comprises minimum 4 nos.of such panels qty may be more if required as per design.Scope also includes the providing and erection of 25x6 GI strip for earthing with main mesh	Set	1	1

Sr.No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
	Note: The quantities of the ACP's mentioned in the schedule of requirement are based on std. requirement, which shall be finalised during detail engineering. The bidder has to assess the qty. of ACP's at the time of quoting the bid. The qty of ACP's finalised during detail engineering is binding to the bidder & no any extra payment shall be made. In all the case the decision of GETCO will be final.			
G	Supply and installation of materials for 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.	7910	7910
	b) 50 x 6 mm GI strip.	RMt.	1243	1243
	c) 40 mm dia steel rod (For Mesh type earthing at 400KV Side)	RMt.	3850	3850
	d) 40mm dia 3mtr long steel rod (For Peripheral & Tower with Peak earthing at 400KV Side)	Nos.	40	40
	e) 7/3.66 earth wire for earthing of towers with peak	Mtr.	210	210
	f) 7/3.15 earth wire for earthing of towers with peak	Mtr.	125	125
2	Providing and installing Check pit as per drawing and instruction of Engineer In charge with provision of earth chamber.(At 400KV Side)	Nos.	1	1
3	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.	35	35
4	Providing BB masonry inspection chamber (man hole) incl.light type CI cover as per GETCO drawing no P011	Nos.	35	35
	Following Special conditions are applicable for Propose Scope of work Note:- Modality of work shall be decided by Project (Dept.) with consultation to Field AM & Construction dept.			
	(1) Proposed Scope of work Modality , shall be decided by Project Dept. , EE(Const) & EE(AM) of Field office for accommodation of 2 Nos. 400KV Charal Line bays & 1 No. 400/200KV ICT - 4 bay in existing 400KV & 220KV switchyard , due to multiple works are required in Phase manner , Likes as 220KV Torrent Line 1 & 2 tower shifting, 220KV Line bay shifting & 66/11KV Switchyard shifting works . following works are as under , (i) Re-route of 220KV Torrent Line 1&2 is required for accomodation of above 3 Nos. 400KV bays at 400KV Side switchyard due to existing towers are obstacle for 400KV Bus extension works. (ii) For accommodation of LV Side (220KV Side) 400/220KV ICT-4 bay., existing 220KV Torrent Line-1 bay is to be shifted at existing 220KV Torrent Line-2 bay location & existing 220KV Torrent Line -2 bay is to be shift at newly erected 220KV bay with Metering CT,PT , Protection CT,CVT, LA etc from existing 220KV Torrent Line-1 bay. (iii) Existing 220KV Torrent Line-1 bay flyover bus , jumpers ,droppers , clamp -connector are to be dismantled and strengthening suitable by Twin -AL 59 conductor looking to utilization of LV Side (220KV Side) 400/220KV ICT-4 bay. (iv) Existing 66/11KV Switchyard is to be required shifting by field office for accommodation of HV Side (400KV Side) of 400/220KV ICT-4 bay. (v) Existing 9 Nos. 400KV Bus earth switch shall be shifted at new Location by field office as per field requirement .Droppers & Jumpers work scope considered under EPC tender BOQ. (2) Supply & Erection of 400/220KV Transformers are not in the scope of awardee, but awardee will erect the itmes other than the scope of transformer manufacturer and witness during the erection and testing of the same and provide all the result in as built drawings/documents. (3) During excavation of foundations, discontinued/dismantled earthing connections of Mesh type earthing shall be rectified/ provided as per GETCO practice. (4) Extra earth should be removed away from the site s/s premises or refilling earthing pits if required.			
