

Propel NY - TO48 BS2		
REVISION: 1		
Propel NY - TO48 BS2 -DIRECT COST		
Substation Direct Costs		Total Each Segment
Direct Labor, Material & Equipment Costs	1 - New Rochelle 345kV Substation	\$ 5,189,956
Direct Labor, Material & Equipment Costs	2 - Shore Road 345 kV GIS Substation	\$ 23,199,414
Direct Labor, Material & Equipment Costs	3 - Ruland Road 345/138 kV Substation	\$ 73,584,516
Direct Labor, Material & Equipment Costs	4 - Barrett 345 kV Substation	\$ 64,802,255
Direct Labor, Material & Equipment Costs	5 - Existing EGC 345 kV_ Upgrade	\$ 7,358,978
Direct Labor, Material & Equipment Costs	6 - Existing 345 kV Tremont Substation_GIS_ Interconnection	\$ 21,413,864
Direct Labor, Material & Equipment Costs	7 - Existing Sprain Brook 345 kV_ Interconnection	\$ 10,116,775
Direct Labor, Material & Equipment Costs	8 - Existing Ruland 138 kV_ Upgrade & Interconnection	\$ 7,291,825
Direct Labor, Material & Equipment Costs	9 -Existing Shore Road 138 kV_ Interconnection	\$ 9,362,353
Direct Labor, Material & Equipment Costs	10 -Existing Syosset 138 kV_ Interconnection	\$ 12,319,701
Direct Labor, Material & Equipment Costs	11 -Existing Holbrook 138 Kv_ Upgrade	\$ 1,013,645
Direct Labor, Material & Equipment Costs	12 -Existing Barrett 138 Kv_ Upgrade	\$ -
Direct Labor, Material & Equipment Costs	13 - Existing EGC 138 kV_ Upgrade	\$ 9,544,442
Direct Labor, Material & Equipment Costs	14 -Existing Lake Success 138 kV_ Upgrade	\$ 12,857,454
Direct Labor, Material & Equipment Costs	15 - Existing Rainey 345 kV_ Upgrade	\$ 2,756,158
SUBTOTAL (Costs):		\$ 260,811,336
CONTRACTOR MARK-UP (OH&P)		\$ 44,919,457
SUBTOTAL (AFTER MU):		\$ 305,730,793
CONTINGENCY ON ENTIRE PROJECT		\$ 61,146,159
Substation TOTAL:		\$ 366,876,952
Transmission Line Direct Costs		Total Each Segment
Direct Labor, Material & Equipment Costs	BS2.1 Barrett to Tremont 345kV Onshore UG Cables -single circuit	\$ 317,449,703
Direct Labor, Material & Equipment Costs	BS2.2 Syosset to Shore Road 138kV Onshore UG Cables -single circuit	\$ 113,508,061
Direct Labor, Material & Equipment Costs	BS2.3 Ruland Road to Shore Road 345kV Onshore UG Cables -single circuit	\$ 202,597,296
Direct Labor, Material & Equipment Costs	BS2.4a. Shore Road to New Rochelle Offshore Submarine Cables - two circuits (two lines, single circuit each)	\$ 148,375,821
Direct Labor, Material & Equipment Costs	BS2.4a. Shore Road to New Rochelle Onshore UG Cables - two circuits (two lines, single circuit each)	\$ 32,237,380
Direct Labor, Material & Equipment Costs	BS2.4b New Rochelle to Sprainbrook 345kV Onshore UG Cables -single circuit	\$ 108,543,450
Direct Labor, Material & Equipment Costs	Other Misc. Upgrades	\$ 8,200,000
SUBTOTAL (Costs):		\$ 930,911,712
CONTRACTOR MARK-UP (OH&P)		\$ 167,564,108
SUBTOTAL (AFTER MU):		\$ 1,098,475,820
CONTINGENCY ON ENTIRE PROJECT		\$ 219,695,164
Transmission Line TOTAL:		\$ 1,318,170,985
Propel NY - TO48 BS2Total Direct Cost		\$ 1,685,047,937

Propel NY - TO48 BS2 -INDIRECT COST		
Substation Indirect Costs		Total Each Segment
Indirect Costs	1 - New Rochelle 345kV Substation	\$ 4,190,336
Indirect Costs	2 - Shore Road 345 kV GIS Substation	\$ 7,887,702
Indirect Costs	3 - Ruland Road 345/138 kV Substation	\$ 25,072,487
Indirect Costs	4 - Barrett 345 kV Substation	\$ 32,043,638
Indirect Costs	5 - Existing EGC 345 kV_ Upgrade	\$ 12,760,863
Indirect Costs	6 - Existing 345 kV Tremont Substation_GIS_Interconnection	\$ 3,217,283
Indirect Costs	7 - Existing Sprain Brook 345 kV_ Interconnection	\$ 3,251,537
Indirect Costs	8 - Existing Ruland 138 kV_ Upgrade & Interconnection	\$ 2,322,912
Indirect Costs	9 -Existing Shore Road 138 kV_ Interconnection	\$ 3,015,951
Indirect Costs	10 -Existing Syosset 138 kV_ Interconnection	\$ 4,108,340
Indirect Costs	11 -Existing Holbrook 138 Kv_ Upgrade	\$ 333,220
Indirect Costs	12 -Existing Barrett 138 Kv_ Upgrade	\$ -
Indirect Costs	13 - Existing EGC 138 kV_ Upgrade	\$ 2,985,944
Indirect Costs	14 -Existing Lake Success 138 kV_ Upgrade	\$ 4,247,145
Indirect Costs	15 - Existing Rainey 345 kV_ Upgrade	\$ 903,991
SUBTOTAL (Costs):		\$ 106,341,350
CONTRACTOR MARK-UP (OH&P)		\$ 19,141,443
SUBTOTAL (AFTER MU):		\$ 125,482,792
CONTINGENCY ON ENTIRE PROJECT		\$ 25,096,558
Substation TOTAL:		\$ 150,579,351
Transmission Line Indirect Costs		Total Each Segment
Indirect Costs	BS2.1 Barrett to Tremont 345kV Onshore UG Cables -single circuit	\$ 80,417,599
Indirect Costs	BS2.2 Syosset to Shore Road 138kV Onshore UG Cables -single circuit	\$ 29,363,579
Indirect Costs	BS2.3 Ruland Road to Shore Road 345kV Onshore UG Cables -single circuit	\$ 51,255,552
Indirect Costs	BS2.4a. Shore Road to New Rochelle Offshore Submarine Cables - two circuits (two lines, single circuit each)	\$ 41,406,484
Indirect Costs	BS2.4a. Shore Road to New Rochelle Onshore UG Cables - two circuits (two lines, single circuit each)	\$ 8,473,490
Indirect Costs	BS2.4b New Rochelle to Sprainbrook 345kV Onshore UG Cables -single circuit	\$ 27,372,674
Indirect Costs	Other Misc. Upgrades	\$ 2,606,000
SUBTOTAL (Costs):		\$ 240,895,378
CONTRACTOR MARK-UP (OH&P)		\$ 43,361,168
SUBTOTAL (AFTER MU):		\$ 284,256,546
CONTINGENCY ON ENTIRE PROJECT		\$ 56,851,309
Transmission Line TOTAL:		\$ 341,107,855
Propel NY - TO48 BS2 Total Indirect Cost		\$ 491,687,206
Propel NY - TO48 BS2 Total		\$ 2,176,735,143

Propel NY - TO48 BS2

1 - New Rochelle 345kV Substation

Total: \$ 13,282,494

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
1 - New Rochelle 345kV Substation				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 1,186,234	\$ 851,550	\$ 609,171	\$ 2,646,955
2. SUBSTATION FOUNDATIONS	\$ 227,559	\$ 260,067	\$ 162,542	\$ 650,169
3. SUBSTATION STRUCTURES	\$ 280,966	\$ 288,799	\$ 189,353	\$ 759,118
4. MAJOR EQUIPTMENT	\$ 527,046	\$ 163,391	\$ 70,025	\$ 760,461
5. LOW VOLTAGE & CONTROL CABLE	\$ 9,536	\$ 2,579	\$ 516	\$ 12,630
6. CONDUIT & CABLE TRENCH	\$ 198,230	\$ 43,314	\$ 12,044	\$ 253,588
7. GROUND GRID	\$ 56,711	\$ 40,853	\$ 9,473	\$ 107,037
8. CONTROL ENCLOSURE	\$ -	\$ -	\$ -	\$ -
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 270,692	\$ 1,145,032	\$ 2,774,612	\$ 4,190,336
SUBTOTAL (Costs):	\$ 2,756,973	\$ 2,795,584	\$ 3,827,734	\$ 9,380,292
CONTRACTOR MARK-UP (OH&P)	\$ 496,255	\$ 503,205	\$ 688,992	\$ 1,688,453
SUBTOTAL:	\$ 3,253,229	\$ 3,298,789	\$ 4,516,727	\$ 11,068,745
CONTINGENCY ON ENTIRE PROJECT	\$ 650,646	\$ 659,758	\$ 903,345	\$ 2,213,749
TOTAL:	\$ 3,903,874	\$ 3,958,547	\$ 5,420,072	\$ 13,282,494

Description of Work: New, greenfield substation to be called “New Rochelle Substation,” which would be 345 kV and located near 60 Echo Avenue in the City of New Rochelle, Westchester County. The substation would allow for the transition of electric submarine transmission cables to electric underground transmission cables at a location outside of the shoreline of Long Island Sound.

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST	Comments:
1 - New Rochelle 345kV Substation											
1. SITE PREP/ GRADING/ FENCING / CIVIL											
1.1	Site Clearing	1.9	ACRE	-	10,800.00	7,200.00	\$ -	\$ 19,980	\$ 13,320	\$ 33,300	Measure dwg ~1.85 AC. Perimeter+20' Site is a light wooded plot
1.2	Demolition	0	ACRE	-	-	-	\$ -	\$ -	\$ -	\$ -	Based on dwg- green field-> no demo
1.3	New Access Road - 20'	3,698	SY	4.85	7.20	4.80	\$ 17,933	\$ 26,622	\$ 17,748	\$ 62,304	Interior access road- Assumes Type gravel road. Measure dwg- assume 12" stabilized subbased compacted, with geogrid (8" base & 6" rock cover included in substation base & surfacing )
1.4	Strip and Dispose Top Soil	2,985	CY		24.50	10.50	\$ -	\$ 73,124	\$ 31,339	\$ 104,463	Assume 1' top soil
1.5	Site Grading- Excavation for Substation Pad	8,954	CY		9.00	6.00	\$ -	\$ 80,586	\$ 53,724	\$ 134,310	Assume excavate avg 3', no rock
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	4,835	CY		21.00	9.00	\$ -	\$ 101,538.36	\$ 43,516.44	\$ 145,054.80	
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	7,253	CY		2.40	1.60	\$ -	\$ 17,407	\$ 11,604	\$ 29,011	Assume reuse 60% from excavation, truck measure
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	4,835	CY	25.00	2.40	1.60	\$ 120,879	\$ 11,604	\$ 7,736	\$ 140,220	Assume bring in 40%, truck measure
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -	
1.10	Install substation 8" pad base	8,954	SY	11.00	6.00	4.00	\$ 98,494	\$ 53,724	\$ 35,816	\$ 188,034	Estimate based on 8" base
1.11	Site Surfacing - Aggregate 6" Thick	8,954	SY	16.50	4.50	3.00	\$ 147,741	\$ 40,293	\$ 26,862	\$ 214,896	Estimate based on 4" surface stone
1.12	7' Station Fence w/ Barbed Wire & Grounding	1,285	LF	13.85	13.85	6.92	\$ 17,795	\$ 17,795	\$ 8,897	\$ 44,487	Perimeter-gates W'. Assume grounding every 100'
1.13	24' Slide Gate & Grounding	1	EA	8,100.00	3,245.00	1,305.00	\$ 8,100	\$ 3,245	\$ 1,305	\$ 12,650	Including concrete pad for the doors
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -	Including concrete pad for the doors
1.15	Storm drain-4" & 15" HDPE, INFILTRATION TRENCH, INLET and Hydrodynamic Separator	1	LS	328,812.00	38,400.00	25,368.00	\$ 328,812	\$ 38,400	\$ 25,368	\$ 392,580	Crew 4- 10 hr/day
1.16	Seeding	25,302	SF	1.50	1.50	1.00	\$ 37,953	\$ 37,953	\$ 25,302	\$ 101,208	Slop on north side of the drive way and station
1.17	Erosion Control-Silt fence install & remove	2,307	LF	2.41	3.16	0.72	\$ 5,560	\$ 7,290	\$ 1,661	\$ 14,511	Qty based on site perimeter plus 50% rework
1.18	Temporary fencing	1,538	LF	7.50	5.25	2.25	\$ 11,535	\$ 8,075	\$ 3,461	\$ 23,070	Perimeter
1.19	Substation entrance with asphalt	1,085	SY	19.50	26.00	19.50	\$ 21,164	\$ 28,219	\$ 21,164	\$ 70,547	24' wide with asphalt-
1.20	Guardrail	532	LF	24.00	32.00	24.00	\$ 12,768	\$ 17,024	\$ 12,768	\$ 42,560	
1.21	Concrete curb	70	LF	26.00	27.30	11.70	\$ 1,820	\$ 1,911	\$ 819	\$ 4,550	
1.22	Retaining Wall	1,140	LF	312.00	234.00	234.00	\$ 355,680	\$ 266,760	\$ 266,760	\$ 889,200	No info on dwg
							\$ 1,186,234	\$ 851,550	\$ 609,171	\$ 2,646,955	
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL											
2. SUBSTATION FOUNDATIONS											
2.1	345kV, Lightning mast	36	CY	703.89	804.44	502.78	\$ 25,072	\$ 28,654	\$ 17,909	\$ 71,635	(1) @ 17.81cu.yds/str- Attch B Qty
2.2	345kV, A Frame 70'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(4) @ 36.66cu.yds/str
2.3	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 7.92cu.yds/str
2.4	345kV, Bus support-3 Ph, low	33	CY	703.89	804.44	502.78	\$ 23,355	\$ 26,691	\$ 16,682	\$ 66,728	(2) @ 5.53cu.yds/str
2.5	345kV, Bus support-1 Ph	79	CY	703.89	804.44	502.78	\$ 55,748	\$ 63,712	\$ 39,820	\$ 159,279	(1) @ 7.92cu.yds/str
2.6	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 6.6cu.yds/str
2.7	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 4.06cu.yds/str
2.8	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 6.6cu.yds/str
2.9	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 6.06cu.yds/str
2.10	345kV, Cable sealing end	32	CY	703.89	804.44	502.78	\$ 22,595	\$ 25,823	\$ 16,139	\$ 64,556	(2) @ 5.35cu.yds/str
2.11	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 5.35cu.yds/str
2.12	345kV, Disconnect Switch - (Double Break)	95	CY	703.89	804.44	502.78	\$ 66,897	\$ 76,454	\$ 47,784	\$ 191,135	(4) @ 7.92cu.yds/str as shown in Att B
2.13	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 328cu.yds/str
2.14	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 305cu.yds/str
2.15	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 126cu.yds/str
2.16	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 445cu.yds/str

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST	Comments:
2.17	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 20cu.yds/str
2.18	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 20cu.yds/str
2.21	345kV, Surge arrester	48	CY	703.89	804.44	502.78	\$ 33,892	\$ 38,734	\$ 24,209	\$ 96,834	(1) @ 5.35cu.yds/str
2.19	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 188cu.yds/str
2.20	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 154cu.yds/str
2.21	138kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 4.45cu.yds/str
2.22	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 5.35cu.yds/str
2.23	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 4.06cu.yds/str
2.24	138kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(4) @ 6.06cu.yds/str
2.25	138kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 6.06cu.yds/str
2.26	138kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 5.35cu.yds/str
2.27	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(4) @ 18.19cu.yds/str
2.28	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(5) @ 7.92cu.yds/str
2.29	Precast Firewall for transformer, PARs, reactors	-	SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -	Assume 30' H
2.30	Precast Concrete Piles-12"X80'	-	EA								
2.31	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 0.75cu.yds/str
2.32	Steel grating and support beams-transformer moat	0	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -	
TOTAL - 345KV FOUNDATION							\$ 227,559	\$ 260,067	\$ 162,542	\$ 650,169	
3. SUBSTATION STRUCTURES											
3.1	345kV, Lightning mast	2	EA	23,400.00	14,040.00	9,360.00	\$ 46,800	\$ 28,080	\$ 18,720	\$ 93,600	Att B Qty, Developer est only 1
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -	
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -	
3.4	345kV, Bus support-3 Ph, low	3	EA	8,346.00	5,758.74	3,839.16	\$ 25,038	\$ 17,276	\$ 11,517	\$ 53,832	
3.5	345kV, Bus support-1 Ph	10	EA	4,810.00	2,886.00	1,924.00	\$ 48,100	\$ 28,860	\$ 19,240	\$ 96,200	
3.6	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -	
3.7	345kV, GIS support-1 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -	
3.8	345kV, GIS support-3 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -	
3.9	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -	
3.10	345kV, Cable sealing end	3	EA	8,346.00	5,758.74	3,839.16	\$ 25,038	\$ 17,276	\$ 11,517	\$ 53,832	
3.11	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -	
3.12	345kV, Disconnect Switch - (Double Break)	3	EA	19,240.00	11,544.00	7,696.00	\$ 57,720	\$ 34,632	\$ 23,088	\$ 115,440	Developer est based on 18 pantograph switches, Att B shows 6 AL double break switches
3.14	345kV, Surge arrester	9	EA	4,810.00	2,886.00	1,924.00	\$ 43,290	\$ 25,974	\$ 17,316	\$ 86,580	
3.13	138kV, Bus support-3 Ph, low	0	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -	
3.14	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -	
3.15	138kV, Disconnect Switch	0	EA				\$ -	\$ -	\$ -	\$ -	
3.16	138kV, Cable sealing end	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -	
3.17	138kV, CCVT	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -	
3.18	138kV, A Frame 50'	0	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -	
3.19	AL Bus Tubing, 5" SCH 80	636	LF	25.00	184.94	123.29	\$ 15,900	\$ 117,621	\$ 78,414	\$ 211,934	
3.20	AL Bus fittings	1	LS	19,080.00	19,080.00	9,540.00	\$ 19,080	\$ 19,080	\$ 9,540	\$ 47,700	
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 280,966	\$ 288,799	\$ 189,353	\$ 759,118	
4. MAJOR EQUIPMENT											
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -	
4.2	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -	
4.3	345kV, Cable sealing end	9	EA	27,144.00	5,460.00	2,340.00	\$ 244,296	\$ 49,140	\$ 21,060	\$ 314,496	
4.4	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -	
4.5	345kV, Disconnect Switch - (Double Break)	3	EA	68,900.00	21,703.50	9,301.50	\$ 206,700	\$ 65,111	\$ 27,905	\$ 299,715	
4.6	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -	
4.7	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -	
4.8	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -	
4.9	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -	
4.10	Transport & Testing- Shunt Reactor	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -	
4.11	345kV, Phase Angle Regulator with oil containment	0	EA				\$ -	\$ -	\$ -	\$ -	
4.12	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -	
4.13	345kV, Circuit Breaker (GIS), outdoor rated	0	EA				\$ -	\$ -	\$ -	\$ -	
4.14	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -	
4.15	345kV, surge Arrester	9	EA	8,450.00	5,460.00	2,340.00	\$ 76,050	\$ 49,140	\$ 21,060	\$ 146,250	
4.16	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -	
4.17	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -	
4.18	138kV, Circuit Breaker (PASS)	0	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -	
4.19	138kV, Disconnect Switch	0	EA		11,875.50	5,089.50	\$ -	\$ -	\$ -	\$ -	
4.20	138kV, Cable sealing end	0	EA		3,150.00	1,350.00	\$ -	\$ -	\$ -	\$ -	
4.21	138kV, CCVT	0	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -	
4.22	138kV, Surge arrester	0	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -	
4.23	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -	
4.24	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -	
4.25	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -	
TOTAL - MAJOR EQUIPMENT							\$ 527,046	\$ 163,391	\$ 70,025	\$ 760,461	
5. LOW VOLTAGE & CONTROL CABLE											
5.1	Control cables	1,800	LF	5.30	1.43	0.29	\$ 9,536	\$ 2,579	\$ 516	\$ 12,630	
5.2			LF		-	-	\$ -	\$ -	\$ -	\$ -	
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 9,536	\$ 2,579	\$ 516	\$ 12,630	
6. CONDUIT & CABLE TRENCH											
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -	
6.2	Conduit, PVC, 4", SCH 40	450	LF	11.15	10.80	5.40	\$ 5,018	\$ 4,860	\$ 2,430	\$ 12,308	
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -	
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -	

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST	Comments:
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -	
6.6	Cable Trench	725	LF	266.50	53.04	13.26	\$ 193,213	\$ 38,454	\$ 9,614	\$ 241,280	
6.7											
6.8	138kV UG	0	LF	-	-	-	\$ -	\$ -	\$ -	\$ -	
6.9							\$ -	\$ -	\$ -	\$ -	
TOTAL - CONDUIT & CABLE TRENCH							\$ 198,230	\$ 43,314	\$ 12,044	\$ 253,588	
7. GROUND GRID											
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	5,780	LF	2.09	3.42	1.46	\$ 12,086	\$ 19,740	\$ 8,460	\$ 40,287	
7.2	Caweld, DSA, 4/0 , T, CROSS	160	EA	165.00	75.00		\$ 26,400	\$ 12,000	\$ -	\$ 38,400	
7.3	Ground Rod, 3/4" x 15'	135	EA	135.00	67.50	7.50	\$ 18,225	\$ 9,113	\$ 1,013	\$ 28,350	
TOTAL - GROUND GRID							\$ 56,711	\$ 40,853	\$ 9,473	\$ 107,037	
8. CONTROL ENCLOSURE											
8.1	345/138kV Control Bldg	0	EA	275,715.78	193,001.04	82,714.73	\$ -	\$ -	\$ -	\$ -	
8.2	Primary Line Relays (Pilot): SEL-411L	0	EA	41,575.50	33,260.40	8,315.10	\$ -	\$ -	\$ -	\$ -	Qty & cost provided by Sub Station Eng
8.3	Backup Line Relays (Pilot): GE L90	0	EA	41,575.50	33,260.40	8,315.10	\$ -	\$ -	\$ -	\$ -	Qty & cost provided by Sub Station Eng
8.4	Primary Bus Differential Relays: SEL-487B	0	EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -	Qty & cost provided by Sub Station Eng
8.5	Backup Bus Differential Relays: GE B90	0	EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -	Qty & cost provided by Sub Station Eng
8.6	RTU Panel A: SEL-2240 Axion, SEL-2730M ENET SW., SEL-2407 GPS	0	EA	12,500.00	10,000.00	2,500.00	\$ -	\$ -	\$ -	\$ -	Qty & cost provided by Sub Station Eng
8.7	RTU Panel B: SEL-2730M Ethernet Switch, SEL-2407 GPS Clock	0	EA	12,500.00	10,000.00	2,500.00	\$ -	\$ -	\$ -	\$ -	Qty & cost provided by Sub Station Eng
8.8	HMI Panel	0	EA	12,500.00	10,000.00	2,500.00	\$ -	\$ -	\$ -	\$ -	Qty & cost provided by Sub Station Eng
8.9	125VDC Battery System	0	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -	SECo price battery
8.10	Control house AC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -	
8.11	Control House DC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -	
8.12	Generator	0	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -	
TOTAL - CONTROL ENCLOSURE							\$ -	\$ -	\$ -	\$ -	
1 - New Rochelle 345kV Substation							\$ 2,486,281	\$ 1,650,552	\$ 1,053,122	\$ 5,189,956	Total Direct Costs
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS											
	Contractor Mobilization / Demobilization										
9.1	Mob / Demob	1.0	LS		94,628.62	40,555.12	\$ -	\$ 94,629	\$ 40,555	\$ 135,184	5% of LA+EQ
	Project Management, Material Handling & Amenities										
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		51,899.56		\$ -	\$ 51,900	\$ -	\$ 51,900	Assumes PM, Scheduler/Project Controls and a Cost Estimator will support pre-con stage full time.
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		207,598.24		\$ -	\$ 207,598	\$ -	\$ 207,598	Include all PM Staff, Per Diems, Vehicles and Expenses for construction/close out.
9.4	Utility PM and Project Oversight	1.0	LS		51,899.56		\$ -	\$ 51,900	\$ -	\$ 51,900	
9.5	Site Accommodation, Facilities, Storage	1.0	LS	51,899.56			\$ 51,900	\$ -	\$ -	\$ 51,900	
	Engineering										
9.6	Design Engineering	1.00	LS		415,196.48		\$ -	\$ 415,196	\$ -	\$ 415,196	
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -	
9.8	Geotech	5.00	EA		2,730.00	1,820.00	\$ -	\$ 13,650	\$ 9,100	\$ 22,750	5 Test Bores Per Yard.
9.9	Surveying/Staking	1.00	Site		36,329.69		\$ -	\$ 36,330	\$ -	\$ 36,330	
	Testing & Commissioning										
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		194,623.35		\$ -	\$ 194,623	\$ -	\$ 194,623	
	Permitting and Additional Costs										
9.11	Physical Security	1.00	LS		6,546.96		\$ -	\$ 6,547	\$ -	\$ 6,547	6P-6A, Sun&Sat all day. Security guard rate avg in NJ \$14.72/HR, used \$18
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		51,899.56		\$ -	\$ 51,900	\$ -	\$ 51,900	
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -	
9.14	Warranties / LOC's	1.00	LS		15,569.87		\$ -	\$ 15,570	\$ -	\$ 15,570	
9.15	Laydown Lease	-	LS		-		\$ -	\$ -	\$ -	\$ -	
9.16	Real Estate ( Acquisition)	1.00	LS			2,393,162.00	\$ -	\$ -	\$ 2,393,162	\$ 2,393,162	
9.17	Legal Fees (Real estate)	1.00	LS		-	71,794.86	\$ -	\$ -	\$ 71,795	\$ 71,795	3% of the real estate cost
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -	The estimate does not include cost for insurance, assume it will be provided by he owner (i.e. OCIP)
9.19	Bonds	1	LS		-	\$ 260,000	\$ -	\$ -	\$ 260,000	\$ 260,000	2% based on contract value
9.20	Sales Tax on Materials	8.8%	LS	2,486,281.16			\$ 218,793	\$ -	\$ -	\$ 218,793	8.8%
9.21	Fees for permits, including roadway, railroad, building or other local permit:	1.00	LS		5,189.96		\$ -	\$ 5,190	\$ -	\$ 5,190	
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 270,692	\$ 1,145,032	\$ 2,774,612	\$ 4,190,336	

Propel NY - TO48 BS2

2 - Shore Road 345 kV GIS Substation

Total:   \$       44,019,357

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
2 - Shore Road 345 kV GIS Substation				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 1,979,553	\$ 2,997,434	\$ 2,009,487	\$ 6,986,474
2. SUBSTATION FOUNDATIONS	\$ 1,967,614	\$ 1,826,216	\$ 1,292,210	\$ 5,086,040
3. SUBSTATION STRUCTURES	\$ 532,556	\$ 458,935	\$ 289,685	\$ 1,281,176
4. MAJOR EQUIPTMENT	\$ 4,777,734	\$ 748,727	\$ 420,349	\$ 5,946,810
5. LOW VOLTAGE & CONTROL CABLE	\$ 76,284	\$ 20,628	\$ 4,126	\$ 101,038
6. CONDUIT & CABLE TRENCH	\$ 957,512	\$ 591,799	\$ 304,206	\$ 1,853,518
7. GROUND GRID	\$ 75,011	\$ 54,328	\$ 12,708	\$ 142,047
8. CONTROL ENCLOSURE	\$ 841,656	\$ 701,803	\$ 258,853	\$ 1,802,312
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 1,218,291	\$ 5,044,983	\$ 1,624,428	\$ 7,887,702
SUBTOTAL (Costs):	\$ 12,426,211	\$ 12,444,853	\$ 6,216,052	\$ 31,087,116
CONTRACTOR MARK-UP (OH&P)	\$ 2,236,718	\$ 2,240,073	\$ 1,118,889	\$ 5,595,681
SUBTOTAL:	\$ 14,662,929	\$ 14,684,926	\$ 7,334,942	\$ 36,682,797
CONTINGENCY ON ENTIRE PROJECT	\$ 2,932,586	\$ 2,936,985	\$ 1,466,988	\$ 7,336,559
TOTAL:	\$ 17,595,515	\$ 17,621,911	\$ 8,801,930	\$ 44,019,357

Description of Work: New greenfield 345 kV Shore Road Substation, to be located at 375 Shore Road, in the Hamlet of Glenwood Landing, Town of Oyster Bay, Nassau County. The 345 kV Shore Road Substation will serve as the transition station. A new 345 kV underground terrestrial transmission line will be converted into two (2) marine transmission lines for crossing Long Island Sound. Also, a 345 kV shunt reactor will be installed for compensation.										
Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
2 - Shore Road 345 kV GIS Substation										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	2.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ 21,600	\$ 14,400	\$ 36,000
1.2	Demolition	0	ACRE	-	-	-	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'	2,028	SY	4.85	7.20	4.80	\$ 9,835	\$ 14,601	\$ 9,734	\$ 34,170
1.4	Strip and Dispose Top Soil	32,267	CY		24.50	10.50	\$ -	\$ 790,533	\$ 338,800	\$ 1,129,333
1.5	Site Grading- Excavation for Substation Pad- Rock	1,613	CY		243.00	162.00	\$ -	\$ 392,040	\$ 261,360	\$ 653,400
1.6	Site Grading- Excavation for Substation Pad	32,267	CY		9.00	6.00	\$ -	\$ 290,400	\$ 193,600	\$ 484,000
1.7	Site Grading- Excavation for Substation Pad- Hauling and disposal	17,424	CY		21.00	9.00	\$ -	\$ 365,904.00	\$ 156,816.00	\$ 522,720.00
1.8	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	26,136	CY		2.40	1.60	\$ -	\$ 62,726	\$ 41,818	\$ 104,544
1.9	Site Grading -Fill for Substation Pad (import, compacted in place)	17,424	CY	25.00	2.40	1.60	\$ 435,600	\$ 41,818	\$ 27,878	\$ 505,296
1.10	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.11	Install substation 8" pad base	9,680	SY	11.00	6.00	4.00	\$ 106,480	\$ 58,080	\$ 38,720	\$ 203,280
1.12	Site Surfacing - Aggregate 6" Thick	9,680	SY	16.50	4.50	3.00	\$ 159,720	\$ 43,560	\$ 29,040	\$ 232,320
1.13	7' Station Fence w/ Barbed Wire & Grounding	972	LF	13.85	13.85	6.92	\$ 13,460	\$ 13,460	\$ 6,730	\$ 33,651
1.14	25' Slide Gate & Grounding	2	EA	8,100.00	3,245.00	1,305.00	\$ 16,200	\$ 6,490	\$ 2,610	\$ 25,300
1.15	4' Pedestrian gate	2	EA	2,500.00	1,000.00	350.00	\$ 5,000	\$ 2,000	\$ 700	\$ 7,700
1.16	Storm drain-15" HDPE, INFILTRATION TRENCH, INLET and Hydrodynamic Separator	1	LS	92,595.69	30,720.00	38,052.00	\$ 92,596	\$ 30,720	\$ 38,052	\$ 161,368
1.17	Seeding	6,320	SF	1.50	1.50	1.00	\$ 9,480	\$ 9,480	\$ 6,320	\$ 25,280
1.18	Erosion Control-Silt fence install & remove	1,545	LF	2.41	3.16	0.72	\$ 3,723	\$ 4,882	\$ 1,112	\$ 9,718
1.19	Temporary fencing	1,030	LF	7.50	5.25	2.25	\$ 7,725	\$ 5,408	\$ 2,318	\$ 15,450
1.20	Substation entrance with asphalt	222	SY	19.50	26.00	19.50	\$ 4,333	\$ 5,778	\$ 4,333	\$ 14,444
1.21	Concrete curb	180	LF	26.00	27.30	11.70	\$ 4,680	\$ 4,914	\$ 2,106	\$ 11,700
1.22	Retaining Wall	712	LF	1,560.00	1,170.00	1,170.00	\$ 1,110,720	\$ 833,040	\$ 833,040	\$ 2,776,800



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ 1,979,553	\$ 2,997,434	\$ 2,009,487	\$ 6,986,474
2. SUBSTATION FOUNDATIONS										
2.1	345kV, Lightning mast foundation	53	CY	703.89	804.44	502.78	\$ 37,609	\$ 42,981	\$ 26,863	\$ 107,453
2.2	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, Bus support-3 Ph, low	55	CY	703.89	804.44	502.78	\$ 38,925	\$ 44,486	\$ 27,803	\$ 111,214
2.4	345kV, Bus support-1 Ph	143	CY	703.89	804.44	502.78	\$ 100,346	\$ 114,681	\$ 71,676	\$ 286,702
2.5	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, Cable sealing end	32	CY	703.89	804.44	502.78	\$ 22,595	\$ 25,823	\$ 16,139	\$ 64,556
2.10	345kV, CCVT	16	CY	703.89	804.44	502.78	\$ 11,297	\$ 12,911	\$ 8,070	\$ 32,278
2.11	345kV, SSVT	16	CY	703.89	804.44	502.78	\$ 11,297	\$ 12,911	\$ 8,070	\$ 32,278
2.15	345kV, Disconnect Switch	95	CY	703.89	804.44	502.78	\$ 66,897	\$ 76,454	\$ 47,784	\$ 191,135
2.12	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, Shunt Reactor with oil containment-200MVAR	834	CY	703.89	804.44	502.78	\$ 587,040	\$ 670,903	\$ 419,314	\$ 1,677,257
2.14	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.15	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Circuit Breaker (PASS)	20	CY	703.89	804.44	502.78	\$ 14,078	\$ 16,089	\$ 10,056	\$ 40,222
2.18	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345kV, Surge arrester	64	CY	703.89	804.44	502.78	\$ 45,189	\$ 51,645	\$ 32,278	\$ 129,113
2.20	345/138 Kv, Control Enclosure-BLDG with generator pad	165	CY	703.89	804.44	502.78	\$ 116,141	\$ 132,733	\$ 82,958	\$ 331,832
2.21	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.23	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.24	138kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.25	138kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.27	Precast Firewall for transformer, PARs, reactors	16,680	SF	25.00	15.00	10.00	\$ 417,000	\$ 250,200	\$ 166,800	\$ 834,000
2.28	Precast Concrete Piles-12"X80'	104	EA	4,800.00	3,600.00	3,600.00	\$ 499,200	\$ 374,400	\$ 374,400	\$ 1,248,000
2.29	Local Control Cabinet foundation	-	CY	-	-	-	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ 1,967,614	\$ 1,826,216	\$ 1,292,210	\$ 5,086,040
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast foundation	3	EA	23,400.00	14,040.00	9,360.00	\$ 70,200	\$ 42,120	\$ 28,080	\$ 140,400
3.2	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph, low	5	EA	8,346.00	5,758.74	3,839.16	\$ 41,730	\$ 28,794	\$ 19,196	\$ 89,720
3.4	345kV, Bus support-1 Ph	18	EA	4,810.00	2,886.00	1,924.00	\$ 86,580	\$ 51,948	\$ 34,632	\$ 173,160
3.5	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS support-1 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS support-3 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.9	345kV, Cable sealing end	3	EA	8,346.00	5,758.74	3,839.16	\$ 25,038	\$ 17,276	\$ 11,517	\$ 53,832
3.10	345kV, CCVT	3	EA	4,810.00	2,886.00	1,924.00	\$ 14,430	\$ 8,658	\$ 5,772	\$ 28,860
3.11	345kV, SSVT	3	EA	4,810.00	2,886.00	1,924.00	\$ 14,430	\$ 8,658	\$ 5,772	\$ 28,860
3.12	345kV, Disconnect Switch	3	EA	19,240.00	11,544.00	7,696.00	\$ 57,720	\$ 34,632	\$ 23,088	\$ 115,440
3.13	345kV, Surge arrester	12	EA	4,810.00	2,886.00	1,924.00	\$ 57,720	\$ 34,632	\$ 23,088	\$ 115,440
3.14	138kV, Bus support-3 Ph, low	0	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.15	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Disconnect Switch	0	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Cable sealing end	0	EA	4,066.40	1,443.00	962.00	\$ -	\$ -	\$ -	\$ -
3.18	AL. Bus Tubing, 5" SCH 80	845	LF	25.00	184.94	123.29	\$ 21,125	\$ 156,273	\$ 104,182	\$ 281,579
3.19	AL. Bus fittings	1	LS	25,350.00	25,350.00	12,675.00	\$ 25,350	\$ 25,350	\$ 12,675	\$ 63,375
3.20	Steel grating and support beams-transformer moat	43,280	LB	2.73	1.17	0.50	\$ 118,233	\$ 50,594	\$ 21,683	\$ 190,511
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 532,556	\$ 458,935	\$ 289,685	\$ 1,281,176
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS- Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, CCVT	3	EA	16,900.00	15,941.99	6,832.28	\$ 50,700	\$ 47,826	\$ 20,497	\$ 119,023

