

BoQ

**DEVELOPMENT OF DISTRIBUTION INFRASTRUCTURE AT SABARKANTHA District of GUJARAT UNDER REVAMPED REFORMS-BASED AND  
(Bill of Quantity)**

Ex-works supply of materials

Bidder's Name & Address:

<b>A (I) Augmentation, Renovation and Modernisation of existing Distribution Transformer</b>			
<b>Line Item</b>	<b>Description</b>	<b>Unit</b>	<b>Qty</b>
<b>A (I)</b>	<b>Augmentation &amp; Renovation of 11/0.4 kV Distribution Transformer Substation</b>		
<b>1.00</b>	<b>Augmentation of Distribution Transformer Substation (ASSUMING 25 YEARS OF LIFE AND 10 YEARS IN SERVICE) using New Distribution Transformer (three star) as per technical specifications, approved drawings and scope of the work. Replaced material to be deposited in Employer's store:</b>		
1.01	New 100 KVA (11/0.4 kV) Aluminium wound DTR (Replacing 63 KVA old DTR),	No	291
1.02	New 200 KVA (11/0.4 kV) Aluminium wound DTR (Replacing 100 KVA old DTR),	No	67

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Bidder's Name & Address:

<b>A (II) Crossing Removal (Safety)</b>			
<b>Line Item No.</b>	<b>Description of Goods</b>	<b>Unit</b>	<b>Quantity</b>
<b>1.00</b>	<b>Cables:</b>		
1.01	Supply of 11 kV,(E),XLPE insulated Aluminium Conductor, Armoured cable as per enclosed specification 3 core 185 sq. mm. as per enclosed specification including rates for approval of local Authorities for laying of cable.(Make as approved by UGVCL) Laying of 11 KV (E) XLPE insulated aluminium armoured cable in ground up to 1200 mm deep, 500 mm wide cable trench providing sand cushioning before and after laying cable and covering with half round Hume pipe and refilling the trench.( rate shall include cost of excavation of trench) as per technical specification, approved drawings and scope of work.	Mtr	20437
1.02	Providing of HDPE (DWC) ducts conforming to IS:4984 having dia OD/ID 120/90.mm, 6kg/cm <sup>2</sup> , 11.63 kg/6 RMT at a minimum depth of 1200mm below the road surface by pushthrough method by drilling the road with HDD machine without breaking the road surface for laying of cable for internal road crossing for enclosing HT/LT XLPE insulated aluminum armoured cable up to 240/185 sqmm through the duct as per the instructions of EIC as per technical specification, approved drawings and scope of work.	Mtr	1880
<b>2.00</b>	<b>Pre-fabricated steel items like V cross arm, top clamp, DC cross arm, bracket, clamps, cross bracings, bracings, strain plate, guarding channels, back clamp, transformer mounting structure etc made of MS Channels (100x50x6mm), MS angle (65x65x6mm), MS flats (65x8mm) of given sizes for over head structures as per technical specification, approved drawings and scope of work.</b>	MT	4.059
<b>3.00</b>	<b>MS Nuts, Bolts with Washers as per technical specification, approved drawings and scope of work.</b>	MT	0.151536
<b>4.00</b>	<b>Indoor application: HT push on/heat shrink type end termination preferably for at switchgear end boxes, transformer( PAD/Pole mounted) for 11 kV XLPE Aluminium Conductor Armoured cable as specified with connection of leads including cutting,stripping of cable, insulations,providing compression type terminals,crimping of lugs with suitable crimping tool, as per technical specification, approved drawings and scope of work.</b>		
4.01	3Cx185 mm 2 11 KV XLPE	No	0