B	Protection BOQ of 03 nos. of 400kV Bay & 03 nos. of 220kV Bay at 400kV Soja Sub-Station (02 nos. of 400kV Charal - Sanand Line no. 1 & 2, 01 no. of 400/220kV ICT (HV&LV bay) bay, 01 no. of 220kV Soja - Jamla line and 01 no. of 220kV Soja - G'nagar line)			
A	Supply, Erection, Testing and Commissioning of Protection equipments and materials as per respective technical specifications and relevant special conditions and suitable for Two Main and One Transfer Bus system on 400kV side			
1	Control & Relay panels (having IEC 61850 compliant IEDs) for 400kV Bays (Control Voltage - 220V DC) as per tech specifications & suitable for AIS switchgear modules with following break up			
	1) Control & Relay panel for line W/o reactor with Distance protection relays as Main-I & Main-II	Set	2	2
	2) Control & Relay panel for line with Line Differential cum Distance protection relays as Main-I & Main-II	Set	0	0
	3) Control & Realy panel for Transformer with Differential (for 400/220 kV ICT)	Set	1	1
	5) Control & Relay panel for Bus Coupler	Set	0	0
	6) Control & Relay panel for Bus Reactor	Set	0	0
2	Busbar Protection			
a	Augmentation of existing Numerical Busbar protection scheme GE make P74X by providing 01 No. of Bay unit (GE make MICOM P74X compatible with existing CU & PU) along with all required accessories and installation, testing & commissioning of complete Busbar protection scheme in all respect.	Job	1	1

Sr.No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
b	Integration of 02 Nos. of Bay units (MiCOM P74X) in existing Numerical Busbar protection scheme (GE make MiCOM P74X) along with all required accessories, wiring, termination and commissioning of complete Busbar protection scheme in all respect as per existing scheme. (For proposed 2 nos. line bays, Bus bar PU will be provided by GETCO).	Job	1	0
3	GPS based Time Synchronising Unit (IEC 61850 compatible)	Set	0	0
B1	Supply, Erection, Testing and Commissioning of Protection equipments and materials as per respective technical specifications and relevant special conditions and suitable for Two Main and One Transfer Bus system on 220kV side			
1	Control & Relay panels (having IEC 61850 compliant IEDs) for 220kV Bays (Control Voltage - 220V DC) as per tech specifications & suitable for AIS switchgear modules with following break up			
	1) Control & Relay panel with Distance protection relays as Main-I & Main-II for 220kV Soja - G'nagar line	Set	1	1
	2) Control & Relay panel with Line Differential cum Distance protection relays as Main-I & Main-II for 220kV Soja - Jamla line	Set	1	1
	3) Control & Relay panel for Transformer without Differential (for 400/220kV TRF LV)	Set	1	1
	4) Control & Relay panel for Transformer with Differential (for 220/132kV TRF)	Set	0	0
	5) Control & Relay panel for Transformer with Differential (for 220/66kV TRF)	Set	0	0
	6) Control & Relay panel for BC	Set	0	0
	7) Busbar Protection Panel For XX Bays,	Set	0	0
2A	Busbar Protection - Augmentation of existing Numerical Busbar protection scheme GE make P74X by providing 03 Nos. of Bay unit to be mounted in existing / New Busbar protection Panel (GE make MiCOM P74X compatible with existing CU & PU) along with all required accessories and installation, testing & commissioning of complete Busbar protection scheme in all respect.	Job	1	1
2B	Busbar panel for mounting new Bay units	Set	1	1
B2	Supply, Erection, Testing and Commissioning of Protection equipments and materials as per respective technical specifications and relevant special conditions and suitable for Two Main Bus configuration on 220kV side at 220kV Jamla (Opposite) end S/s.			
	220kV Line Differential cum Distance Relays for 220kV feeder bay at 220kV Jamla (Opposite) end substation (Control Voltage - 110V DC) which is connected with hybrid lines as per tech specifications with following break up.			
1	1) Loose supply of 220kV Line Differential cum Distance Relay as Main-I & Main-II Protection (For Line Differential protection, both end relays must be of exactly same make & model type including software version to fulfil the Line Differential functionality. Therefore, Differential relay shall be exactly same make & model type available at 400kV Soja substation end for 220kV Soja - Jamla lines.)	Set	0	1
2	Retrofitting of existing Line Distance Protection relay Main-I & II with Line Distance cum differential protection relay Main-I & Main-II in all respect to suit Line Differential protection scheme along with necessary wiring modification, termination/retermination etc.	Job	1	0
C	Supply, Erection, Testing and Commissioning of Protection equipments and materials as per respective technical specifications and relevant special conditions and suitable for Two Main Bus system on 66kV side			
1	Control & Relay panels (having IEC 61850 compliant IEDs) for 66kV Bays (Control Voltage - 220V DC) as per tech specifications & suitable for AIS switchgear modules with following break up			
	1) Control & Relay Panel for Line	Set	0	0
	2) Control & Relay Panel for Buscoupler	Set	0	0
	3) Control & Relay Panel for Transformer W/O Differential Relay (for 220/66KV TRF)	Set	0	0
	4) Control & Relay Panel for Transformer with Differential Relay (for 66/11KV TRF)	Set	0	0
	5) Control & Relay Panel for Interconnecting line bay	Set	0	0
	6) Under Frequency Panel**	Set	0	0
	7) Control & Relay Panel for Capacitor Bank	Set	0	0