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
4.4	345kV, SSVT	3	EA	16,900.00	15,941.99	6,832.28	\$ 50,700	\$ 47,826	\$ 20,497	\$ 119,023
4.5	345kV, Disconnect Switch	3	EA	57,720.00	34,632.00	23,088.00	\$ 173,160	\$ 103,896	\$ 69,264	\$ 346,320
4.6	345/138KV, Power Transformer	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.7	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.8	345kV, Shunt Reactor with oil containment-200MVAR	1	EA	2,901,774.00	3,520.00	880.00	\$ 2,901,774	\$ 3,520	\$ 880	\$ 2,906,174
4.9	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	Transport & Testing- Shunt Reactor	1	EA		331,900.00	217,600.00	\$ -	\$ 331,900	\$ 217,600	\$ 549,500
4.12	345kV, Phase Angle Regulator	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.13	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	1	EA	980,000.00	57,239.00	24,531.00	\$ 980,000	\$ 57,239	\$ 24,531	\$ 1,061,770
4.15	345kV, Circuit Breaker (GIS), outdoor rated	0	EA		10,080.00	4,320.00	\$ -	\$ -	\$ -	\$ -
4.17	345kV, surge Arrester	12	EA	8,450.00	5,460.00	2,340.00	\$ 101,400	\$ 65,520	\$ 28,080	\$ 195,000
4.16	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.17	138kV, Phase Angle Regulator	0	EA				\$ -	\$ -	\$ -	\$ -
4.18	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Disconnect Switch	0	EA				\$ -	\$ -	\$ -	\$ -
4.20	138kV, Cable sealing end	0	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Surge arrester	0	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.22	Station service transformers- 120/208v-250VA	2	EA	260,000.00	45,500.00	19,500.00	\$ 520,000	\$ 91,000	\$ 39,000	\$ 650,000
4.23	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
4.24	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ 4,777,734	\$ 748,727	\$ 420,349	\$ 5,946,810
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control cables	14,400	LF	5.30	1.43	0.29	\$ 76,284	\$ 20,628	\$ 4,126	\$ 101,038
5.2			LF		-	-	\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 76,284	\$ 20,628	\$ 4,126	\$ 101,038
6. CONDUIT & CABLE TRENCH										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	3,150	LF	11.15	10.80	5.40	\$ 35,123	\$ 34,020	\$ 17,010	\$ 86,153
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	900	LF	266.50	53.04	13.26	\$ 239,850	\$ 47,736	\$ 11,934	\$ 299,520
6.7										
6.8	138kV UG- Conduit	1,100	LF	81.00	107.00	57.00	\$ 89,100	\$ 117,700	\$ 62,700	\$ 269,500
6.9	138kV UG- Cable	3,300	LF	156.00	94.00	62.00	\$ 514,800	\$ 310,200	\$ 204,600	\$ 1,029,600
6.10	138kV UG- Termination	6	EA	9,360.00	11,700.00		\$ 56,160	\$ 70,200	\$ -	\$ 126,360
6.11	Fiber Optic Cable	1,100	LF	7.40	3.33	2.22	\$ 8,137	\$ 3,664	\$ 2,442	\$ 14,243
6.12	Ground Continuity Conductor	1,100	LF	13.04	7.53	5.02	\$ 14,343	\$ 8,280	\$ 5,520	\$ 28,142
TOTAL - CONDUIT & CABLE TRENCH							\$ 957,512	\$ 591,799	\$ 304,206	\$ 1,853,518
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	7,760	LF	2.09	3.42	1.46	\$ 16,226	\$ 26,503	\$ 11,358	\$ 54,087
7.2	Caweld, DSA, 4/0 , T, CROSS	209	EA	165.00	75.00		\$ 34,485	\$ 15,675	\$ -	\$ 50,160
7.3	Ground Rod, 3/4" x 15'	180	EA	135.00	67.50	7.50	\$ 24,300	\$ 12,150	\$ 1,350	\$ 37,800
TOTAL - GROUND GRID							\$ 75,011	\$ 54,328	\$ 12,708	\$ 142,047
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	1	EA	238,218.43	166,752.90	71,465.53	\$ 238,218	\$ 166,753	\$ 71,466	\$ 476,437
8.2	Primary Line Relays (Pilot): SEL-411L	3	EA	21,328.12	17,062.49	4,265.62	\$ 63,984	\$ 51,187	\$ 12,797	\$ 127,969
8.3	Backup Line Relays (Pilot): GE L90	3	EA	21,328.12	17,062.49	4,265.62	\$ 63,984	\$ 51,187	\$ 12,797	\$ 127,969
8.4	Primary Bay Control: SEL-451	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.5	Backup Bay Control: SEL-451	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.6	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.7	Backup Transformer/Reactor/PAR Differential Relays: GE T60	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.8	Primary Bus Differential Relays: SEL-487B	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.9	Backup Bus Differential Relays: GE B90	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.10	RTU Panel A: SEL-2240 Axion, SEL-2730M ENET SW., SEL-2407 GPS	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.11	RTU Panel B: SEL-2730M Ethernet Switch, SEL-2407 GPS Clock	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.12	HMI Panel	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.13	125VDC Battery System	2	LS	25,000.00	22,750.00	9,750.00	\$ 50,000	\$ 45,500	\$ 19,500	\$ 115,000
8.14	Control house AC Panel	1	EA	65,000.00	91,000.00	39,000.00	\$ 65,000	\$ 91,000	\$ 39,000	\$ 195,000
8.15	Control House DC Panel	1	EA	65,000.00	91,000.00	39,000.00	\$ 65,000	\$ 91,000	\$ 39,000	\$ 195,000



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
8.16	Generator	1	EA	130,000.00	72,800.00	31,200.00	\$ 130,000	\$ 72,800	\$ 31,200	\$ 234,000
TOTAL - CONTROL ENCLOSURE							\$ 841,656	\$ 701,803	\$ 258,853	\$ 1,802,312
2 - Shore Road 345 kV GIS Substation							\$ 11,207,920	\$ 7,399,870	\$ 4,591,624	\$ 23,199,414
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		419,702.30	179,872.41	\$ -	\$ 419,702	\$ 179,872	\$ 599,575
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		231,994.14		\$ -	\$ 231,994	\$ -	\$ 231,994
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		927,976.58		\$ -	\$ 927,977	\$ -	\$ 927,977
9.4	Utility PM and Project Oversight	1.0	LS		231,994.14		\$ -	\$ 231,994	\$ -	\$ 231,994
9.5	Site Accommodation, Facilities, Storage	1.0	LS	231,994.14			\$ 231,994	\$ -	\$ -	\$ 231,994
	Engineering									
9.6	Design Engineering	1.00	LS		1,855,953.15		\$ -	\$ 1,855,953	\$ -	\$ 1,855,953
9.7	LIDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	5.00	EA		2,730.00	1,820.00	\$ -	\$ 13,650	\$ 9,100	\$ 22,750
9.9	Surveying/Staking	1.00	Site		162,395.90		\$ -	\$ 162,396	\$ -	\$ 162,396
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		869,978.04		\$ -	\$ 869,978	\$ -	\$ 869,978
	Permitting and Additional Costs									
9.11	Physical Security	1.00	LS		6,546.96		\$ -	\$ 6,547	\$ -	\$ 6,547
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		231,994.14		\$ -	\$ 231,994	\$ -	\$ 231,994
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		69,598.24		\$ -	\$ 69,598	\$ -	\$ 69,598
9.15	Laydown Lease	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	1.00	LS			539,277.00	\$ -	\$ -	\$ 539,277	\$ 539,277
9.17	Legal Fees (Real estate)	1.00	LS		-	16,178.31	\$ -	\$ -	\$ 16,178	\$ 16,178
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 880,000	\$ -	\$ -	\$ 880,000	\$ 880,000
9.20	Sales Tax on Materials	8.80%	LS	11,207,920.27			\$ 986,297	\$ -	\$ -	\$ 986,297
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		23,199.41		\$ -	\$ 23,199	\$ -	\$ 23,199
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 1,218,291	\$ 5,044,983	\$ 1,624,428	\$ 7,887,702

### **3 - Ruland Road 345/138 kV Substation**

Propel NY - T048 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
3 - Ruland Road 345/138 kV Substation				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 1,542,746	\$ 1,290,254	\$ 735,698	\$ 3,568,698
2. SUBSTATION FOUNDATIONS	\$ 5,768,874	\$ 3,276,141	\$ 2,200,338	\$ 11,245,354
3. SUBSTATION STRUCTURES	\$ 1,770,980	\$ 1,373,450	\$ 844,497	\$ 3,988,927
4. MAJOR EQUIPMENT	\$ 38,613,141	\$ 6,875,511	\$ 2,460,010	\$ 47,948,662
5. LOW VOLTAGE & CONTROL CABLE	\$ 367,117	\$ 99,272	\$ 19,854	\$ 486,243
6. CONDUIT & CABLE TRENCH	\$ 1,987,196	\$ 1,276,679	\$ 613,471	\$ 3,877,347
7. GROUND GRID	\$ 287,968	\$ 209,061	\$ 49,194	\$ 546,222
8. CONTROL ENCLOSURE	\$ 902,031	\$ 773,925	\$ 247,106	\$ 1,923,062
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 5,244,970	\$ 15,510,257	\$ 4,317,259	\$ 25,072,487
SUBTOTAL (Costs):	\$ 56,485,023	\$ 30,684,551	\$ 11,487,429	\$ 98,657,003
CONTRACTOR MARK-UP (OH&P)	\$ 10,167,304	\$ 5,523,219	\$ 2,067,737	\$ 17,758,260
SUBTOTAL:	\$ 66,652,327	\$ 36,207,770	\$ 13,555,166	\$ 116,415,263
CONTINGENCY ON ENTIRE PROJECT	\$ 13,330,465	\$ 7,241,554	\$ 2,711,033	\$ 23,283,053
TOTAL:	\$ 79,982,792	\$ 43,449,324	\$ 16,266,199	\$ 139,698,316

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
3 - Ruland Road 345/138 kV Substation										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	4.9	ACRE	-	10,800.00	7,200.00	\$ -	\$ 53,051	\$ 35,367	\$ 88,418
1.2	Demolition	0	ACRE	-	-	-	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'	4,476	SY	4.85	7.20	4.80	\$ 21,709	\$ 32,227	\$ 21,485	\$ 75,421
1.4	Strip and Dispose Top Soil	7,925	CY		24.50	10.50	\$ -	\$ 194,160	\$ 83,212	\$ 277,372
1.5	Site Grading- Excavation for Substation Pad	23,775	CY		9.00	6.00	\$ -	\$ 213,972	\$ 142,648	\$ 356,621
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	12,838	CY		21.00	9.00	\$ -	\$ 269,605.33	\$ 115,545.14	\$ 385,150.47
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	19,258	CY		2.40	1.60	\$ -	\$ 46,218	\$ 30,812	\$ 77,030
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	12,838	CY	25.00	2.40	1.60	\$ 320,959	\$ 30,812	\$ 20,541	\$ 372,312
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	23,775	SY	11.00	6.00	4.00	\$ 261,522	\$ 142,648	\$ 95,099	\$ 499,269
1.11	Site Surfacing - Aggregate 6" Thick	23,775	SY	16.50	4.50	3.00	\$ 392,283	\$ 106,986	\$ 71,324	\$ 570,593
1.12	7' Station Fence w/ Barbed Wire & Grounding	1,896	LF	13.85	13.85	6.92	\$ 26,256	\$ 26,256	\$ 13,128	\$ 65,640
1.13	20' Slide Gate & Grounding	2	EA	8,100.00	3,245.00	1,305.00	\$ 16,200	\$ 6,490	\$ 2,610	\$ 25,300
1.14	3' Pedestrian gate	2	EA	2,500.00	1,000.00	350.00	\$ 5,000	\$ 2,000	\$ 700	\$ 7,700
1.15	Storm drain-15" HDPE, INFILTRATION TRENCH, INLET and Hydrodynamic Separator	1	LS	446,976.00	115,200.00	76,104.00	\$ 446,976	\$ 115,200	\$ 76,104	\$ 638,280
1.16	Seeding	17,200	SF	1.50	1.50	1.00	\$ 25,800	\$ 25,800	\$ 17,200	\$ 68,800
1.17	Erosion Control-Silt fence install & remove	2,913	LF	2.41	3.16	0.72	\$ 7,020	\$ 9,205	\$ 2,097	\$ 18,323
1.18	Temporary fencing	1,942	LF	7.50	5.25	2.25	\$ 14,565	\$ 10,196	\$ 4,370	\$ 29,130
1.19	Substation entrance with asphalt	135	SY	19.50	26.00	19.50	\$ 2,637	\$ 3,516	\$ 2,637	\$ 8,789
1.20	Concrete curb	70	LF	26.00	27.30	11.70	\$ 1,820	\$ 1,911	\$ 819	\$ 4,550
1.21	Retaining Wall	0	LF	156.00	117.00	117.00	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ 1,542,746	\$ 1,290,254	\$ 735,698	\$ 3,568,698
2. SUBSTATION FOUNDATIONS										
2.1	345kV, Lightning mast	107	CY	703.89	804.44	502.78	\$ 75,217	\$ 85,962	\$ 53,727	\$ 214,906
2.2	345kV, A Frame 70'- ONE BAY	147	CY	703.89	804.44	502.78	\$ 103,218	\$ 117,963	\$ 73,727	\$ 294,908
2.3	345kV, A Frame 70'- TWO BAY	440	CY	703.89	804.44	502.78	\$ 309,653	\$ 353,889	\$ 221,181	\$ 884,723
2.4	345kV, Bus support-3 Ph	143	CY	703.89	804.44	502.78	\$ 100,346	\$ 114,681	\$ 71,676	\$ 286,702
2.5	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345kV, Bus support-1 Ph	238	CY	703.89	804.44	502.78	\$ 167,243	\$ 191,135	\$ 119,459	\$ 477,837
2.7	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, Cable sealing end	11	CY	703.89	804.44	502.78	\$ 7,532	\$ 8,608	\$ 5,380	\$ 21,519
2.12	345kV, CCVT	64	CY	703.89	804.44	502.78	\$ 45,189	\$ 51,645	\$ 32,278	\$ 129,113
2.13	345kV, Disconnect Switch	63	CY	703.89	804.44	502.78	\$ 44,598	\$ 50,969	\$ 31,856	\$ 127,423
2.14	345/138KV, Power Transformer with oil containment	984	CY	703.89	804.44	502.78	\$ 692,623	\$ 791,569	\$ 494,731	\$ 1,978,922
2.15	345kV, Shunt Reactor with oil containment-200MVAR			703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Phase Angle Regulator with oil containment	445	CY	703.89	804.44	502.78	\$ 313,229	\$ 357,976	\$ 223,735	\$ 894,940
2.19	345kV, Circuit Breaker (PASS)	100	CY	703.89	804.44	502.78	\$ 70,389	\$ 80,444	\$ 50,278	\$ 201,110
2.20	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	345kV, Surge arrester	16	CY	703.89	804.44	502.78	\$ 11,297	\$ 12,911	\$ 8,070	\$ 32,278
2.22	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.23	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.24	138kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.25	138kV, Bus support-3 Ph, low	107	CY	703.89	804.44	502.78	\$ 75,316	\$ 86,075	\$ 53,797	\$ 215,188
2.26	138kV, Bus support-1 Ph, low	73	CY	703.89	804.44	502.78	\$ 51,440	\$ 58,788	\$ 36,743	\$ 146,971
2.27	138kV, Disconnect Switch	73	CY	703.89	804.44	502.78	\$ 51,187	\$ 58,499	\$ 36,562	\$ 146,247
2.28	138kV, Cable sealing end	48	CY	703.89	804.44	502.78	\$ 34,124	\$ 38,999	\$ 24,375	\$ 97,498
2.29	138kV, CCVT	96	CY	703.89	804.44	502.78	\$ 67,784	\$ 77,468	\$ 48,417	\$ 193,669
2.30	138kV, Surge arrester	64	CY	703.89	804.44	502.78	\$ 45,189	\$ 51,645	\$ 32,278	\$ 129,113
2.31	138kV, A Frame 50'-ONE BAY	73	CY	703.89	804.44	502.78	\$ 51,215	\$ 58,531	\$ 36,582	\$ 146,328
2.32	138kV, A Frame 50'-TWO BAY		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.33	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.34	Precast Firewall for transformer, PARs, reactors	1,200	SF	25.00	15.00	10.00	\$ 30,000	\$ 18,000	\$ 12,000	\$ 60,000
2.35	Precast Concrete Piles-12"X80'	190	EA	18,000.00	3,200.00	2,800.00	\$ 3,420,000	\$ 608,000	\$ 532,000	\$ 4,560,000
2.36	Local Control Cabinet foundation	3	CY	703.89	804.44	502.78	\$ 2,086	\$ 2,384	\$ 1,490	\$ 5,959
TOTAL - 345KV FOUNDATION							\$ 5,768,874	\$ 3,276,141	\$ 2,200,338	\$ 11,245,354
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	6	EA	23,400.00	14,040.00	9,360.00	\$ 140,400	\$ 84,240	\$ 56,160	\$ 280,800
3.2	345kV, A Frame 70'- ONE BAY	1	EA	48,100.00	28,860.00	19,240.00	\$ 48,100	\$ 28,860	\$ 19,240	\$ 96,200
3.3	345kV, A Frame 70'- TWO BAY	2	EA	80,327.00	48,196.20	32,130.80	\$ 160,654	\$ 96,392	\$ 64,262	\$ 321,308
3.4	345kV, Bus support-3 Ph	9	EA	8,346.00	5,758.74	3,839.16	\$ 75,114	\$ 51,829	\$ 34,552	\$ 161,495
3.5	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.6	345kV, Bus support-1 Ph	30	EA	4,810.00	2,886.00	1,924.00	\$ 144,300	\$ 86,580	\$ 57,720	\$ 288,600
3.7	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS support-1 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-3 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, Cable sealing end	1	EA	8,346.00	5,758.74	3,839.16	\$ 8,346	\$ 5,759	\$ 3,839	\$ 17,944
3.12	345kV, CCVT	12	EA	4,810.00	2,886.00	1,924.00	\$ 57,720	\$ 34,632	\$ 23,088	\$ 115,440
3.13	345kV, Disconnect Switch	2	EA	19,240.00	11,544.00	7,696.00	\$ 38,480	\$ 23,088	\$ 15,392	\$ 76,960
3.14	345kV, Surge arrester	3	EA	4,810.00	2,886.00	1,924.00	\$ 14,430	\$ 8,658	\$ 5,772	\$ 28,860
3.15	138kV, Bus support-3 Ph, low	10	EA	4,173.00	2,879.76	1,919.84	\$ 41,730	\$ 28,798	\$ 19,198	\$ 89,726
3.16	138kV, Bus support-1 Ph, low	18	EA	2,782.00	1,919.84	1,279.89	\$ 50,076	\$ 34,557	\$ 23,038	\$ 107,671
3.17	138kV, Disconnect Switch	3	EA	19,240.00	11,544.00	7,696.00	\$ 57,720	\$ 34,632	\$ 23,088	\$ 115,440
3.18	138kV, Cable sealing end	4	EA	4,810.00	2,886.00	1,924.00	\$ 19,240	\$ 11,544	\$ 7,696	\$ 38,480
3.19	138kV, CCVT	18	EA	3,206.67	1,924.00	1,282.67	\$ 57,720	\$ 34,632	\$ 23,088	\$ 115,440

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
3.20	138kV, Surge arrester	12	EA	4,810.00	2,886.00	1,924.00	\$ 57,720	\$ 34,632	\$ 23,088	\$ 115,440
3.21	138kV, A Frame 50'-ONE BAY	1	EA	33,000.00	19,800.00	13,200.00	\$ 33,000	\$ 19,800	\$ 13,200	\$ 66,000
3.22	138kV, A Frame 50'-TWO BAY	1	EA	55,110.00	33,066.00	22,044.00	\$ 55,110	\$ 33,066	\$ 22,044	\$ 110,220
3.25	AL. Bus Tubing, 5" SCH 80	2,181	LF	25.00	184.94	123.29	\$ 54,525	\$ 403,350	\$ 268,900	\$ 726,775
3.26	AL. Bus fittings	1	LS	65,430.00	65,430.00	32,715.00	\$ 65,430	\$ 65,430	\$ 32,715	\$ 163,575
3.27	Steel grating and support beams-transformer moat	216,400	LB	2.73	1.17	0.50	\$ 591,165	\$ 252,972	\$ 108,416	\$ 952,553
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 1,770,980	\$ 1,373,450	\$ 844,497	\$ 3,988,927
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, Cable sealing end	3	EA	27,144.00	5,460.00	2,340.00	\$ 81,432	\$ 16,380	\$ 7,020	\$ 104,832
4.4	345kV, CCVT	12	EA	16,900.00	15,941.99	6,832.28	\$ 202,800	\$ 191,304	\$ 81,987	\$ 476,091
4.5	345kV, Disconnect Switch	2	EA	57,720.00	34,632.00	23,088.00	\$ 115,440	\$ 69,264	\$ 46,176	\$ 230,880
4.6	345/138KV, Power Transformer with oil containment	3	EA	4,420,000.00	3,520.00	880.00	\$ 13,260,000	\$ 10,560	\$ 2,640	\$ 13,273,200
4.7	Transport & Testing- Transformer	3	EA		717,400.00	474,600.00	\$ -	\$ 2,152,200	\$ 1,423,800	\$ 3,576,000
4.8	345kV, Shunt Reactor with oil containment-200MVAR	1	EA	2,901,774.00	3,520.00	880.00	\$ 2,901,774	\$ 3,520	\$ 880	\$ 2,906,174
4.9	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	Transport & Testing- Shunt Reactor	1	EA		3,177,700.00	217,600.00	\$ -	\$ 3,177,700	\$ 217,600	\$ 3,395,300
4.12	345kV, Phase Angle Regulator with oil containment	1	EA	16,120,693.00	3,520.00	880.00	\$ 16,120,693	\$ 3,520	\$ 880	\$ 16,125,093
4.13	Transport & Testing- Transformer	1	EA		615,400.00	406,600.00	\$ -	\$ 615,400	\$ 406,600	\$ 1,022,000
4.14	345kV, Circuit Breaker (PASS)	5	EA	980,000.00	57,239.00	24,531.00	\$ 4,900,000	\$ 286,195	\$ 122,655	\$ 5,308,850
4.15	345kV, Circuit Breaker (GIS), outdoor rated	0	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, surge Arrester	3	EA	8,450.00	5,460.00	2,340.00	\$ 25,350	\$ 16,380	\$ 7,020	\$ 48,750
4.18	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.19	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.20	138kV, Circuit Breaker (PASS)	0	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Disconnect Switch	3	EA	37,700.00	11,875.50	5,089.50	\$ 113,100	\$ 35,627	\$ 15,269	\$ 163,995
4.22	138kV, Cable sealing end	12	EA	11,600.00	1,050.00	450.00	\$ 139,200	\$ 12,600	\$ 5,400	\$ 157,200
4.23	138kV, CCVT	18	EA	10,000.00	7,970.08	3,415.75	\$ 180,000	\$ 143,462	\$ 61,484	\$ 384,945
4.24	138kV, Surge arrester	12	EA	4,446.00	4,200.00	1,800.00	\$ 53,352	\$ 50,400	\$ 21,600	\$ 125,352
4.25	Station service transformers- 120/208v-250VA	2	EA	260,000.00	45,500.00	19,500.00	\$ 520,000	\$ 91,000	\$ 39,000	\$ 650,000
4.26	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
4.27	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ 38,613,141	\$ 6,875,511	\$ 2,460,010	\$ 47,948,662

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control cables	69,300	LF	5.30	1.43	0.29	\$ 367,117	\$ 99,272	\$ 19,854	\$ 486,243
5.2			LF		-	-	\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 367,117	\$ 99,272	\$ 19,854	\$ 486,243
6. CONDUIT & CABLE TRENCH										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	15,450	LF	11.15	10.80	5.40	\$ 172,268	\$ 166,860	\$ 83,430	\$ 422,558
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	1,800	LF	266.50	53.04	13.26	\$ 479,700	\$ 95,472	\$ 23,868	\$ 599,040
6.7										
6.8	138kV UG- Conduit	1,775	LF	81.00	107.00	57.00	\$ 143,775	\$ 189,925	\$ 101,175	\$ 434,875
6.9	138kV UG- Cable	6,325	LF	156.00	94.00	62.00	\$ 986,700	\$ 594,550	\$ 392,150	\$ 1,973,400
6.10	138kV UG- Termination	18	EA	9,360.00	11,700.00		\$ 168,480	\$ 210,600	\$ -	\$ 379,080
6.11	Fiber Optic Cable	1,775	LF	7.40	3.33	2.22	\$ 13,130	\$ 5,912	\$ 3,941	\$ 22,983
6.12	Ground Continuity Conductor	1,775	LF	13.04	7.53	5.02	\$ 23,144	\$ 13,360	\$ 8,907	\$ 45,412
							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 1,987,196	\$ 1,276,679	\$ 613,471	\$ 3,877,347
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	29,920	LF	2.09	3.42	1.46	\$ 62,563	\$ 102,186	\$ 43,794	\$ 208,542
7.2	Caweld, DSA, 4/0 , T, CROSS	777	EA	165.00	75.00		\$ 128,205	\$ 58,275	\$ -	\$ 186,480
7.3	Ground Rod, 3/4" x 15'	720	EA	135.00	67.50	7.50	\$ 97,200	\$ 48,600	\$ 5,400	\$ 151,200
TOTAL - GROUND GRID							\$ 287,968	\$ 209,061	\$ 49,194	\$ 546,222
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	0	EA	275,715.78	193,001.04	82,714.73	\$ -	\$ -	\$ -	\$ -
8.2	Primary Line Relays (87L): SEL-411L	3	EA	21,328.12	17,062.49	4,265.62	\$ 63,984	\$ 51,187	\$ 12,797	\$ 127,969
8.3	Backup Line Relays (87L): GE L90	3	EA	21,328.12	17,062.49	4,265.62	\$ 63,984	\$ 51,187	\$ 12,797	\$ 127,969
8.4	Primary Bay Control: SEL-451	5	EA	21,328.12	17,062.49	4,265.62	\$ 106,641	\$ 85,312	\$ 21,328	\$ 213,281
8.5	Backup Bay Control: SEL-451	5	EA	21,328.12	17,062.49	4,265.62	\$ 106,641	\$ 85,312	\$ 21,328	\$ 213,281
8.6	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	5	EA	21,328.12	17,062.49	4,265.62	\$ 106,641	\$ 85,312	\$ 21,328	\$ 213,281
8.7	Backup Transformer/Reactor/PAR Differential Relays: GE T60	5	EA	21,328.12	17,062.49	4,265.62	\$ 106,641	\$ 85,312	\$ 21,328	\$ 213,281
8.8	RTU Panel A: SEL-2240 Axion, SEL-2730M ENET SW., SEL-2407 GPS	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.9	RTU Panel B: SEL-2730M Ethernet Switch, SEL-2407 GPS Clock	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.10	HMI Panel	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.13	125VDC Battery System	2	LS	25,000.00	22,750.00	9,750.00	\$ 50,000	\$ 45,500	\$ 19,500	\$ 115,000
8.14	Control house AC Panel	1	EA	65,000.00	91,000.00	39,000.00	\$ 65,000	\$ 91,000	\$ 39,000	\$ 195,000
8.15	Control House DC Panel	1	EA	65,000.00	91,000.00	39,000.00	\$ 65,000	\$ 91,000	\$ 39,000	\$ 195,000
8.16	Generator	1	EA	130,000.00	72,800.00	31,200.00	\$ 130,000	\$ 72,800	\$ 31,200	\$ 234,000
TOTAL - CONTROL ENCLOSURE							\$ 902,031	\$ 773,925	\$ 247,106	\$ 1,923,062
3 - Ruland Road 345/138 kV Substation							\$ 51,240,053	\$ 15,174,293	\$ 7,170,170	\$ 73,584,516
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		782,056.20	335,166.94	\$ -	\$ 782,056	\$ 335,167	\$ 1,117,223
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		735,845.16		\$ -	\$ 735,845	\$ -	\$ 735,845
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		2,943,380.64		\$ -	\$ 2,943,381	\$ -	\$ 2,943,381
9.4	Utility PM and Project Oversite	1.0	LS		735,845.16		\$ -	\$ 735,845	\$ -	\$ 735,845
9.5	Site Accommodation, Facilities, Storage	1.0	LS	735,845.16			\$ 735,845	\$ -	\$ -	\$ 735,845
	Engineering									
9.6	Design Engineering	1.00	LS		5,886,761.28		\$ -	\$ 5,886,761	\$ -	\$ 5,886,761
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	5.00	EA		2,730.00	1,820.00	\$ -	\$ 13,650	\$ 9,100	\$ 22,750
9.9	Surveying/Staking	1.00	Site		515,091.61		\$ -	\$ 515,092	\$ -	\$ 515,092
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		2,759,419.35		\$ -	\$ 2,759,419	\$ -	\$ 2,759,419
	Permitting and Additional Costs									
9.11	Physical Security	1.00	LS		108,024.84		\$ -	\$ 108,025	\$ -	\$ 108,025
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		735,845.16		\$ -	\$ 735,845	\$ -	\$ 735,845
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
9.14	Warranties / LOC's	1.00	LS		220,753.55		\$ -	\$ 220,754	\$ -	\$ 220,754
9.15	Laydown Lease	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	1.00	LS			1,158,245.00	\$ -	\$ -	\$ 1,158,245	\$ 1,158,245
9.17	Legal Fees (Real estate)	1.00	LS		-	34,747.35	\$ -	\$ -	\$ 34,747	\$ 34,747
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 2,780,000	\$ -	\$ -	\$ 2,780,000	\$ 2,780,000
9.20	Sales Tax on Materials	8.80%	LS	51,240,053.07			\$ 4,509,125	\$ -	\$ -	\$ 4,509,125
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		73,584.52		\$ -	\$ 73,585	\$ -	\$ 73,585
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 5,244,970	\$ 15,510,257	\$ 4,317,259	\$ 25,072,487

Propel NY - TO48 BS2

4 - Barrett 345 kV Substation

Total:     \$        137,133,786

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
4 - Barrett 345 kV Substation				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 1,464,301	\$ 1,575,393	\$ 879,099	\$ 3,918,792.73
2. SUBSTATION FOUNDATIONS	\$ 6,166,639	\$ 3,951,944	\$ 2,612,528	\$ 12,731,110.99
3. SUBSTATION STRUCTURES	\$ 1,418,256	\$ 961,546	\$ 574,724	\$ 2,954,526.06
4. MAJOR EQUIPMENT	\$ 34,692,557	\$ 3,832,609	\$ 2,406,500	\$ 40,931,665.70
5. LOW VOLTAGE & CONTROL CABLE	\$ 270,173	\$ 73,058	\$ 14,612	\$ 357,841.50
6. CONDUIT & CABLE TRENCH	\$ 580,105	\$ 202,980	\$ 78,285	\$ 861,370.00
7. GROUND GRID	\$ 211,917	\$ 153,774	\$ 36,139	\$ 401,830.00
8. CONTROL ENCLOSURE	\$ 1,263,059	\$ 1,035,176	\$ 346,883	\$ 2,645,118.46
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 4,701,919	\$ 18,240,656	\$ 9,101,063	\$ 32,043,638.45
SUBTOTAL (Costs):	\$ 50,768,926	\$ 30,027,135	\$ 16,049,833	\$ 96,845,894
CONTRACTOR MARK-UP (OH&P)	\$ 9,138,407	\$ 5,404,884	\$ 2,888,970	\$ 17,432,261
SUBTOTAL:	\$ 59,907,332	\$ 35,432,020	\$ 18,938,803	\$ 114,278,155
CONTINGENCY ON ENTIRE PROJECT	\$ 11,981,466	\$ 7,086,404	\$ 3,787,761	\$ 22,855,630.96
TOTAL:	\$ 71,888,799	\$ 42,518,424	\$ 22,726,563	\$ 137,133,786

Description of Work: new greenfield 345 kV Barrett Substation, to be located near 4005 Daly Boulevard, in the Hamlet of Oceanside, Town of Hempstead, Nassau County. The New 345 kV Barrett Substation will serve as the main Point of Interconnection (“POI”)between the generation and transmission operator. The New substation will step up the 138 kV POI voltage to 345 kV, and a new 345 kV underground line will be connected

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
4 - Barrett 345 kV Substation										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	6.7	ACRE	-	10,800.00	7,200.00	\$ -	\$ 72,360	\$ 48,240	\$ 120,600
1.2	Demolition	0	ACRE	-	-	-	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'	4,683	SY	4.85	7.20	4.80	\$ 22,713	\$ 33,718	\$ 22,479	\$ 78,910
1.4	Strip and Dispose Top Soil	10,809	CY		24.50	10.50	\$ -	\$ 264,829	\$ 113,498	\$ 378,327
1.5	Site Grading- Excavation for Substation Pad	32,428	CY		9.00	6.00	\$ -	\$ 291,852	\$ 194,568	\$ 486,420
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	17,511	CY		21.00	9.00	\$ -	\$ 367,733.52	\$ 157,600.08	\$ 525,333.60
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	26,267	CY		2.40	1.60	\$ -	\$ 63,040	\$ 42,027	\$ 105,067
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	17,511	CY	25.00	2.40	1.60	\$ 437,778	\$ 42,027	\$ 28,018	\$ 507,822
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	32,428	SY	11.00	6.00	4.00	\$ 356,708	\$ 194,568	\$ 129,712	\$ 680,988
1.11	Site Surfacing - Aggregate 6" Thick	32,428	SY	16.50	4.50	3.00	\$ 535,062	\$ 145,926	\$ 97,284	\$ 778,272
1.12	7' Station Fence w/ Barbed Wire & Grounding	2,087	LF	13.85	13.85	6.92	\$ 28,901	\$ 28,901	\$ 14,450	\$ 72,252
1.13	20' Slide Gate & Grounding	2	EA	8,100.00	3,245.00	1,305.00	\$ 16,200	\$ 6,490	\$ 2,610	\$ 25,300
1.14	4' Pedestrian gate	2	EA	2,500.00	1,000.00	350.00	\$ 5,000	\$ 2,000	\$ 700	\$ 7,700
1.15	Storm drain-15" HDPE, INFILTRATION TRENCH AND INLET	1	EA	20,235.06	19,200.00	6,342.00	\$ 20,235	\$ 19,200	\$ 6,342	\$ 45,777
1.16	Seeding	3,195	SF	1.50	1.50	1.00	\$ 4,792	\$ 4,792	\$ 3,195	\$ 12,778
1.17	Erosion Control-Silt fence install & remove	3,131	LF	2.41	3.16	0.72	\$ 7,545	\$ 9,892	\$ 2,254	\$ 19,691
1.18	Temporary fencing	2,087	LF	7.50	5.25	2.25	\$ 15,653	\$ 10,957	\$ 4,696	\$ 31,305
1.19	Substation entrance with asphalt	490	SY	19.50	26.00	19.50	\$ 9,555	\$ 12,740	\$ 9,555	\$ 31,850
1.20	Concrete curb	160	LF	26.00	27.30	11.70	\$ 4,160	\$ 4,368	\$ 1,872	\$ 10,400
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ 1,464,301	\$ 1,575,393	\$ 879,099	\$ 3,918,793
2. SUBSTATION FOUNDATIONS										