<b>5.00</b>	<b>Outdoor application: HT push on/heat shrink type end termination preferably for at switchgear end boxes, transformer( PAD/Pole mounted) for 11 kV XLPE Aluminium Conductor Armoured cable as specified with connection of leads including cutting,stripping of cable, insulations,providing compression type terminals,crimping of lugs with suitable crimping tool, as per technical specification, approved drawings and scope of work.</b>		
5.01	3Cx185 mm 2 11 KV XLPE	No	492
<b>6.00</b>	<b>Straight Joint: HT push on/heat shrink type straight joint preferably for 11 kV XLPE Aluminium Conductor Armoured cable as specified with connection of leads including cutting,stripping of cable, insulations,providing compression type terminals,crimping of lugs with suitable crimping tool.as per technical specification, approved drawings and scope of work.</b>		
6.01	3Cx185 mm 2 11 KV XLPE	No	1
<b>7.00</b>	<b>Earthing arrangement as per technical specifications, approved drawings and scope of work.</b>		
7.01	Supplying & erecting earth pit of minimum bore dia. 150 mm size approved make safe Earthing Electrode consisting Pipe in pipe Technology as per IS 3043-1987 made of corrosion free G.I. Pipes having Outer pipe dia of 50 mm having 80-200 Micron galvanising connections, terminal dia of 12 mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation with civil works of earthing chamber. For Electrical installation covering Transformer neutrals,HT & LT switchgears for independent earthing in normal soil, Length of Pipe 3 mtrs.Backfilling compound 2 bags of 25 Kg each	No	492
7.02	Installation & commissioning of earthing conductor 38 x 3 G.I. strip for pole mounted transformer and upto FSP,RMU as well as connection to be made to the earth pit. Rates inclusive of hot dipped hardwares.	Mtr	3936
<b>8.00</b>	<b>Providing 11kV Double Pole Structure with AB Switch 12kV, 600A, 25kA for 3sec, 3-ph, 3 Pin type, Vertical Mounting type (as desired by DISCOM), Gang Operated, AB Switch along with Support Insulators, Base Channel down Pipe, Arcing Horns etc. complete as per technical specifications, scope of works and approved drawings on 8 Mtr PSC Poles as per technical specification, approved drawings and scope of work.</b>	No	0
<b>9.00</b>	<b>Supply and installation of clamps made from 50*6 mm GI Flat (Min. wieght of flat 1.6 kG per Set) for fitting for 110 mm GI / HDPE pipe above ground with pole (with cost of nuts &amp; bolts) Cable Laying above ground in air for termination of cable on pole with as per Engineer In Charge</b>	Set	492
<b>10.00</b>	<b>Providing of 100 mm Dia heavy duty GI pipe with clamping for the protection for the cable above the ground</b>	Mtr	1476
<b>11.00</b>	<b>Stay Set (Galvanised) with 50x8 mm stay clamp, stay insulator (2 Nos.), anchor plate (200x200x6), nut bolts, 2 Nos turn-buckles, 1.8 m long, 16 mm diameter solid GS stay rod &amp; 7/3.15 mm dia GI stranded wire complete as per technical specification, approved drawings and scope of work.</b>	Set	984
<b>12.00</b>	<b>Insulator and hardware as per technical specification, approved drawings and scope of work.</b>		
12.01	11 KV Polymer (Composite) Disc insulator 45 KN along with suitable hardware fittings	set	1476
12.02	11 KV Polymer (Composite) Pin Insulators having GI PIN	set	0
<b>13.00</b>	<b>Cable Route Marker: Providing RCC cable Route marker as per drawing duly marked with "DANGER" Mark, "UGVCL POWER CABLE" and Arrow of route of cable.</b>	No	492

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(Bill of Quantity)**

Ex-works supply of materials

Bidder's Name & Address:

<b>A (III) New Feeder / Feeder Bifurcation</b>			
<b>Line Item No.</b>	<b>Description of Goods</b>	<b>Unit</b>	<b>Quantity</b>
<b>1.00</b>	<b>Support for 11 KV overhead line as per technical specification, approved drawings and scope of work</b>		
1.01	10 m / 270 kgs PSC Poles - (PSC Pole as per state practice)	No	76
1.02	8 m / 200 kgs PSC Poles - (PSC Pole as per state practice)	No	110
<b>2.00</b>	<b>Pre-fabricated steel items like V cross arm, top clamp, DC cross arm, bracket, clamps, cross bracings, bracings, strain plate, guarding channels, back clamp, transformer mounting structure etc made of MS Channels (100x50x6mm), MS angle (65x65x6mm), MS flats (65x8mm) of given sizes for over head structures as per technical specification, approved drawings and scope of work.</b>	MT	3.959
<b>3.00</b>	<b>MS Nuts, Bolts with Washers as per technical specification, approved drawings and scope of work.</b>	MT	0.33
<b>4.00</b>	<b>Stay Set (Galvanised) with 50x8 mm stay clamp, stay insulator (2 Nos.), anchor plate (200x200x6), nut bolts, 2 Nos turn-buckles, 1.8 m long, 16 mm diameter solid GS stay rod &amp; 7/3.15 mm dia GI stranded wire complete as per technical specification, approved drawings and scope of work.</b>	set	72
<b>5.00</b>	<b>Insulator and hardware as per technical specification, approved drawings and scope of work.</b>		
5.01	11 KV Polymer (Composite) Disc insulator 45 KN along with suitable hardware fittings	set	192
5.02	11 KV Polymer (Composite) Pin Insulators having GI PIN	set	531
<b>6.00</b>	<b>Earthing arrangement as per technical specifications, approved drawings and scope of work.</b>		
6.01	Supplying & erecting earth pit of minimum bore dia. 150 mm size approved make safe Earthing Electrode consisting Pipe in pipe Technology as per IS 3043-1987 made of corrosion free G.I. Pipes having Outer pipe dia of 50 mm having 80-200 Micron galvanising connections, terminal dia of 12 mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation with civil works of earthing chamber. For Electrical installation covering Transformer neutrals, HT & LT switchgears for independent earthing in normal soil, Length of Pipe 3 mtrs. Backfilling compound 2 bags of 25 Kg each	No	220
6.02	Installation & commissioning of earthing conductor 38 x 3 G.I. strip for pole mounted transformer and upto FSP, RMU as well as connection to be made to the earth pit. Rates inclusive of hot dipped hardwares.	Mtr	1804
<b>7.00</b>	<b>ACSR Conductors of following sizes with Jointing sleeves, binding materials, PG clamps, bi-metallic clamp, hardware etc for overhead line and jumpers as required as per technical specification, approved drawings and scope of work</b>		
7.01	6/4.72 mm+7/1.57 mm (100 mm <sup>2</sup> Al. Area) - Dog	km	7.13
7.02	AL Alloy Conductor 55mm <sup>2</sup> Size	km	16.12
<b>8.00</b>	<b>12kV, 600A, 25kA for 3sec, 3-ph, 3 Pin type, Horizontal/Vertical Mounting type (as desired by DISCOM), Gang Operated, AB Switch along with Support Insulators, Base Channel down Pipe, Arcing Horns etc. complete as per technical specifications, scope of works and approved drawings</b>	Set	10
<b>9.00</b>	<b>Cables:</b>		
9.01	Supply of 11 kV,(E),XLPE insulated Aluminium Conductor, Armoured cable as per enclosed specification 3 core 185 sq. mm. as per enclosed specification including rates for approval of local Authorities for laying of cable.(Make as approved by UGVCL) Laying of 11 KV (E) XLPE insulated aluminium armoured cable in ground up to 1200 mm deep, 500 mm wide cable trench providing sand cushioning before and after laying cable and covering with half round Hume pipe and refilling the trench.( rate shall include cost of excavation of trench) as per technical specification, approved drawings and scope of work.	Mtr	230
9.02	Providing of HDPE (DWC) ducts conforming to IS:4984 having dia OD/ID 120/90.mm, 6kg/cm <sup>2</sup> , 11.63 kg/6 RMT at a minimum depth of 1200mm below the road surface by pushthrough method by drilling the road with HDD machine without breaking the road surface for laying of cable for internal road crossing for enclosing HT/LT XLPE insulated aluminium armoured cable up to 240/185 sqmm through the duct as per the instructions of EIC as per technical specification, approved drawings and scope of work.	Mtr	0
<b>10.00</b>	<b>Indoor application: HT push on/heat shrink type end termination preferably for at switchgear end boxes, transformer( PAD/Pole mounted) for 11 kV XLPE Aluminium Conductor Armoured cable as specified with connection of leads including cutting,stripping of cable, insulations,providing compression type terminals,crimping of lugs with suitable crimping tool, as per technical specification, approved drawings and scope of work.</b>		
10.01	3Cx185 mm 2 11 KV XLPE	No	5