B1	Supply, Erection, Testing and Commissioning of Protection equipments and materials as per respective technical specifications and relevant special conditions and suitable for Single Bus system on 11kV side			
1	Control & Protection panels (having IEC 61850 compliant IEDs) for 11kV Bays with Bay Control & Protection Relay (Control Voltage - 220V DC) as per tech specifications & suitable for conventional switchgear modules with following break up			
	1) Control & Protection Panel for 66/11kV TRF LV	Set	0	0
C	Supply, Erection, Testing & Commissioning of General purpose equipments and materials as per respective technical specifications and relevant special conditions and suitable for Two Main Bus and one Transfer bus system on 400kV & 220kV side			
1	Battery set - 220 V, 450Ah at ECV -1.14, C5 Duly cycle {1.2 V, 174 cells } Ni-CAD Battery Set with Two Step Two Tier FRP stand of adequate size OR Battery set - 220 V, 535Ah at ECV 1.85V {2 V, 110 cells} Plante' type Lead Acid Battery Set with Two Step Two Tier FRP stand of adequate size	No.	0	0

Sr.No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
2	Battery Charger - 220 V (Float - 100A / Boost - 100A) - (SCADA compatible) Suitable to Ni-Cd/Plante' type Lead Acid Battery set and shall be able to charge Battery set as per requirement during float / boost mode as well as it shall supply to load as per rated voltage of load components.	No.	0	0
3	DCDB-220 V with 35 Feeder (For 400kV, 220kV & 66 kV System)	No.	0	0
4	DCDB-220 V with 20 Feeder	No.	0	0
5	DCDB-220 V with 20 Feeder (For 400kV & 220kV PLCC Panels)	No.	0	0
6	SCADA compatible 1000A, LTPB suitable for AIS switchgear module and related accessories as per specifications but not less than the requirement of specification.	No.	0	0
6a	SCADA compatible 400A, LTPB suitable for AIS switchgear module and related accessories as per specifications but not less than the requirement of specification.	No.	0	0
D	Supply, Installation, Testing and Commissioning of materials/item for Power Cable and Control Cable including preparation of wiring schedule (Please refer Remarks)			
1	Supply and Laying of 1.1 kV PVC armoured copper/Aluminium control/LT power cable in trench including binding/clamping of cable with <i>PVC lockable wire tie</i> as per requirement including supply and fixing of identification tags at both ends and at distance of every 100mtr.# (Note :- Aluminium cables of size 185 mm ² & above shall be XLPE type)			
	1) 2c x 2.5 mm ² , armoured copper control cable	Mtr.	3150	3150
	2) 2c x 4 mm ² , armoured copper control cable	Mtr.	0	0
	3) 4cx2.5 mm ² , armoured copper control cable	Mtr.	2450	2450
	4) 4c x 4 mm ² , armoured copper control cable	Mtr.	10350	10350
	5) 7c x 2.5 mm ² , armoured copper control cable	Mtr.	2650	2650
	6) 12c x 2.5 mm ² , armoured copper control cable	Mtr.	4500	4500
	7) 12c x 4 mm ² , armoured copper control cable	Mtr.	2200	2200
	8) 19c x 2.5 mm ² , armoured copper control cable	Mtr.	9800	9800
	9) 27c x 2.5 mm ² , armoured copper control cable	Mtr.	4400	4400
	10A) 1 x 50 mm ² , armoured copper cable	Mtr.	0	0
	10B) 4C x 10 mm ² , armoured copper control cable	Mtr.	0	0
	11) 4 x 10 mm ² , Al. armoured LT cable	Mtr.	1400	1400
	12) 3.5 x 25 mm ² , Al. armoured LT cable	Mtr.	550	550
	13) 3.5 x 50 mm ² , Al. armoured LT cable	Mtr.	0	0
	14) 3.5 x 120 mm ² , Al. armoured LT cable	Mtr.	0	0
	15) 1C x 150 mm ² , Al. armoured LT cable	Mtr.	0	0
	16) 1C x 240 mm ² , Al. armoured LT cable	Mtr.	0	0
	17) 1C x 300 mm ² , Al. armoured LT cable	Mtr.	0	0
	18) 3.5 x 300 mm ² , Al. armoured LT cable	Mtr.	0	0
2	Termination of the Control and Power cable at panel / MK box/equipment including PVC binding, dressing, shaping, drilling of holes in panels for glands nuts, providing of glands for following size. The work also includes looping in Panel and MK box by using crimping type lugs of suitable size with ferruling (machine printed) with proper size of copper cable wire. The loops should be bunched by using button tape and proper shaping etc.#			
	1) cables from 2 core to 7 core of 2.5 & 4.0 Sq.mm size	No.	495	0
	2) cables above 7 core	No.	560	0
3	Laying of 1.1kv PVC/XLPE armoured Al. LT power cable in ground by digging trench of suitable width and 450 mm depth with providing and fixing of brick and sand layer covering the cable in any type of soil and Laying of 1.1kv PVC armoured copper control cable in heavy duty PVC pipe of suitable size buried in ground by digging trench of suitable width and 450 mm depth in any type of soil including supply and fixing of Pipe and identification tags at distance of every 100 Mtrs for following size #			
	1) Control Cables upto 7 core	Mtr.	950	0
	2) Control Cables above 7 core and all LT cables	Mtr.	1325	0
3a	Supply, Erection, Testing and Commissioning of Modular Variable-diameter Cable sealing system as per respective technical specification and relevant special conditions wherever the electrical / instrumentation / communication / LT Power cable underground and over-ground enter or leave bay kiosks / control room of substations / cable trench / basement.	Set		
4	Providing and fixing of suitable BOX type GI perforated tray with necessary clamps and couplings for control cable of CT/PT/CVT etc. equipments including fixing with structures up to plinth level as per instruction of Engineer-in-charge.			