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
2.1	345kV, Lightning mast	53	CY	703.89	804.44	502.78	\$ 37,609	\$ 42,981	\$ 26,863	\$ 107,453
2.2	345kV, A Frame 70'- ONE BAY	293	CY	703.89	804.44	502.78	\$ 206,435	\$ 235,926	\$ 147,454	\$ 589,815
2.3	345kV, A Frame 70'- TWO BAY	440	CY	703.89	804.44	502.78	\$ 309,653	\$ 353,889	\$ 221,181	\$ 884,723
2.4	345kV, Bus support-3 Ph	143	CY	703.89	804.44	502.78	\$ 100,346	\$ 114,681	\$ 71,676	\$ 286,702
2.5	345kV, Bus support-1 Ph	190	CY	703.89	804.44	502.78	\$ 133,794	\$ 152,908	\$ 95,567	\$ 382,270
2.6	345kV, Cable sealing end	18	CY	703.89	804.44	502.78	\$ 12,797	\$ 14,625	\$ 9,140	\$ 36,562
2.7	345kV, Cable sealing end	11	CY	703.89	804.44	502.78	\$ 7,532	\$ 8,608	\$ 5,380	\$ 21,519
2.8	345kV, CCVT	64	CY	703.89	804.44	502.78	\$ 45,189	\$ 51,645	\$ 32,278	\$ 129,113
2.9	345kV, Disconnect Switch	95	CY	703.89	804.44	502.78	\$ 66,897	\$ 76,454	\$ 47,784	\$ 191,135
2.10	345/138KV, Power Transformer with oil containment	825	CY	703.89	804.44	502.78	\$ 580,705	\$ 663,663	\$ 414,789	\$ 1,659,158
2.11	345kV, Shunt Reactor with oil containment-300MVAR	305	CY	703.89	804.44	502.78	\$ 214,685	\$ 245,354	\$ 153,346	\$ 613,386
2.12	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, Phase Angle Regulator with oil containment	445	CY	703.89	804.44	502.78	\$ 313,229	\$ 357,976	\$ 223,735	\$ 894,940
2.14	345kV, Circuit Breaker (PASS)	100	CY	703.89	804.44	502.78	\$ 70,389	\$ 80,444	\$ 50,278	\$ 201,110
2.15	345kV, Surge arrester	16	CY	703.89	804.44	502.78	\$ 11,297	\$ 12,911	\$ 8,070	\$ 32,278
2.16	345/138 Kv, Control Enclosure-BLDG with generator pad	188	CY	703.89	804.44	502.78	\$ 132,330	\$ 151,235	\$ 94,522	\$ 378,087
2.17	138kV, Phase Angle Regulator	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	138kV, Disconnect Switch	73	CY	703.89	804.44	502.78	\$ 51,187	\$ 58,499	\$ 36,562	\$ 146,247
2.19	138kV, Cable sealing end	36	CY	703.89	804.44	502.78	\$ 25,593	\$ 29,249	\$ 18,281	\$ 73,124
2.20	138kV, Surge arrester	48	CY	703.89	804.44	502.78	\$ 33,892	\$ 38,734	\$ 24,209	\$ 96,834
2.21	Firewall Foundation	697	CY	703.89	804.44	502.78	\$ 490,580	\$ 560,663	\$ 350,414	\$ 1,401,656
2.22	Precast Firewall for transformer	10,500	SF	25.00	15.00	10.00	\$ 262,500	\$ 157,500	\$ 105,000	\$ 525,000
2.23	Precast Concrete Piles-12"X80'	170	EA	18,000.00	3,200.00	2,800.00	\$ 3,060,000	\$ 544,000	\$ 476,000	\$ 4,080,000
TOTAL - 345KV FOUNDATION							\$ 6,166,639	\$ 3,951,944	\$ 2,612,528	\$ 12,731,111
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	3	EA	23,400.00	14,040.00	9,360.00	\$ 70,200	\$ 42,120	\$ 28,080	\$ 140,400
3.2	345kV, A Frame 70'- ONE BAY	2	EA	48,100.00	28,860.00	19,240.00	\$ 96,200	\$ 57,720	\$ 38,480	\$ 192,400
3.3	345kV, A Frame 70'- TWO BAY	2	EA	80,327.00	48,196.20	32,130.80	\$ 160,654	\$ 96,392	\$ 64,262	\$ 321,308
3.4	345kV, Bus support-3 Ph	9	EA	8,346.00	5,758.74	3,839.16	\$ 75,114	\$ 51,829	\$ 34,552	\$ 161,495
3.5	345kV, Bus support-1 Ph	24	EA	4,810.00	2,886.00	1,924.00	\$ 115,440	\$ 69,264	\$ 46,176	\$ 230,880
3.6	345kV, Cable sealing end	3	EA	4,066.40	1,443.00	962.00	\$ 12,199	\$ 4,329	\$ 2,886	\$ 19,414
3.7	345kV, Cable sealing end	1	EA	8,346.00	5,758.74	3,839.16	\$ 8,346	\$ 5,759	\$ 3,839	\$ 17,944
3.8	345kV, CCVT	12	EA	4,810.00	2,886.00	1,924.00	\$ 57,720	\$ 34,632	\$ 23,088	\$ 115,440
3.9	345kV, Disconnect Switch	3	EA	19,240.00	11,544.00	7,696.00	\$ 57,720	\$ 34,632	\$ 23,088	\$ 115,440
3.10	345kV, Surge arrester	3	EA	4,810.00	2,886.00	1,924.00	\$ 14,430	\$ 8,658	\$ 5,772	\$ 28,860
3.11	138kV, Disconnect Switch	3	EA	12,251.20	3,928.86	2,619.24	\$ 36,754	\$ 11,787	\$ 7,858	\$ 56,398
3.12	138kV, Cable sealing end	3	EA	4,066.40	1,443.00	962.00	\$ 12,199	\$ 4,329	\$ 2,886	\$ 19,414
3.13	138kV, Surge arrester	9	EA	4,810.00	2,886.00	1,924.00	\$ 43,290	\$ 25,974	\$ 17,316	\$ 86,580
3.14	AL. Bus Tubing, 5" SCH 80	1,215	LF	25.00	184.94	123.29	\$ 30,375	\$ 224,700	\$ 149,800	\$ 404,874
3.15	AL. Bus fittings	1	LS	36,450.00	36,450.00	18,225.00	\$ 36,450	\$ 36,450	\$ 18,225	\$ 91,125
3.16	Steel grating and support beams-transformer moat	216,400	LB	2.73	1.17	0.50	\$ 591,165	\$ 252,972	\$ 108,416	\$ 952,553
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 1,418,256	\$ 961,546	\$ 574,724	\$ 2,954,526
4. MAJOR EQUIPMENT										
4.1	345/138kV, Power Transformer	3	EA	4,420,000.00	3,520.00	880.00	\$ 13,260,000	\$ 10,560	\$ 2,640	\$ 13,273,200
4.2	Transport & Testing- Transformer	3	EA		717,400.00	474,600.00	\$ -	\$ 2,152,200	\$ 1,423,800	\$ 3,576,000
4.3	345kV, Shunt Reactor with oil containment-300MVAR	1	EA	3,633,158.00	3,520.00	880.00	\$ 3,633,158	\$ 3,520	\$ 880	\$ 3,637,558
4.4	Transport & Testing- Shunt Reactor	1	EA		375,400.00	246,600.00	\$ -	\$ 375,400	\$ 246,600	\$ 622,000
4.5	345kV, Phase Angle Regulator with oil containment	1	EA	16,120,693.00	3,520.00	880.00	\$ 16,120,693	\$ 3,520	\$ 880	\$ 16,125,093
4.6	Transport & Testing- PAR	1	EA		615,400.00	406,600.00	\$ -	\$ 615,400	\$ 406,600	\$ 1,022,000
4.7	345kV Circuit Breakers, PASS	5	EA	98,000.00	57,239.00	24,531.00	\$ 490,000	\$ 286,195	\$ 122,655	\$ 898,850
4.8	345kV, Cable sealing end	3	EA	8,346.00	5,758.74	3,839.16	\$ 25,038	\$ 17,276	\$ 11,517	\$ 53,832
4.9	345kV, CCVT	12	EA	4,810.00	2,886.00	1,924.00	\$ 57,720	\$ 34,632	\$ 23,088	\$ 115,440
4.10	345kV, Disconnect Switch	3	EA	57,720.00	34,632.00	23,088.00	\$ 173,160	\$ 103,896	\$ 69,264	\$ 346,320
4.11	345kV, Surge arrester	3	EA	8,450.00	5,460.00	2,340.00	\$ 25,350	\$ 16,380	\$ 7,020	\$ 48,750
4.12	Phase Angle Regulating Transformer, 138kV	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.13	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.14	138kV, Cable sealing end	9	EA	37,700.00	11,875.50	5,089.50	\$ 339,300	\$ 106,880	\$ 45,806	\$ 491,985
4.15	138kV, Disconnect Switch	3	EA	11,600.00	1,050.00	450.00	\$ 34,800	\$ 3,150	\$ 1,350	\$ 39,300

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
4.16	138kV, Surge arrester	3	EA	4,446.00	4,200.00	1,800.00	\$ 13,338	\$ 12,600	\$ 5,400	\$ 31,338
4.17	Station service transformers- 120/208v-250VA	2	EA	260,000.00	45,500.00	19,500.00	\$ 520,000	\$ 91,000	\$ 39,000	\$ 650,000
TOTAL - MAJOR EQUIPMENT							\$ 34,692,557	\$ 3,832,609	\$ 2,406,500	\$ 40,931,666
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control cables	51,000	LF	5.30	1.43	0.29	\$ 270,173	\$ 73,058	\$ 14,612	\$ 357,842
5.2			LF		-	-	\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 270,173	\$ 73,058	\$ 14,612	\$ 357,842
6. CONDUIT & CABLE TRENCH										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	10,200	LF	11.15	10.80	5.40	\$ 113,730	\$ 110,160	\$ 55,080	\$ 278,970
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	1,750	LF	266.50	53.04	13.26	\$ 466,375	\$ 92,820	\$ 23,205	\$ 582,400
6.7							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 580,105	\$ 202,980	\$ 78,285	\$ 861,370
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	22,000	LF	2.09	3.42	1.46	\$ 46,002	\$ 75,137	\$ 32,201	\$ 153,340
7.2	Caweld, DSA, 4/0 , T, CROSS	576	EA	165.00	75.00		\$ 95,040	\$ 43,200	\$ -	\$ 138,240
7.3	Ground Rod, 3/4" x 15'	525	EA	135.00	67.50	7.50	\$ 70,875	\$ 35,438	\$ 3,938	\$ 110,250
TOTAL - GROUND GRID							\$ 211,917	\$ 153,774	\$ 36,139	\$ 401,830
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	1	EA	275,715.78	193,001.04	82,714.73	\$ 275,716	\$ 193,001	\$ 82,715	\$ 551,432
8.2	Primary Line Relays (Pilot): SEL-411L	3	EA	21,328.12	17,062.49	4,265.62	\$ 63,984	\$ 51,187	\$ 12,797	\$ 127,969
8.3	Backup Line Relays (Pilot): GE L90	3	EA	21,328.12	17,062.49	4,265.62	\$ 63,984	\$ 51,187	\$ 12,797	\$ 127,969
8.4	Primary Line Relays (87L): SEL-411L	5	EA	21,328.12	17,062.49	4,265.62	\$ 106,641	\$ 85,312	\$ 21,328	\$ 213,281
8.5	Backup Line Relays (87L): GE L90	5	EA	21,328.12	17,062.49	4,265.62	\$ 106,641	\$ 85,312	\$ 21,328	\$ 213,281
8.6	Primary Bay Control: SEL-451	5	EA	21,328.12	17,062.49	4,265.62	\$ 106,641	\$ 85,312	\$ 21,328	\$ 213,281
8.7	Backup Bay Control: SEL-451	5	EA	21,328.12	17,062.49	4,265.62	\$ 106,641	\$ 85,312	\$ 21,328	\$ 213,281
8.8	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.9	Backup Transformer/Reactor/PAR Differential Relays: GE T60	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.10	Primary Bus Differential Relays: SEL-487B	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.11	Backup Bus Differential Relays: GE B90	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.12	RTU Panel A: SEL-2240 Axion, SEL-2730M ENET SW., SEL-2407 GPS	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.13	RTU Panel B: SEL-2730M Ethernet Switch, SEL-2407 GPS Clock	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.14	HMI Panel	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.15	125VDC Battery System	2	LS	25,000.00	22,750.00	9,750.00	\$ 50,000	\$ 45,500	\$ 19,500	\$ 115,000
8.16	Control house AC Panel	1	EA	65,000.00	91,000.00	39,000.00	\$ 65,000	\$ 91,000	\$ 39,000	\$ 195,000
8.17	Control House DC Panel	1	EA	65,000.00	91,000.00	39,000.00	\$ 65,000	\$ 91,000	\$ 39,000	\$ 195,000
8.18	Generator	1	EA	130,000.00	72,800.00	31,200.00	\$ 130,000	\$ 72,800	\$ 31,200	\$ 234,000
TOTAL - CONTROL ENCLOSURE							\$ 1,263,059	\$ 1,035,176	\$ 346,883	\$ 2,645,118
4 - Barrett 345 kV Substation							\$ 46,067,007	\$ 11,786,479	\$ 6,948,770	\$ 64,802,255
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		655,733.71	281,028.73	\$ -	\$ 655,734	\$ 281,029	\$ 936,762
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		648,022.55		\$ -	\$ 648,023	\$ -	\$ 648,023
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		2,592,090.22		\$ -	\$ 2,592,090	\$ -	\$ 2,592,090
9.4	Utility PM and Project Oversight	1.0	LS		648,022.55		\$ -	\$ 648,023	\$ -	\$ 648,023
9.5	Site Accommodation, Facilities, Storage	1.0	LS	648,022.55			\$ 648,023	\$ -	\$ -	\$ 648,023
	Engineering									
9.6	Design Engineering	1.00	LS		5,184,180.44		\$ -	\$ 5,184,180	\$ -	\$ 5,184,180
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	5.00	EA		2,730.00	1,820.00	\$ -	\$ 13,650	\$ 9,100	\$ 22,750
9.9	Surveying/Staking	1.00	Site		453,615.79		\$ -	\$ 453,616	\$ -	\$ 453,616
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		2,430,084.58		\$ -	\$ 2,430,085	\$ -	\$ 2,430,085
	Permitting and Additional Costs									

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
9.11	Physical Security	1.00	LS		108,024.84		\$ -	\$ 108,025	\$ -	\$ 108,025
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		648,022.55		\$ -	\$ 648,023	\$ -	\$ 648,023
9.13	Environmental-special studies/investigation	1.00	LS		4,600,000.00		\$ -	\$ 4,600,000	\$ -	\$ 4,600,000
9.14	Warranties / LOC's	1.00	LS		194,406.77		\$ -	\$ 194,407	\$ -	\$ 194,407
9.15	Laydown Lease	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	1.00	LS			5,894,111.00	\$ -	\$ -	\$ 5,894,111	\$ 5,894,111
9.17	Legal Fees (Real estate)	1.00	LS		-	176,823.33	\$ -	\$ -	\$ 176,823	\$ 176,823
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 2,740,000	\$ -	\$ -	\$ 2,740,000	\$ 2,740,000
9.20	Sales Tax on Materials	8.80%	LS	46,067,006.56			\$ 4,053,897	\$ -	\$ -	\$ 4,053,897
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		64,802.26		\$ -	\$ 64,802	\$ -	\$ 64,802
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 4,701,919	\$ 18,240,656	\$ 9,101,063	\$ 32,043,638



Propel NY - TO48 BS2

5 - Existing EGC 345 kV Upgrade

Total: \$ 28,164,128

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
5 - Existing EGC 345 kV_ Upgrade				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ 12,000	\$ 8,000	\$ 20,000.00
2. SUBSTATION FOUNDATIONS	\$ 404,484	\$ 462,267	\$ 288,917	\$ 1,155,667.44
3. SUBSTATION STRUCTURES	\$ 193,347	\$ 102,423	\$ 56,236	\$ 352,005.76
4. MAJOR EQUIPTMENT	\$ 3,759,960	\$ 974,686	\$ 644,658	\$ 5,379,304.21
5. LOW VOLTAGE & CONTROL CABLE	\$ 131,908	\$ 35,669	\$ 7,134	\$ 174,710.85
6. CONDUIT & CABLE TRENCH	\$ 43,485	\$ 42,120	\$ 21,060	\$ 106,665.00
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,624.92
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 480,017	\$ 1,226,433	\$ 11,054,413	\$ 12,760,863.46
Turnkey cost (HVDC, GIS)	\$ 1,130,444	\$ 678,266	\$ 452,178	\$ 2,260,888
Non-Turnkey cost	\$ 3,968,070	\$ 2,245,583	\$ 11,645,302	\$ 17,858,954
SUBTOTAL (Costs):	\$ 5,098,514	\$ 2,923,849	\$ 12,097,479	\$ 20,119,842
CONTRACTOR MARK-UP (OH&P):	\$ 782,079	\$ 444,901	\$ 2,123,285	\$ 3,350,265
SUBTOTAL:	\$ 5,880,593	\$ 3,368,750	\$ 14,220,764	\$ 23,470,107
CONTINGENCY ON ENTIRE PROJECT	\$ 1,176,119	\$ 673,750	\$ 2,844,153	\$ 4,694,021
TOTAL:	\$ 7,056,711	\$ 4,042,500	\$ 17,064,917	\$ 28,164,128

Description of Work: Upgrades to the existing New York Power Authority (“NYPA”) 345 kV East Garden City Substation, located in the Hamlet of Oceanside, Town of Hempstead, Nassau County. East Garden City Substation is an existing 345 kV gas insulated switchgear (“GIS”) substation. The existing 345 kV Y-49 Line, an underground transmission line originating at the Consolidated Edison (“Con Edison”) 345 kV Sprain Brook Substation, terminates at the East Garden City Substation

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
5 - Existing EGC 345 kV_ Upgrade										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	0.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition	1	LS	-	12,000.00	8,000.00	\$ -	\$ 12,000	\$ 8,000	\$ 20,000
1.3	New Access Road - 20'	0	SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil	0	CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad	0	CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	0	CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	0	CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	0	CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	0	SY	-	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick	0	SY	8.25	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding	0	LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	30' Slide Gate & Grounding	0	EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-4"&15" HDPE,Seperators, inlets	0	LS	140,319.60	-	-	\$ -	\$ -	\$ -	\$ -
1.16	Seeding	0	SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove	0	LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing	0	LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt	0	SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb	0	LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
1.21	Retaining Wall	0	LF	156.00	117.00	117.00	\$ -	\$ -	\$ -	\$ -
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ -	\$ 12,000	\$ 8,000	\$ 20,000
2. SUBSTATION FOUNDATIONS										
2.1	345kV, Lightning mast	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, A Frame 70'-one bay	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, A Frame 70'-two bay	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.4	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.5	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, GIS air terminal	119	CY	703.89	804.44	502.78	\$ 83,622	\$ 95,567	\$ 59,730	\$ 238,919
2.8	345kV, GIS fast acting GND SW	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS to air bushing	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, GIS support-3 Ph	26	CY	703.89	804.44	502.78	\$ 18,583	\$ 21,237	\$ 13,273	\$ 53,093
2.12	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.15	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Shunt Reactor with oil containment-300MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Shunt Reactor with oil containment-150MVAR	305	CY	703.89	804.44	502.78	\$ 214,685	\$ 245,354	\$ 153,346	\$ 613,386
2.19	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.20	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	345kV, Circuit Breaker (GIS), outdoor rated	120	CY	703.89	804.44	502.78	\$ 84,466	\$ 96,533	\$ 60,333	\$ 241,332
2.23	345kV, Surge arrester	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.23	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.24	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.25	138kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.27	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.28	138kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	138kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	138kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	138kV, Air core reactors (3 Ph)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	138kV, Surge arrester	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.31	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.32	138kV, H Frame	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.33	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.34	Precast Firewall for transformer, PARs, reactors	-	SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -
2.35	Precast Concrete Piles-12"X80'	-	EA	18,000.00	3,200.00	2,800.00	\$ -	\$ -	\$ -	\$ -
2.36	Local Control Cabinet foundation	4	CY	703.89	804.44	502.78	\$ 3,128	\$ 3,575	\$ 2,235	\$ 8,938
2.41	Precast Arch. Wall foundation	-	CY	-	-	-	\$ -	\$ -	\$ -	\$ -
2.42	Precast Arch. Wall	-	LF	227.50	91.00	136.50	\$ -	\$ -	\$ -	\$ -
2.43	345KV GIS Sub Slab	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ 404,484	\$ 462,267	\$ 288,917	\$ 1,155,667
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	0	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'-one bay	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, A Frame 70'-two bay	0	EA	86,580.00	51,948.00	34,632.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	9	EA	8,346.00	5,758.74	3,839.16	\$ 75,114	\$ 51,829	\$ 34,552	\$ 161,495
3.7	345kV, GIS fast acting GND SW	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	2	EA	8,346.00	5,758.74	3,839.16				\$ -
3.11	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	345kV, Surge arrester	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.15	138kV, Bus support-3 Ph, low	0	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
3.16	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Disconnect Switch	0	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Cable sealing end	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.19	138kV, CCVT	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.20	138kV, Surge arrester	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.21	138kV, A Frame 50'	0	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.22	138kV, H Frame	0	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.25	AL. Bus Tubing, 5" SCH 80	0	LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -
3.26	AL. Bus fittings	0	LS	-	-	-	\$ -	\$ -	\$ -	\$ -
3.27	Steel grating and support beams-transformer moat	43,280	LB	2.73	1.17	0.50	\$ 118,233	\$ 50,594	\$ 21,683	\$ 190,511
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 193,347	\$ 102,423	\$ 56,236	\$ 352,006
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	9	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	0	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch	0	EA		7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-300MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-150MVAR	1	EA	2,629,516.50	3,520.00	880.00	\$ 2,629,517	\$ 3,520	\$ 880	\$ 2,633,917
4.12	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.13	Transport & Testing- Shunt Reactor	1	EA		292,900.00	191,600.00	\$ -	\$ 292,900	\$ 191,600	\$ 484,500
4.14	345kV, Phase Angle Regulator with oil containment	0	EA				\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated	1	EA	1,130,443.86	678,266.31	452,177.54	\$ 1,130,444	\$ 678,266	\$ 452,178	\$ 2,260,888
4.17	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -
4.18	345kV, surge Arrester	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.20	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Circuit Breaker (PASS)	0	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.22	138kV, Disconnect Switch	0	EA		3,958.50	1,696.50	\$ -	\$ -	\$ -	\$ -
4.23	138kV, Cable sealing end	0	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.24	138kV, CCVT	0	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	0	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.26	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
4.27	345kV Gas-Insulated Bus Conductor	120	LF	550.00	275.00	82.50				\$ -
4.28	345kV Gas-Insulated Bus Conductor-elbow	3	EA	2,500.00	1,250.00	375.00				\$ -
TOTAL - MAJOR EQUIPMENT							\$ 3,759,960	\$ 974,686	\$ 644,658	\$ 5,379,304
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control cables	24,900	LF	5.30	1.43	0.29	\$ 131,908	\$ 35,669	\$ 7,134	\$ 174,711
5.2			LF		-	-	\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 131,908	\$ 35,669	\$ 7,134	\$ 174,711
6. CONDUIT & CABLE TRENCH										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	3,900	LF	11.15	10.80	5.40	\$ 43,485	\$ 42,120	\$ 21,060	\$ 106,665
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40	0	LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	0	LF	266.50	53.04	13.26	\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH		-					\$ 43,485	\$ 42,120	\$ 21,060	\$ 106,665
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor		LF	2.09	-	-	\$ -	\$ -	\$ -	\$ -
7.2	Caweld, DSA, 4/0 , T, CROSS		EA	165.00	75.00		\$ -	\$ -	\$ -	\$ -
7.3	Ground Rod, 3/4" x 15'		EA	135.00	67.50	7.50	\$ -	\$ -	\$ -	\$ -
TOTAL - GROUND GRID							\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	0	EA	427,571.55	299,300.08	128,271.46	\$ -	\$ -	\$ -	\$ -
8.2	Primary Bay Control: SEL-451	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.3	Backup Bay Control: SEL-451	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.4	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.5	Backup Transformer/Reactor/PAR Differential Relays: GE T60	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
8.13	125VDC Battery System		LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.14	Control house AC Panel		EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.15	Control House DC Panel		EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.16	Generator		EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
TOTAL - CONTROL ENCLOSURE							\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
5 - Existing EGC 345 kV_ Upgrade							\$ 4,618,496	\$ 1,697,415	\$ 1,043,066	\$ 7,358,978
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		56,351.33	24,150.57	\$ -	\$ 56,351	\$ 24,151	\$ 80,502
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		73,589.78		\$ -	\$ 73,590	\$ -	\$ 73,590
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		294,359.13		\$ -	\$ 294,359	\$ -	\$ 294,359
9.4	Utility PM and Project Oversight	1.0	LS		73,589.78		\$ -	\$ 73,590	\$ -	\$ 73,590
9.5	Site Accommodation, Facilities, Storage	1.0	LS	73,589.78			\$ 73,590	\$ -	\$ -	\$ 73,590
	Engineering									
9.6	Design Engineering	1.00	LS		407,847.24		\$ -	\$ 407,847	\$ -	\$ 407,847
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	5.00	EA		2,730.00	1,820.00	\$ -	\$ 13,650	\$ 9,100	\$ 22,750
9.9	Surveying/Staking	1.00	Site		35,686.63		\$ -	\$ 35,687	\$ -	\$ 35,687
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		191,178.39		\$ -	\$ 191,178	\$ -	\$ 191,178
	Permitting and Additional Costs									
9.11	Physical Security	1.00	LS		6,546.96		\$ -	\$ 6,547	\$ -	\$ 6,547
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		50,980.90		\$ -	\$ 50,981	\$ -	\$ 50,981
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		15,294.27		\$ -	\$ 15,294	\$ -	\$ 15,294
9.15	Laydown Lease	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	1.00	LS			10,156,468.00	\$ -	\$ -	\$ 10,156,468	\$ 10,156,468
9.17	Legal Fees (Real estate)	1.00	LS		-	304,694.04	\$ -	\$ -	\$ 304,694	\$ 304,694
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 560,000	\$ -	\$ -	\$ 560,000	\$ 560,000
9.20	Sales Tax on Materials	8.80%	LS	4,618,496.23			\$ 406,428	\$ -	\$ -	\$ 406,428
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		7,358.98		\$ -	\$ 7,359	\$ -	\$ 7,359
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 480,017	\$ 1,226,433	\$ 11,054,413	\$ 12,760,863

Propel NY - TO48 BS2

6 - Existing 345 kV Tremont Substation GIS Interconnection

Total: \$32,771,373

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
6 - Existing 345 kV Tremont Substation_GIS_Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 4,238	\$ 304,182	\$ 201,269	\$ 509,689
2. SUBSTATION FOUNDATIONS	\$ 2,073,430	\$ 754,091	\$ 545,707	\$ 3,373,228
3. SUBSTATION STRUCTURES	\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT	\$ 7,833,652	\$ 4,479,191	\$ 2,964,461	\$ 15,277,304
5. LOW VOLTAGE & CONTROL CABLE	\$ 123,962	\$ 33,521	\$ 6,704	\$ 164,186
6. CONDUIT & CABLE TRENCH	\$ 140,078	\$ 58,770	\$ 24,413	\$ 223,260
7. GROUND GRID	\$ 14,781	\$ 10,494	\$ 2,365	\$ 27,640
8. CONTROL ENCLOSURE	\$ 859,778	\$ 723,020	\$ 255,759	\$ 1,838,557
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 1,040,258	\$ 1,482,170	\$ 694,854	\$ 3,217,283
Turnkey cost (HVDC, GIS)	\$ 7,313,652	\$ 4,388,191	\$ 2,925,461	\$ 14,627,304
Non-Turnkey cost	\$ 4,776,525	\$ 3,457,247	\$ 1,770,071	\$ 10,003,843
SUBTOTAL (Costs):	\$ 12,090,177	\$ 7,845,439	\$ 4,695,532	\$ 24,631,147
CONTRACTOR MARK-UP (OH&P):	\$ 1,298,594	\$ 885,596	\$ 494,140	\$ 2,678,330
SUBTOTAL:	\$ 13,388,771	\$ 8,731,035	\$ 5,189,672	\$ 27,309,477
CONTINGENCY ON ENTIRE PROJECT	\$ 2,677,754	\$ 1,746,207	\$ 1,037,934	\$ 5,461,895
TOTAL:	\$ 16,066,525	\$ 10,477,241	\$ 6,227,606	\$ 32,771,373

Description of Work: The existing Consolidated Edison Company of New York, Inc. (“Con Edison”) Tremont Substation, located in the Borough of the Bronx, New York City, Bronx County. Tremont Substation is an existing 345 kV AIS substation fed by a single underground 345 kV Line, X-28, which is a Con Edison transmission circuit. The X-28 circuit is connected to a common rigid bus that feeds two (2) 345 kV / 138 kV transformers in parallel. The Solution consists of the termination of a new 345 kV circuit, which requires installing a new 345 kV GIS six-position ring bus within the existing fence-line of the substation.

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
6 - Existing 345 kV Tremont Substation_GIS_Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	0.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition	1	LS	-	300,000.00	200,000.00	\$ -	\$ 300,000	\$ 200,000	\$ 500,000
1.3	New Access Road - 20'	0	SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil	0	CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad	0	CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	0	CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	0	CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	0	CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	0	SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick	0	SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7" Station Fence w/ Barbed Wire & Grounding	0	LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	20' Slide Gate & Grounding	0	EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE, INFILTRATION TRENCH, INLET and Hydrodynamic Separator	0	LS	446,976.00	-	-	\$ -	\$ -	\$ -	\$ -
1.16	Seeding	0	SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove	825	LF	2.41	3.16	0.72	\$ 1,988	\$ 2,607	\$ 594	\$ 5,189
1.18	Temporary fencing	300	LF	7.50	5.25	2.25	\$ 2,250	\$ 1,575	\$ 675	\$ 4,500



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
1.19	Substation entrance with asphalt	0	SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb	0	LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall	0	LF	156.00	117.00	117.00	\$ -	\$ -	\$ -	\$ -
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ 4,238	\$ 304,182	\$ 201,269	\$ 509,689
2. SUBSTATION FOUNDATIONS										
2.1	345kV, Lightning mast	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, A Frame 70'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.4	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.5	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, GIS fast acting GND SW	49	CY	703.89	804.44	502.78	\$ 34,293	\$ 39,192	\$ 24,495	\$ 97,981
2.8	345kV, GIS to air bushing	109	CY	703.89	804.44	502.78	\$ 76,780	\$ 87,748	\$ 54,843	\$ 219,371
2.9	345kV, GIS support-1 Ph	45	CY	703.89	804.44	502.78	\$ 31,436	\$ 35,926	\$ 22,454	\$ 89,816
2.10	345kV, GIS support-3 Ph	79	CY	703.89	804.44	502.78	\$ 55,748	\$ 63,712	\$ 39,820	\$ 159,279
2.11	345kV, GIS Cable sealing end	36	CY	703.89	804.44	502.78	\$ 25,593	\$ 29,249	\$ 18,281	\$ 73,124
2.12	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.15	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.20	345kV, Circuit Breaker (GIS), outdoor rated	120	CY	703.89	804.44	502.78	\$ 84,466	\$ 96,533	\$ 60,333	\$ 241,332
2.21	345/138 Kv, Control Enclosure-BLDG with generator pad	125	CY	703.89	804.44	502.78	\$ 87,986	\$ 100,555	\$ 62,847	\$ 251,388
2.22	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.23	138kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.24	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.25	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	138kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.27	138kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.28	138kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.31	Precast Firewall for transformer, PARs, reactors		SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -
2.32	Precast Concrete Piles-12"X80'	93	EA	18,000.00	3,200.00	2,800.00	\$ 1,674,000	\$ 297,600	\$ 260,400	\$ 2,232,000
2.33	Local Control Cabinet foundation	4	CY	703.89	804.44	502.78	\$ 3,128	\$ 3,575	\$ 2,235	\$ 8,938
2.34	Steel grating and support beams-transformer moat	0	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ 2,073,430	\$ 754,091	\$ 545,707	\$ 3,373,228
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	0	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	12	EA	8,346.00	5,758.74	3,839.16				\$ -
3.8	345kV, GIS to air bushing	9	EA	4,810.00	2,886.00	1,924.00				\$ -
3.9	345kV, GIS support-1 Ph	11	EA	4,810.00	2,886.00	1,924.00				\$ -
3.10	345kV, GIS support-3 Ph	6	EA	8,346.00	5,758.74	3,839.16				\$ -
3.11	345kV, GIS Cable sealing end	3	EA	8,346.00	5,758.74	3,839.16				\$ -
3.12	345kV, Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	138kV, Bus support-3 Ph, low	0	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Disconnect Switch	0	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Cable sealing end	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.19	138kV, CCVT	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
3.20	138kV, A Frame 50'	0	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.21	AL. Bus Tubing, 5" SCH 80	0	LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -
3.22	AL. Bus fittings	0	LS	-	-	-	\$ -	\$ -	\$ -	\$ -
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, Cable sealing end	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.3	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.4	345kV, Disconnect Switch	0	EA		7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.5	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.6	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.8	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Shunt Reactor	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Phase Angle Regulator with oil containment	0	EA				\$ -	\$ -	\$ -	\$ -
4.11	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.12	345kV, Circuit Breaker (GIS), outdoor rated	6	EA	1,218,942.00	731,365.20	487,576.80	\$ 7,313,652	\$ 4,388,191	\$ 2,925,461	\$ 14,627,304
4.13	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, surge Arrester	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.15	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.16	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.17	138kV, Circuit Breaker (PASS)	0	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.18	138kV, Disconnect Switch	0	EA		3,958.50	1,696.50	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Cable sealing end	0	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.20	138kV, CCVT	0	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Surge arrester	0	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.22	Station service transformers- 120/208v-250VA	2	EA	260,000.00	45,500.00	19,500.00	\$ 520,000	\$ 91,000	\$ 39,000	\$ 650,000
4.23	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
4.24	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ 7,833,652	\$ 4,479,191	\$ 2,964,461	\$ 15,277,304
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cable	23,400	LF	5.30	1.43	0.29	\$ 123,962	\$ 33,521	\$ 6,704	\$ 164,186
5.2			LF				\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 123,962	\$ 33,521	\$ 6,704	\$ 164,186
6. CONDUIT & CABLE TRENCH										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	3,600	LF	11.15	10.80	5.40	\$ 40,140	\$ 38,880	\$ 19,440	\$ 98,460
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	375	LF	266.50	53.04	13.26	\$ 99,938	\$ 19,890	\$ 4,973	\$ 124,800
6.7										
6.8	138kV UG	0	LF	-	-	-	\$ -	\$ -	\$ -	\$ -
6.9							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 140,078	\$ 58,770	\$ 24,413	\$ 223,260
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	1,452	LF	2.09	3.42	1.46	\$ 3,036	\$ 4,959	\$ 2,125	\$ 10,120
7.2	Caweld, DSA, 4/0 , T, CROSS	45	EA	165.00	75.00		\$ 7,425	\$ 3,375	\$ -	\$ 10,800
7.3	Ground Rod, 3/4" x 15'	32	EA	135.00	67.50	7.50	\$ 4,320	\$ 2,160	\$ 240	\$ 6,720
TOTAL - GROUND GRID							\$ 14,781	\$ 10,494	\$ 2,365	\$ 27,640
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	1	EA	171,028.62	119,720.03	51,308.59	\$ 171,029	\$ 119,720	\$ 51,309	\$ 342,057
8.2	Primary Line Relays (87L): SEL-411L	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.3	Backup Line Relays (87L): GE L90	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.4	Primary Bay Control: SEL-451	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.5	Backup Bay Control: SEL-451	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
8.6	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.7	Backup Transformer/Reactor/PAR Differential Relays: GE T60	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.8	Primary Bus Differential Relays: SEL-487B	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.9	Backup Bus Differential Relays: GE B90	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.10	RTU Panel A: SEL-2240 Axion, SEL-2730M ENET SW., SEL-2407 GPS, Modem, SEL-2523 Annunciator, JMUX	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.11	RTU Panel B: SEL-2730M Ethernet Switch, SEL-2407 GPS Clock, SEL-2523 Annunciator	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.12	HMI Panel	1	EA	12,500.00	10,000.00	2,500.00	\$ 12,500	\$ 10,000	\$ 2,500	\$ 25,000
8.13	125VDC Battery System	2	LS	25,000.00	22,750.00	9,750.00	\$ 50,000	\$ 45,500	\$ 19,500	\$ 115,000
8.14	Control house AC Panel	1	EA	65,000.00	91,000.00	39,000.00	\$ 65,000	\$ 91,000	\$ 39,000	\$ 195,000
8.15	Control House DC Panel	1	EA	65,000.00	91,000.00	39,000.00	\$ 65,000	\$ 91,000	\$ 39,000	\$ 195,000
8.16	Generator	1	EA	130,000.00	72,800.00	31,200.00	\$ 130,000	\$ 72,800	\$ 31,200	\$ 234,000
TOTAL - CONTROL ENCLOSURE							\$ 859,778	\$ 723,020	\$ 255,759	\$ 1,838,557
6 - Existing 345 kV Tremont Substation_GIS_Interconnection							\$ 11,049,919	\$ 6,363,269	\$ 4,000,677	\$ 21,413,864
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		106,760.29	45,754.41	\$ -	\$ 106,760	\$ 45,754	\$ 152,515
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		67,865.60		\$ -	\$ 67,866	\$ -	\$ 67,866
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		271,462.42		\$ -	\$ 271,462	\$ -	\$ 271,462
9.4	Utility PM and Project Oversite	1.0	LS		67,865.60		\$ -	\$ 67,866	\$ -	\$ 67,866
9.5	Site Accommodation, Facilities, Storage	1.0	LS	67,865.60			\$ 67,866	\$ -	\$ -	\$ 67,866
	Engineering									
9.6	Design Engineering	1.00	LS		542,924.84		\$ -	\$ 542,925	\$ -	\$ 542,925
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	5.00	EA		2,730.00	1,820.00	\$ -	\$ 13,650	\$ 9,100	\$ 22,750
9.9	Surveying/Staking	1.00	Site		47,505.92		\$ -	\$ 47,506	\$ -	\$ 47,506
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		254,496.02		\$ -	\$ 254,496	\$ -	\$ 254,496
	Permitting and Additional Costs									
9.11	Physical Security	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		67,865.60		\$ -	\$ 67,866	\$ -	\$ 67,866
9.13	Environmental-special studies/investigation		LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		20,359.68		\$ -	\$ 20,360	\$ -	\$ 20,360
9.15	Laydown Lease		LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	-	LS			83,963.00	\$ -	\$ -	\$ -	\$ -
9.17	Legal Fees (Real estate)	-	LS		-	2,518.89	\$ -	\$ -	\$ -	\$ -
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 640,000	\$ -	\$ -	\$ 640,000	\$ 640,000
9.20	Sales Tax on Materials	8.80%	LS	11,049,918.55			\$ 972,393	\$ -	\$ -	\$ 972,393
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		21,413.86		\$ -	\$ 21,414	\$ -	\$ 21,414
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 1,040,258	\$ 1,482,170	\$ 694,854	\$ 3,217,283

Propel NY - TO48 BS2

7 - Existing Sprain Brook 345 kV Interconnection

Total: \$ 18,929,529

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
7 - Existing Sprain Brook 345 kV_ Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 220,337	\$ 164,274	\$ 94,817	\$ 479,428
2. SUBSTATION FOUNDATIONS	\$ 1,177,446	\$ 706,038	\$ 455,635	\$ 2,339,119
3. SUBSTATION STRUCTURES	\$ 238,253	\$ 334,356	\$ 217,809	\$ 790,418
4. MAJOR EQUIPTMENT	\$ 4,510,308	\$ 702,685	\$ 333,505	\$ 5,546,498
5. LOW VOLTAGE & CONTROL CABLE	\$ 82,641	\$ 22,347	\$ 4,469	\$ 109,457
6. CONDUIT & CABLE TRENCH	\$ 96,730	\$ 42,420	\$ 17,895	\$ 157,045
7. GROUND GRID	\$ 8,890	\$ 6,320	\$ 1,423	\$ 16,634
8. CONTROL ENCLOSURE	\$ 339,088	\$ 271,271	\$ 67,818	\$ 678,177
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 688,453	\$ 2,142,338	\$ 420,746	\$ 3,251,537
SUBTOTAL (Costs):	\$ 7,362,145	\$ 4,392,048	\$ 1,614,118	\$ 13,368,311
CONTRACTOR MARK-UP (OH&P)	\$ 1,325,186	\$ 790,569	\$ 290,541	\$ 2,406,296
SUBTOTAL:	\$ 8,687,332	\$ 5,182,616	\$ 1,904,659	\$ 15,774,607
CONTINGENCY ON ENTIRE PROJECT	\$ 1,737,466	\$ 1,036,523	\$ 380,932	\$ 3,154,921
TOTAL:	\$ 10,424,798	\$ 6,219,140	\$ 2,285,591	\$ 18,929,529

Description of Work: Interconnection Facilities to the existing Con Edison Sprain Brook Substation, located in the City of Yonkers, Westchester County. Sprain Brook Substation is an existing 345 kV AIS substation with a BAAH configuration. The Solution includes installing a new underground 345 kV line with a shunt reactor in new bay positions.