<b>11.00</b>	<b>Outdoor application: HT push on/heat shrink type end termination preferably for at switchgear end boxes, transformer( PAD/Pole mounted) for 11 kV XLPE Aluminium Conductor Armoured cable as specified with connection of leads including cutting,stripping of cable, insulations,providing compression type terminals,crimping of lugs with suitable crimping tool, as per technical specification, approved drawings and scope of work.</b>		
11.01	3Cx185 mm 2 11 KV XLPE	No	5
<b>12.00</b>	<b>Straight Joint: HT push on/heat shrink type straight joint preferably for 11 kV XLPE Aluminium Conductor Armoured cable as specified with connection of leads including cutting,stripping of cable, insulations,providing compression type terminals,crimping of lugs with suitable crimping tool.as per technical specification, approved drawings and scope of work.</b>		
12.01	3Cx185 mm 2 11 KV XLPE	No	0
<b>13.00</b>	<b>Earthing arrangement as per technical specifications, approved drawings and scope of work.</b>		
13.01	Supplying of maintaince free earthing sysytem comprising of 17.2 mm dia 3 mtr Long Earthing Electrode of low carbon steel electrode with 250 micrns copper coating + carbon based conductive concrete back fill safe compound(resisitivity of less than 0.10 ohm mtr) & GI clamp.Supply, Earcting and Install pre cast RCC Earth pit Chamber (300*300 MM),Making 100 mm Dia Bore, 3 Mtr Long, Making of Earth pit chamber in normal Soil.	No	
13.02	Installation & commissioning of earthing conductor 38 x 3 G.I. strip for pole mounted transformer and upto FSP,RMU as well as connection to be made to the earth pit. Rates inclusive of hot dipped hardwares.	Mtr	
<b>14.00</b>	<b>Supply and installation of clamps made from 50*6 mm GI Flat (Min. wieght of flat 1.6 kG per Set) for fitting for 110 mm GI / HDPE pipe above ground with pole (with cost of nuts &amp; bolts) Cable Laying above ground in air for termination of cable on pole withas per Engineer In Charge</b>	Set	5
<b>15.00</b>	<b>Providing of 100 mm Dia heavy duty GI pipe with clamping for the protection for the cable above the ground</b>	Mtr	15
<b>16.00</b>	<b>Cable Route Marker: Providing RCC cable Route marker as per drawing duly marked with "DANGER" Mark, "UGVCL POWER CABLE" and Arrow of route of cable.</b>	No	0
<b>17.00</b>	<b>11kV 3 C x 70 Sq. MM. + 1 X 70 Sq. MM. bare messenger Aerial Bunched Cable (to be erected on 10Mtr PSC Pole)</b>	kM	0.15

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Bidder's Name & Address:

<b>A (IV) Maintenance free, Ready capsule, Pipe-in-cage (PiC) type earthing and connections to the various parts of transformer center using GI Strip and GI Nut Bolts</b>			
<b>Line Item No.</b>	<b>Description of Goods</b>	<b>Unit</b>	<b>Quantity</b>
<b>1.00</b>	<b>Supply of Maintenance free, Ready capsule, Pipe-in-cage (PiC) type Earthing with 3 Mtr Electrode as per technical specification, approved drawings and scope of work.</b>	No	645.00
<b>2.00</b>	<b>Supply of 25 X 3 mm GI Strip having hot dip- galvanized-zinc coating of 80-100 microns without any joints or welding. Both the end of the GI strip should be connected with GI nut bolts and required fabrication work for giving separate earthing connections to (1) Neutral of the transformer (2) MS structures of the transformer center (3) Lightening Arrestor (Approximately 30 meter GI strip per transformer centre -as per requirement and instruction of Engineer in-charge) (3 earth Pits required for three separate earthings) as per technical specification, approved drawings and scope of work.</b>	Mtr	6450.00
<b>3.00</b>	<b>Supply of uPVC standard make Pipe of 1.25" diameter for covering GI strip with UV protected Cable Ties of 550 X 7.6 mm size to bind with pole face(Approximately 25 meter uPVC pipe for GI strip covering per transformer centre -as per requirement and instruction of Engineer in-charge) as per technical specification, approved drawings and scope of work.</b>	Mtr	5375.00