	1) 400 kV Switch Yard	Mtr.	100	100
	2) 220 kV Switch Yard	Mtr.	40	40
	3) 66 kV Switch Yard	Mtr.	0	0
	4) 11kV Switch Yard	Mtr.	0	0
4a	Providing and fixing of suitable BOX type GI perforated tray with necessary clamps and couplings for control cable of CB, Isolator, Earth Switch etc. equipments including fixing with structures up to plinth level as per instruction of Engineer-in-charge.			

Sr.No.	Particulars of Item	Unit	Erection Qty.	Supply Qty.
	1) 400 kV switch yard	Mtr.	150	150
	2) 220 kV Switch Yard	Mtr.	40	40
	3) 66 kV switch yard	Mtr.	0	0
	4) 11kV Switch Yard	Mtr.	0	0
5	Providing and fixing bay MK as per tech spec	No.	6	6
6	Providing and fixing Yard LT ACDB as per tech spec -with 20 OG feeders (to be provided in 400 kV GIS Building)	No.	0	0
7	Providing and fixing Yard LT ACDB as per tech spec -with 12 OG feeders	No.	0	0
8	Providing and fixing of CT-PT/CVT JB as per technical specification			
	1) PT JB (11kV Yard)	No.	0	0
	2) CT JB (11kV Yard)	No.	0	0
	3) CVT JB (For 400 kV Line)	No.	2	2
	Assumptions: Above BOQ is prepared considering following points/assumption, 1) For 220kV Soja - Jamla line, line differential protection required to be considered being a short line. As existing bay to be used at 220kV Jamla S/s, supply of loose line differential relay and retrofitting of relay in existing panel is considered in BOQ. Retrofitting works being modification in existing "As built" Panel scheme, same shall be submitted and coordinated with GETCO field office for approval.			
	Note:1.# The quantities of control and power cables shown in the BOQ are based on typical cable philosophy. Hence, the contractor shall work out actual requirement of quantity for execution by calculating cable lengths. 2. All the cables shall be laid through minimum possible route and accordingly the quantity of cables shall be calculated and considered as per actual measurement. Any adjustment found during execution is to be absorbed and final amendment of quantity shall be based on approved 'As Built' quantity. 3. ** Under Frequency (UFR) protection Panel is not considered as per O.N. No: GETCO/OTHER/e-file/447/ 2024/5456/Technical Dated:26.03.2024			
C	PLCC BOQ for 400kV Soja S/s			
1	400kV CVT with CC = 8800 PF & three windings having VA burden 50, 50 & 100 and class of accuracy 3P, 3P & 0.2 for Wind-I, Wind-II (both protection core) & Wind-III (metering core) respectively. The metering core shall have separate sealable compartment arrangement with locking facility & the accuracy of 0.2 on winding III should be maintained up to and including total burden of 100 VA on all three windings. The CVT shall have HF terminal for PLCC connectivity. Clamp/connectors, porcelain insulator & supporting structure shall also be supplied. shall be in the scope of supply as per technical specification.	Nos	6	6
2	DAS Meters network wiring, testing & commissioning for meter data polling to DAS PC of sub-station (Complete Job)(as per specification)			
	a) 3 core communication cable	Mtr.	1000	1000
	b) RS 485 to RS 232 Converter	Nos.	1	1
1	220kV ,4400PF CVT with HPI (having two windings with VA burden 50 & 50 and accuracy of 0.2 & 3P class for metering & Protection core respectively.The arrangement of metering core shall be provided in seperate sealable compartment with locking facility. Clamp/connectors, porcelain insulator & supporting structure shall also be supplied.	Nos	2	2
2	DAS Meters network wiring, testing & commissioning for meter data polling through fiber interconnection network of sub-station's automation to DAS PC of sub-station (Complete Job)			
	a) 3 core communication cable (as per specification given hereunder)	Mtr.	100	100
	b) RS 485 to RS 232 Converter (as per specification)	Nos.	1	1