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
7 - Existing Sprain Brook 345 kV_ Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	0.4	ACRE	-	10,800.00	7,200.00	\$ -	\$ 4,320	\$ 2,880	\$ 7,200
1.2	Demolition	1	LS	-	3,000.00	2,000.00	\$ -	\$ 3,000	\$ 2,000	\$ 5,000
1.3	New Access Road - 20'	481	SY	4.85	7.20	4.80	\$ 2,333	\$ 3,464	\$ 2,309	\$ 8,107
1.4	Strip and Dispose Top Soil	645	CY		24.50	10.50	\$ -	\$ 15,811	\$ 6,776	\$ 22,587
1.5	Site Grading- Excavation for Substation Pad	1,936	CY		9.00	6.00	\$ -	\$ 17,424	\$ 11,616	\$ 29,040
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	1,045	CY		21.00	9.00	\$ -	\$ 21,954.24	\$ 9,408.96	\$ 31,363.20
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	1,568	CY		2.40	1.60	\$ -	\$ 3,764	\$ 2,509	\$ 6,273
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	1,045	CY	25.00	2.40	1.60	\$ 26,136	\$ 2,509	\$ 1,673	\$ 30,318
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	1,936	SY	11.00	6.00	4.00	\$ 21,296	\$ 11,616	\$ 7,744	\$ 40,656
1.11	Site Surfacing - Aggregate 6" Thick	1,936	SY	16.50	4.50	3.00	\$ 31,944	\$ 8,712	\$ 5,808	\$ 46,464
1.12	7' Station Fence w/ Barbed Wire & Grounding	450	LF	13.85	13.85	6.92	\$ 6,232	\$ 6,232	\$ 3,116	\$ 15,579
1.13	40' Slide Gate & Grounding	2	EA	8,100.00	3,245.00	1,305.00	\$ 16,200	\$ 6,490	\$ 2,610	\$ 25,300
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE, drainage structures, UD lines	1	LS	89,529.60	38,400.00	18,120.00	\$ 89,530	\$ 38,400	\$ 18,120	\$ 146,050
1.16	Seeding	0	SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove	525	LF	2.41	3.16	0.72	\$ 1,265	\$ 1,659	\$ 378	\$ 3,302
1.18	Temporary fencing	350	LF	7.50	5.25	2.25	\$ 2,625	\$ 1,838	\$ 788	\$ 5,250
1.19	Substation entrance with asphalt	0	SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb	0	LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall	146	LF	156.00	117.00	117.00	\$ 22,776	\$ 17,082	\$ 17,082	\$ 56,940
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ 220,337	\$ 164,274	\$ 94,817	\$ 479,428

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
2. SUBSTATION FOUNDATIONS										
2.1	345kV, Lightning mast	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, A Frame 70'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.4	345kV, Bus support-3 Ph, low	66	CY	703.89	804.44	502.78	\$ 46,710	\$ 53,383	\$ 33,364	\$ 133,457
2.5	345kV, Bus support-1 Ph	16	CY	703.89	804.44	502.78	\$ 11,150	\$ 12,742	\$ 7,964	\$ 31,856
2.6	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, GIS fast acting GND SW	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS to air bushing	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	345kV, Cable sealing end	26	CY	703.89	804.44	502.78	\$ 18,583	\$ 21,237	\$ 13,273	\$ 53,093
2.13	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	345kV, Disconnect Switch	127	CY	703.89	804.44	502.78	\$ 89,196	\$ 101,939	\$ 63,712	\$ 254,847
2.15	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345kV, Shunt Reactor with oil containment-150MVAR	305	CY	703.89	804.44	502.78	\$ 214,685	\$ 245,354	\$ 153,346	\$ 613,386
2.17	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345kV, Circuit Breaker (PASS)	20	CY	703.89	804.44	502.78	\$ 14,078	\$ 16,089	\$ 10,056	\$ 40,222
2.20	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	345kV, IPO circuit breaker	93	CY	703.89	804.44	502.78	\$ 65,696	\$ 75,081	\$ 46,926	\$ 187,703
2.22	345kV, Surge arrester	32	CY	703.89	804.44	502.78	\$ 22,595	\$ 25,823	\$ 16,139	\$ 64,556
2.23	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.24	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.25	138kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.27	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.28	138kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	138kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	138kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.31	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.32	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.33	Precast Firewall for transformer, PARs, reactors		SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -
2.34	Precast Concrete Piles-12"X80'	24	EA	18,000.00	3,200.00	2,800.00	\$ 432,000	\$ 76,800	\$ 67,200	\$ 576,000
2.35	Precast Concrete Piles-18"X40'	12	EA	12,000.00	2,200.00	1,800.00	\$ 144,000	\$ 26,400	\$ 21,600	\$ 192,000
2.36	Local Control Cabinet foundation	1	CY	703.89	804.44	502.78	\$ 521	\$ 596	\$ 372	\$ 1,490
2.37	Steel grating and support beams-transformer moat	43,280	LB	2.73	1.17	0.50	\$ 118,233	\$ 50,594	\$ 21,683	\$ 190,511
TOTAL - 345KV FOUNDATION							\$ 1,177,446	\$ 706,038	\$ 455,635	\$ 2,339,119
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	0	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	6	EA	8,346.00	5,758.74	3,839.16	\$ 50,076	\$ 34,552	\$ 23,035	\$ 107,663
3.5	345kV, Bus support-1 Ph	2	EA	4,810.00	2,886.00	1,924.00	\$ 9,620	\$ 5,772	\$ 3,848	\$ 19,240
3.6	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end	2	EA	8,346.00	5,758.74	3,839.16	\$ 16,692	\$ 11,517	\$ 7,678	\$ 35,888
3.13	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	4	EA	19,240.00	11,544.00	7,696.00	\$ 76,960	\$ 46,176	\$ 30,784	\$ 153,920
3.15	345kV, Surge arrester	6	EA	4,810.00	2,886.00	1,924.00	\$ 28,860	\$ 17,316	\$ 11,544	\$ 57,720
3.16	138kV, Bus support-3 Ph, low	0	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Disconnect Switch	0	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.19	138kV, Cable sealing end	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.20	138kV, CCVT	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.21	138kV, A Frame 50'	0	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.24	AL. Bus Tubing, 5" SCH 80	1,019	LF	25.00	184.94	123.29	\$ 25,475	\$ 188,452	\$ 125,635	\$ 339,561
3.25	AL. Bus fittings	1	LS	30,570.00	30,570.00	15,285.00	\$ 30,570	\$ 30,570	\$ 15,285	\$ 76,425
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 238,253	\$ 334,356	\$ 217,809	\$ 790,418



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
<b>4. MAJOR EQUIPMENT</b>										
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	0	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end	6	EA	27,144.00	5,460.00	2,340.00	\$ 162,864	\$ 32,760	\$ 14,040	\$ 209,664
4.6	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch	4	EA	57,720.00	34,632.00	23,088.00	\$ 230,880	\$ 138,528	\$ 92,352	\$ 461,760
4.8	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	1	EA	2,385,863.50	3,520.00	880.00	\$ 2,385,864	\$ 3,520	\$ 880	\$ 2,390,264
4.11	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	1	EA		323,400.00	138,600.00	\$ -	\$ 323,400	\$ 138,600	\$ 462,000
4.13	345kV, Phase Angle Regulator with oil containment	0	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	1	EA	980,000.00	57,239.00	24,531.00	\$ 980,000	\$ 57,239	\$ 24,531	\$ 1,061,770
4.15	345kV, Circuit Breaker (GIS), outdoor rated	0	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, IPO circuit breaker	2	EA	350,000.00	57,239.00	24,531.00	\$ 700,000	\$ 114,478	\$ 49,062	\$ 863,540
4.18	345kV, surge Arrester	6	EA	8,450.00	5,460.00	2,340.00	\$ 50,700	\$ 32,760	\$ 14,040	\$ 97,500
4.19	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.20	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Circuit Breaker (PASS)	0	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.22	138kV, Disconnect Switch	0	EA		3,958.50	1,696.50	\$ -	\$ -	\$ -	\$ -
4.23	138kV, Cable sealing end	0	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.24	138kV, CCVT	0	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	0	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.26	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
4.27	Substation Equipment connections-Bare Wire ACSR- Bittern 45/7-1275kcmil	0	LF	5.30	1.61	0.40	\$ -	\$ -	\$ -	\$ -
4.28	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
4.29	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
<b>TOTAL - MAJOR EQUIPMENT</b>							\$ 4,510,308	\$ 702,685	\$ 333,505	\$ 5,546,498
<b>5. LOW VOLTAGE &amp; CONTROL CABLE</b>										
5.1	Control Cables	15,600	LF	5.30	1.43	0.29	\$ 82,641	\$ 22,347	\$ 4,469	\$ 109,457
5.2			LF				\$ -	\$ -	\$ -	\$ -
<b>TOTAL - LOW VOLTAGE &amp; CONTROL CABLE</b>							\$ 82,641	\$ 22,347	\$ 4,469	\$ 109,457
<b>6. CONDUIT &amp; CABLE TRENCH</b>										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	2,700	LF	11.15	10.80	5.40	\$ 30,105	\$ 29,160	\$ 14,580	\$ 73,845
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	250	LF	266.50	53.04	13.26	\$ 66,625	\$ 13,260	\$ 3,315	\$ 83,200
6.7	345kV UG- Conduit		LF	311.59	286.92	147.80	\$ -	\$ -	\$ -	\$ -
6.8	345kV UG- Cable		LF	175.00	105.00	70.00	\$ -	\$ -	\$ -	\$ -
6.9	345kV UG- Termination		EA							
6.9							\$ -	\$ -	\$ -	\$ -
<b>TOTAL - CONDUIT &amp; CABLE TRENCH</b>							\$ 96,730	\$ 42,420	\$ 17,895	\$ 157,045
<b>7. GROUND GRID</b>										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	880	LF	2.09	3.42	1.46	\$ 1,840	\$ 3,005	\$ 1,288	\$ 6,134
7.2	Caweld, DSA, 4/0 , T, CROSS	28	EA	165.00	75.00		\$ 4,620	\$ 2,100	\$ -	\$ 6,720
7.3	Ground Rod, 3/4" x 15'	18	EA	135.00	67.50	7.50	\$ 2,430	\$ 1,215	\$ 135	\$ 3,780
<b>TOTAL - GROUND GRID</b>							\$ 8,890	\$ 6,320	\$ 1,423	\$ 16,634
<b>8. CONTROL ENCLOSURE</b>										
8.1	345/138kV Control Bldg	0	EA	171,028.62	119,720.03	51,308.59	\$ -	\$ -	\$ -	\$ -
8.2	Primary Line Relays (87L): SEL-411L	1	EA	41,575.50	33,260.40	8,315.10	\$ 41,576	\$ 33,260	\$ 8,315	\$ 83,151
8.3	Backup Line Relays (87L): GE L90	1	EA	41,575.50	33,260.40	8,315.10	\$ 41,576	\$ 33,260	\$ 8,315	\$ 83,151
8.4	Primary Bay Control: SEL-451	3	EA	21,328.12	17,062.49	4,265.62	\$ 63,984	\$ 51,187	\$ 12,797	\$ 127,969
8.5	Backup Bay Control: SEL-451	3	EA	21,328.12	17,062.49	4,265.62	\$ 63,984	\$ 51,187	\$ 12,797	\$ 127,969
8.6	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.7	Backup Transformer/Reactor/PAR Differential Relays: GE T60	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.8	Primary Bus Differential Relays: SEL-487B	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.9	Backup Bus Differential Relays: GE B90	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.10	125VDC Battery System	0	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.11	Control house AC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.12	Control House DC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.13	Generator	0	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
TOTAL - CONTROL ENCLOSURE							\$ 339,088	\$ 271,271	\$ 67,818	\$ 678,177
7 - Existing Sprain Brook 345 kV_ Interconnection							\$ 6,673,693	\$ 2,249,710	\$ 1,193,372	\$ 10,116,775
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		120,507.86	51,646.23	\$ -	\$ 120,508	\$ 51,646	\$ 172,154
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		101,167.75		\$ -	\$ 101,168	\$ -	\$ 101,168
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		404,670.98		\$ -	\$ 404,671	\$ -	\$ 404,671
9.4	Utility PM and Project Oversight	1.0	LS		101,167.75		\$ -	\$ 101,168	\$ -	\$ 101,168
9.5	Site Accommodation, Facilities, Storage	1.0	LS	101,167.75			\$ 101,168	\$ -	\$ -	\$ 101,168
	Engineering									
9.6	Design Engineering	1.00	LS		809,341.97		\$ -	\$ 809,342	\$ -	\$ 809,342
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	5.00	EA		2,730.00	1,820.00	\$ -	\$ 13,650	\$ 9,100	\$ 22,750
9.9	Surveying/Staking	1.00	Site		70,817.42		\$ -	\$ 70,817	\$ -	\$ 70,817
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		379,379.05		\$ -	\$ 379,379	\$ -	\$ 379,379
	Permitting and Additional Costs									
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		101,167.75		\$ -	\$ 101,168	\$ -	\$ 101,168
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		30,350.32		\$ -	\$ 30,350	\$ -	\$ 30,350
9.15	Laydown Lease	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	-	LS			822,958.00	\$ -	\$ -	\$ -	\$ -
9.17	Legal Fees (Real estate)	-	LS		-	24,688.74	\$ -	\$ -	\$ -	\$ -
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 360,000	\$ -	\$ -	\$ 360,000	\$ 360,000
9.20	Sales Tax on Materials	8.80%	LS	6,673,692.74			\$ 587,285	\$ -	\$ -	\$ 587,285
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		10,116.77		\$ -	\$ 10,117	\$ -	\$ 10,117
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 688,453	\$ 2,142,338	\$ 420,746	\$ 3,251,537

Propel NY - TO48 BS2

8 - Existing Ruland 138 kV Upgrade & Interconnection

Total: \$ 13,614,467

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
8 - Existing Ruland 138 kV_ Upgrade & Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 251,469	\$ 278,373	\$ 156,657	\$ 686,499
2. SUBSTATION FOUNDATIONS	\$ 965,636	\$ 756,155	\$ 488,597	\$ 2,210,388
3. SUBSTATION STRUCTURES	\$ 272,182	\$ 191,597	\$ 178,582	\$ 642,361
4. MAJOR EQUIPTMENT	\$ 2,060,025	\$ 328,518	\$ 138,222	\$ 2,526,765
5. LOW VOLTAGE & CONTROL CABLE	\$ 131,908	\$ 35,669	\$ 7,134	\$ 174,711
6. CONDUIT & CABLE TRENCH	\$ 324,073	\$ 225,017	\$ 106,737	\$ 655,827
7. GROUND GRID	\$ 28,699	\$ 20,592	\$ 4,732	\$ 54,023
8. CONTROL ENCLOSURE	\$ 170,625	\$ 136,500	\$ 34,125	\$ 341,250
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 442,925	\$ 1,566,399	\$ 313,588	\$ 2,322,912
SUBTOTAL (Costs):	\$ 4,647,541	\$ 3,538,822	\$ 1,428,374	\$ 9,614,737
CONTRACTOR MARK-UP (OH&P)	\$ 836,557	\$ 636,988	\$ 257,107	\$ 1,730,653
SUBTOTAL:	\$ 5,484,099	\$ 4,175,810	\$ 1,685,481	\$ 11,345,389
CONTINGENCY ON ENTIRE PROJECT	\$ 1,096,820	\$ 835,162	\$ 337,096	\$ 2,269,078
TOTAL:	\$ 6,580,918	\$ 5,010,972	\$ 2,022,577	\$ 13,614,467

Description of Work: Upgrades and Potential Interconnection Facilities to the existing LIPA Ruland Road Substation, located in the Hamlet of Melville, Town of Huntington, Suffolk County. Ruland Road Substation is an existing 138 kV AIS substation configured with six (6) BAAH bays. The Solution includes installing three (3) air core reactors in series to the 138 kV Lines 138-561,138-562, and 138-567, respectively, which are proposed as Upgrades and two (2) 138 kV circuit breakers which are proposed as Potential Interconnection Facilities.

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
8 - Existing Ruland 138 kV_ Upgrade & Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	1.2	ACRE	-	10,800.00	7,200.00	\$ -	\$ 12,960	\$ 8,640	\$ 21,600
1.2	Demolition	1	LS	-	4,800.00	3,200.00	\$ -	\$ 4,800	\$ 3,200	\$ 8,000
1.3	New Access Road - 20'	978	SY	4.85	7.20	4.80	\$ 4,742	\$ 7,040	\$ 4,693	\$ 16,476
1.4	Strip and Dispose Top Soil	1,936	CY		24.50	10.50	\$ -	\$ 47,432	\$ 20,328	\$ 67,760
1.5	Site Grading- Excavation for Substation Pad	5,808	CY		9.00	6.00	\$ -	\$ 52,272	\$ 34,848	\$ 87,120
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	3,136	CY		21.00	9.00	\$ -	\$ 65,862.72	\$ 28,226.88	\$ 94,089.60
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	4,704	CY		2.40	1.60	\$ -	\$ 11,291	\$ 7,527	\$ 18,818
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	3,136	CY	25.00	2.40	1.60	\$ 78,408	\$ 7,527	\$ 5,018	\$ 90,953
1.9	Blasting		EA	-	-	-	\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	5,808	SY	11.00	6.00	4.00	\$ 63,888	\$ 34,848	\$ 23,232	\$ 121,968
1.11	Site Surfacing - Aggregate 6" Thick	5,808	SY	16.50	4.50	3.00	\$ 95,832	\$ 26,136	\$ 17,424	\$ 139,392
1.12	7' Station Fence w/ Barbed Wire & Grounding	340	LF	13.85	13.85	6.92	\$ 4,708	\$ 4,708	\$ 2,354	\$ 11,771
1.13	20' Slide Gate & Grounding	0	EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE,	0	LS	-	-	-	\$ -	\$ -	\$ -	\$ -
1.16	Seeding	0	SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove	525	LF	2.41	3.16	0.72	\$ 1,265	\$ 1,659	\$ 378	\$ 3,302
1.18	Temporary fencing	350	LF	7.50	5.25	2.25	\$ 2,625	\$ 1,838	\$ 788	\$ 5,250
1.19	Substation entrance with asphalt	0	SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb	0	LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall	0	LF	156.00	117.00	117.00	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ 251,469	\$ 278,373	\$ 156,657	\$ 686,499
2. SUBSTATION FOUNDATIONS										
2.1	345kV, Lightning mast	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, A Frame 70'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.4	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.5	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, GIS fast acting GND SW	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS to air bushing	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.15	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.20	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.23	138kV, Circuit Breaker (PASS)	9	CY	703.89	804.44	502.78	\$ 6,257	\$ 7,151	\$ 4,469	\$ 17,876
2.24	138kV, Bus support-3 Ph, low	21	CY	703.89	804.44	502.78	\$ 15,063	\$ 17,215	\$ 10,759	\$ 43,038
2.25	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	138kV, Disconnect Switch	218	CY	703.89	804.44	502.78	\$ 153,560	\$ 175,497	\$ 109,685	\$ 438,742
2.27	138kV, Cable sealing end	48	CY	703.89	804.44	502.78	\$ 34,124	\$ 38,999	\$ 24,375	\$ 97,498
2.28	138kV, CCVT	32	CY	703.89	804.44	502.78	\$ 22,595	\$ 25,823	\$ 16,139	\$ 64,556
2.29	138kV, Air core reactors (3 Ph)	249	CY	703.89	804.44	502.78	\$ 175,204	\$ 200,233	\$ 125,146	\$ 500,583
2.30	138kV, Surge arrester	64	CY	703.89	804.44	502.78	\$ 45,189	\$ 51,645	\$ 32,278	\$ 129,113
2.31	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.32	138kV, H Frame	218	CY	703.89	804.44	502.78	\$ 153,644	\$ 175,593	\$ 109,746	\$ 438,983
2.33	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.34	Precast Firewall for transformer, PARs, reactors		SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -
2.35	Precast Concrete Piles-12"X80'	20	EA	18,000.00	3,200.00	2,800.00	\$ 360,000	\$ 64,000	\$ 56,000	\$ 480,000
2.36	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.37	Steel grating and support beams-transformer moat	0	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ 965,636	\$ 756,155	\$ 488,597	\$ 2,210,388
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	0	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	138kV, Bus support-3 Ph, low	2	EA	4,173.00	2,879.76	1,919.84	\$ 8,346	\$ 5,760	\$ 3,840	\$ 17,945
3.16	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Disconnect Switch	9	EA	5,694.00	3,928.86	2,619.24	\$ 51,246	\$ 35,360	\$ 23,573	\$ 110,179
3.18	138kV, Cable sealing end	4	EA	4,810.00	2,886.00	1,924.00	\$ 19,240	\$ 11,544	\$ 7,696	\$ 38,480
3.19	138kV, CCVT	6	EA	3,206.67	1,924.00	1,282.67	\$ 19,240	\$ 11,544	\$ 7,696	\$ 38,480
3.20	138kV, Surge arrester	12	EA	3,206.67	1,924.00	1,282.67	\$ 38,480	\$ 23,088	\$ 15,392	\$ 76,960
3.21	138kV, A Frame 50'	0	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.22	138kV, H Frame	6	EA	21,450.00	12,870.00	17,160.00	\$ 128,700	\$ 77,220	\$ 102,960	\$ 308,880
3.23	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
3.24	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
3.25	AL. Bus Tubing, 5" SCH 80	126	LF	25.00	184.94	123.29	\$ 3,150	\$ 23,302	\$ 15,535	\$ 41,987
3.26	AL. Bus fittings	1	LS	3,780.00	3,780.00	1,890.00	\$ 3,780	\$ 3,780	\$ 1,890	\$ 9,450
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 272,182	\$ 191,597	\$ 178,582	\$ 642,361
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	0	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch	0	EA		7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	0	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	0	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, surge Arrester	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.18	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.19	Transport & Testing- Phase Angle Regulating Transformer, 138kv	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.20	138kV, Circuit Breaker (PASS)	2	EA	510,000.00	13,559.00	5,811.00	\$ 1,020,000	\$ 27,118	\$ 11,622	\$ 1,058,740
4.21	138kV, Disconnect Switch	9	EA	37,700.00	11,875.50	5,089.50	\$ 339,300	\$ 106,880	\$ 45,806	\$ 491,985
4.22	138kV, Cable sealing end	12	EA	11,600.00	1,050.00	450.00	\$ 139,200	\$ 12,600	\$ 5,400	\$ 157,200
4.23	138kV, CCVT	6	EA	10,000.00	7,970.08	3,415.75	\$ 60,000	\$ 47,821	\$ 20,495	\$ 128,315
4.24	138kV, Air core reactors (3 Ph)	9	EA	46,833.00	6,500.00	2,500.00	\$ 421,497	\$ 58,500	\$ 22,500	\$ 502,497
4.25	138kV, Surge arrester	18	EA	4,446.00	4,200.00	1,800.00	\$ 80,028	\$ 75,600	\$ 32,400	\$ 188,028
4.26	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ 2,060,025	\$ 328,518	\$ 138,222	\$ 2,526,765
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables	24,900	LF	5.30	1.43	0.29	\$ 131,908	\$ 35,669	\$ 7,134	\$ 174,711
5.2			LF	5.30	1.43	0.29	\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 131,908	\$ 35,669	\$ 7,134	\$ 174,711
6. CONDUIT & CABLE TRENCH										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	5,250	LF	11.15	10.80	5.40	\$ 58,538	\$ 56,700	\$ 28,350	\$ 143,588
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	250	LF	266.50	53.04	13.26	\$ 66,625	\$ 13,260	\$ 3,315	\$ 83,200
6.7	138kV UG- Conduit	300	LF	81.00	107.00	57.00	\$ 24,300	\$ 32,100	\$ 17,100	\$ 73,500
6.8	138kV UG- Cable	900	LF	156.00	94.00	62.00	\$ 140,400	\$ 84,600	\$ 55,800	\$ 280,800
6.9	138kV UG- Termination	3	EA	9,360.00	11,700.00		\$ 28,080	\$ 35,100	\$ -	\$ 63,180
6.10	Fiber Optic Cable	300	LF	7.40	3.33	2.22	\$ 2,219	\$ 999	\$ 666	\$ 3,884
6.11	Ground Continuity Conductor	300	LF	13.04	7.53	5.02	\$ 3,912	\$ 2,258	\$ 1,505	\$ 7,675
6.12		0	LF	-	-	-	\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 324,073	\$ 225,017	\$ 106,737	\$ 655,827
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	2,900	LF	2.09	3.42	1.46	\$ 6,064	\$ 9,904	\$ 4,245	\$ 20,213
7.2	Caweld, DSA, 4/0 , T, CROSS	84	EA	165.00	75.00		\$ 13,860	\$ 6,300	\$ -	\$ 20,160
7.3	Ground Rod, 3/4" x 15'	65	EA	135.00	67.50	7.50	\$ 8,775	\$ 4,388	\$ 488	\$ 13,650
TOTAL - GROUND GRID							\$ 28,699	\$ 20,592	\$ 4,732	\$ 54,023
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	0	EA	171,028.62	119,720.03	51,308.59	\$ -	\$ -	\$ -	\$ -
8.2	Primary Line Relays (87L): SEL-411L	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.3	Backup Line Relays (87L): GE L90	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.4	Primary Bay Control: SEL-451	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.5	Backup Bay Control: SEL-451	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.6	125VDC Battery System	0	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.7	Control house AC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.8	Control House DC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.9	Generator	0	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
TOTAL - CONTROL ENCLOSURE							\$ 170,625	\$ 136,500	\$ 34,125	\$ 341,250
8 - Existing Ruland 138 kV_ Upgrade & Interconnection							\$ 4,204,617	\$ 1,972,423	\$ 1,114,785	\$ 7,291,825
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		108,052.28	46,308.12	\$ -	\$ 108,052	\$ 46,308	\$ 154,360
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		72,918.25		\$ -	\$ 72,918	\$ -	\$ 72,918
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		291,672.99		\$ -	\$ 291,673	\$ -	\$ 291,673
9.4	Utility PM and Project Oversight	1.0	LS		72,918.25		\$ -	\$ 72,918	\$ -	\$ 72,918
9.5	Site Accommodation, Facilities, Storage	1.0	LS	72,918.25			\$ 72,918	\$ -	\$ -	\$ 72,918
	Engineering									
9.6	Design Engineering	1.00	LS		583,345.98		\$ -	\$ 583,346	\$ -	\$ 583,346
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	4.00	EA		2,730.00	1,820.00	\$ -	\$ 10,920	\$ 7,280	\$ 18,200
9.9	Surveying/Staking	1.00	Site		51,042.77		\$ -	\$ 51,043	\$ -	\$ 51,043
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		273,443.43		\$ -	\$ 273,443	\$ -	\$ 273,443
	Permitting and Additional Costs									
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		72,918.25		\$ -	\$ 72,918	\$ -	\$ 72,918
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		21,875.47		\$ -	\$ 21,875	\$ -	\$ 21,875
9.15	Laydown Lease	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	-	LS			76,578.00	\$ -	\$ -	\$ -	\$ -
9.17	Legal Fees (Real estate)	-	LS		-	2,297.34	\$ -	\$ -	\$ -	\$ -
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 260,000	\$ -	\$ -	\$ 260,000	\$ 260,000
9.20	Sales Tax on Materials	8.80%	LS	4,204,616.61			\$ 370,006	\$ -	\$ -	\$ 370,006
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		7,291.82		\$ -	\$ 7,292	\$ -	\$ 7,292
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 442,925	\$ 1,566,399	\$ 313,588	\$ 2,322,912



Propel NY - TO48 BS2

9 -Existing Shore Road 138 kV Interconnection

Total: \$ 17,527,679

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
9 -Existing Shore Road 138 kV_ Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ -	\$ -	\$ -
2. SUBSTATION FOUNDATIONS	\$ 763,029	\$ 594,091	\$ 384,107	\$ 1,741,226.59
3. SUBSTATION STRUCTURES	\$ 438,491	\$ 427,288	\$ 268,027	\$ 1,133,805.97
4. MAJOR EQUIPTMENT	\$ 3,977,637	\$ 403,988	\$ 221,795	\$ 4,603,419.50
5. LOW VOLTAGE & CONTROL CABLE	\$ 146,211	\$ 39,537	\$ 7,907	\$ 193,655.40
6. CONDUIT & CABLE TRENCH	\$ 259,121	\$ 213,377	\$ 104,232	\$ 576,729.60
7. GROUND GRID	\$ 66,810	\$ 48,271	\$ 11,248	\$ 126,329.05
8. CONTROL ENCLOSURE	\$ 428,594	\$ 420,875	\$ 137,719	\$ 987,187.22
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 628,654	\$ 1,990,780	\$ 396,517	\$ 3,015,951.21
SUBTOTAL (Costs):	\$ 6,708,547	\$ 4,138,207	\$ 1,531,551	\$ 12,378,305
CONTRACTOR MARK-UP (OH&P)	\$ 1,207,538	\$ 744,877	\$ 275,679	\$ 2,228,095
SUBTOTAL:	\$ 7,916,085	\$ 4,883,084	\$ 1,807,231	\$ 14,606,399
CONTINGENCY ON ENTIRE PROJECT	\$ 1,583,217	\$ 976,617	\$ 361,446	\$ 2,921,279.87
TOTAL:	\$ 9,499,302	\$ 5,859,700	\$ 2,168,677	\$ 17,527,679

Description of Work: Interconnection Facilities to the existing LIPA Shore Road Substation, located in the Hamlet of Glenwood Landing, Town of Oyster Bay, Nassau County. Shore Road Substation is an existing 138 kV AIS substation with a main-tie main configuration. The Solution includes installing two (2) additional circuit breakers to create a six (6) position ring bus configuration.

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
9 -Existing Shore Road 138 kV_ Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	0.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition	0	LS	-	4,800.00	3,200.00	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'	0	SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil	0	CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad	0	CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	0	CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	0	CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	0	CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	0	SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick	0	SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding	0	LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	20' Slide Gate & Grounding	0	EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE,	0	LS	-	-	-	\$ -	\$ -	\$ -	\$ -
1.16	Seeding	0	SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove	0	LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing	0	LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt	0	SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb	0	LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall	0	LF	156.00	117.00	117.00	\$ -	\$ -	\$ -	\$ -
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ -	\$ -	\$ -	\$ -
2. SUBSTATION FOUNDATIONS										

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
2.1	345kV, Lightning mast	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, A Frame 70'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.4	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.5	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, GIS fast acting GND SW	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS to air bushing	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.15	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Shunt Reactor with oil containment-50MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.20	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.23	138kV, Shunt Reactor with oil containment-50MVAR	95	CY	703.89	804.44	502.78	\$ 66,869	\$ 76,422	\$ 47,764	\$ 191,055
2.24	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.25	138kV, Circuit Breaker (PASS)	18	CY	703.89	804.44	502.78	\$ 12,514	\$ 14,301	\$ 8,938	\$ 35,753
2.26	138kV, Bus support-3 Ph, low	118	CY	703.89	804.44	502.78	\$ 82,847	\$ 94,683	\$ 59,177	\$ 236,706
2.27	138kV, Bus support-1 Ph, low	85	CY	703.89	804.44	502.78	\$ 60,013	\$ 68,587	\$ 42,867	\$ 171,466
2.28	138kV, Disconnect Switch	48	CY	703.89	804.44	502.78	\$ 34,124	\$ 38,999	\$ 24,375	\$ 97,498
2.29	138kV, Cable sealing end	12	CY	703.89	804.44	502.78	\$ 8,531	\$ 9,750	\$ 6,094	\$ 24,375
2.30	138kV, CCVT	48	CY	703.89	804.44	502.78	\$ 33,892	\$ 38,734	\$ 24,209	\$ 96,834
2.31	138kV, Air core reactors (3 Ph)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.32	138kV, Surge arrester	32	CY	703.89	804.44	502.78	\$ 22,595	\$ 25,823	\$ 16,139	\$ 64,556
2.33	138kV, A Frame 50'	218	CY	703.89	804.44	502.78	\$ 153,644	\$ 175,593	\$ 109,746	\$ 438,983
2.34	138kV, H Frame	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.35	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.36	Precast Firewall for transformer, PARs, reactors		SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -
2.37	Precast Concrete Piles-12"X80'	16	EA	18,000.00	3,200.00	2,800.00	\$ 288,000	\$ 51,200	\$ 44,800	\$ 384,000
2.38	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.39										
2.40										
TOTAL - 345KV FOUNDATION							\$ 763,029	\$ 594,091	\$ 384,107	\$ 1,741,227
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	0	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	138kV, Bus support-3 Ph, low	11	EA	4,173.00	2,879.76	1,919.84	\$ 45,903	\$ 31,677	\$ 21,118	\$ 98,699
3.16	138kV, Bus support-1 Ph, low	21	EA	2,782.00	1,919.84	1,279.89	\$ 58,422	\$ 40,317	\$ 26,878	\$ 125,616
3.17	138kV, Disconnect Switch	2	EA	5,694.00	3,928.86	2,619.24	\$ 11,388	\$ 7,858	\$ 5,238	\$ 24,484
3.18	138kV, Cable sealing end	1	EA	4,810.00	2,886.00	1,924.00	\$ 4,810	\$ 2,886	\$ 1,924	\$ 9,620
3.19	138kV, CCVT	9	EA	3,206.67	1,924.00	1,282.67	\$ 28,860	\$ 17,316	\$ 11,544	\$ 57,720
3.20	138kV, Surge arrester	6	EA	3,206.67	1,924.00	1,282.67	\$ 19,240	\$ 11,544	\$ 7,696	\$ 38,480
3.21	138kV, A Frame 50'	3	EA	33,000.00	19,800.00	13,200.00	\$ 99,000	\$ 59,400	\$ 39,600	\$ 198,000
3.22	138kV, H Frame	0	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.23	AL. Bus Tubing, 5" SCH 80	957	LF	25.00	184.94	123.29	\$ 23,925	\$ 176,986	\$ 117,990	\$ 318,901
3.24	AL. Bus fittings	1	LS	28,710.00	28,710.00	14,355.00	\$ 28,710	\$ 28,710	\$ 14,355	\$ 71,775
3.25	Steel grating and support beams-transformer moat	43,280	LB	2.73	1.17	0.50	\$ 118,233	\$ 50,594	\$ 21,683	\$ 190,511

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 438,491	\$ 427,288	\$ 268,027	\$ 1,133,806
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	0	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch	0	EA		7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	345kV, Shunt Reactor with oil containment-50MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.13	Transport & Testing- Shunt Reactor	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.14	345kV, Phase Angle Regulator with oil containment	0	EA				\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated	0	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -
4.18	345kV, surge Arrester	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Shunt Reactor with oil containment-50MVAR	1	EA	1,710,761.00	3,520.00	880.00	\$ 1,710,761	\$ 3,520	\$ 880	\$ 1,715,161
4.20	Transport & Testing- Shunt Reactor, 138kV	1	EA		222,400.00	144,600.00	\$ -	\$ 222,400	\$ 144,600	\$ 367,000
4.21	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.22	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.23	138kV, Circuit Breaker (PASS)	4	EA	510,000.00	13,559.00	5,811.00	\$ 2,040,000	\$ 54,236	\$ 23,244	\$ 2,117,480
4.24	138kV, Disconnect Switch	2	EA	37,700.00	11,875.50	5,089.50	\$ 75,400	\$ 23,751	\$ 10,179	\$ 109,330
4.25	138kV, Cable sealing end	3	EA	11,600.00	1,050.00	450.00	\$ 34,800	\$ 3,150	\$ 1,350	\$ 39,300
4.26	138kV, CCVT	9	EA	10,000.00	7,970.08	3,415.75	\$ 90,000	\$ 71,731	\$ 30,742	\$ 192,473
4.27	138kV, Air core reactors (3 Ph)	0	EA				\$ -	\$ -	\$ -	\$ -
4.28	138kV, Surge arrester	6	EA	4,446.00	4,200.00	1,800.00	\$ 26,676	\$ 25,200	\$ 10,800	\$ 62,676
4.29	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
4.30	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
4.31	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ 3,977,637	\$ 403,988	\$ 221,795	\$ 4,603,420
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cable	27,600	LF	5.30	1.43	0.29	\$ 146,211	\$ 39,537	\$ 7,907	\$ 193,655
5.2			LF				\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 146,211	\$ 39,537	\$ 7,907	\$ 193,655

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
<b>6. CONDUIT &amp; CABLE TRENCH</b>										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	5,400	LF	11.15	10.80	5.40	\$ 60,210	\$ 58,320	\$ 29,160	\$ 147,690
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	0	LF	266.50	53.04	13.26	\$ -	\$ -	\$ -	\$ -
6.7	138kV UG- Conduit	300	LF	81.00	107.00	57.00	\$ 24,300	\$ 32,100	\$ 17,100	\$ 73,500
6.8	138kV UG- Cable	900	LF	156.00	94.00	62.00	\$ 140,400	\$ 84,600	\$ 55,800	\$ 280,800
6.9	138kV UG- Termination	3	EA	9,360.00	11,700.00		\$ 28,080	\$ 35,100	\$ -	\$ 63,180
6.10	Fiber Optic Cable	300	LF	7.40	3.33	2.22	\$ 2,219	\$ 999	\$ 666	\$ 3,884
6.11	Ground Continuity Conductor	300	LF	13.04	7.53	5.02	\$ 3,912	\$ 2,258	\$ 1,505	\$ 7,675
<b>TOTAL - CONDUIT &amp; CABLE TRENCH</b>							\$ 259,121	\$ 213,377	\$ 104,232	\$ 576,730
<b>7. GROUND GRID</b>										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	6,865	LF	2.09	3.42	1.46	\$ 14,355	\$ 23,446	\$ 10,048	\$ 47,849
7.2	Caweld, DSA, 4/0 , T, CROSS	187	EA	165.00	75.00		\$ 30,855	\$ 14,025	\$ -	\$ 44,880
7.3	Ground Rod, 3/4" x 15'	160	EA	135.00	67.50	7.50	\$ 21,600	\$ 10,800	\$ 1,200	\$ 33,600
<b>TOTAL - GROUND GRID</b>		-					\$ 66,810	\$ 48,271	\$ 11,248	\$ 126,329
<b>8. CONTROL ENCLOSURE</b>										
8.1	345/138kV Control Bldg	0	EA	171,028.62	119,720.03	51,308.59	\$ -	\$ -	\$ -	\$ -
8.2	Primary Line Relays (Pilot): SEL-411L	3	EA	21,328.12	17,062.49	4,265.62	\$ 63,984	\$ 51,187	\$ 12,797	\$ 127,969
8.3	Backup Line Relays (Pilot): GE L90	3	EA	21,328.12	17,062.49	4,265.62	\$ 63,984	\$ 51,187	\$ 12,797	\$ 127,969
8.4	Primary Bay Control: SEL-451	4	EA	21,328.12	17,062.49	4,265.62	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
8.5	Backup Bay Control: SEL-451	4	EA	21,328.12	17,062.49	4,265.62	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
8.6	125VDC Battery System	0	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.7	Control house AC Panel	1	EA	65,000.00	91,000.00	39,000.00	\$ 65,000	\$ 91,000	\$ 39,000	\$ 195,000
8.8	Control House DC Panel	1	EA	65,000.00	91,000.00	39,000.00	\$ 65,000	\$ 91,000	\$ 39,000	\$ 195,000
8.9	Generator	0	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
<b>TOTAL - CONTROL ENCLOSURE</b>							\$ 428,594	\$ 420,875	\$ 137,719	\$ 987,187
<b>9 -Existing Shore Road 138 kV_ Interconnection</b>							\$ 6,079,892	\$ 2,147,426	\$ 1,135,035	\$ 9,362,353
<b>9. MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS</b>										
	<b>Contractor Mobilization / Demobilization</b>									
9.1	Mob / Demob	1.0	LS		114,886.13	49,236.91	\$ -	\$ 114,886	\$ 49,237	\$ 164,123
	<b>Project Management, Material Handling &amp; Amenities</b>									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		93,623.53		\$ -	\$ 93,624	\$ -	\$ 93,624
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		374,494.13		\$ -	\$ 374,494	\$ -	\$ 374,494
9.4	Utility PM and Project Oversight	1.0	LS		93,623.53		\$ -	\$ 93,624	\$ -	\$ 93,624
9.5	Site Accommodation, Facilities, Storage	1.0	LS	93,623.53			\$ 93,624	\$ -	\$ -	\$ 93,624
	<b>Engineering</b>									
9.6	Design Engineering	1.00	LS		748,988.27		\$ -	\$ 748,988	\$ -	\$ 748,988
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	4.00	EA		2,730.00	1,820.00	\$ -	\$ 10,920	\$ 7,280	\$ 18,200
9.9	Surveying/Staking	1.00	Site		65,536.47		\$ -	\$ 65,536	\$ -	\$ 65,536
	<b>Testing &amp; Commissioning</b>									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		351,088.25		\$ -	\$ 351,088	\$ -	\$ 351,088
	<b>Permitting and Additional Costs</b>									
9.11	Physical Security	1.00	LS		6,546.96		\$ -	\$ 6,547	\$ -	\$ 6,547
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		93,623.53		\$ -	\$ 93,624	\$ -	\$ 93,624
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		28,087.06		\$ -	\$ 28,087	\$ -	\$ 28,087
9.15	Laydown Lease	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	-	LS		-	215,711.00	\$ -	\$ -	\$ -	\$ -
9.17	Legal Fees (Real estate)	-	LS		-	6,471.33	\$ -	\$ -	\$ -	\$ -
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 340,000	\$ -	\$ -	\$ 340,000	\$ 340,000
9.20	Sales Tax on Materials	8.80%	LS	6,079,892.49			\$ 535,031	\$ -	\$ -	\$ 535,031
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		9,362.35		\$ -	\$ 9,362	\$ -	\$ 9,362
<b>TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS:</b>							\$ 628,654	\$ 1,990,780	\$ 396,517	\$ 3,015,951

Propel NY - TO48 BS2

10 -Existing Syosset 138 kV Interconnection

Total: \$ 23,262,106

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
10 -Existing Syosset 138 kV_ Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ -	\$ -	\$ -
2. SUBSTATION FOUNDATIONS	\$ 397,180	\$ 245,463	\$ 163,014	\$ 805,657.14
3. SUBSTATION STRUCTURES	\$ 162,299	\$ 93,172	\$ 49,663	\$ 305,134.09
4. MAJOR EQUIPTMENT	\$ 10,219,458	\$ 430,331	\$ 266,656	\$ 10,916,445.50
5. LOW VOLTAGE & CONTROL CABLE	\$ 41,321	\$ 11,174	\$ 2,235	\$ 54,728.70
6. CONDUIT & CABLE TRENCH	\$ 20,070	\$ 19,440	\$ 9,720	\$ 49,230.00
7. GROUND GRID	\$ 10,041	\$ 6,590	\$ 1,249	\$ 17,880.24
8. CONTROL ENCLOSURE	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,624.92
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 1,085,537	\$ 2,514,098	\$ 508,705	\$ 4,108,340.32
SUBTOTAL (Costs):	\$ 12,021,218	\$ 3,388,517	\$ 1,018,305	\$ 16,428,041
CONTRACTOR MARK-UP (OH&P)	\$ 2,163,819	\$ 609,933	\$ 183,295	\$ 2,957,047
SUBTOTAL:	\$ 14,185,037	\$ 3,998,451	\$ 1,201,600	\$ 19,385,088
CONTINGENCY ON ENTIRE PROJECT	\$ 2,837,007	\$ 799,690	\$ 240,320	\$ 3,877,017.66
TOTAL:	\$ 17,022,045	\$ 4,798,141	\$ 1,441,920	\$ 23,262,106

Description of Work: Interconnection Facilities to the existing LIPA Syosset Substation, located in the Hamlet of Syosset, Town of Oyster Bay, Nassau County. Syosset Substation is a 138 kV AIS substation with an eight (8) ring bus configuration. The Solution includes the installation of a new underground 138 kV line with a PAR in an existing spare line position.