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Bidder's Name & Address:

<b>A (V) Interlinking of 11kV Feeder (Reliability)</b>			
<b>Line Item No.</b>	<b>Description of Goods</b>	<b>Unit</b>	<b>Quantity</b>
<b>1.00</b>	<b>Support for 11 KV overhead line as per technical specification, approved drawings and scope of work</b>		
1.01	10 m / 270 kgs PSC Poles - (PSC Pole as per state practice)	No	0
<b>2.00</b>	<b>Pre-fabricated steel items like V cross arm, top clamp, DC cross arm, bracket, clamps, cross bracings, bracings, strain plate, guarding channels, back clamp, transformer mounting structure etc made of MS Channels (100x50x6mm), MS angle (65x65x6mm), MS flats (65x8mm) of given sizes for over head structures as per technical specification, approved drawings and scope of work.</b>	MT	
<b>3.00</b>	<b>MS Nuts, Bolts with Washers as per technical specification, approved drawings and scope of work.</b>	MT	
<b>4.00</b>	<b>Stay Set (Galvanised) with 50x8 mm stay clamp, stay insulator (2 Nos.), anchor plate (200x200x6), nut bolts, 2 Nos turn-buckles, 1.8 m long, 16 mm diameter solid GS stay rod &amp; 7/3.15 mm dia GI stranded wire complete as per technical specification, approved drawings and scope of work.</b>	set	128
<b>5.00</b>	<b>Insulator and hardware as per technical specification, approved drawings and scope of work.</b>		
5.01	11 KV Polymer (Composite) Disc insulator 45 KN along with suitable hardware fittings	set	
5.02	11 KV Polymer (Composite) Pin Insulators having GI PIN	set	
<b>6.00</b>	<b>Earthing arrangement as per technical specifications, approved drawings and scope of work.</b>		
6.01	Supplying & erecting earth pit of minimum bore dia. 150 mm size approved make safe Earthing Electrode consisting Pipe in pipe Technology as per IS 3043-1987 made of corrosion free G.I. Pipes having Outer pipe dia of 50 mm having 80-200 Micron galvanising connections, terminal dia of 12 mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation with civil works of earthing chamber. For Electrical installation covering Transformer neutrals, HT & LT switchgears for independent earthing in normal soil, Length of Pipe 3 mtrs. Backfilling compound 2 bags of 25 Kg each	No	128
6.02	Installation & commissioning of earthing conductor 38 x 3 G.I. strip for pole mounted transformer and upto FSP, RMU as well as connection to be made to the earth pit. Rates inclusive of hot dipped hardware.	Mtr	640
<b>7.00</b>	<b>ACSR Conductors of following sizes with Jointing sleeves, binding materials, PG clamps, bi-metallic clamp, hardware etc for overhead line and jumpers as required as per technical specification, approved drawings and scope of work</b>		
7.01	6/4.72 mm+7/1.57 mm (100 mm <sup>2</sup> Al. Area) - Dog	km	0
<b>8.00</b>	<b>12kV, 600A, 25kA for 3sec, 3-ph, 3 Pin type, Horizontal/Vertical Mounting type (as desired by DISCOM), Gang Operated, AB Switch along with Support Insulators, Base Channel down Pipe, Arcing Horns etc. complete as per technical specifications, scope of works and approved drawings</b>	Set	0
<b>9.00</b>	<b>Cables:</b>		
9.01	Supply of 11 kV,(E),XLPE insulated Aluminium Conductor, Armoured cable as per enclosed specification 3 core 185 sq. mm. as per enclosed specification including rates for approval of local Authorities for laying of cable.(Make as approved by UGVCL) Laying of 11 KV (E) XLPE insulated aluminium armoured cable in ground up to 1200 mm deep, 500 mm wide cable trench providing sand cushioning before and after laying cable and covering with half round Hume pipe and refilling the trench.( rate shall include cost of excavation of trench) as per technical specification, approved drawings and scope of work.	Mtr	6980
<b>10.00</b>	<b>Indoor application: HT push on/heat shrink type end termination preferably for at switchgear end boxes, transformer( PAD/Pole mounted) for 11 kV XLPE Aluminium Conductor Armoured cable as specified with connection of leads including cutting,stripping of cable, insulations,providing compression type terminals,crimping of lugs with suitable crimping tool, as per technical specification, approved drawings and scope of work.</b>		
10.01	3Cx185 mm 2 11 KV XLPE	No	96
<b>11.00</b>	<b>Outdoor application: HT push on/heat shrink type end termination preferably for at switchgear end boxes, transformer( PAD/Pole mounted) for 11 kV XLPE Aluminium Conductor Armoured cable as specified with connection of leads including cutting,stripping of cable, insulations,providing compression type terminals,crimping of lugs with suitable crimping tool, as per technical specification, approved drawings and scope of work.</b>		
11.01	3Cx185 mm 2 11 KV XLPE	No	96
<b>12.00</b>	<b>Straight Joint: HT push on/heat shrink type straight joint preferably for 11 kV XLPE Aluminium Conductor Armoured cable as specified with connection of leads including cutting,stripping of cable, insulations,providing compression type terminals,crimping of lugs with suitable crimping tool.as per technical specification, approved drawings and scope of work.</b>		
12.01	3Cx185 mm 2 11 KV XLPE	No	11