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
10 -Existing Syosset 138 kV_ Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	0.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition	0	LS	-	4,800.00	3,200.00	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'	0	SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil	0	CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad	0	CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	0	CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	0	CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	0	CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	0	SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick	0	SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding	0	LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	20' Slide Gate & Grounding	0	EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE,	0	LS	-	-	-	\$ -	\$ -	\$ -	\$ -
1.16	Seeding	0	SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove	0	LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing	0	LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt	0	SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb	0	LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall	0	LF	156.00	117.00	117.00	\$ -	\$ -	\$ -	\$ -
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ -	\$ -	\$ -	\$ -
2. SUBSTATION FOUNDATIONS										
2.1	345kV, Lightning mast	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, A Frame 70'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
2.4	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.5	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, GIS fast acting GND SW	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS to air bushing	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.15	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.20	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	138kV, Phase Angle Regulator with oil containment	154	CY	703.89	804.44	502.78	\$ 108,398	\$ 123,884	\$ 77,427	\$ 309,709
2.23	138kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.24	138kV, Bus support-3 Ph, low	11	CY	703.89	804.44	502.78	\$ 7,532	\$ 8,608	\$ 5,380	\$ 21,519
2.25	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	138kV, Disconnect Switch	48	CY	703.89	804.44	502.78	\$ 34,124	\$ 38,999	\$ 24,375	\$ 97,498
2.27	138kV, Cable sealing end	12	CY	703.89	804.44	502.78	\$ 8,531	\$ 9,750	\$ 6,094	\$ 24,375
2.28	138kV, CCVT	16	CY	703.89	804.44	502.78	\$ 11,297	\$ 12,911	\$ 8,070	\$ 32,278
2.29	138kV, Air core reactors (3 Ph)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	138kV, Surge arrester	16	CY	703.89	804.44	502.78	\$ 11,297	\$ 12,911	\$ 8,070	\$ 32,278
2.31	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.32	138kV, H Frame	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.33	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.34	Precast Firewall for transformer, PARs, reactors		SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -
2.35	Precast Concrete Piles-12"X80'	12	EA	18,000.00	3,200.00	2,800.00	\$ 216,000	\$ 38,400	\$ 33,600	\$ 288,000
2.36	Local Control Cabinet foundation		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ 397,180	\$ 245,463	\$ 163,014	\$ 805,657
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	0	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	138kV, Bus support-3 Ph, low	1	EA	4,173.00	2,879.76	1,919.84	\$ 4,173	\$ 2,880	\$ 1,920	\$ 8,973
3.16	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Disconnect Switch	2	EA	5,694.00	3,928.86	2,619.24	\$ 11,388	\$ 7,858	\$ 5,238	\$ 24,484
3.18	138kV, Cable sealing end	1	EA	4,810.00	2,886.00	1,924.00	\$ 4,810	\$ 2,886	\$ 1,924	\$ 9,620
3.19	138kV, CCVT	3	EA	3,206.67	1,924.00	1,282.67	\$ 9,620	\$ 5,772	\$ 3,848	\$ 19,240
3.20	138kV, Surge arrester	3	EA	3,206.67	1,924.00	1,282.67	\$ 9,620	\$ 5,772	\$ 3,848	\$ 19,240
3.21	138kV, A Frame 50'	0	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.22	138kV, H Frame	0	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.23	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
3.24	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
3.25	AL. Bus Tubing, 5" SCH 80	81	LF	25.00	184.94	123.29	\$ 2,025	\$ 14,980	\$ 9,987	\$ 26,992
3.26	AL. Bus fittings	1	LS	2,430.00	2,430.00	1,215.00	\$ 2,430	\$ 2,430	\$ 1,215	\$ 6,075
3.27	Steel grating and support beams-transformer moat	43,280	LB	2.73	1.17	0.50	\$ 118,233	\$ 50,594	\$ 21,683	\$ 190,511
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 162,299	\$ 93,172	\$ 49,663	\$ 305,134



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
<b>4. MAJOR EQUIPMENT</b>										
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	0	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch	0	EA		7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	0	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	0	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, surge Arrester	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.18	138kV, Phase Angle Regulator with oil containment	1	EA	10,087,382.00	3,520.00	880.00	\$ 10,087,382	\$ 3,520	\$ 880	\$ 10,091,782
4.19	Transport & Testing- Phase Angle Regulating Transformer, 138kv	1	EA		363,400.00	238,600.00	\$ -	\$ 363,400	\$ 238,600	\$ 602,000
4.20	138kV, Circuit Breaker (PASS)	0	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Disconnect Switch	2	EA	37,700.00	11,875.50	5,089.50	\$ 75,400	\$ 23,751	\$ 10,179	\$ 109,330
4.22	138kV, Cable sealing end	3	EA	4,446.00	1,050.00	450.00	\$ 13,338	\$ 3,150	\$ 1,350	\$ 17,838
4.23	138kV, CCVT	3	EA	10,000.00	7,970.08	3,415.75	\$ 30,000	\$ 23,910	\$ 10,247	\$ 64,158
4.24	138kV, Air core reactors (3 Ph)	0	EA				\$ -	\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	3	EA	4,446.00	4,200.00	1,800.00	\$ 13,338	\$ 12,600	\$ 5,400	\$ 31,338
4.26	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
<b>TOTAL - MAJOR EQUIPMENT</b>							\$ 10,219,458	\$ 430,331	\$ 266,656	\$ 10,916,446
<b>5. LOW VOLTAGE &amp; CONTROL CABLE</b>										
5.1	Control Cables	7,800	LF	5.30	1.43	0.29	\$ 41,321	\$ 11,174	\$ 2,235	\$ 54,729
5.2			LF				\$ -	\$ -	\$ -	\$ -
<b>TOTAL - LOW VOLTAGE &amp; CONTROL CABLE</b>							\$ 41,321	\$ 11,174	\$ 2,235	\$ 54,729
<b>6. CONDUIT &amp; CABLE TRENCH</b>										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	1,800	LF	11.15	10.80	5.40	\$ 20,070	\$ 19,440	\$ 9,720	\$ 49,230
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	0	LF	266.50	53.04	13.26	\$ -	\$ -	\$ -	\$ -
6.7	345kV UG	0	LF	230.08	133.40	55.96	\$ -	\$ -	\$ -	\$ -
6.8	138kV UG	0	LF	-	-	-	\$ -	\$ -	\$ -	\$ -
6.9							\$ -	\$ -	\$ -	\$ -
<b>TOTAL - CONDUIT &amp; CABLE TRENCH</b>							\$ 20,070	\$ 19,440	\$ 9,720	\$ 49,230
<b>7. GROUND GRID</b>										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	792	LF	2.09	3.42	1.46	\$ 1,656	\$ 2,705	\$ 1,159	\$ 5,520
7.2	Caweld, DSA, 4/0 , T, CROSS	41	EA	165.00	75.00		\$ 6,765	\$ 3,075	\$ -	\$ 9,840
7.3	Ground Rod, 3/4" x 15'	12	EA	135.00	67.50	7.50	\$ 1,620	\$ 810	\$ 90	\$ 2,520
<b>TOTAL - GROUND GRID</b>		-					\$ 10,041	\$ 6,590	\$ 1,249	\$ 17,880
<b>8. CONTROL ENCLOSURE</b>										
8.1	345/138kV Control Bldg	0	EA	171,028.62	119,720.03	51,308.59	\$ -	\$ -	\$ -	\$ -
8.2	Primary Line Relays (Pilot): SEL-411L	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.3	Backup Line Relays (Pilot): GE L90	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.4	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.5	Backup Transformer/Reactor/PAR Differential Relays: GE T60	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.6	125VDC Battery System	0	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.7	Control house AC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.8	Control House DC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.9	Generator	0	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
<b>TOTAL - CONTROL ENCLOSURE</b>							\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
<b>10 -Existing Syosset 138 kV_ Interconnection</b>							\$ 10,935,681	\$ 874,419	\$ 509,600	\$ 12,319,701
<b>9. MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS</b>										
	<b>Contractor Mobilization / Demobilization</b>									
9.1	Mob / Demob	1.0	LS		48,440.68	20,760.29	\$ -	\$ 48,441	\$ 20,760	\$ 69,201
	<b>Project Management, Material Handling &amp; Amenities</b>									

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		123,197.01		\$ -	\$ 123,197	\$ -	\$ 123,197
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		492,788.02		\$ -	\$ 492,788	\$ -	\$ 492,788
9.4	Utility PM and Project Oversight	1.0	LS		123,197.01		\$ -	\$ 123,197	\$ -	\$ 123,197
9.5	Site Accommodation, Facilities, Storage	1.0	LS	123,197.01			\$ 123,197	\$ -	\$ -	\$ 123,197
	Engineering									
9.6	Design Engineering	1.00	LS		985,576.05		\$ -	\$ 985,576	\$ -	\$ 985,576
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	5.00	EA		2,730.00	1,820.00	\$ -	\$ 13,650	\$ 9,100	\$ 22,750
9.9	Surveying/Staking	1.00	Site		86,237.90		\$ -	\$ 86,238	\$ -	\$ 86,238
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		461,988.77		\$ -	\$ 461,989	\$ -	\$ 461,989
	Permitting and Additional Costs									
9.11	Physical Security	1.00	LS		6,546.96		\$ -	\$ 6,547	\$ -	\$ 6,547
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		123,197.01		\$ -	\$ 123,197	\$ -	\$ 123,197
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		36,959.10		\$ -	\$ 36,959	\$ -	\$ 36,959
9.15	Laydown Lease	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	1.00	LS			18,296.00	\$ -	\$ -	\$ 18,296	\$ 18,296
9.17	Legal Fees (Real estate)	1.00	LS		-	548.88	\$ -	\$ -	\$ 549	\$ 549
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 460,000	\$ -	\$ -	\$ 460,000	\$ 460,000
9.20	Sales Tax on Materials	8.80%	LS	10,935,681.09			\$ 962,340	\$ -	\$ -	\$ 962,340
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		12,319.70		\$ -	\$ 12,320	\$ -	\$ 12,320
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 1,085,537	\$ 2,514,098	\$ 508,705	\$ 4,108,340

Propel NY - TO48 BS2

11 -Existing Holbrook 138 Kv Upgrade

Total: \$ 1,907,161

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
11 -Existing Holbrook 138 Kv Upgrade				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ 3,000	\$ 2,000	\$ 5,000
2. SUBSTATION FOUNDATIONS	\$ 3,128	\$ 3,575	\$ 2,235	\$ 8,938
3. SUBSTATION STRUCTURES	\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPTMENT	\$ 510,000	\$ 13,559	\$ 5,811	\$ 529,370
5. LOW VOLTAGE & CONTROL CABLE	\$ 20,660	\$ 5,587	\$ 1,117	\$ 27,364
6. CONDUIT & CABLE TRENCH	\$ 6,690	\$ 6,480	\$ 3,240	\$ 16,410
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE	\$ 213,281	\$ 170,625	\$ 42,656	\$ 426,562
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 76,467	\$ 213,034	\$ 43,718	\$ 333,220
SUBTOTAL (Costs):	\$ 830,227	\$ 415,860	\$ 100,777	\$ 1,346,865
CONTRACTOR MARK-UP (OH&P)	\$ 149,441	\$ 74,855	\$ 18,140	\$ 242,436
SUBTOTAL:	\$ 979,668	\$ 490,715	\$ 118,917	\$ 1,589,301
CONTINGENCY ON ENTIRE PROJECT	\$ 195,934	\$ 98,143	\$ 23,783	\$ 317,860
TOTAL:	\$ 1,175,602	\$ 588,858	\$ 142,701	\$ 1,907,161

Description of Work:The Applicants propose Upgrades to the Holbrook Substation, which is an existing LIPA 138 kV AIS substation, configured as an eight (8) position ring bus. The Holbrook Substation is located in the Hamlet of Holbrook in the Town of Brookhaven in Suffolk County.The 138 kV, 138-882 Line currently feeds two (2) 138 kV/69 kV transformers via an AIS disconnect before connecting into its bus section within the ring bus. The Solution involves replacing the existing switch #1322 with a new hybrid PASS GIS 138 kV breaker system with integrated disconnect and ground switches.

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
11 -Existing Holbrook 138 Kv Upgrade										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	0.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition	1	LS	-	3,000.00	2,000.00	\$ -	\$ 3,000	\$ 2,000	\$ 5,000
1.3	New Access Road - 20'	0	SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil	0	CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad	0	CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	0	CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	0	CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	0	CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	0	SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick	0	SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding	0	LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	20' Slide Gate & Grounding	0	EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE,	0	LS	-	-	-	\$ -	\$ -	\$ -	\$ -
1.16	Seeding	0	SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove	0	LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing	0	LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt	0	SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb	0	LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall	0	LF	156.00	117.00	117.00	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ -	\$ 3,000	\$ 2,000	\$ 5,000
2. SUBSTATION FOUNDATIONS										
2.1	345/138kV, Lightning mast	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, A Frame 70'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.4	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.5	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, GIS fast acting GND SW	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS to air bushing	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.15	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.20	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.23	138kV, Circuit Breaker (PASS)	4	CY	703.89	804.44	502.78	\$ 3,128	\$ 3,575	\$ 2,235	\$ 8,938
2.24	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.25	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	138kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.27	138kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.28	138kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	138kV, Air core reactors (3 Ph)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	138kV, Surge arrester	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.31	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.32	138kV, H Frame	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.33	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.34	Precast Firewall for transformer, PARs, reactors		SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -
2.35	Precast Concrete Piles-12"X80'	-	EA	18,000.00	3,200.00	2,800.00	\$ -	\$ -	\$ -	\$ -
2.36	Local Control Cabinet foundation		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.37	Steel grating and support beams-transformer moat	0	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ 3,128	\$ 3,575	\$ 2,235	\$ 8,938
3. SUBSTATION STRUCTURES										
3.1	345/138kV, Lightning mast	0	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	138kV, Bus support-3 Ph, low	0	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Disconnect Switch	0	EA	5,694.00	3,928.86	2,619.24	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Cable sealing end	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.19	138kV, CCVT	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.20	138kV, Surge arrester	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.21	138kV, A Frame 50'	0	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.22	138kV, H Frame	0	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.23	AL. Bus Tubing, 5" SCH 80	0	LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
3.24	AL. Bus fittings	0	LS	-	-	-	\$ -	\$ -	\$ -	\$ -
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	0	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch	0	EA		7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	0	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	0	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, surge Arrester	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.18	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.19	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.20	138kV, Circuit Breaker (PASS)	1	EA	510,000.00	13,559.00	5,811.00	\$ 510,000	\$ 13,559	\$ 5,811	\$ 529,370
4.21	138kV, Disconnect Switch	0	EA		3,958.50	1,696.50	\$ -	\$ -	\$ -	\$ -
4.22	138kV, Cable sealing end	0	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.23	138kV, CCVT	0	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.24	138kV, Air core reactors (3 Ph)	0	EA				\$ -	\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	0	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.26	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
4.27	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
4.28	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ 510,000	\$ 13,559	\$ 5,811	\$ 529,370
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control cables	3,900	LF	5.30	1.43	0.29	\$ 20,660	\$ 5,587	\$ 1,117	\$ 27,364
5.2			LF		-	-	\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 20,660	\$ 5,587	\$ 1,117	\$ 27,364
6. CONDUIT & CABLE TRENCH										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	600	LF	11.15	10.80	5.40	\$ 6,690	\$ 6,480	\$ 3,240	\$ 16,410
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40	0	LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	0	LF	266.50	53.04	13.26	\$ -	\$ -	\$ -	\$ -
6.7	345kV UG	0	LF	230.08	133.40	55.96	\$ -	\$ -	\$ -	\$ -
6.8	138kV UG	0	LF	-	-	-	\$ -	\$ -	\$ -	\$ -
6.9							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 6,690	\$ 6,480	\$ 3,240	\$ 16,410
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	0	LF	2.09	3.42	1.46	\$ -	\$ -	\$ -	\$ -
7.2	Caweld, DSA, 4/0 , T, CROSS	0	EA	165.00	75.00		\$ -	\$ -	\$ -	\$ -
7.3	Ground Rod, 3/4" x 15'	0	EA	135.00	67.50	7.50	\$ -	\$ -	\$ -	\$ -
TOTAL - GROUND GRID		-					\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	0	EA	171,028.62	119,720.03	51,308.59	\$ -	\$ -	\$ -	\$ -
8.2	Primary Line Relays (Pilot): SEL-411L	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.3	Backup Line Relays (Pilot): GE L90	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.4	Primary Bay Control: SEL-451	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.5	Backup Bay Control: SEL-451	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.6	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.7	Backup Transformer/Reactor/PAR Differential Relays: GE T60	2	EA	21,328.12	17,062.49	4,265.62	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
8.8	Primary Bus Differential Relays: SEL-487B	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.9	Backup Bus Differential Relays: GE B90	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
8.10	125VDC Battery System	0	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.11	Control house AC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.12	Control House DC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.13	Generator	0	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
TOTAL - CONTROL ENCLOSURE							\$ 213,281	\$ 170,625	\$ 42,656	\$ 426,562
11 -Existing Holbrook 138 Kv_ Upgrade							\$ 753,760	\$ 202,826	\$ 57,059	\$ 1,013,645
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		9,095.98	3,898.28	\$ -	\$ 9,096	\$ 3,898	\$ 12,994
Project Management, Material Handling & Amenities										
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		10,136.45		\$ -	\$ 10,136	\$ -	\$ 10,136
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		40,545.79		\$ -	\$ 40,546	\$ -	\$ 40,546
9.4	Utility PM and Project Oversight	1.0	LS		10,136.45		\$ -	\$ 10,136	\$ -	\$ 10,136
9.5	Site Accommodation, Facilities, Storage	1.0	LS	10,136.45			\$ 10,136	\$ -	\$ -	\$ 10,136
Engineering										
9.6	Design Engineering	1.00	LS		81,091.59		\$ -	\$ 81,092	\$ -	\$ 81,092
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	1.00	EA		2,730.00	1,820.00	\$ -	\$ 2,730	\$ 1,820	\$ 4,550
9.9	Surveying/Staking	1.00	Site		7,095.51		\$ -	\$ 7,096	\$ -	\$ 7,096
Testing & Commissioning										
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		38,011.68		\$ -	\$ 38,012	\$ -	\$ 38,012
Permitting and Additional Costs										
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		10,136.45		\$ -	\$ 10,136	\$ -	\$ 10,136
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		3,040.93		\$ -	\$ 3,041	\$ -	\$ 3,041
9.15	Laydown Lease	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.17	Legal Fees (Real estate)	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 38,000	\$ -	\$ -	\$ 38,000	\$ 38,000
9.20	Sales Tax on Materials	8.80%	LS	753,759.78			\$ 66,331	\$ -	\$ -	\$ 66,331
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		1,013.64		\$ -	\$ 1,014	\$ -	\$ 1,014
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 76,467	\$ 213,034	\$ 43,718	\$ 333,220



Propel NY - TO48 BS2

12 -Existing Barrett 138 kV

Total:   \$           -

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
12 -Existing Barrett 138 Kv_ Upgrade				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ -	\$ -	\$ -
2. SUBSTATION FOUNDATIONS	\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES	\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT	\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE	\$ -	\$ -	\$ -	\$ -
6. CONDUIT & CABLE TRENCH	\$ -	\$ -	\$ -	\$ -
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE	\$ -	\$ -	\$ -	\$ -
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ -	\$ -	\$ -	\$ -
SUBTOTAL (Costs):	\$ -	\$ -	\$ -	\$ -
CONTRACTOR MARK-UP (OH&P)	\$ -	\$ -	\$ -	\$ -
SUBTOTAL:	\$ -	\$ -	\$ -	\$ -
CONTINGENCY ON ENTIRE PROJECT	\$ -	\$ -	\$ -	\$ -
TOTAL:	\$ -	\$ -	\$ -	\$ -

Description of Work:g Upgrades to the existing LIPA Barrett Substation, located in the Hamlet of Oceanside, Town of Hempstead, Nassau County. Barrett Substation is an existing 138 kV AIS substation with a main-tie-main configuration. The Solution includes the addition of a new breaker in series with the existing 138 kV CB-1330 currently feeding a 138 kV/69 kV transformer bank

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
12 -Existing Barrett 138 Kv										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	0.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition	1	LS	-	15,000.00	10,000.00				
1.3	New Access Road - 20'	0	SY	4.85	7.20	4.80				
1.4	Strip and Dispose Top Soil	0	CY		24.50	10.50				
1.5	Site Grading- Excavation for Substation Pad	0	CY		9.00	6.00				
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	0	CY		21.00	9.00				
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	0	CY		2.40	1.60				
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	0	CY	25.00	2.40	1.60				
1.9	Blasting		EA							
1.10	Install substation 8" pad base	0	SY	11.00	6.00	4.00				
1.11	Site Surfacing - Aggregate 6" Thick	0	SY	16.50	4.50	3.00				
1.12	7' Station Fence w/ Barbed Wire & Grounding	0	LF	13.85	13.85	6.92				
1.13	20' Slide Gate & Grounding	0	EA	8,100.00	3,245.00	1,305.00				
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00				
1.15	Storm drain-15" HDPE,	0	LS	-	-	-				
1.16	Seeding	0	SF	1.50	1.50	1.00				
1.17	Erosion Control-Silt fence install & remove	0	LF	2.41	3.16	0.72				
1.18	Temporary fencing	0	LF	7.50	5.25	2.25				
1.19	Substation entrance with asphalt	0	SY	19.50	26.00	19.50				
1.20	Concrete curb	0	LF	26.00	27.30	11.70				
1.21	Retaining Wall	0	LF	156.00	117.00	117.00				

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ -	\$ -	\$ -	\$ -
2. SUBSTATION FOUNDATIONS										
2.1	345/138kV, Lightning mast	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, A Frame 70'	-	CY	703.89	804.44	502.78				
2.3	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78				
2.4	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78				
2.5	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78				
2.6	345kV, GIS air terminal-3 Ph	-	CY	703.89	804.44	502.78				
2.7	345kV, GIS fast acting GND SW	-	CY	703.89	804.44	502.78				
2.8	345kV, GIS to air bushing	-	CY	703.89	804.44	502.78				
2.9	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78				
2.10	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78				
2.11	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78				
2.12	345kV, Cable sealing end - 3 Ph	-	CY	703.89	804.44	502.78				
2.13	345kV, CCVT	-	CY	703.89	804.44	502.78				
2.14	345kV, Disconnect Switch - 3Ph	-	CY	703.89	804.44	502.78				
2.15	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78				
2.16	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78				
2.17	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78				
2.18	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78				
2.19	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78				
2.20	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78				
2.21	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78				
2.22	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78				
2.23	138kV, Circuit Breaker (PASS)	9	CY	703.89	804.44	502.78				
2.24	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78				
2.25	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78				
2.26	138kV, Disconnect Switch-3 Ph	-	CY	703.89	804.44	502.78				
2.27	138kV, Cable sealing end-3 Ph	-	CY	703.89	804.44	502.78				
2.28	138kV, CCVT	-	CY	703.89	804.44	502.78				
2.29	138kV, Air core reactors (3 Ph)	-	CY	703.89	804.44	502.78				
2.30	138kV, Surge arrester	-	CY	703.89	804.44	502.78				
2.31	138kV, A Frame 50'	-	CY	703.89	804.44	502.78				
2.32	138kV, H Frame	-	CY	703.89	804.44	502.78				
2.33	Firewall Foundation	-	CY	703.89	804.44	502.78				
2.34	Precast Firewall for transformer, PARs, reactors		SF	25.00	15.00	10.00				
2.35	Precast Concrete Piles-12"X80'	12	EA	18,000.00	3,200.00	2,800.00				
2.36	Local Control Cabinet foundation		CY	703.89	804.44	502.78				
TOTAL - 345KV FOUNDATION							\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES										
3.1	345/138kV, Lightning mast	0	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end - 3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch - 3Ph	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	138kV, Bus support-3 Ph, low	0	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Disconnect Switch-3 Ph	0	EA	5,694.00	3,928.86	2,619.24	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Cable sealing end-3 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.19	138kV, CCVT	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.20	138kV, Surge arrester	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.21	138kV, A Frame 50'	0	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
3.22	138kV, H Frame	0	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.23	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
3.24	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
3.25	AL. Bus Tubing, 5" SCH 80	0	LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -
3.26	AL. Bus fittings	0	LS	-	-	-	\$ -	\$ -	\$ -	\$ -
3.27	Steel grating and support beams-transformer moat	0	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal-3 Ph	0	EA							
4.2	345kV, GIS fast acting GND SW	0	EA							
4.3	345kV, GIS to air bushing	0	EA							
4.4	345kV, GIS Cable sealing end	0	EA					\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end - 3 Ph	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	0	EA		15,941.99	6,832.28		\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch - 3Ph	0	EA		7,234.50	3,100.50		\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	0	EA					\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00		\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	0	EA					\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA					\$ -	\$ -	\$ -
4.17	345kV, surge Arrester	0	EA		5,460.00	2,340.00		\$ -	\$ -	\$ -
4.18	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.19	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.20	138kV, Circuit Breaker (PASS)	2	EA		13,559.00	5,811.00				
4.21	138kV, Disconnect Switch-3 Ph	0	EA		3,958.50	1,696.50		\$ -	\$ -	\$ -
4.22	138kV, Cable sealing end-3 Ph	0	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.23	138kV, CCVT	0	EA		7,970.08	3,415.75		\$ -	\$ -	\$ -
4.24	138kV, Air core reactors (3 Ph)	0	EA					\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	0	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.26	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
4.27	Substation Equipment connections-Bare Wire ACSR- Bittern 45/7-1275kcmil	240	LF				\$ -	\$ -	\$ -	\$ -
4.28	Equip jumper connector compression Single 1272 kcmil	24	EA				\$ -	\$ -	\$ -	\$ -
4.29	Substation Equipment connections-Bare Wire ACSR- Lapwing 45/7-1590kcmil		LF				\$ -	\$ -	\$ -	\$ -
4.30	Equip jumper connector compression double 1590 kcmil		EA				\$ -	\$ -	\$ -	\$ -
4.31	Wire Spacer-double		EA				\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE										
5.1	300V Copper 12/c TC XHHW/CPE 12AWG	0	LF		-	-	\$ -	\$ -	\$ -	\$ -
5.2	300V Copper 12/c TC XHHW/CPE 10AWG	0	LF		-	-	\$ -	\$ -	\$ -	\$ -
5.3	300V Copper 4/c TC XHHW/CPE 12AWG	0	LF		-	-	\$ -	\$ -	\$ -	\$ -
5.4	300V Copper 4/c TC XHHW/CPE 10AWG	0	LF		-	-	\$ -	\$ -	\$ -	\$ -
5.5	300V Copper 7/c TC XHHW/CPE 12AWG	0	LF		-	-	\$ -	\$ -	\$ -	\$ -
5.6	600V Copper 4/c TC XHHW/CPE 8AWG	0	LF		-	-	\$ -	\$ -	\$ -	\$ -
5.7	Fiber		LF	0.65	-	-	\$ -	\$ -	\$ -	\$ -
5.8							\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ -	\$ -	\$ -	\$ -
6. CONDUIT & CABLE TRENCH										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
6.2	Conduit, PVC, 4", SCH 40	0	LF	11.15	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40	0	LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	0	LF	266.50	53.04	13.26	\$ -	\$ -	\$ -	\$ -
6.7	345kV UG	0	LF	230.08	133.40	55.96	\$ -	\$ -	\$ -	\$ -
6.8	138kV UG	0	LF	-	-	-	\$ -	\$ -	\$ -	\$ -
6.9							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ -	\$ -	\$ -	\$ -
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	0	LF	2.09	3.42	1.46	\$ -	\$ -	\$ -	\$ -
7.2	Caweld, DSA, 4/0 , T, CROSS	0	EA	165.00	75.00		\$ -	\$ -	\$ -	\$ -
7.3	Ground Rod, 3/4" x 15'	0	EA	135.00	67.50	7.50	\$ -	\$ -	\$ -	\$ -
TOTAL - GROUND GRID		-					\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	0	EA	171,028.62	119,720.03	51,308.59	\$ -	\$ -	\$ -	\$ -
8.2	Primary Line Relays (Pilot): SEL-411L	5	EA	41,575.50	33,260.40	8,315.10				\$ -
8.3	Backup Line Relays (Pilot): GE L90	5	EA	41,575.50	33,260.40	8,315.10				\$ -
8.4	Primary Line Relays (87L): SEL-411L	4	EA	21,328.12	17,062.49	4,265.62				\$ -
8.5	Backup Line Relays (87L): GE L90	4	EA	21,328.12	17,062.49	4,265.62				\$ -
8.6	Primary Bay Control: SEL-451	6	EA	21,328.12	17,062.49	4,265.62				\$ -
8.7	Backup Bay Control: SEL-451	6	EA	21,328.12	17,062.49	4,265.62				\$ -
8.8	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	1	EA	21,328.12	17,062.49	4,265.62				\$ -
8.9	Backup Transformer/Reactor/PAR Differential Relays: GE T60	1	EA	21,328.12	17,062.49	4,265.62				\$ -
8.10	Primary Bus Differential Relays: SEL-487B	4	EA	21,328.12	17,062.49	4,265.62				\$ -
8.11	Backup Bus Differential Relays: GE B90	4	EA	21,328.12	17,062.49	4,265.62				\$ -
8.12	RTU Panel A: SEL-2240 Axion, SEL-2730M ENET SW., SEL-2407 GPS	1	EA	12,500.00	10,000.00	2,500.00				\$ -
8.13	RTU Panel B: SEL-2730M Ethernet Switch, SEL-2407 GPS Clock	1	EA	12,500.00	10,000.00	2,500.00				\$ -
8.14	HMI Panel	1	EA	12,500.00	10,000.00	2,500.00				\$ -
8.15	125VDC Battery System	0	LS	5,000.00	22,750.00	9,750.00				\$ -
8.16	Control house AC Panel	0	EA	65,000.00	91,000.00	39,000.00				\$ -
8.17	Control House DC Panel	0	EA	65,000.00	91,000.00	39,000.00				\$ -
8.18	Generator	0	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
TOTAL - CONTROL ENCLOSURE							\$ -	\$ -	\$ -	\$ -
12 -Existing Barrett 138 Kv							\$ -	\$ -	\$ -	\$ -
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		-	-	\$ -	\$ -	\$ -	\$ -
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	-	MO		6,760.00		\$ -	\$ -	\$ -	\$ -
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	4.00	MO		58,933.33		\$ -		\$ -	\$ -
9.4	Utility PM and Project Oversight	-	MO		3,466.67		\$ -	\$ -	\$ -	\$ -
9.5	Site Accommodation, Facilities, Storage	-	MO	-			\$ -	\$ -	\$ -	\$ -
	Engineering									
9.6	Design Engineering	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	4.00	EA		-		\$ -	\$ -	\$ -	\$ -
9.9	Surveying/Staking	1.00	Site		-		\$ -	\$ -	\$ -	\$ -
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
	Permitting and Additional Costs									
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.13	Environmental Mitigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.15	Real Estate Costs (New)	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Legal Fees (Real estate)	1.00	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.17	Legal Fees	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
9.19	Bonds	1	LS		-	\$ -	\$ -	\$ -	\$ -	\$ -
9.20	Sales Tax on Materials	8.80%	LS	-			\$ -	\$ -	\$ -	\$ -
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ -	\$ -	\$ -	\$ -

Propel NY - TO48 BS2

13 - Existing EGC 138 kV Upgrade

Total: \$ 17,743,027

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
13 - Existing EGC 138 kV Upgrade				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 200,855	\$ 251,944	\$ 161,457	\$ 614,256.31
2. SUBSTATION FOUNDATIONS	\$ 537,135	\$ 613,868	\$ 383,668	\$ 1,534,670.41
3. SUBSTATION STRUCTURES	\$ 315,720	\$ 322,886	\$ 264,237	\$ 902,842.50
4. MAJOR EQUIPMENT	\$ 734,667	\$ 198,077	\$ 82,319	\$ 1,015,062.00
5. LOW VOLTAGE & CONTROL CABLE	\$ 61,981	\$ 16,760	\$ 3,352	\$ 82,093.05
6. CONDUIT & CABLE TRENCH	\$ 2,521,988	\$ 1,754,597	\$ 946,873	\$ 5,223,458.40
7. GROUND GRID	\$ 90,966	\$ 65,751	\$ 15,343	\$ 172,059.50
8. CONTROL ENCLOSURE	\$ -	\$ -	\$ -	\$ -
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 488,216	\$ 2,077,871	\$ 419,857	\$ 2,985,944.15
SUBTOTAL (Costs):	\$ 4,951,528	\$ 5,301,753	\$ 2,277,106	\$ 12,530,386
CONTRACTOR MARK-UP (OH&P)	\$ 891,275	\$ 954,316	\$ 409,879	\$ 2,255,470
SUBTOTAL:	\$ 5,842,803	\$ 6,256,069	\$ 2,686,985	\$ 14,785,856
CONTINGENCY ON ENTIRE PROJECT	\$ 1,168,561	\$ 1,251,214	\$ 537,397	\$ 2,957,171.17
TOTAL:	\$ 7,011,363	\$ 7,507,282	\$ 3,224,381	\$ 17,743,027

Description of Work: Upgrades to the existing LIPA East Garden City Substation, Hamlet of Uniondale, Town of Hempstead, Nassau County. The LIPA East Garden City Substation is an existing 138 kV AIS substation with a ten (10) position ring bus configuration. The Solution includes the installation of three (3) air core reactors with by-pass circuit, in series, to the 138 kV lines 138-462,138-465, and 138-463, respectively. Due to current site constraints, the new series reactors will be installed in the property adjacent to the existing station

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST	Comments:
13 - Existing EGC 138 kV Upgrade											
1. SITE PREP/ GRADING/ FENCING / CIVIL											
1.1	Site Clearing	0.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -	The front part of the yard is wooded
1.2	Demolition	1	LS	-	6,000.00	4,000.00	\$ -	\$ 6,000	\$ 4,000	\$ 10,000	Fence removal, trailers removal
1.3	New Access Road - 20'	2,051	SY	4.85	7.20	4.80	\$ 9,945	\$ 14,764	\$ 9,843	\$ 34,552	Interior access road- Assumes Type gravel road. Measure dwg- assume 12" stabilized subbased compacted, with geogrid (8" base & 6" rock cover included in substation base & surfacing )
1.4	Strip and Dispose Top Soil	0	CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -	Assume 1' top soil
1.5	Site Grading- Excavation for Substation Pad	6,423	CY		9.00	6.00	\$ -	\$ 57,811	\$ 38,540	\$ 96,351	Assume excavate avg 2', no rock
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	867	CY		21.00	9.00	\$ -	\$ 18,210	\$ 7,804	\$ 26,015	
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	7,804	CY		2.40	1.60	\$ -	\$ 18,731	\$ 12,487	\$ 31,218	Assume reuse 90% from excavation, truck measure
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	867	CY	25.00	2.40	1.60	\$ 21,679	\$ 2,081	\$ 1,387	\$ 25,148	Assume bring in 10%, truck measure
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -	
1.10	Install substation 8" pad base	0	SY	-	6.00	4.00	\$ -	\$ -	\$ -	\$ -	Estimate based on 8" base
1.11	Site Surfacing - Aggregate 6" Thick	0	SY	8.25	4.50	3.00	\$ -	\$ -	\$ -	\$ -	Estimate based on 6" surface stone. Assume bring in 50% rock, and reuse 50% existing
1.12	7' Station Fence w/ Barbed Wire & Grounding	1,217	LF	13.85	13.85	6.92	\$ 16,853	\$ 16,853	\$ 8,427	\$ 42,133	Perimeter-gates W'. Assume grounding every 100'
1.13	30' Slide Gate & Grounding	0	EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -	Including concrete pad for the doors
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -	Including concrete pad for the doors
1.15	Storm drain-4"&15" HDPE,Seperators, inlets	1	LS	75,203.20	57,600.00	27,180.00	\$ 75,203	\$ 57,600	\$ 27,180	\$ 159,983	Crew 4- 10 hr/day
1.16	Seeding	0	SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -	Assume sod 3:1 slope, 8' all around
1.17	Erosion Control-Silt fence install & remove	1,826	LF	2.41	3.16	0.72	\$ 4,399	\$ 5,769	\$ 1,314	\$ 11,482	Qty based on site perimeter plus 50% rework
1.18	Temporary fencing	1,217	LF	7.50	5.25	2.25	\$ 9,128	\$ 6,389	\$ 2,738	\$ 18,255	Perimeter
1.19	Substation entrance with asphalt	0	SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -	35' wide with asphalt
1.20	Concrete curb	0	LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -	
1.21	Retaining Wall	408	LF	156.00	117.00	117.00	\$ 63,648	\$ 47,736	\$ 47,736	\$ 159,120	
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ 200,855	\$ 251,944	\$ 161,457	\$ 614,256	
2. SUBSTATION FOUNDATIONS											
2.1	345kV, Lightning mast	18	CY	703.89	804.44	502.78	\$ 12,536	\$ 14,327	\$ 8,954	\$ 35,818	(1) @ 17.81cu.yds/str
2.2	345kV, A Frame 70'-one bay	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(4) @ 36.66cu.yds/str
2.3	345kV, A Frame 70'-two bay	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(6) @ 36.66cu.yds/str
2.4	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 7.92cu.yds/str
2.5	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 5.53cu.yds/str
2.6	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 7.92cu.yds/str
2.7	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 6.6cu.yds/str
2.8	345kV, GIS fast acting GND SW	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 4.06cu.yds/str
2.9	345kV, GIS to air bushing	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 6.06cu.yds/str
2.10	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 4.06cu.yds/str
2.11	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 6.6cu.yds/str
2.12	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 6.06cu.yds/str
2.13	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 6.6cu.yds/str
2.14	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 5.35cu.yds/str
2.15	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(4) @ 7.92cu.yds/str



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST	Comments:
2.16	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 328cu.yds/str
2.17	345kV, Shunt Reactor with oil containment-300MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 305cu.yds/str
2.18	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 305cu.yds/str
2.19	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 126cu.yds/str
2.20	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 445cu.yds/str
2.21	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 20cu.yds/str
2.22	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 20cu.yds/str
2.23	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 232cu.yds/str
2.24	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 154cu.yds/str
2.25	138kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 4.45cu.yds/str
2.26	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(2) @ 5.35cu.yds/str
2.27	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 4.06cu.yds/str
2.28	138kV, Disconnect Switch	73	CY	703.89	804.44	502.78	\$ 51,187	\$ 58,499	\$ 36,562	\$ 146,247	(4) @ 6.06cu.yds/str
2.29	138kV, Cable sealing end	109	CY	703.89	804.44	502.78	\$ 76,780	\$ 87,748	\$ 54,843	\$ 219,371	(2) @ 6.06cu.yds/str
2.30	138kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 5.35cu.yds/str
2.29	138kV, Air core reactors (3 Ph)	249	CY	703.89	804.44	502.78	\$ 175,204	\$ 200,233	\$ 125,146	\$ 500,583	(1) @ 82.97cu.yds/str
2.30	138kV, Surge arrester	96	CY	703.89	804.44	502.78	\$ 67,784	\$ 77,468	\$ 48,417	\$ 193,669	(1) @ 5.35cu.yds/str
2.31	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(4) @ 18.19cu.yds/str
2.32	138kV, H Frame	218	CY	703.89	804.44	502.78	\$ 153,644	\$ 175,593	\$ 109,746	\$ 438,983	(2) @ 18.19cu.yds/str
2.33	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(5) @ 7.92cu.yds/str
2.34	Precast Firewall for transformer, PARs, reactors	-	SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -	Assume 30' H
2.35	Precast Concrete Piles-12"X80'	-	EA	18,000.00	3,200.00	2,800.00	\$ -	\$ -	\$ -	\$ -	
2.36	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -	(1) @ 0.75cu.yds/str
TOTAL - 345KV FOUNDATION							\$ 537,135	\$ 613,868	\$ 383,668	\$ 1,534,670	
3. SUBSTATION STRUCTURES											
3.1	345kV, Lightning mast	1	EA	23,400.00	14,040.00	9,360.00	\$ 23,400	\$ 14,040	\$ 9,360	\$ 46,800	
3.2	345kV, A Frame 70'-one bay	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -	
3.3	345kV, A Frame 70'-two bay	0	EA	86,580.00	51,948.00	34,632.00	\$ -	\$ -	\$ -	\$ -	
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -	
3.4	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -	
3.5	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -	
3.6	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -	
3.3	345kV, GIS fast acting GND SW	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -	
3.3	345kV, GIS to air bushing	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -	
3.4	345kV, GIS support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -	
3.5	345kV, GIS support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -	
3.6	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -	
3.3	345kV, Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -	
3.3	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -	
3.4	345kV, Disconnect Switch	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -	
3.5	138kV, Bus support-3 Ph, low	0	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -	
3.6	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -	
3.3	138kV, Disconnect Switch	3	EA	-	-	-	\$ -	\$ -	\$ -	\$ -	
3.3	138kV, Cable sealing end	9	EA	4,810.00	2,886.00	1,924.00	\$ 43,290	\$ 25,974	\$ 17,316	\$ 86,580	
3.4	138kV, CCVT	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -	
3.5	138kV, Surge arrester	18	EA	4,810.00	2,886.00	1,924.00	\$ 86,580	\$ 51,948	\$ 34,632	\$ 173,160	
3.6	138kV, A Frame 50'	0	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -	
3.3	138kV, H Frame	6	EA	21,450.00	12,870.00	17,160.00	\$ 128,700	\$ 77,220	\$ 102,960	\$ 308,880	
3.3	AL. Bus Tubing, 5" SCH 80	750	LF	25.00	184.94	123.29	\$ 18,750	\$ 138,704	\$ 92,469	\$ 249,923	
3.4	AL. Bus fittings	1	LS	15,000.00	15,000.00	7,500.00	\$ 15,000	\$ 15,000	\$ 7,500	\$ 37,500	
3.5	Steel grating and support beams-transformer moat	0	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -	
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 315,720	\$ 322,886	\$ 264,237	\$ 902,843	
4. MAJOR EQUIPMENT											
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -	
4.2	345kV, GIS fast acting GND SW	0	EA				\$ -	\$ -	\$ -	\$ -	
4.3	345kV, GIS to air bushing	0	EA				\$ -	\$ -	\$ -	\$ -	
4.4	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -	
4.5	345kV, Cable sealing end	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -	
4.6	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -	
4.7	345kV, Disconnect Switch	0	EA		7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -	
4.8	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -	
4.9	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -	
4.10	345kV, Shunt Reactor with oil containment-300MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -	
4.11	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -	
4.12	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -	
4.13	Transport & Testing- Shunt Reactor	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -	
4.14	345kV, Phase Angle Regulator with oil containment	0	EA				\$ -	\$ -	\$ -	\$ -	
4.15	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -	
4.16	345kV, Circuit Breaker (GIS), outdoor rated	0	EA				\$ -	\$ -	\$ -	\$ -	
4.17	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -	
4.18	345kV, surge Arrester	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -	
4.19	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -	
4.20	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -	
4.21	138kV, Circuit Breaker (PASS)	0	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -	
4.22	138kV, Disconnect Switch	3	EA	37,700.00	11,875.50	5,089.50	\$ 113,100	\$ 35,627	\$ 15,269	\$ 163,995	
4.23	138kV, Cable sealing end	27	EA	4,446.00	1,050.00	450.00	\$ 120,042	\$ 28,350	\$ 12,150	\$ 160,542	
4.24	138kV, CCVT	0	EA	10,000.00	7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -	
4.25	138kV, Air core reactors (3 Ph)	9	EA	46,833.00	6,500.00	2,500.00	\$ 421,497	\$ 58,500	\$ 22,500	\$ 502,497	
4.26	138kV, Surge arrester	18	EA	4,446.00	4,200.00	1,800.00	\$ 80,028	\$ 75,600	\$ 32,400	\$ 188,028	

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST	Comments:
4.27	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -	
4.28	345kV Gas-Insulated Bus Conductor		LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -	
4.29	345kV Gas-Insulated Bus Conductor-elbow		EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -	
TOTAL - MAJOR EQUIPMENT							\$ 734,667	\$ 198,077	\$ 82,319	\$ 1,015,062	
5. LOW VOLTAGE & CONTROL CABLE											
5.1	Control cables	11,700	LF	5.30	1.43	0.29	\$ 61,981	\$ 16,760	\$ 3,352	\$ 82,093	
5.2			LF		-	-	\$ -	\$ -	\$ -	\$ -	
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 61,981	\$ 16,760	\$ 3,352	\$ 82,093	
6. CONDUIT & CABLE TRENCH											
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -	
6.2	Conduit, PVC, 4", SCH 40	1,800	LF	11.15	10.80	5.40	\$ 20,070	\$ 19,440	\$ 9,720	\$ 49,230	
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -	
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -	
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -	
6.6	Cable Trench	850	LF	266.50	53.04	13.26	\$ 226,525	\$ 45,084	\$ 11,271	\$ 282,880	
6.7	138kV UG- Conduit	3,700	LF	81.00	107.00	57.00	\$ 299,700	\$ 395,900	\$ 210,900	\$ 906,500	
6.8	138kV UG- Cable	11,100	LF	156.00	94.00	62.00	\$ 1,731,600	\$ 1,043,400	\$ 688,200	\$ 3,463,200	
6.9	138kV UG- Termination	18	EA	9,360.00	11,700.00		\$ 168,480	\$ 210,600	\$ -	\$ 379,080	
6.10	Fiber Optic Cable	3,700	LF	7.40	3.33	2.22	\$ 27,369	\$ 12,323	\$ 8,215	\$ 47,908	
6.11	Ground Continuity Conductor	3,700	LF	13.04	7.53	5.02	\$ 48,244	\$ 27,850	\$ 18,567	\$ 94,661	
TOTAL - CONDUIT & CABLE TRENCH							\$ 2,521,988	\$ 1,754,597	\$ 946,873	\$ 5,223,458	
7. GROUND GRID											
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	9,350	LF	2.09	3.42	1.46	\$ 19,551	\$ 31,933	\$ 13,686	\$ 65,170	
7.2	Caweld, DSA, 4/0 , T, CROSS	252	EA	165.00	75.00		\$ 41,580	\$ 18,900	\$ -	\$ 60,480	
7.3	Ground Rod, 3/4" x 15'	221	EA	135.00	67.50	7.50	\$ 29,835	\$ 14,918	\$ 1,658	\$ 46,410	
TOTAL - GROUND GRID							\$ 90,966	\$ 65,751	\$ 15,343	\$ 172,060	
8. CONTROL ENCLOSURE											
8.1	345/138kV Control Bldg	0	EA				\$ -	\$ -	\$ -	\$ -	
8.2	Primary Bay Control: SEL-451		EA				\$ -	\$ -	\$ -	\$ -	
8.3	Backup Bay Control: SEL-451		EA				\$ -	\$ -	\$ -	\$ -	
8.4	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E		EA				\$ -	\$ -	\$ -	\$ -	
8.5	Backup Transformer/Reactor/PAR Differential Relays: GE T60		EA				\$ -	\$ -	\$ -	\$ -	
8.13	125VDC Battery System	0	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -	
8.14	Control house AC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -	
8.15	Control House DC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -	
8.16	Generator	0	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -	
TOTAL - CONTROL ENCLOSURE							\$ -	\$ -	\$ -	\$ -	
13 - Existing EGC 138 kV_ Upgrade							\$ 4,463,312	\$ 3,223,882	\$ 1,857,249	\$ 9,544,442	Total Direct Costs
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS											
	Contractor Mobilization / Demobilization										
9.1	Mob / Demob	1.0	LS		177,839.56	76,216.96	\$ -	\$ 177,840	\$ 76,217	\$ 254,057	5% of LA+EQ
	Project Management, Material Handling & Amenities										
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		95,444.42		\$ -	\$ 95,444	\$ -	\$ 95,444	Assumes PM, Scheduler/Project Controls and a Cost Estimator will support pre-con stage full time.
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		381,777.69		\$ -	\$ 381,778	\$ -	\$ 381,778	Include all PM Staff, Per Diems, Vehicles and Expenses for construction/close out.
9.4	Utility PM and Project Oversight	1.0	LS		95,444.42		\$ -	\$ 95,444	\$ -	\$ 95,444	
9.5	Site Accommodation, Facilities, Storage	1.0	LS	95,444.42			\$ 95,444	\$ -	\$ -	\$ 95,444	
	Engineering										
9.6	Design Engineering	1.00	LS		763,555.37		\$ -	\$ 763,555	\$ -	\$ 763,555	
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -	
9.8	Geotech	2.00	EA		2,730.00	1,820.00	\$ -	\$ 5,460	\$ 3,640	\$ 9,100	
9.9	Surveying/Staking	1.00	Site		66,811.10		\$ -	\$ 66,811	\$ -	\$ 66,811	
	Testing & Commissioning										
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		357,916.58		\$ -	\$ 357,917	\$ -	\$ 357,917	
	Permitting and Additional Costs										
9.11	Physical Security		LS		6,546.96		\$ -	\$ -	\$ -	\$ -	6P-6A, Sun&Sat all day. Security guard rate avg in NJ \$14.72/HR, used \$18
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		95,444.42		\$ -	\$ 95,444	\$ -	\$ 95,444	
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -	
9.14	Warranties / LOC's	1.00	LS		28,633.33		\$ -	\$ 28,633	\$ -	\$ 28,633	
9.15	Laydown Lease	1.00	LS		-		\$ -	\$ -	\$ -	\$ -	
9.16	Real Estate ( Acquisition)	-	LS				\$ -	\$ -	\$ -	\$ -	See Ex EGC 345kv tab
9.17	Legal Fees (Real estate)	-	LS		-	-	\$ -	\$ -	\$ -	\$ -	3% of the real estate cost
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -	The estimate does not include cost for insurance, assume it will be provided by he owner (i.e. OCIP)
9.19	Bonds	1	LS		-	\$ 340,000	\$ -	\$ -	\$ 340,000	\$ 340,000	2% based on contract value
9.20	Sales Tax on Materials	8.80%	LS	4,463,311.81			\$ 392,771	\$ -	\$ -	\$ 392,771	8.8%
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		9,544.44		\$ -	\$ 9,544	\$ -	\$ 9,544	
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 488,216	\$ 2,077,871	\$ 419,857	\$ 2,985,944	

Propel NY - TO53 AS7

14 -Existing Lake Success 138 kV Upgrade

Total: \$ 24,220,111

Propel NY - TO53 AS7				
	Material Supply	Labor Supply	Equip Supply	Total
14 -Existing Lake Success 138 kV_ Upgrade				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ 30,000	\$ 20,000	\$ 50,000.00
2. SUBSTATION FOUNDATIONS	\$ 390,817	\$ 238,191	\$ 158,469	\$ 787,476.80
3. SUBSTATION STRUCTURES	\$ 200,032	\$ 217,657	\$ 129,933	\$ 547,622.51
4. MAJOR EQUIPTMENT	\$ 10,717,905	\$ 378,796	\$ 244,570	\$ 11,341,270.00
5. LOW VOLTAGE & CONTROL CABLE	\$ 19,071	\$ 5,157	\$ 1,031	\$ 25,259.40
6. CONDUIT & CABLE TRENCH	\$ 8,363	\$ 8,100	\$ 4,050	\$ 20,512.50
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE	\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312.46
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 1,129,913	\$ 2,613,233	\$ 503,999	\$ 4,247,144.79
SUBTOTAL (Costs):	\$ 12,508,756	\$ 3,525,258	\$ 1,070,584	\$ 17,104,598
CONTRACTOR MARK-UP (OH&P)	\$ 2,251,576	\$ 634,546	\$ 192,705	\$ 3,078,828
SUBTOTAL:	\$ 14,760,333	\$ 4,159,805	\$ 1,263,289	\$ 20,183,426
CONTINGENCY ON ENTIRE PROJECT	\$ 2,952,067	\$ 831,961	\$ 252,658	\$ 4,036,685.24
TOTAL:	\$ 17,712,399	\$ 4,991,765	\$ 1,515,947	\$ 24,220,111

Description of Work: Upgrades to the existing LIPA Lake Success Substation, located in the Hamlet of North New Hyde Park, Town of North Hempstead, Nassau County. Lake Success Substation is an existing 138 kV AIS substation with a main-tie-main configuration. The Solution includes replacing removal of the existing Jamaica 903 Line 138 kV PAR and installation of a new, higher capacity PAR and installing a oil-filled shunt reactor

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
14 -Existing Lake Success 138 kV_ Upgrade										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	0.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition	1	LS	-	30,000.00	20,000.00	\$ -	\$ 30,000	\$ 20,000	\$ 50,000
1.3	New Access Road - 20'	0	SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil	0	CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad	0	CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	0	CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	0	CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	0	CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	0	SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick	0	SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding	0	LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	20' Slide Gate & Grounding	0	EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE,	0	LS	-	-	-	\$ -	\$ -	\$ -	\$ -
1.16	Seeding	0	SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove	0	LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing	0	LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt	0	SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb	0	LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall	0	LF	156.00	117.00	117.00	\$ -	\$ -	\$ -	\$ -
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ -	\$ 30,000	\$ 20,000	\$ 50,000
2. SUBSTATION FOUNDATIONS										
2.1	345kV, Lightning mast	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
2.2	345kV, A Frame 70'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.4	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.5	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, GIS fast acting GND SW	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS to air bushing	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.15	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.20	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	138kV, Phase Angle Regulator with oil containment	154	CY	703.89	804.44	502.78	\$ 108,398	\$ 123,884	\$ 77,427	\$ 309,709
2.23	138kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.24	138kV, Bus support-3 Ph, low	21	CY	703.89	804.44	502.78	\$ 15,063	\$ 17,215	\$ 10,759	\$ 43,038
2.25	138kV, Bus support-1 Ph, low	49	CY	703.89	804.44	502.78	\$ 34,293	\$ 39,192	\$ 24,495	\$ 97,981
2.26	138kV, Disconnect Switch	24	CY	703.89	804.44	502.78	\$ 17,062	\$ 19,500	\$ 12,187	\$ 48,749
2.27	138kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.28	138kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	138kV, Air core reactors (3 Ph)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	138kV, Surge arrester	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.31	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.32	138kV, H Frame	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.33	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.34	Precast Firewall for transformer, PARs, reactors		SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -
2.35	Precast Concrete Piles-12"X80'	12	EA	18,000.00	3,200.00	2,800.00	\$ 216,000	\$ 38,400	\$ 33,600	\$ 288,000
2.36	Local Control Cabinet foundation		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ 390,817	\$ 238,191	\$ 158,469	\$ 787,477
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	0	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	138kV, Bus support-3 Ph, low	2	EA	4,173.00	2,879.76	1,919.84	\$ 8,346	\$ 5,760	\$ 3,840	\$ 17,945
3.16	138kV, Bus support-1 Ph, low	12	EA	2,782.00	1,919.84	1,279.89	\$ 33,384	\$ 23,038	\$ 15,359	\$ 71,781
3.17	138kV, Disconnect Switch	1	EA	5,694.00	3,928.86	2,619.24	\$ 5,694	\$ 3,929	\$ 2,619	\$ 12,242
3.18	138kV, Cable sealing end	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.19	138kV, CCVT	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.20	138kV, Surge arrester	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.21	138kV, A Frame 50'	0	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.22	138kV, H Frame	0	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.25	AL. Bus Tubing, 5" SCH 80	625	LF	25.00	184.94	123.29	\$ 15,625	\$ 115,586	\$ 77,058	\$ 208,269
3.26	AL. Bus fittings	1	LS	18,750.00	18,750.00	9,375.00	\$ 18,750	\$ 18,750	\$ 9,375	\$ 46,875
3.27	Steel grating and support beams-transformer moat	43,280	LB	2.73	1.17	0.50	\$ 118,233	\$ 50,594	\$ 21,683	\$ 190,511
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 200,032	\$ 217,657	\$ 129,933	\$ 547,623

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
4. MAJOR EQUIPTMENT										
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	0	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch	0	EA		7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	0	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	0	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, surge Arrester	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.18	138kV, Phase Angle Regulator with oil containment	1	EA	10,680,205.00	3,520.00	880.00	\$ 10,680,205	\$ 3,520	\$ 880	\$ 10,684,605
4.19	Transport & Testing- Phase Angle Regulating Transformer, 138kv	1	EA		363,400.00	238,600.00	\$ -	\$ 363,400	\$ 238,600	\$ 602,000
4.20	138kV, Circuit Breaker (PASS)	0	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Disconnect Switch	1	EA	37,700.00	11,875.50	5,089.50	\$ 37,700	\$ 11,876	\$ 5,090	\$ 54,665
4.22	138kV, Cable sealing end	0	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.23	138kV, CCVT	0	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.24	138kV, Air core reactors (3 Ph)	0	EA				\$ -	\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	0	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.26	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
4.27	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
4.28	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ 10,717,905	\$ 378,796	\$ 244,570	\$ 11,341,270

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
<b>5. LOW VOLTAGE &amp; CONTROL CABLE</b>										
5.1	Control cables	3,600	LF	5.30	1.43	0.29	\$ 19,071	\$ 5,157	\$ 1,031	\$ 25,259
5.2			LF		-	-	\$ -	\$ -	\$ -	\$ -
<b>TOTAL - LOW VOLTAGE &amp; CONTROL CABLE</b>							\$ 19,071	\$ 5,157	\$ 1,031	\$ 25,259
<b>6. CONDUIT &amp; CABLE TRENCH</b>										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	750	LF	11.15	10.80	5.40	\$ 8,363	\$ 8,100	\$ 4,050	\$ 20,513
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench	0	LF	266.50	53.04	13.26	\$ -	\$ -	\$ -	\$ -
<b>TOTAL - CONDUIT &amp; CABLE TRENCH</b>							\$ 8,363	\$ 8,100	\$ 4,050	\$ 20,513
<b>7. GROUND GRID</b>										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor		LF	2.09	3.42	1.46	\$ -	\$ -	\$ -	\$ -
7.2	Caweld, DSA, 4/0 , T, CROSS		EA	165.00	75.00		\$ -	\$ -	\$ -	\$ -
7.3	Ground Rod, 3/4" x 15'		EA	135.00	67.50	7.50	\$ -	\$ -	\$ -	\$ -
<b>TOTAL - GROUND GRID</b>		-					\$ -	\$ -	\$ -	\$ -
<b>8. CONTROL ENCLOSURE</b>										
8.1	345/138kV Control Bldg	0	EA	171,028.62	119,720.03	51,308.59	\$ -	\$ -	\$ -	\$ -
8.2	Primary Line Relays (87L): SEL-411L	0	EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.3	Backup Line Relays (87L): GE L90	0	EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.4	Primary Bay Control: SEL-451	0	EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.5	Backup Bay Control: SEL-451	0	EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.6	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.7	Backup Transformer/Reactor/PAR Differential Relays: GE T60	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.8	125VDC Battery System	0	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.9	Control house AC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.10	Control House DC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.11	Generator	0	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
<b>TOTAL - CONTROL ENCLOSURE</b>							\$ 42,656	\$ 34,125	\$ 8,531	\$ 85,312
<b>14 -Existing Lake Success 138 kV_ Upgrade</b>							\$ 11,378,844	\$ 912,025	\$ 566,585	\$ 12,857,454
<b>9. MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS</b>										
	<b>Contractor Mobilization / Demobilization</b>									
9.1	Mob / Demob	1.0	LS		51,751.35	22,179.15	\$ -	\$ 51,751	\$ 22,179	\$ 73,930
	<b>Project Management, Material Handling &amp; Amenities</b>									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		128,574.54		\$ -	\$ 128,575	\$ -	\$ 128,575
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		514,298.15		\$ -	\$ 514,298	\$ -	\$ 514,298
9.4	Utility PM and Project Oversight	1.0	LS		128,574.54		\$ -	\$ 128,575	\$ -	\$ 128,575
9.5	Site Accommodation, Facilities, Storage	1.0	LS	128,574.54			\$ 128,575	\$ -	\$ -	\$ 128,575
	<b>Engineering</b>									
9.6	Design Engineering	1.00	LS		1,028,596.29		\$ -	\$ 1,028,596	\$ -	\$ 1,028,596
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	1.00	EA		2,730.00	1,820.00	\$ -	\$ 2,730	\$ 1,820	\$ 4,550
9.9	Surveying/Staking	1.00	Site		90,002.18		\$ -	\$ 90,002	\$ -	\$ 90,002
	<b>Testing &amp; Commissioning</b>									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		482,154.51		\$ -	\$ 482,155	\$ -	\$ 482,155
	<b>Permitting and Additional Costs</b>									
9.11	Physical Security	1.00	LS		6,546.96		\$ -	\$ 6,547	\$ -	\$ 6,547
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		128,574.54		\$ -	\$ 128,575	\$ -	\$ 128,575
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		38,572.36		\$ -	\$ 38,572	\$ -	\$ 38,572
9.15	Laydown Lease	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	-	LS				\$ -	\$ -	\$ -	\$ -
9.17	Legal Fees (Real estate)	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 480,000	\$ -	\$ -	\$ 480,000	\$ 480,000
9.20	Sales Tax on Materials	8.80%	LS	11,378,843.67			\$ 1,001,338	\$ -	\$ -	\$ 1,001,338
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		12,857.45		\$ -	\$ 12,857	\$ -	\$ 12,857
<b>TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS:</b>							\$ 1,129,913	\$ 2,613,233	\$ 503,999	\$ 4,247,145



Propel NY - TO48 BS2

15 - Existing Rainey 345 kV Upgrade

Total: \$ 5,182,771

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
15 - Existing Rainey 345 kV_ Upgrade				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ 90,000	\$ 60,000	\$ 150,000
2. SUBSTATION FOUNDATIONS	\$ 136,155	\$ 51,378	\$ 36,911	\$ 224,444
3. SUBSTATION STRUCTURES	\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT	\$ 1,960,000	\$ 114,478	\$ 49,062	\$ 2,123,540
5. LOW VOLTAGE & CONTROL CABLE	\$ 41,321	\$ 11,174	\$ 2,235	\$ 54,729
6. CONDUIT & CABLE TRENCH	\$ 13,380	\$ 12,960	\$ 6,480	\$ 32,820
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 224,344	\$ 568,027	\$ 111,620	\$ 903,991
SUBTOTAL (Costs):	\$ 2,460,513	\$ 916,266	\$ 283,370	\$ 3,660,149
CONTRACTOR MARK-UP (OH&P)	\$ 442,892	\$ 164,928	\$ 51,007	\$ 658,827
SUBTOTAL:	\$ 2,903,405	\$ 1,081,194	\$ 334,377	\$ 4,318,976
CONTINGENCY ON ENTIRE PROJECT	\$ 580,681	\$ 216,239	\$ 66,875	\$ 863,795.11
TOTAL:	\$ 3,484,086	\$ 1,297,433	\$ 401,252	\$ 5,182,771

Description of Work: Upgrades to the existing Con Edison Rainey Substation, located in the Borough of Queens, City of New York, Queens County. The Rainey Substation is an existing 345 kV AIS substation configured with a six (6) line position ring bus tied with an eight (8) line position ring bus in the same yard. The Solution includes the addition of a new breaker in series with the existing 345 kV CB -1E, providing an additional contingency level.

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
15 - Existing Rainey 345 kV_ Upgrade										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	0.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition	1	LS	-	90,000.00	60,000.00	\$ -	\$ 90,000	\$ 60,000	\$ 150,000
1.3	New Access Road - 20'	0	SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil	0	CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad	0	CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	0	CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	0	CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	0	CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	0	SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick	0	SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding	0	LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	20' Slide Gate & Grounding	0	EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate	0	EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE,	0	LS	40,089.60	-	-	\$ -	\$ -	\$ -	\$ -
1.16	Seeding	0	SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove	0	LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing	0	LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt	0	SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb	0	LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall	0	LF	156.00	117.00	117.00	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ -	\$ 90,000	\$ 60,000	\$ 150,000
2. SUBSTATION FOUNDATIONS										
2.1	345kV, Lightning mast	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, A Frame 70'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.4	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.5	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345kV, GIS air terminal	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, GIS fast acting GND SW	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS to air bushing	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.15	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345kV, Circuit Breaker (PASS)	40	CY	703.89	804.44	502.78	\$ 28,155	\$ 32,178	\$ 20,111	\$ 80,444
2.20	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.23	138kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.24	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.25	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	138kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.27	138kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.28	138kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.31	Precast Firewall for transformer, PARs, reactors	-	SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -
2.32	Precast Concrete Piles-12"X80'	6	EA	18,000.00	3,200.00	2,800.00	\$ 108,000	\$ 19,200	\$ 16,800	\$ 144,000
2.33	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.34	Steel grating and support beams-transformer moat	0	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ 136,155	\$ 51,378	\$ 36,911	\$ 224,444
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	0	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	138kV, Bus support-3 Ph, low	0	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Disconnect Switch	0	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Cable sealing end	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.19	138kV, CCVT	0	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.20	138kV, A Frame 50'	0	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.21	345kV Gas-Insulated Bus Conductor	0	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
3.22	345kV Gas-Insulated Bus Conductor-elbow	0	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
3.23	AL. Bus Tubing, 5" SCH 80	0	LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -
3.24	AL. Bus fittings	0	LS	-	-	-	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	0	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch	0	EA		7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	0	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	2	EA	980,000.00	57,239.00	24,531.00	\$ 1,960,000	\$ 114,478	\$ 49,062	\$ 2,123,540
4.15	345kV, Circuit Breaker (GIS), outdoor rated	0	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester ( 3phase)	0	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, surge Arrester	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.18	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.19	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.20	138kV, Circuit Breaker (PASS)	0	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Disconnect Switch	0	EA		3,958.50	1,696.50	\$ -	\$ -	\$ -	\$ -
4.22	138kV, Cable sealing end	0	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.23	138kV, CCVT	0	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.24	138kV, Surge arrester	0	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.25	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ 1,960,000	\$ 114,478	\$ 49,062	\$ 2,123,540
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables	7,800	LF	5.30	1.43	0.29	\$ 41,321	\$ 11,174	\$ 2,235	\$ 54,729
5.2			LF	5.30	1.43	0.29	\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 41,321	\$ 11,174	\$ 2,235	\$ 54,729

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL COST
<b>6. CONDUIT &amp; CABLE TRENCH</b>										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40	1,200	LF	11.15	10.80	5.40	\$ 13,380	\$ 12,960	\$ 6,480	\$ 32,820
6.3	Conduit, PVC, 3", SCH 40		LF	8.10	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.4	Conduit, PVC, 2", SCH 40		LF	3.95	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.5	Conduit, PVC, 1", SCH 40		LF	1.90	10.80	5.40	\$ -	\$ -	\$ -	\$ -
6.6	Cable Trench		LF	266.50	53.04	13.26	\$ -	\$ -	\$ -	\$ -
6.7	345kv UG	0	LF	230.08	133.40	55.96	\$ -	\$ -	\$ -	\$ -
6.8	138kv UG	0	LF	-	-	-	\$ -	\$ -	\$ -	\$ -
6.9							\$ -	\$ -	\$ -	\$ -
<b>TOTAL - CONDUIT &amp; CABLE TRENCH</b>							\$ 13,380	\$ 12,960	\$ 6,480	\$ 32,820
<b>7. GROUND GRID</b>										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	0	LF	2.09	3.42	1.46	\$ -	\$ -	\$ -	\$ -
7.2	Caweld, DSA, 4/0 , T, CROSS	0	EA	165.00	75.00		\$ -	\$ -	\$ -	\$ -
7.3	Ground Rod, 3/4" x 15'	0	EA	135.00	67.50	7.50	\$ -	\$ -	\$ -	\$ -
<b>TOTAL - GROUND GRID</b>							\$ -	\$ -	\$ -	\$ -
<b>8. CONTROL ENCLOSURE</b>										
8.1	345/138kv Control Bldg	0	EA	171,028.62	119,720.03	51,308.59	\$ -	\$ -	\$ -	\$ -
8.2	Primary Bay Control: SEL-451	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.3	Backup Bay Control: SEL-451	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.4	Primary Bus Differential Relays: SEL-487B	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.5	Backup Bus Differential Relays: GE B90	1	EA	21,328.12	17,062.49	4,265.62	\$ 21,328	\$ 17,062	\$ 4,266	\$ 42,656
8.5	125VDC Battery System	0	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.6	Control house AC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.7	Control House DC Panel	0	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.8	Generator	0	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
<b>TOTAL - CONTROL ENCLOSURE</b>							\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
<b>15 - Existing Rainey 345 kv_ Upgrade</b>							\$ 2,236,168	\$ 348,239	\$ 171,750	\$ 2,756,158
<b>9. MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS</b>										
	<b>Contractor Mobilization / Demobilization</b>									
9.1	Mob / Demob	1.0	LS		18,199.62	7,799.84	\$ -	\$ 18,200	\$ 7,800	\$ 25,999
	<b>Project Management, Material Handling &amp; Amenities</b>									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		27,561.58		\$ -	\$ 27,562	\$ -	\$ 27,562
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		110,246.30		\$ -	\$ 110,246	\$ -	\$ 110,246
9.4	Utility PM and Project Oversight	1.0	LS		27,561.58		\$ -	\$ 27,562	\$ -	\$ 27,562
9.5	Site Accommodation, Facilities, Storage	1.0	LS	27,561.58			\$ 27,562	\$ -	\$ -	\$ 27,562
	<b>Engineering</b>									
9.6	Design Engineering	1.00	LS		220,492.61		\$ -	\$ 220,493	\$ -	\$ 220,493
9.7	LIDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	1.00	EA		2,730.00	1,820.00	\$ -	\$ 2,730	\$ 1,820	\$ 4,550
9.9	Surveying/Staking	1.00	Site		19,293.10		\$ -	\$ 19,293	\$ -	\$ 19,293
	<b>Testing &amp; Commissioning</b>									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		103,355.91		\$ -	\$ 103,356	\$ -	\$ 103,356
	<b>Permitting and Additional Costs</b>									
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		27,561.58		\$ -	\$ 27,562	\$ -	\$ 27,562
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
0	Warranties / LOC's	1.00	LS		8,268.47		\$ -	\$ 8,268	\$ -	\$ 8,268
9.15	Laydown Lease	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate ( Acquisition)	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.17	Legal Fees (Real estate)	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 102,000	\$ -	\$ -	\$ 102,000	\$ 102,000
9.20	Sales Tax on Materials	8.80%	LS	2,236,168.36			\$ 196,783	\$ -	\$ -	\$ 196,783
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		2,756.16		\$ -	\$ 2,756	\$ -	\$ 2,756
<b>TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS:</b>							\$ 224,344	\$ 568,027	\$ 111,620	\$ 903,991

Propel NY - TO48 BS2

BS2.1 Barrett to Tremont 345kV Onshore UG Cables -single circuit

Total:   \$    563,380,100

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
BS2.1 Barrett to Tremont 345kV Onshore UG Cables -single circuit				
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT	\$       6,350,848	\$       31,142,829	\$       12,500,819	\$       49,994,496
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION	\$       43,763,287	\$       49,728,024	\$       36,901,086	\$       130,392,396
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION	\$       68,716,802	\$       41,446,477	\$       26,899,532	\$       137,062,812
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$       13,726,684	\$       50,000,555	\$       16,690,360	\$       80,417,599
SUBTOTAL (Costs):	\$       132,557,621	\$       172,317,884	\$       92,991,797	\$       397,867,302
CONTRACTOR MARK-UP (OH&P)	\$       23,860,372	\$       31,017,219	\$       16,738,523	\$       71,616,114
SUBTOTAL:	\$       156,417,993	\$       203,335,104	\$       109,730,321	\$       469,483,417
CONTINGENCY ON ENTIRE PROJECT	\$       31,283,599	\$       40,667,021	\$       21,946,064	\$       93,896,683
TOTAL:	\$       187,701,591	\$       244,002,124	\$       131,676,385	\$       563,380,100