<b>13.00</b>	<b>Earthing arrangement as per technical specifications, approved drawings and scope of work.</b>		
13.01	Supplying of maintenance free earthing system comprising of 17.2 mm dia 3 mtr Long Earthing Electrode of low carbon steel electrode with 250 microns copper coating + carbon based conductive concrete back fill safe compound (resistivity of less than 0.10 ohm mtr) & GI clamp. Supply, Earthing and Install pre cast RCC Earth pit Chamber (300*300 MM), Making 100 mm Dia Bore, 3 Mtr Long, Making of Earth pit chamber in normal Soil.	No	
13.02	Installation & commissioning of earthing conductor 38 x 3 G.I. strip for pole mounted transformer and upto FSP, RMU as well as connection to be made to the earth pit. Rates inclusive of hot dipped hardware.	Mtr	
<b>14.00</b>	<b>Supply and installation of clamps made from 50*6 mm GI Flat (Min. weight of flat 1.6 kG per Set) for fitting for 110 mm GI / HDPE pipe above ground with pole (with cost of nuts &amp; bolts) Cable Laying above ground in air for termination of cable on pole with as per Engineer In Charge</b>	Set	64
<b>15.00</b>	<b>Providing of 100 mm Dia heavy duty GI pipe with clamping for the protection for the cable above the ground</b>	Mtr	192
<b>16.00</b>	<b>Cable Route Marker: Providing RCC cable Route marker as per drawing duly marked with "DANGER" Mark, "UGVCL POWER CABLE" and Arrow of route of cable.</b>	No	230
<b>17.00</b>	<b>RMU : Supply of SF6 gas insulated, 630Amp both sides extensible, SCADA compatible Ring Mains Units (RMU) as per technical specification, approved drawings and scope of work.</b>		
17.01	2 Isolator (2-Way)	No	
17.02	1 Circuit Breaker 1 Isolator (2-Way)	No	
17.03	3 Isolator (3-Way)	No	
17.04	1 Circuit Breaker 2 Isolator (3-Way)	No	32
17.05	2 Circuit Breaker 1 Isolator (3-Way)	No	
17.06	1 Circuit Breaker 3 Isolator (4-Way)	No	0
17.07	4 Isolator (4-Way)	No	
17.08	2 Circuit Breaker 2 Isolator (4-Way)	No	
17.09	1 Circuit Breaker 4 Isolator (5-Way)	No	
17.10	1 Circuit Breaker 5 Isolator (6-Way)	No	
<b>18.00</b>	<b>Providing chain link fencing to RMU as per Specification and drawing (approx. total running length of each fencing 10.8 meters)</b>	RMT	0