Description of Work: 345 kV electric underground transmission line extending from the Barrett Substation in the Hamlet of Oceanside in the Town of Hempstead in Nassau County to the Tremont Substation in the Bronx, New York City, Bronx County. The proposed route will be approximately 25.7 miles, utilizing 4000kcmil XLPE cable for the onshore portions of the route and 5000kcmil cable in a marine crossing by Horizontal Directional Drill (“HDD”) or equivalent trenchless technique. Please see the Design Basis Manual, Attachment B.1.1, for more details. Three counties, one city, one town, and three villages will be traversed between the two substations. The proposed route starts in the Hamlet of Oceanside in the Town of Hempstead in Nassau County traveling north through the Villages of Rockville Centre and Lynbrook. The proposed route travels through into the Village of Valley Stream before entering the Borough of Queens, City of New York, Queens County. The proposed route passes a vacant property in the area of 180th Street and Brinkerhoff Avenue, which may allow for future expansion, such as the 6,000MW expansion. In this Solution the Y-51 circuit will be interconnected into the new Eastern Queens Substation. The proposed route will exit Queens County into the Borough of the Bronx, City of New York, Bronx County as it crosses the East River. Once in Bronx County, the proposed route will travel north and west to terminate at Tremont Substation

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
BS2.1 Barrett to Tremont 345kV Onshore UG Cables -single circuit										
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT										
1.1	Environmental BMPs / SWPPP Installation, Maintenance & Repairs	0	LF	\$       -	\$       -	\$       -	\$       -	\$       -	\$       -	\$       -
1.2	Existing Utility Conflict and Relocation	25.72	Mile		\$       700,000	\$       300,000	\$       -	\$       18,004,000	\$       7,716,000	\$       25,720,000
1.3	Flaggers	780	DAY	\$       1,600	\$       4,800	\$       1,600	\$       1,248,000	\$       3,744,000	\$       1,248,000	\$       6,240,000
1.4	K Rail / Lane Control / Metal Plates	135,802	LF	\$       30	\$       18	\$       12	\$       4,074,048	\$       2,444,429	\$       1,629,619	\$       8,148,096
1.5	Police Support	31,200.0	HR		\$       120	\$       27	\$       -	\$       3,744,000	\$       842,400	\$       4,586,400
1.6	Additional Traffic Management		LS				\$       -	\$       -	\$       -	\$       -
1.7	Access / Clearing Costs		LS				\$       -	\$       -	\$       -	\$       -
1.8	Snow Removal	120.0	DAY		\$       1,000	\$       300	\$       -	\$       120,000	\$       36,000	\$       156,000
1.9	Existing Utility Protection	25.72	Mile	\$       40,000	\$       120,000	\$       40,000	\$       1,028,800	\$       3,086,400	\$       1,028,800	\$       5,144,000
TOTAL - SITE PREP/ACCESS/TRAFFIC MANAGEMENT/ ACCESS:							\$       6,350,848	\$       31,142,829	\$       12,500,819	\$       49,994,496
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION										
2.1	Trench Box Shoring & Trench Box Install Crew	25.72	Miles		\$       139,800	\$       93,200	\$       -	\$       3,595,656	\$       2,397,104	\$       5,992,760
2.2	Formwork in Trench	981,845	SF	\$       2	\$       1.5	\$       0.5	\$       1,963,690	\$       1,472,767	\$       490,922	\$       3,927,379
2.3	Trench Excavation	84,730	CY		\$       17.5	\$       7.5	\$       -	\$       1,482,767	\$       635,472	\$       2,118,239
2.4	Supply & Install 6" Sand Bedding for direct bury conduits	5,296	SF	\$       50	\$       25	\$       14	\$       264,780	\$       129,742	\$       74,138	\$       468,660
2.5	Supply & Install Thermal Backfill	46,774	CY	\$       350	\$       245	\$       105	\$       16,370,898	\$       11,459,629	\$       4,911,270	\$       32,741,797
2.6	Supply & Install Concrete Cap (6")	0	CY	\$       200	\$       125	\$       50	\$       -	\$       -	\$       -	\$       -
2.7	Native Backfill -direct bury conduits sys Trench	0	CY		\$       14.0	\$       6.0	\$       -	\$       -	\$       -	\$       -
2.8	Supply & Install Ductbank Concrete	18,901	CY	\$       200	\$       125	\$       50	\$       3,780,102	\$       2,362,564	\$       945,026	\$       7,087,692
2.9	Conduit 8" HDPE	407,405	LF	\$       20.5	\$       5.7	\$       2.4	\$       8,368,095	\$       2,309,985	\$       989,994	\$       11,668,073



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
2.10	Conduit 4" HDPE	135,802	LF	\$ 5.4	\$ 4.20	\$ 1.8	\$ 729,255	\$ 570,367	\$ 244,443	\$ 1,544,064
2.11	Conduit 2" HDPE	135,802	LF	\$ 1.9	\$ 3.15	\$ 1.4	\$ 259,381	\$ 427,775	\$ 183,332	\$ 870,488
2.12	Warning Tape	135,802	LF	\$ 0.15	\$ 0.25	\$ 0.10	\$ 20,370	\$ 33,950	\$ 13,580	\$ 67,901
2.13	Trench Box Shoring (Vault)	76	EA	\$ -	\$ 18,079	\$ 27,119	\$ -	\$ 1,374,011	\$ 2,061,017	\$ 3,435,028
2.14	Splice Vault Excavation	24,700	CY		\$ 17.5	\$ 7.5	\$ -	\$ 432,250	\$ 185,250	\$ 617,500
2.15	Splice Vault Supply & Installation	76	EA	\$ 35,000	\$ 16,500	\$ 38,500	\$ 2,660,000	\$ 1,254,000	\$ 2,926,000	\$ 6,840,000
2.16	Splice Vault Backfill	7,410	CY		\$ 14.0	\$ 6.0	\$ -	\$ 103,740	\$ 44,460	\$ 148,200
2.17	Jack and Bore along Route	0	LF	\$ 800	\$ 1,600	\$ 1,600	\$ -	\$ -	\$ -	\$ -
2.18	HDD along Route	10,411	LF	\$ 800	\$ 1,600	\$ 1,600	\$ 8,328,800	\$ 16,657,600	\$ 16,657,600	\$ 41,644,000
2.19	Air Test Ducts	679,008	LF			\$ 0.25	\$ -	\$ -	\$ 169,752	\$ 169,752
2.20	PVMT, ASPHALT, 2" SURFACE COURSE	50,350	SY	\$ 14.00	\$ 14.00	\$ 7.00	\$ 704,905	\$ 704,905	\$ 352,452	\$ 1,762,261
2.21	PVMT, AGGREGATE, 10", BASE COURSE	13,986	CY	\$ 22.38	\$ 23.50	\$ 10.07	\$ 313,011	\$ 328,662	\$ 140,855	\$ 782,528
2.22	Concrete Ductbank Thermal Resistivity Testing (every 100CY of concrete poured)	189	EA		\$ 400	\$ 1,200	\$ -	\$ 75,602	\$ 226,806	\$ 302,408
2.23	Concrete Ductbank Compressive Strength Testing (every 100CY of concrete poured)	189	EA		\$ 10	\$ 15	\$ -	\$ 1,890	\$ 2,835	\$ 4,725
2.24	Backfill Thermal Resistivity Testing (every 100CY of backfill placed)	468	EA		\$ 400	\$ 1,200	\$ -	\$ 187,096	\$ 561,288	\$ 748,384
2.25	Additional misc. testing allowance (Native Backfill, Asphalt Density, Concrete Curb etc.)	1	LS		\$ 1,404,312	\$ 936,208	\$ -	\$ 1,404,312	\$ 936,208	\$ 2,340,520
2.26	Excess Materials Disposal to Certified Backfill	132,625	CY		\$ 24.5	\$ 10.5	\$ -	\$ 3,249,323	\$ 1,392,567	\$ 4,641,890
2.27	Rock Excavation and Removal	1	LS				\$ -	\$ -	\$ -	\$ -
2.28	Dewatering	76	EA			\$ 4,000	\$ -	\$ -	\$ 304,000	\$ 304,000
2.29	Contaminated Water Treatment and Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.30	Contaminated Spoils Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.31	Excavated material - stockpile management	109,430	CF		\$ 1.0	\$ 0.5	\$ -	\$ 109,430	\$ 54,715	\$ 164,144
TOTAL - ONSHORE CABLE CONDUITS & VAULTS INSTALLATION:							\$ 43,763,287	\$ 49,728,024	\$ 36,901,086	\$ 130,392,396
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION										
3.1	Circuit #1- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable	427,775	FT	\$ 154	\$ 92	\$ 62	\$ 65,877,356	\$ 39,526,414	\$ 26,350,942	\$ 131,754,712
3.2	Circuit #1- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable	228	EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ 2,672,616	\$ 1,870,831	\$ 534,523	\$ 5,077,970
3.3	Circuit #1- Cable Termination- 345kV 4000kcmil Cu XLPE Cable	6	EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ 166,830	\$ 49,232	\$ 14,066	\$ 230,129
3.4	Circuit #2- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable		FT	\$ 154	\$ 92	\$ 62	\$ -	\$ -	\$ -	\$ -
3.5	Circuit #2- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.6	Circuit #2- Cable Termination- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.7	Circuit #3- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable		FT	\$ 154	\$ 92	\$ 62	\$ -	\$ -	\$ -	\$ -
3.8	Circuit #3- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.9	Circuit #3- Cable Termination- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.10	Link Box & MH racking	76	EA	\$ 26,500	\$ 18,550	\$ 7,950	\$ 2,014,034	\$ 1,409,824	\$ 604,210	\$ 4,028,068
3.11	Fiber Optic Cable	142,592	FT	\$ 7	\$ 3	\$ 2	\$ 1,054,751	\$ 474,916	\$ 316,611	\$ 1,846,277
3.12	Ground Continuity Conductor	142,592	FT	\$ 13	\$ 8	\$ 5	\$ 1,859,253	\$ 1,073,288	\$ 715,525	\$ 3,648,066
TOTAL -ONSHORE CABLE PROCUREMENT AND INSTALLATION							\$ 68,716,802	\$ 41,446,477	\$ 26,899,532	\$ 137,062,812
BS2.1 Barrett to Tremont 345kV Onshore UG Cables -single circuit							\$ 118,830,937	\$ 122,317,330	\$ 76,301,437	\$ 317,449,703
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
4.1	Mob / Demob	1	LS		\$ 5,958,563	\$ 3,972,375	\$ -	\$ 5,958,563	\$ 3,972,375	\$ 9,930,938
	Project Management, Material Handling & Amenities									
4.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		3,174,497.03		\$ -	\$ 3,174,497	\$ -	\$ 3,174,497
4.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		12,697,988.14		\$ -	\$ 12,697,988	\$ -	\$ 12,697,988
4.4	Utility PM and Project Oversight	1.0	LS		3,174,497.03		\$ -	\$ 3,174,497	\$ -	\$ 3,174,497
4.5	Site Accommodation, Facilities, Storage	1.0	LS	3,174,497.03			\$ 3,174,497	\$ -	\$ -	\$ 3,174,497
	Engineering									
4.6	Design Engineering	1.0	LS		\$ 15,872,485	\$ -	\$ -	\$ 15,872,485	\$ -	\$ 15,872,485
4.7	LiDAR /GPR	1.0	LS		\$ 571,409	\$ 380,940	\$ -	\$ 571,409	\$ 380,940	\$ 952,349
4.8	Geotech	26.0	Location		\$ 2,730	\$ 1,820	\$ -	\$ 70,980	\$ 47,320	\$ 118,300
4.9	Surveying/Staking	1	LS		\$ 1,333,289		\$ -	\$ 1,333,289	\$ -	\$ 1,333,289
	Testing & Commissioning									
4.10	Testing & Commissioning of T-Line and Equipment	1	EA		\$ 20,000		\$ -	\$ 20,000	\$ -	\$ 20,000
	Permitting, Indirects and Additional Costs									
4.11	Environmental Licensing & Permitting Costs & related legal cost	1	LS		\$ 3,174,497		\$ -	\$ 3,174,497	\$ -	\$ 3,174,497
4.12	Environmental-special studies/investigation	-	LS		\$ 175,000		\$ -	\$ -	\$ -	\$ -
4.13	Warranties / LOC's	1	LS		\$ 952,349		\$ -	\$ 952,349	\$ -	\$ 952,349



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
4.14	Laydown Lease & temporary easement	1	LS		\$ 3,000,000		\$ -	\$ 3,000,000	\$ -	\$ 3,000,000
4.15	Real Estate ( Acquisition)	1	LS		\$ -	\$ 687,646	\$ -	\$ -	\$ 687,646	\$ 687,646
4.16	Legal Fees (Real estate)	1.00	LS		-	20,629.38	\$ -	\$ -	\$ 20,629	\$ 20,629
4.17	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
4.18	Insurance (specialty, e.g. railroad)	4	Crossing			\$ 1,000	\$ -	\$ -	\$ 4,000	\$ 4,000
4.19	Bonds	1	LS			\$ 11,260,000	\$ -	\$ -	\$ 11,260,000	\$ 11,260,000
4.20	Sales Tax on Materials	8.88%	% of material cost	\$ 118,830,936.67			\$ 10,552,187	\$ -	\$ -	\$ 10,552,187
4.21	Fees for permits, including roadway, railroad, building or other local permits	1	LS			\$ 317,450	\$ -	\$ -	\$ 317,450	\$ 317,450
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 13,726,684	\$ 50,000,555	\$ 16,690,360	\$ 80,417,599

Propel NY - TO53 AS7

BS2.2 Syosset to Shore Road 138kV Onshore UG Cables -single circuit

Total:     \$     202,306,242

Propel NY - TO53 AS7				
	Material Supply	Labor Supply	Equip Supply	Total
BS2.2 Syosset to Shore Road 138kV Onshore UG Cables -single circuit				
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT	\$ 2,808,000	\$ 13,830,200	\$ 5,526,600	\$ 22,164,800
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION	\$ 14,057,038	\$ 14,600,152	\$ 9,050,235	\$ 37,707,426
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION	\$ 26,535,196	\$ 16,496,699	\$ 10,603,940	\$ 53,635,836
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 4,989,021	\$ 18,616,357	\$ 5,758,200	\$ 29,363,579
SUBTOTAL (Costs):	\$ 48,389,256	\$ 63,543,409	\$ 30,938,976	\$ 142,871,640
CONTRACTOR MARK-UP (OH&P)	\$ 8,710,066	\$ 11,437,814	\$ 5,569,016	\$ 25,716,895
SUBTOTAL:	\$ 57,099,322	\$ 74,981,222	\$ 36,507,991	\$ 168,588,535
CONTINGENCY ON ENTIRE PROJECT	\$ 11,419,864	\$ 14,996,244	\$ 7,301,598	\$ 33,717,707
TOTAL:	\$ 68,519,186	\$ 89,977,467	\$ 43,809,589	\$ 202,306,242

Description of Work: The proposed 138 kV electric underground transmission line begins at the Syosset Substation in the Hamlet of Woodbury in the Town of Oyster Bay in Nassau County leading to the Shore Road Substation in the Hamlet of Glenwood Landing in the Town of Oyster Bay in Nassau County. The proposed route will be approximately 11.3 miles, utilizing 4000 kcmil XLPE cable

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
BS2.2 Syosset to Shore Road 138kV Onshore UG Cables -single circuit										
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT										
1.1	Environmental BMPs / SWPPP Installation, Maintenance & Repairs	0	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1.2	Existing Utility Conflict and Relocation	11.25	Mile		\$ 700,000	\$ 300,000	\$ -	\$ 7,875,000	\$ 3,375,000	\$ 11,250,000
1.3	Flaggers	360	DAY	\$ 1,600	\$ 4,800	\$ 1,600	\$ 576,000	\$ 1,728,000	\$ 576,000	\$ 2,880,000
1.4	K Rail / Lane Control / Metal Plates	59,400	LF	\$ 30	\$ 18	\$ 12	\$ 1,782,000	\$ 1,069,200	\$ 712,800	\$ 3,564,000
1.5	Police Support	14,400.0	HR		\$ 120	\$ 27	\$ -	\$ 1,728,000	\$ 388,800	\$ 2,116,800
1.6	Additional Traffic Management		LS				\$ -	\$ -	\$ -	\$ -
1.7	Access / Clearing Costs		LS				\$ -	\$ -	\$ -	\$ -
1.8	Snow Removal	80.0	DAY		\$ 1,000	\$ 300	\$ -	\$ 80,000	\$ 24,000	\$ 104,000
1.9	Existing Utility Protection	11.25	Mile	\$ 40,000	\$ 120,000	\$ 40,000	\$ 450,000	\$ 1,350,000	\$ 450,000	\$ 2,250,000
TOTAL - SITE PREP/ACCESS/TRAFFIC MANAGEMENT/ ACCESS:							\$ 2,808,000	\$ 13,830,200	\$ 5,526,600	\$ 22,164,800
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION										
2.1	Trench Box Shoring & Trench Box Install Crew	11.25	Miles		\$ 139,800	\$ 93,200	\$ -	\$ 1,572,750	\$ 1,048,500	\$ 2,621,250
2.2	Formwork in Trench	467,256	SF	\$ 2	\$ 1.5	\$ 0.5	\$ 934,512	\$ 700,884	\$ 233,628	\$ 1,869,024
2.3	Trench Excavation	35,996	CY		\$ 17.5	\$ 7.5	\$ -	\$ 629,930	\$ 269,970	\$ 899,900
2.4	Supply & Install 6" Sand Bedding for direct bury conduits	2,250	SF	\$ 50	\$ 25	\$ 14	\$ 112,488	\$ 55,119	\$ 31,497	\$ 199,103
2.5	Supply & Install Thermal Backfill	20,897	CY	\$ 350	\$ 245	\$ 105	\$ 7,313,854	\$ 5,119,698	\$ 2,194,156	\$ 14,627,709
2.6	Supply & Install Concrete Cap (6")	0	CY	\$ 200	\$ 125	\$ 50	\$ -	\$ -	\$ -	\$ -
2.7	Native Backfill -direct bury conduits sys Trench	0	CY		\$ 14.0	\$ 6.0	\$ -	\$ -	\$ -	\$ -
2.8	Supply & Install Ductbank Concrete	8,222	CY	\$ 200	\$ 125.0	\$ 50.0	\$ 1,644,482	\$ 1,027,801	\$ 411,120	\$ 3,083,403
2.9	Conduit 6" HDPE	178,200	LF	\$ 10.6	\$ 5.7	\$ 2.4	\$ 1,888,920	\$ 1,010,394	\$ 433,026	\$ 3,332,340
2.10	Conduit 4" HDPE	59,400	LF	\$ 5.4	\$ 4.20	\$ 1.8	\$ 318,978	\$ 249,480	\$ 106,920	\$ 675,378
2.11	Conduit 2" HDPE	59,400	LF	\$ 1.9	\$ 3.15	\$ 1.4	\$ 113,454	\$ 187,110	\$ 80,190	\$ 380,754
2.12	Warning Tape	59,400	LF	\$ 0.15	\$ 0.25	\$ 0.10	\$ 8,910	\$ 14,850	\$ 5,940	\$ 29,700
2.13	Trench Box Shoring (Vault)	33	EA	\$ -	\$ 18,079	\$ 27,119	\$ -	\$ 596,610	\$ 894,915	\$ 1,491,525
2.14	Splice Vault Excavation	5,990	CY		\$ 17.5	\$ 7.5	\$ -	\$ 104,827	\$ 44,926	\$ 149,753

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
2.15	Splice Vault Supply & Installation	33	EA	\$ 35,000	\$ 16,500	\$ 38,500	\$ 1,155,000	\$ 544,500	\$ 1,270,500	\$ 2,970,000
2.16	Splice Vault Backfill	1,797	CY		\$ 14.0	\$ 6.0	\$ -	\$ 25,158	\$ 10,782	\$ 35,941
2.17	Jack and Bore along Route	168	LF	\$ 800	\$ 1,600	\$ 1,600	\$ 134,400	\$ 268,800	\$ 268,800	\$ 672,000
2.18	HDD along Route	0	LF	\$ 800	\$ 1,600	\$ 1,600	\$ -	\$ -	\$ -	\$ -
2.19	Air Test Ducts	297,000	LF			\$ 0.25	\$ -	\$ -	\$ 74,250	\$ 74,250
2.20	PVMT, ASPHALT, 2" SURFACE COURSE	21,371	SY	\$ 14.00	\$ 14.00	\$ 7.00	\$ 299,187	\$ 299,187	\$ 149,594	\$ 747,968
2.21	PVMT, AGGREGATE, 10", BASE COURSE	5,936	CY	\$ 22.38	\$ 23.50	\$ 10.07	\$ 132,853	\$ 139,496	\$ 59,784	\$ 332,133
2.22	Concrete Ductbank Thermal Resistivity Testing (every 100CY of concrete poured)	82	EA		\$ 400	\$ 1,200	\$ -	\$ 32,890	\$ 98,669	\$ 131,559
2.23	Concrete Ductbank Compressive Strength Testing (every 100CY of concrete poured)	82	EA		\$ 10	\$ 15	\$ -	\$ 822	\$ 1,233	\$ 2,056
2.24	Backfill Thermal Resistivity Testing (every 100CY of backfill placed)	209	EA		\$ 400	\$ 1,200	\$ -	\$ 83,587	\$ 250,761	\$ 334,348
2.25	Additional misc. testing allowance (Native Backfill, Asphalt Density, Concrete Curb etc.)	1	LS		\$ 614,250	\$ 409,500	\$ -	\$ 614,250	\$ 409,500	\$ 1,023,750
2.26	Excess Materials Disposal to Certified Backfill	52,246	CY		\$ 24.5	\$ 10.5	\$ -	\$ 1,280,023	\$ 548,581	\$ 1,828,604
2.27	Rock Excavation and Removal	1	LS				\$ -	\$ -	\$ -	\$ -
2.28	Dewatering	33	EA			\$ 4,000	\$ -	\$ -	\$ 132,000	\$ 132,000
2.29	Contaminated Water Treatment and Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.30	Contaminated Spoils Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.31	Excavated material - stockpile management	41,986	CF		\$ 1.0	\$ 0.5	\$ -	\$ 41,986	\$ 20,993	\$ 62,979
<b>TOTAL - ONSHORE CABLE CONDUITS &amp; VAULTS INSTALLATION:</b>							\$ 14,057,038	\$ 14,600,152	\$ 9,050,235	\$ 37,707,426
<b>3. ONSHORE CABLE PROCUREMENT AND INSTALLATION</b>										
3.1	Circuit #1- Procurement & Installation- 138kV 4000kcmil Cu XLPE Cable	187,110	FT	\$ 127	\$ 76	\$ 51	\$ 23,762,970	\$ 14,257,782	\$ 9,505,188	\$ 47,525,940
3.2	Circuit #1- Cable Splicing- 138kV 4000kcmil Cu XLPE Cable	99	EA	\$ 5,898	\$ 9,846	\$ 2,813	\$ 583,902	\$ 974,802	\$ 278,515	\$ 1,837,218
3.3	Circuit #1- Cable Termination- 138kV 4000kcmil Cu XLPE Cable	6	EA	\$ 5,664	\$ 9,846	\$ 2,813	\$ 33,984	\$ 59,079	\$ 16,880	\$ 109,943
3.4	Circuit #2- Procurement & Installation- 138kV 4000kcmil Cu XLPE Cable		FT				\$ -	\$ -	\$ -	\$ -
3.5	Circuit #2- Cable Splicing- 138kV 4000kcmil Cu XLPE Cable		EA				\$ -	\$ -	\$ -	\$ -
3.6	Circuit #2- Cable Termination- 138kV 4000kcmil Cu XLPE Cable		EA				\$ -	\$ -	\$ -	\$ -
3.7	Circuit #3- Procurement & Installation- 138kV 4000kcmil Cu XLPE Cable		FT				\$ -	\$ -	\$ -	\$ -
3.8	Circuit #3- Cable Splicing- 138kV 4000kcmil Cu XLPE Cable		EA				\$ -	\$ -	\$ -	\$ -
3.9	Circuit #3- Cable Termination- 138kV 4000kcmil Cu XLPE Cable		EA				\$ -	\$ -	\$ -	\$ -
3.10	Link Box & MH racking	33	EA	\$ 26,659	\$ 15,995	\$ 10,664	\$ 879,747	\$ 527,848	\$ 351,899	\$ 1,759,494
3.11	Fiber Optic Cable	62,370	FT	\$ 7	\$ 3	\$ 2	\$ 461,351	\$ 207,730	\$ 138,486	\$ 807,567
3.12	Ground Continuity Conductor	62,370	FT	\$ 13	\$ 8	\$ 5	\$ 813,242	\$ 469,459	\$ 312,973	\$ 1,595,674
<b>TOTAL - ONSHORE CABLE PROCUREMENT AND INSTALLATION</b>							\$ 26,535,196	\$ 16,496,699	\$ 10,603,940	\$ 53,635,836
<b>BS2.2 Syosset to Shore Road 138kV Onshore UG Cables -single circuit</b>							\$ 43,400,234	\$ 44,927,052	\$ 25,180,776	\$ 113,508,061
<b>4. MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS</b>										
	<b>Contractor Mobilization / Demobilization</b>									
4.1	Mob / Demob	1	LS		\$ 2,103,235	\$ 1,402,157	\$ -	\$ 2,103,235	\$ 1,402,157	\$ 3,505,391
	<b>Project Management, Material Handling &amp; Amenities</b>									
4.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		1,135,080.61		\$ -	\$ 1,135,081	\$ -	\$ 1,135,081
4.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		4,540,322.45		\$ -	\$ 4,540,322	\$ -	\$ 4,540,322
4.4	Utility PM and Project Oversight	1.0	LS		1,135,080.61		\$ -	\$ 1,135,081	\$ -	\$ 1,135,081
4.5	Site Accommodation, Facilities, Storage	1.0	LS	1,135,080.61			\$ 1,135,081	\$ -	\$ -	\$ 1,135,081
	<b>Engineering</b>									
4.6	Design Engineering	1.0	LS		\$ 5,675,403	\$ -	\$ -	\$ 5,675,403	\$ -	\$ 5,675,403
4.7	LiDAR /GPR	1.0	LS		\$ 204,315	\$ 136,210	\$ -	\$ 204,315	\$ 136,210	\$ 340,524
4.8	Geotech	12.0	Location		2,730.00	1,820.00	\$ -	\$ 32,760	\$ 21,840	\$ 54,600
4.9	Surveying/Staking	1	LS		\$ 794,556		\$ -	\$ 794,556	\$ -	\$ 794,556
	<b>Testing &amp; Commissioning</b>									
4.10	Testing & Commissioning of T-Line and Equipment	1	EA		\$ 20,000		\$ -	\$ 20,000	\$ -	\$ 20,000
	<b>Permitting, Indirects and Additional Costs</b>									
4.11	Environmental Licensing & Permitting Costs & related legal cost	1	LS		\$ 1,135,081		\$ -	\$ 1,135,081	\$ -	\$ 1,135,081
4.12	Environmental-special studies/investigation		LS		\$ -		\$ -	\$ -	\$ -	\$ -
4.13	Warranties / LOC's	1	LS		\$ 340,524		\$ -	\$ 340,524	\$ -	\$ 340,524
4.14	Laydown Lease & temporary easement	1	LS		\$ 1,500,000		\$ -	\$ 1,500,000	\$ -	\$ 1,500,000
4.15	Real Estate ( Acquisition)	1	LS		\$ -	\$ 43,190	\$ -	\$ -	\$ 43,190	\$ 43,190
4.16	Legal Fees (Real estate)	1.00	LS		-	1,295.70	\$ -	\$ -	\$ 1,296	\$ 1,296
4.17	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
4.18	Insurance (specialty, e.g. railroad)	-	Crossing			\$ 1,000	\$ -	\$ -	\$ -	\$ -

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
4.19	Bonds	1	LS			\$ 4,040,000	\$ -	\$ -	\$ 4,040,000	\$ 4,040,000
4.20	Sales Tax on Materials	8.88%	% of material cost	\$ 43,400,234.15			\$ 3,853,941	\$ -	\$ -	\$ 3,853,941
4.21	Fees for permits, including roadway, railroad, building or other local permits	1	LS			\$ 113,508	\$ -	\$ -	\$ 113,508	\$ 113,508
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 4,989,021	\$ 18,616,357	\$ 5,758,200	\$ 29,363,579

Propel NY - TO48 BS2

BS2.3 Ruland Road to Shore Road 345kV Onshore UG Cables -single circuit

Total:   \$   359,455,633

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
BS2.3 Ruland Road to Shore Road 345kV Onshore UG Cables -single circuit				
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT	\$       4,209,472	\$       20,427,163	\$       8,341,509	\$       32,978,144
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION	\$       26,340,158	\$       24,872,226	\$       15,602,203	\$       66,814,586
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION	\$       51,678,717	\$       31,199,912	\$       19,925,937	\$       102,804,566
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$       9,327,850	\$       31,207,468	\$       10,720,234	\$       51,255,552
SUBTOTAL (Costs):	\$       91,556,197	\$       107,706,768	\$       54,589,882	\$       253,852,848
CONTRACTOR MARK-UP (OH&P)	\$       16,480,115	\$       19,387,218	\$       9,826,179	\$       45,693,513
SUBTOTAL:	\$       108,036,313	\$       127,093,987	\$       64,416,061	\$       299,546,360
CONTINGENCY ON ENTIRE PROJECT	\$       21,607,263	\$       25,418,797	\$       12,883,212	\$       59,909,272
TOTAL:	\$       129,643,575	\$       152,512,784	\$       77,299,273	\$       359,455,633

Description of Work: The proposed 345 kV electric underground transmission lines extending from the Ruland Road Substation in the Hamlet of Melville in the Town of Huntington in Suffolk County to the Sprain Brook Substation in the City of Yonkers, Westchester County. A marine segment is proposed from Shore Road Substation to a landing point in New Rochelle across the Long Island Sound. The proposed route will be approximately 36.1 miles, utilizing 4000 kcmil XLPE cable for the onshore portions of the route and two circuits of 3x1400 mm2 (2760 kcmil) Cu/XLPE/Pb/StSWA submarine cable for the offshore portions of the route.

Ruland Road to Shore Road segment is 17.82 miles

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
BS2.3 Ruland Road to Shore Road 345kV Onshore UG Cables -single circuit										
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT										
1.1	Environmental BMPs / SWPPP Installation, Maintenance & Repairs	0	LF	\$       -	\$       -	\$       -	\$       -	\$       -	\$       -	\$       -
1.2	Existing Utility Conflict and Relocation	17.83	Mile		\$       700,000	\$       300,000	\$       -	\$       12,481,000	\$       5,349,000	\$       17,830,000
1.3	Flaggers	420	DAY	\$       1,600	\$       4,800	\$       1,600	\$       672,000	\$       2,016,000	\$       672,000	\$       3,360,000
1.4	K Rail / Lane Control / Metal Plates	94,142	LF	\$       30	\$       18	\$       12	\$       2,824,272	\$       1,694,563	\$       1,129,709	\$       5,648,544
1.5	Police Support	16,800.0	HR		\$       120	\$       27	\$       -	\$       2,016,000	\$       453,600	\$       2,469,600
1.6	Additional Traffic Management		LS				\$       -	\$       -	\$       -	\$       -
1.7	Access / Clearing Costs		LS				\$       -	\$       -	\$       -	\$       -
1.8	Snow Removal	80.0	DAY		\$       1,000	\$       300	\$       -	\$       80,000	\$       24,000	\$       104,000
1.9	Existing Utility Protection	17.83	Mile	\$       40,000	\$       120,000	\$       40,000	\$       713,200	\$       2,139,600	\$       713,200	\$       3,566,000
TOTAL - SITE PREP/ACCESS/TRAFFIC MANAGEMENT/ ACCESS:							\$       4,209,472	\$       20,427,163	\$       8,341,509	\$       32,978,144
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION										
2.1	Trench Box Shoring & Trench Box Install Crew	17.83	Miles		\$       139,800	\$       93,200	\$       -	\$       2,492,634	\$       1,661,756	\$       4,154,390
2.2	Formwork in Trench	734,083	SF	\$       2	\$       1.5	\$       0.5	\$       1,468,166	\$       1,101,125	\$       367,042	\$       2,936,333
2.3	Trench Excavation	63,349	CY		\$       17.5	\$       7.5	\$       -	\$       1,108,602	\$       475,115	\$       1,583,717
2.4	Supply & Install 6" Sand Bedding for direct bury conduits	3,959	SF	\$       50	\$       25	\$       14	\$       197,965	\$       97,003	\$       55,430	\$       350,397
2.5	Supply & Install Thermal Backfill	34,971	CY	\$       350	\$       245	\$       105	\$       12,239,818	\$       8,567,872	\$       3,671,945	\$       24,479,636
2.6	Supply & Install Concrete Cap (6")	0	CY	\$       200	\$       125	\$       50	\$       -	\$       -	\$       -	\$       -
2.7	Native Backfill -direct bury conduits sys Trench	0	CY		\$       14.0	\$       6.0	\$       -	\$       -	\$       -	\$       -
2.8	Supply & Install Ductbank Concrete	14,131	CY	\$       200	\$       125.0	\$       50.0	\$       2,826,220	\$       1,766,388	\$       706,555	\$       5,299,163
2.9	Conduit 8" HDPE	282,427	LF	\$       20.5	\$       5.7	\$       2.4	\$       5,801,055	\$       1,601,362	\$       686,298	\$       8,088,715
2.10	Conduit 4" HDPE	94,142	LF	\$       5.4	\$       4.20	\$       1.8	\$       505,545	\$       395,398	\$       169,456	\$       1,070,399
2.11	Conduit 2" HDPE	94,142	LF	\$       1.9	\$       3.15	\$       1.4	\$       179,812	\$       296,549	\$       127,092	\$       603,453
2.12	Warning Tape	94,142	LF	\$       0.15	\$       0.25	\$       0.10	\$       14,121	\$       23,536	\$       9,414	\$       47,071

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
2.13	Trench Box Shoring (Vault)	62	EA	\$ -	\$ 18,079	\$ 27,119	\$ -	\$ 1,120,904	\$ 1,681,356	\$ 2,802,260
2.14	Splice Vault Excavation	20,150	CY		\$ 17.5	\$ 7.5	\$ -	\$ 352,625	\$ 151,125	\$ 503,750
2.15	Splice Vault Supply & Installation	62	EA	\$ 35,000	\$ 16,500	\$ 38,500	\$ 2,170,000	\$ 1,023,000	\$ 2,387,000	\$ 5,580,000
2.16	Splice Vault Backfill	6,045	CY		\$ 14.0	\$ 6.0	\$ -	\$ 84,630	\$ 36,270	\$ 120,900
2.17	Jack and Bore along Route	212	LF	\$ 800	\$ 1,600	\$ 1,600	\$ 169,600	\$ 339,200	\$ 339,200	\$ 848,000
2.18	HDD along Route	0	LF	\$ 800	\$ 1,600	\$ 1,600	\$ -	\$ -	\$ -	\$ -
2.19	Air Test Ducts	470,712	LF			\$ 0.25	\$ -	\$ -	\$ 117,678	\$ 117,678
2.20	PVMT, ASPHALT, 2" SURFACE COURSE	37,981	SY	\$ 14.00	\$ 14.00	\$ 7.00	\$ 531,739	\$ 531,739	\$ 265,869	\$ 1,329,347
2.21	PVMT, AGGREGATE, 10", BASE COURSE	10,550	CY	\$ 22.38	\$ 23.50	\$ 10.07	\$ 236,117	\$ 247,923	\$ 106,253	\$ 590,293
2.22	Concrete Ductbank Thermal Resistivity Testing (every 100CY of concrete poured)	141	EA		\$ 400	\$ 1,200	\$ -	\$ 56,524	\$ 169,573	\$ 226,098
2.23	Concrete Ductbank Compressive Strength Testing (every 100CY of concrete poured)	141	EA		\$ 10	\$ 15	\$ -	\$ 1,413	\$ 2,120	\$ 3,533
2.24	Backfill Thermal Resistivity Testing (every 100CY of backfill placed)	350	EA		\$ 400	\$ 1,200	\$ -	\$ 139,884	\$ 419,651	\$ 559,535
2.25	Additional misc. testing allowance (Native Backfill, Asphalt Density, Concrete Curb etc.)	1	LS		\$ 973,518	\$ 649,012	\$ -	\$ 973,518	\$ 649,012	\$ 1,622,530
2.26	Excess Materials Disposal to Certified Backfill	100,690	CY		\$ 24.5	\$ 10.5	\$ -	\$ 2,466,899	\$ 1,057,242	\$ 3,524,142
2.27	Rock Excavation and Removal	1	LS				\$ -	\$ -	\$ -	\$ -
2.28	Dewatering	62	EA			\$ 4,000	\$ -	\$ -	\$ 248,000	\$ 248,000
2.29	Contaminated Water Treatment and Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.30	Contaminated Spoils Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.31	Excavated material - stockpile management	83,499	CF		\$ 1.0	\$ 0.5	\$ -	\$ 83,499	\$ 41,749	\$ 125,248
TOTAL - ONSHORE CABLE CONDUITS & VAULTS INSTALLATION:							\$ 26,340,158	\$ 24,872,226	\$ 15,602,203	\$ 66,814,586



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
<b>3. ONSHORE CABLE PROCUREMENT AND INSTALLATION</b>										
3.1	Circuit #1- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable	296,549	FT	\$ 154	\$ 92	\$ 62	\$ 45,668,478	\$ 27,401,087	\$ 18,267,391	\$ 91,336,956
3.2	Circuit #1- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable	186	EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ 2,180,292	\$ 1,526,204	\$ 436,058	\$ 4,142,555
3.3	Circuit #1- Cable Termination- 345kV 4000kcmil Cu XLPE Cable	6	EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ 166,830	\$ 49,232	\$ 14,066	\$ 230,129
3.4	Circuit #2- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable		FT	\$ 154	\$ 92	\$ 62	\$ -	\$ -	\$ -	\$ -
3.5	Circuit #2- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.6	Circuit #2- Cable Termination- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.7	Circuit #3- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable		FT	\$ 154	\$ 92	\$ 62	\$ -	\$ -	\$ -	\$ -
3.8	Circuit #3- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.9	Circuit #3- Cable Termination- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.10	Link Box & MH racking	62	EA	\$ 26,500	\$ 18,550	\$ 7,950	\$ 1,643,028	\$ 1,150,120	\$ 492,908	\$ 3,286,056
3.11	Fiber Optic Cable	98,850	FT	\$ 7	\$ 3	\$ 2	\$ 731,190	\$ 329,228	\$ 219,485	\$ 1,279,904
3.12	Ground Continuity Conductor	98,850	FT	\$ 13	\$ 8	\$ 5	\$ 1,288,899	\$ 744,040	\$ 496,027	\$ 2,528,966
<b>TOTAL -ONSHORE CABLE PROCUREMENT AND INSTALLATION</b>							\$ 51,678,717	\$ 31,199,912	\$ 19,925,937	\$ 102,804,566
<b>BS2.3 Ruland Road to Shore Road 345kV Onshore UG Cables -single circuit</b>							\$ 82,228,347	\$ 76,499,301	\$ 43,869,648	\$ 202,597,296
<b>4. MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS</b>										
	<b>Contractor Mobilization / Demobilization</b>									
4.1	Mob / Demob	1	LS		\$ 3,611,068	\$ 2,407,379	\$ -	\$ 3,611,068	\$ 2,407,379	\$ 6,018,447
	<b>Project Management, Material Handling &amp; Amenities</b>									
4.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		2,025,972.96		\$ -	\$ 2,025,973	\$ -	\$ 2,025,973
4.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		8,103,891.84		\$ -	\$ 8,103,892	\$ -	\$ 8,103,892
4.4	Utility PM and Project Oversight	1.0	LS		2,025,972.96		\$ -	\$ 2,025,973	\$ -	\$ 2,025,973
4.5	Site Accommodation, Facilities, Storage	1.0	LS	2,025,972.96			\$ 2,025,973	\$ -	\$ -	\$ 2,025,973
	<b>Engineering</b>									
4.6	Design Engineering	1.0	LS		\$ 10,129,865	\$ -	\$ -	\$ 10,129,865	\$ -	\$ 10,129,865
4.7	LiDAR /GPR	1.0	LS		\$ 364,675	\$ 243,117	\$ -	\$ 364,675	\$ 243,117	\$ 607,792
4.8	Geotech	18.0	Location		2,730.00	1,820.00	\$ -	\$ 49,140	\$ 32,760	\$ 81,900
4.9	Surveying/Staking	1	LS		\$ 850,909		\$ -	\$ 850,909	\$ -	\$ 850,909
	<b>Testing &amp; Commissioning</b>									
4.10	Testing & Commissioning of T-Line and Equipment	1	EA		\$ 20,000		\$ -	\$ 20,000	\$ -	\$ 20,000
	Permitting, Indirects and Additional Costs									
4.11	Environmental Licensing & Permitting Costs & related legal cost	1	LS		\$ 2,025,973		\$ -	\$ 2,025,973	\$ -	\$ 2,025,973
4.12	Environmental-special studies/investigation	-	LS				\$ -	\$ -	\$ -	\$ -
4.13	Warranties / LOC's	1	LS			\$ 607,792	\$ -	\$ -	\$ 607,792	\$ 607,792
4.14	Laydown Lease & temporary easement	1	LS		\$ 2,000,000		\$ -	\$ 2,000,000	\$ -	\$ 2,000,000
4.15	Real Estate ( Acquisition)	1	LS			\$ 45,232	\$ -	\$ -	\$ 45,232	\$ 45,232
4.16	Legal Fees (Real estate)	1.00	LS		-	1,356.96	\$ -	\$ -	\$ 1,357	\$ 1,357
4.17	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
4.18	Insurance (specialty, e.g. railroad)		Crossing		\$ 1,000	\$ 150,000	\$ -	\$ -	\$ -	\$ -
4.19	Bonds	100.00%	LS			\$ 7,180,000	\$ -	\$ -	\$ 7,180,000	\$ 7,180,000
4.20	Sales Tax on Materials	0	% of material cost	\$ 82,228,347			\$ 7,301,877	\$ -	\$ -	\$ 7,301,877
4.21	Fees for permits, including roadway, railroad, building or other local permits	1	LS			\$ 202,597	\$ -	\$ -	\$ 202,597	\$ 202,597
<b>TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS:</b>							\$ 9,327,850	\$ 31,207,468	\$ 10,720,234	\$ 51,255,552

Propel NY - TO48 BS2

BS2.4a. Shore Road to New Rochelle Offshore Submarine Cables - two circuits (two lines, single circuit each)

Total: \$ 268,731,745

BS2.4a. Shore Road to New Rochelle Offshore Submarine Cables - two circuits (two lines, single circuit each)				
	Material Supply	Labor Supply	Equip Supply	Total
BS2.4a. Shore Road to New Rochelle Offshore Submarine Cables - two circuits (two lines, single circuit each)				
1. SUBMARINE CABLE	\$ 45,158,272	\$ 59,271,737	\$ 42,238,005	\$ 146,668,014
2. TRANSITION STATION	\$ 555,750	\$ 593,355	\$ 558,702	\$ 1,707,807
3. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:	\$ 5,506,592	\$ 24,417,233	\$ 11,482,660	\$ 41,406,484
SUBTOTAL (Costs):	\$ 51,220,615	\$ 84,282,324	\$ 54,279,367	\$ 189,782,306
CONTRACTOR MARK-UP (OH&P)	\$ 9,219,711	\$ 15,170,818	\$ 9,770,286	\$ 34,160,815
SUBTOTAL:	\$ 60,440,325	\$ 99,453,142	\$ 64,049,653	\$ 223,943,121
CONTINGENCY ON ENTIRE PROJECT	\$ 12,088,065	\$ 19,890,628	\$ 12,809,931	\$ 44,788,624
TOTAL:	\$ 72,528,390	\$ 119,343,771	\$ 76,859,584	\$ 268,731,745

Description of Work: The proposed 345 kV electric underground transmission lines extending from the Ruland Road Substation in the Hamlet of Melville in the Town of Huntington in Suffolk County to the Sprain Brook Substation in the City of Yonkers, Westchester County. A marine segment is proposed from Shore Road Substation to a landing point in New Rochelle across the Long Island Sound. The proposed route will be approximately 36.1 miles, utilizing 4000 kcmil XLPE cable for the onshore portions of the route and two circuits of 3x1400 mm2 (2760 kcmil) Cu/XLPE/Pb/StSWA submarine cable for the offshore portions of the route. Shore Road to New Rochelle segment is 10.22 miles, Submarine segment is 8.63 miles (included the HDD section).

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
BS2.4a. Shore Road to New Rochelle Offshore Submarine Cables - two circuits (two lines, single circuit each)										
1. SUBMARINE CABLE										
1.1	Submarine Cable - 3x1400 mm2 (2760 kcmil) Cu/XLPE/Pb/StSWA + Vessel Install	100,246	FT	\$ 375	\$ 400	\$ 250	\$ 37,592,280	\$ 40,098,432	\$ 25,061,520	\$ 102,752,232
1.2	Submarine Cable- transportation from manufacture location to site	1	LS		\$ 5,073,819	\$ 3,382,546	\$ -	\$ 5,073,819	\$ 3,382,546	\$ 8,456,364
1.3	Submarine Cable Splicing if Required 3x1400 mm2 (2760 kcmil) Cu/XLPE/Pb/StSWA	-	EA				\$ -	\$ -	\$ -	\$ -
1.4	Cable Transition Splice	12	EA	\$ 27,911	\$ 37,214	\$ 27,911	\$ 334,929	\$ 446,572	\$ 334,929	\$ 1,116,430
1.5	Outdoor Termination	12	EA	\$ 27,911	\$ 37,214	\$ 27,911	\$ 334,929	\$ 446,572	\$ 334,929	\$ 1,116,430
1.6	Jack and Bore along Route	0	LF	\$ 1,600	\$ 3,200	\$ 3,200	\$ -	\$ -	\$ -	\$ -
1.7	HDD along Route	4,062	LF	\$ 1,600	\$ 3,200	\$ 3,200	\$ 6,499,840	\$ 12,999,680	\$ 12,999,680	\$ 32,499,200
1.8	Trench Box Shoring & Trench Box Install Crew	1	LS		\$ 33,891	\$ 22,594	\$ -	\$ 33,891	\$ 22,594	\$ 56,485
1.9	Formwork in Trench		SF	\$ 2	\$ 1.5	\$ 0.5	\$ -	\$ -	\$ -	\$ -
1.10	Trench Excavation	1,612	CY		\$ 17.5	\$ 7.5	\$ -	\$ 28,207	\$ 12,089	\$ 40,296
1.11	Supply & Install 6" Sand Bedding for direct bury conduits	101	SF	\$ 50	\$ 25	\$ 14	\$ 5,037	\$ 2,468	\$ 1,410	\$ 8,916
1.12	Supply & Install Thermal Backfill	0	CY	\$ 350	\$ 245	\$ 105	\$ -	\$ -	\$ -	\$ -
1.13	Supply & Install Concrete Cap (6")	0	CY	\$ 200	\$ 125	\$ 50	\$ -	\$ -	\$ -	\$ -
1.14	Native Backfill -direct bury conduits sys Trench	1,491	CY		\$ 14.0	\$ 6.0	\$ -	\$ 20,880	\$ 8,949	\$ 29,828
1.15	Conduit 15" HDPE	2,560	LF	\$ 150.0	\$ 45.0	\$ 30.0	\$ 384,000	\$ 115,200	\$ 76,800	\$ 576,000
1.16	Conduit 4" HDPE	1,280	LF	\$ 5.4	\$ 4.20	\$ 1.8	\$ 6,874	\$ 5,376	\$ 2,304	\$ 14,554
1.17	Conduit 2" HDPE	0	LF	\$ 1.9	\$ 3.15	\$ 1.4	\$ -	\$ -	\$ -	\$ -
1.18	Warning Tape	2,560	LF	\$ 0.15	\$ 0.25	\$ 0.10	\$ 384	\$ 640	\$ 256	\$ 1,280
TOTAL - MARINE CABLE :							\$ 45,158,272	\$ 59,271,737	\$ 42,238,005	\$ 146,668,014
2. TRANSITION STATION										
2.1	Site Clearing	2.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ 21,094	\$ 14,063	\$ 35,156
2.2	Demolition	1	LS	-	60,000.00	40,000.00	\$ -	\$ 60,000	\$ 40,000	\$ 100,000
2.3	Temporary fencing	1,300	LF	7.50	5.25	2.25	\$ 9,750	\$ 6,825	\$ 2,925	\$ 19,500
2.4	Trench Box Shoring (Vault)	4	EA	\$ -	\$ 18,079	\$ 27,119	\$ -	\$ 72,316	\$ 108,475	\$ 180,791
2.5	Splice Vault Excavation	1,593	CY		\$ 17.5	\$ 7.5	\$ -	\$ 27,876	\$ 11,947	\$ 39,822
2.6	Splice Vault Supply & Installation	4	EA	\$ 70,000	\$ 22,500	\$ 52,500	\$ 280,000	\$ 90,000	\$ 210,000	\$ 580,000

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
2.7	Splice Vault Backfill	478	CY		\$ 14.0	\$ 6.0	\$ -	\$ 6,690	\$ 2,867	\$ 9,557
2.8	Air Test Ducts	3,840	LF			\$ 0.25	\$ -	\$ -	\$ 960	\$ 960
2.9	Restoration (incl. Paving)	19,000	SF	\$ 14.00	\$ 14.00	\$ 7.00	\$ 266,000	\$ 266,000	\$ 133,000	\$ 665,000
2.10	Concrete Ductbank Thermal Resistivity Testing (every 100CY of concrete poured)	0	EA		\$ 400	\$ 1,200	\$ -	\$ -	\$ -	\$ -
2.11	Concrete Ductbank Compressive Strength Testing (every 100CY of concrete poured)	0	EA		\$ 10	\$ 15	\$ -	\$ -	\$ -	\$ -
2.12	Backfill Thermal Resistivity Testing (every 100CY of backfill placed)	0	EA		\$ 400	\$ 1,200	\$ -	\$ -	\$ -	\$ -
2.13	Additional misc. testing allowance (Native Backfill, Asphalt Density, Concrete Curb etc.)	1	LS		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2.14	Excess Materials Disposal to Certified Backfill	1,606	CY		\$ 24.5	\$ 10.5	\$ -	\$ 39,349	\$ 16,864	\$ 56,213
2.15	Rock Excavation and Removal	1	LS				\$ -	\$ -	\$ -	\$ -
2.16	Dewatering	4	EA			\$ 4,000	\$ -	\$ -	\$ 16,000	\$ 16,000
2.17	Contaminated Water Treatment and Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.18	Contaminated Spoils Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.19	Excavated material - stockpile management	3,205	CF		\$ 1.0	\$ 0.5	\$ -	\$ 3,205	\$ 1,602	\$ 4,807
2.20							\$ -	\$ -	\$ -	\$ -
TOTAL - Transition station :							\$ 555,750	\$ 593,355	\$ 558,702	\$ 1,707,807
BS2.4a. Shore Road to New Rochelle Offshore Submarine Cables - two circuits (two lines, single circuit each)							\$ 45,714,022	\$ 59,865,091	\$ 42,796,707	\$ 148,375,821

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
3. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:										
	Contractor Mobilization / Demobilization									
3.1	Mob / Demob	1	LS		\$ 4,000,000	\$ 6,000,000	\$ -	\$ 4,000,000	\$ 6,000,000	\$ 10,000,000
	Project Management, Material Handling & Amenities									
3.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		1,483,758.21		\$ -	\$ 1,483,758	\$ -	\$ 1,483,758
3.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		5,935,032.85		\$ -	\$ 5,935,033	\$ -	\$ 5,935,033
3.4	Utility PM and Project Oversight	1.0	LS		1,483,758.21		\$ -	\$ 1,483,758	\$ -	\$ 1,483,758
3.5	Site Accommodation, Facilities, Storage	1.0	LS	1,483,758.21			\$ 1,483,758	\$ -	\$ -	\$ 1,483,758
	Engineering									
3.6	Design Engineering	1	LS		\$ 7,418,791		\$ -	\$ 7,418,791	\$ -	\$ 7,418,791
3.7	Surveying/Staking	1	LS		\$ 1,038,631		\$ -	\$ 1,038,631	\$ -	\$ 1,038,631
	Testing & Commissioning / Inspection									
3.8	Testing & Commissioning / End to End Testing of Subsea Cable	1	EA		\$ 40,000		\$ -	\$ 40,000	\$ -	\$ 40,000
3.9	Post Cable-Lay Inspection		EA				\$ -	\$ -	\$ -	\$ -
	Permitting and Additional Costs									
3.10	Environmental Licensing & Permitting Costs & related legal cost	1	LS		\$ 1,483,758		\$ -	\$ 1,483,758	\$ -	\$ 1,483,758
3.11	Environmental-special studies/investigation	1	LS		\$ 440,000		\$ -	\$ 440,000	\$ -	\$ 440,000
3.12	Warranties / LOC's	1	LS		\$ 445,127		\$ -	\$ 445,127	\$ -	\$ 445,127
3.13	Laydown Lease & temporary easement	1	LS		\$ 500,000		\$ -	\$ 500,000	\$ -	\$ 500,000
3.14	Real Estate ( Acquisition)	1	LS			\$ 119,087	\$ -	\$ -	\$ 119,087	\$ 119,087
3.15	Legal Fees (Real estate)	1.00	LS		-	3,572.61	\$ -	\$ -	\$ 3,573	\$ 3,573
3.16	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
3.17	Bonds	1	LS			\$ 5,360,000	\$ -	\$ -	\$ 5,360,000	\$ 5,360,000
3.18	Sales Tax on Materials	8.8%	LS	\$ 45,714,022			\$ 4,022,834	\$ -	\$ -	\$ 4,022,834
3.19	Contractor Permits	1	LS		\$ 148,376		\$ -	\$ 148,376	\$ -	\$ 148,376
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 5,506,592	\$ 24,417,233	\$ 11,482,660	\$ 41,406,484

**BS2.4a. Shore Road to New Rochelle Onshore UG Cables - two circuits (two lines, single circuit each)**

**Total:    \$    57,646,592**

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
BS2.4a. Shore Road to New Rochelle Onshore UG Cables - two circuits (two lines, single circuit each)				
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT	\$ 458,544	\$ 2,358,566	\$ 901,978	\$ 3,719,088
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION	\$ 3,609,216	\$ 3,766,387	\$ 2,219,465	\$ 9,595,067
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION	\$ 9,600,745	\$ 5,671,607	\$ 3,650,873	\$ 18,923,225
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 1,536,137	\$ 5,351,413	\$ 1,585,940	\$ 8,473,490
SUBTOTAL (Costs):	\$ 15,204,642	\$ 17,147,973	\$ 8,358,255	\$ 40,710,870
CONTRACTOR MARK-UP (OH&P)	\$ 2,736,836	\$ 3,086,635	\$ 1,504,486	\$ 7,327,957
SUBTOTAL:	\$ 17,941,478	\$ 20,234,608	\$ 9,862,741	\$ 48,038,827
CONTINGENCY ON ENTIRE PROJECT	\$ 3,588,296	\$ 4,046,922	\$ 1,972,548	\$ 9,607,765
TOTAL:	\$ 21,529,773	\$ 24,281,530	\$ 11,835,289	\$ 57,646,592

Description of Work: The proposed 345 kV electric underground transmission lines extending from the Ruland Road Substation in the Hamlet of Melville in the Town of Huntington in Suffolk County to the Sprain Brook Substation in the City of Yonkers, Westchester County. A marine segment is proposed from Shore Road Substation to a landing point in New Rochelle across the Long Island Sound. The proposed route will be approximately 36.1 miles, utilizing 4000 kcmil XLPE cable for the onshore portions of the route and two circuits of 3x1400 mm<sup>2</sup> (2760 kcmil) Cu/XLPE/Pb/StSWA submarine cable for the offshore portions of the route. Shore Road to New Rochelle segment is 10.22 miles, Submarine segment is 8.63 miles (included the HDD section).

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
BS2.4a. Shore Road to New Rochelle Onshore UG Cables - two circuits (two lines, single circuit each)										
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT										
1.1	Environmental BMPs / SWPPP Installation, Maintenance & Repairs	0	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1.2	Existing Utility Conflict and Relocation	1.66	Mile		\$ 700,000	\$ 300,000	\$ -	\$ 1,162,000	\$ 498,000	\$ 1,660,000
1.3	Flaggers	60	DAY	\$ 1,600	\$ 4,800	\$ 1,600	\$ 96,000	\$ 288,000	\$ 96,000	\$ 480,000
1.4	K Rail / Lane Control / Metal Plates	8,765	LF	\$ 30	\$ 18	\$ 12	\$ 262,944	\$ 157,766	\$ 105,178	\$ 525,888
1.5	Police Support	3,600.0	HR		\$ 120	\$ 27	\$ -	\$ 432,000	\$ 97,200	\$ 529,200
1.6	Additional Traffic Management		LS				\$ -	\$ -	\$ -	\$ -
1.7	Access / Clearing Costs		LS				\$ -	\$ -	\$ -	\$ -
1.8	Snow Removal	20.0	DAY		\$ 1,000	\$ 300	\$ -	\$ 20,000	\$ 6,000	\$ 26,000
1.9	Existing Utility Protection	1.66	Mile	\$ 60,000	\$ 180,000	\$ 60,000	\$ 99,600	\$ 298,800	\$ 99,600	\$ 498,000
TOTAL - SITE PREP/ACCESS/TRAFFIC MANAGEMENT/ ACCESS:							\$ 458,544	\$ 2,358,566	\$ 901,978	\$ 3,719,088
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION										
LINE Y57 & Y58 -Double CIRCUITS										
2.1	Trench Box Shoring & Trench Box Install Crew	1.66	Miles		\$ 139,800	\$ 93,200	\$ -	\$ 232,068	\$ 154,712	\$ 386,780
2.2	Formwork in Trench	70,118	SF	\$ 2	\$ 1.5	\$ 0.5	\$ 140,237	\$ 105,178	\$ 35,059	\$ 280,474
2.3	Trench Excavation	5,189	CY		\$ 17.5	\$ 7.5	\$ -	\$ 90,803	\$ 38,916	\$ 129,719
2.4	Supply & Install 6" Sand Bedding for direct bury conduits	540	CY	\$ 50	\$ 25	\$ 14	\$ 27,025	\$ 13,242	\$ 7,567	\$ 47,834
2.5	Supply & Install Thermal Backfill -conduit level	4,769	CY	\$ 350	\$ 245	\$ 105	\$ 1,668,988	\$ 1,168,292	\$ 500,697	\$ 3,337,977
2.6	Supply & Install Concrete Cap (6")	0	CY	\$ 200	\$ 125	\$ 50	\$ -	\$ -	\$ -	\$ -
2.7	Supply & Install Native Backfill -direct bury conduits sys	0	CY	\$ 350	\$ 245.0	\$ 105.0	\$ -	\$ -	\$ -	\$ -
2.8	Supply & Install Ductbank Concrete	1,667	CY	\$ 200	\$ 125.0	\$ 50.0	\$ 333,355	\$ 208,347	\$ 83,339	\$ 625,040
2.8	Conduit 8" HDPE	52,589	LF	\$ 20.5	\$ 5.7	\$ 2.4	\$ 1,080,174	\$ 298,178	\$ 127,791	\$ 1,506,143
2.9	Conduit 4" HDPE	17,530	LF	\$ 5.4	\$ 4.20	\$ 1.8	\$ 94,134	\$ 73,624	\$ 31,553	\$ 199,312
2.10	Conduit 2" HDPE	17,530	LF	\$ 1.9	\$ 3.15	\$ 1.4	\$ 33,482	\$ 55,218	\$ 23,665	\$ 112,365

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
2.11	Warning Tape	8,765	LF	\$ 0.15	\$ 0.25	\$ 0.10	\$ 1,315	\$ 2,191	\$ 876	\$ 4,382
2.12	Trench Box Shoring (Vault)	4	EA	\$ -	\$ 18,079	\$ 27,119	\$ -	\$ 72,316	\$ 108,475	\$ 180,791
2.13	Splice Vault Excavation	780	CY		\$ 17.5	\$ 7.5	\$ -	\$ 13,650	\$ 5,850	\$ 19,500
2.14	Splice Vault Supply & Installation	4	EA	\$ 35,000	\$ 16,500	\$ 38,500	\$ 140,000	\$ 66,000	\$ 154,000	\$ 360,000
2.15	Splice Vault Backfill	234	CY		\$ 14.0	\$ 6.0	\$ -	\$ 3,276	\$ 1,404	\$ 4,680
2.16	Jack and Bore along Route	0	LF	\$ 800	\$ 1,600	\$ 1,600	\$ -	\$ -	\$ -	\$ -
2.17	HDD along Route	0	LF	\$ 800	\$ 1,600	\$ 1,600	\$ -	\$ -	\$ -	\$ -
2.18	Air Test Ducts	87,648	LF			\$ 0.25	\$ -	\$ -	\$ 21,912	\$ 21,912
2.20	PVMT, ASPHALT, 2" SURFACE COURSE	4,477	SY	\$ 14.00	\$ 14.00	\$ 7.00	\$ 62,676	\$ 62,676	\$ 31,338	\$ 156,689
2.21	PVMT, AGGREGATE, 10", BASE COURSE	1,244	CY	\$ 22.38	\$ 23.50	\$ 10.07	\$ 27,831	\$ 29,223	\$ 12,524	\$ 69,578
2.20	Concrete Ductbank Thermal Resistivity Testing (every 100CY of concrete poured)	17	EA		\$ 400	\$ 1,200	\$ -	\$ 6,667	\$ 20,001	\$ 26,668
2.21	Concrete Ductbank Compressive Strength Testing (every 100CY of concrete poured)	17	EA		\$ 10	\$ 15	\$ -	\$ 167	\$ 250	\$ 417
2.22	Backfill Thermal Resistivity Testing (every 100CY of backfill placed)	48	EA		\$ 400	\$ 1,200	\$ -	\$ 19,074	\$ 57,222	\$ 76,297
2.25	Additional misc. testing allowance (Native Backfill, Asphalt Density, Concrete Curb etc.)	1	LS		\$ 90,636	\$ 60,424	\$ -	\$ 90,636	\$ 60,424	\$ 151,060
2.24	Excess Materials Disposal to Certified Backfill	7,455	CY		\$ 24.5	\$ 10.5	\$ -	\$ 182,652	\$ 78,279	\$ 260,932
2.25	Rock Excavation and Removal	3,979	CY		\$ 243	\$ 162	\$ -	\$ 966,939	\$ 644,626	\$ 1,611,566
2.26	Dewatering	4	EA			\$ 4,000	\$ -	\$ -	\$ 16,000	\$ 16,000
2.27	Contaminated Water Treatment and Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.28	Contaminated Spoils Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.29	Excavated material - stockpile management	5,969	CF		\$ 1.0	\$ 0.5	\$ -	\$ 5,969	\$ 2,984	\$ 8,953
TOTAL - ONSHORE CABLE CONDUITS & VAULTS INSTALLATION:							\$ 3,609,216	\$ 3,766,387	\$ 2,219,465	\$ 9,595,067



Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
<b>3. ONSHORE CABLE PROCUREMENT AND INSTALLATION</b>										
3.7	Y57 Circuit #1- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable	27,609	FT	\$ 154	\$ 92	\$ 62	\$ 4,251,804	\$ 2,551,083	\$ 1,700,722	\$ 8,503,609
3.8	Y57 Circuit #1- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable	12	EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ 140,664	\$ 98,465	\$ 28,133	\$ 267,262
3.9	Y57 Circuit #1- Cable Termination- 345kV 4000kcmil Cu XLPE Cable	6	EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ 166,830	\$ 49,232	\$ 14,066	\$ 230,129
3.4	Y57 Circuit #2- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable		FT	\$ 154	\$ 92	\$ 62	\$ -	\$ -	\$ -	\$ -
3.5	Y57 Circuit #2- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.6	Y57 Circuit #2- Cable Termination- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.1	Y58 Circuit #1- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable	27,609	FT	\$ 154	\$ 92	\$ 62	\$ 4,251,804	\$ 2,551,083	\$ 1,700,722	\$ 8,503,609
3.2	Y58 Circuit #1- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable	12	EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ 140,664	\$ 98,465	\$ 28,133	\$ 267,262
3.3	Y58 Circuit #1- Cable Termination- 345kV 4000kcmil Cu XLPE Cable	6	EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ 166,830	\$ 49,232	\$ 14,066	\$ 230,129
3.4	Y58 Circuit #2- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable		FT	\$ 154	\$ 92	\$ 62	\$ -	\$ -	\$ -	\$ -
3.5	Y58 Circuit #2- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.6	Y58 Circuit #2- Cable Termination- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.10	Link Box & MH racking	4	EA	\$ 26,500	\$ 18,550	\$ 7,950	\$ 106,002	\$ 74,201	\$ 31,801	\$ 212,004
3.11	Fiber Optic Cable	18,406	FT	\$ 7	\$ 3	\$ 2	\$ 136,150	\$ 61,303	\$ 40,869	\$ 238,322
3.12	Ground Continuity Conductor	18,406	FT	\$ 13	\$ 8	\$ 5	\$ 239,997	\$ 138,543	\$ 92,362	\$ 470,901
<b>TOTAL - ONSHORE CABLE PROCUREMENT AND INSTALLATION</b>							\$ 9,600,745	\$ 5,671,607	\$ 3,650,873	\$ 18,923,225
<b>BS2.4a. Shore Road to New Rochelle Onshore UG Cables - two circuits (two lines, single circuit each)</b>							\$ 13,668,505	\$ 11,796,560	\$ 6,772,316	\$ 32,237,380
<b>4. MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS</b>										
	<b>Contractor Mobilization / Demobilization</b>									
4.1	Mob / Demob	1	LS		\$ 557,066	\$ 371,378	\$ -	\$ 557,066	\$ 371,378	\$ 928,444
	<b>Project Management, Material Handling &amp; Amenities</b>									
4.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		322,373.80		\$ -	\$ 322,374	\$ -	\$ 322,374
4.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		1,289,495.22		\$ -	\$ 1,289,495	\$ -	\$ 1,289,495
4.4	Utility PM and Project Oversight	1.0	LS		322,373.80		\$ -	\$ 322,374	\$ -	\$ 322,374
4.5	Site Accommodation, Facilities, Storage	1.0	LS	322,373.80			\$ 322,374	\$ -	\$ -	\$ 322,374
	<b>Engineering</b>									
4.6	Design Engineering	1.0	LS		\$ 1,611,869	\$ -	\$ -	\$ 1,611,869	\$ -	\$ 1,611,869
4.7	LiDAR /GPR	1.0	LS		\$ 58,027	\$ 38,685	\$ -	\$ 58,027	\$ 38,685	\$ 96,712
4.8	Geotech	2.0	Location		2,730.00	1,820.00	\$ -	\$ 5,460	\$ 3,640	\$ 9,100
4.9	Surveying/Staking	1	LS		\$ 225,662		\$ -	\$ 225,662	\$ -	\$ 225,662
	<b>Testing &amp; Commissioning</b>									
4.10	Testing & Commissioning of T-Line and Equipment	1	EA		\$ 40,000		\$ -	\$ 40,000	\$ -	\$ 40,000
	<b>Permitting, Indirects and Additional Costs</b>									
4.11	Environmental Licensing & Permitting Costs & related legal cost	1	LS		\$ 322,374		\$ -	\$ 322,374	\$ -	\$ 322,374
4.12	Environmental-special studies/investigation		LS		\$ -		\$ -	\$ -	\$ -	\$ -
4.13	Warranties / LOC's	1	LS		\$ 96,712		\$ -	\$ 96,712	\$ -	\$ 96,712
4.14	Laydown Lease & temporary easement	1	LS		\$ 500,000		\$ -	\$ 500,000	\$ -	\$ 500,000
4.15	Real Estate ( Acquisition)		LS		\$ -		\$ -	\$ -	\$ -	\$ -
4.16	Legal Fees (Real estate)	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
4.17	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
4.18	Insurance (specialty, e.g. railroad)	-	Crossing			\$ 1,000	\$ -	\$ -	\$ -	\$ -
4.19	Bonds	1	LS			\$ 1,140,000	\$ -	\$ -	\$ 1,140,000	\$ 1,140,000
4.20	Sales Tax on Materials	8.88%	% of material cost	\$ 13,668,504.91			\$ 1,213,763	\$ -	\$ -	\$ 1,213,763
4.21	Fees for permits, including roadway, railroad, building or other local permits	1	LS			\$ 32,237	\$ -	\$ -	\$ 32,237	\$ 32,237
<b>TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&amp;C, PM &amp; INDIRECTS:</b>							\$ 1,536,137	\$ 5,351,413	\$ 1,585,940	\$ 8,473,490

Propel NY - TO48 BS2

BS2.4b New Rochelle to Sprainbrook 345kV Onshore UG Cables -single circuit

Total:   \$ 192,457,231

Propel NY - TO48 BS2				
	Material Supply	Labor Supply	Equip Supply	Total
BS2.4b New Rochelle to Sprainbrook 345kV Onshore UG Cables -single circuit				
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT	\$ 2,062,976	\$ 10,216,426	\$ 4,057,750	\$ 16,337,152
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION	\$ 13,413,863	\$ 17,463,031	\$ 12,869,325	\$ 43,746,219
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION	\$ 24,404,937	\$ 14,775,402	\$ 9,279,739	\$ 48,460,079
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 4,626,936	\$ 17,106,525	\$ 5,639,213	\$ 27,372,674
SUBTOTAL (Costs):	\$ 44,508,712	\$ 59,561,384	\$ 31,846,028	\$ 135,916,124
CONTRACTOR MARK-UP (OH&P)	\$ 8,011,568	\$ 10,721,049	\$ 5,732,285	\$ 24,464,902
SUBTOTAL:	\$ 52,520,280	\$ 70,282,433	\$ 37,578,313	\$ 160,381,026
CONTINGENCY ON ENTIRE PROJECT	\$ 10,504,056	\$ 14,056,487	\$ 7,515,663	\$ 32,076,205
TOTAL:	\$ 63,024,336	\$ 84,338,920	\$ 45,093,976	\$ 192,457,231

Description of Work: The proposed 345 kV electric underground transmission lines extending from the Ruland Road Substation in the Hamlet of Melville in the Town of Huntington in Suffolk County to the Sprain Brook Substation in the City of Yonkers, Westchester County. A marine segment is proposed from Shore Road Substation to a landing point in New Rochelle across the Long Island Sound. The proposed route will be approximately 36.1 miles, utilizing 4000 kcmil XLPE cable for the onshore portions of the route and two circuits of 3x1400 mm2 (2760 kcmil) Cu/XLPE/Pb/StSWA submarine cable for the offshore portions of the route. New Rochelle Station To Sprainbrook segment is 8.14 miles

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
BS2.4b New Rochelle to Sprainbrook 345kV Onshore UG Cables -single circuit										
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT										
1.1	Environmental BMPs / SWPPP Installation, Maintenance & Repairs	0	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1.2	Existing Utility Conflict and Relocation	8.14	Mile		\$ 700,000	\$ 300,000	\$ -	\$ 5,698,000	\$ 2,442,000	\$ 8,140,000
1.3	Flaggers	280	DAY	\$ 1,600	\$ 4,800	\$ 1,600	\$ 448,000	\$ 1,344,000	\$ 448,000	\$ 2,240,000
1.4	K Rail / Lane Control / Metal Plates	42,979	LF	\$ 30	\$ 18	\$ 12	\$ 1,289,376	\$ 773,626	\$ 515,750	\$ 2,578,752
1.5	Police Support	11,200.0	HR		\$ 120	\$ 27	\$ -	\$ 1,344,000	\$ 302,400	\$ 1,646,400
1.6	Additional Traffic Management		LS				\$ -	\$ -	\$ -	\$ -
1.7	Access / Clearing Costs		LS				\$ -	\$ -	\$ -	\$ -
1.8	Snow Removal	80.0	DAY		\$ 1,000	\$ 300	\$ -	\$ 80,000	\$ 24,000	\$ 104,000
1.9	Existing Utility Protection	8.14	Mile	\$ 40,000	\$ 120,000	\$ 40,000	\$ 325,600	\$ 976,800	\$ 325,600	\$ 1,628,000
TOTAL - SITE PREP/ACCESS/TRAFFIC MANAGEMENT/ ACCESS:							\$ 2,062,976	\$ 10,216,426	\$ 4,057,750	\$ 16,337,152
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION										
2.1	Trench Box Shoring & Trench Box Install Crew	8.14	Miles		\$ 139,800	\$ 93,200	\$ -	\$ 1,137,972	\$ 758,648	\$ 1,896,620
2.2	Formwork in Trench	318,202	SF	\$ 2	\$ 1.5	\$ 0.5	\$ 636,403	\$ 477,302	\$ 159,101	\$ 1,272,806
2.3	Trench Excavation	16,476	CY		\$ 17.5	\$ 7.5	\$ -	\$ 288,326	\$ 123,568	\$ 411,894
2.4	Supply & Install 6" Sand Bedding for direct bury conduits	1,716	SF	\$ 50	\$ 25	\$ 14	\$ 85,811	\$ 42,048	\$ 24,027	\$ 151,886
2.5	Supply & Install Thermal Backfill	15,159	CY	\$ 350	\$ 245	\$ 105	\$ 5,305,570	\$ 3,713,899	\$ 1,591,671	\$ 10,611,139
2.6	Supply & Install Concrete Cap (6")	0	CY	\$ 200	\$ 125	\$ 50	\$ -	\$ -	\$ -	\$ -
2.7	Native Backfill -direct bury conduits sys Trench	0	CY		\$ 14.0	\$ 6.0	\$ -	\$ -	\$ -	\$ -
2.8	Supply & Install Ductbank Concrete	6,125	CY	\$ 200	\$ 125.0	\$ 50.0	\$ 1,225,076	\$ 765,673	\$ 306,269	\$ 2,297,018
2.9	Conduit 8" HDPE	128,938	LF	\$ 20.5	\$ 5.7	\$ 2.4	\$ 2,648,378	\$ 731,076	\$ 313,318	\$ 3,692,773
2.10	Conduit 4" HDPE	42,979	LF	\$ 5.4	\$ 4.20	\$ 1.8	\$ 230,798	\$ 180,513	\$ 77,363	\$ 488,674
2.11	Conduit 2" HDPE	42,979	LF	\$ 1.9	\$ 3.15	\$ 1.4	\$ 82,090	\$ 135,384	\$ 58,022	\$ 275,497
2.12	Warning Tape	42,979	LF	\$ 0.15	\$ 0.25	\$ 0.10	\$ 6,447	\$ 10,745	\$ 4,298	\$ 21,490
2.13	Trench Box Shoring (Vault)	40	EA	\$ -	\$ 18,079	\$ 27,119	\$ -	\$ 723,164	\$ 1,084,746	\$ 1,807,910

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
2.14	Splice Vault Excavation	7,800	CY		\$ 17.5	\$ 7.5	\$ -	\$ 136,500	\$ 58,500	\$ 195,000
2.15	Splice Vault Supply & Installation	40	EA	\$ 35,000	\$ 16,500	\$ 38,500	\$ 1,400,000	\$ 660,000	\$ 1,540,000	\$ 3,600,000
2.16	Splice Vault Backfill	2,340	CY		\$ 14.0	\$ 6.0	\$ -	\$ 32,760	\$ 14,040	\$ 46,800
2.17	Jack and Bore along Route	310	LF	\$ 800	\$ 1,600	\$ 1,600	\$ 248,000	\$ 496,000	\$ 496,000	\$ 1,240,000
2.18	HDD along Route	1,494	LF	\$ 800	\$ 1,600	\$ 1,600	\$ 1,195,200	\$ 2,390,400	\$ 2,390,400	\$ 5,976,000
2.19	Air Test Ducts	214,896	LF			\$ 0.25	\$ -	\$ -	\$ 53,724	\$ 53,724
2.20	PVMT, ASPHALT, 2" SURFACE COURSE	17,317	SY	\$ 14.00	\$ 14.00	\$ 7.00	\$ 242,436	\$ 242,436	\$ 121,218	\$ 606,089
2.21	PVMT, AGGREGATE, 10", BASE COURSE	4,810	CY	\$ 22.38	\$ 23.50	\$ 10.07	\$ 107,653	\$ 113,036	\$ 48,444	\$ 269,132
2.22	Concrete Ductbank Thermal Resistivity Testing (every 100CY of concrete poured)	61	EA		\$ 400	\$ 1,200	\$ -	\$ 24,502	\$ 73,505	\$ 98,006
2.23	Concrete Ductbank Compressive Strength Testing (every 100CY of concrete poured)	61	EA		\$ 10	\$ 15	\$ -	\$ 613	\$ 919	\$ 1,531
2.24	Backfill Thermal Resistivity Testing (every 100CY of backfill placed)	152	EA		\$ 400	\$ 1,200	\$ -	\$ 60,635	\$ 181,905	\$ 242,540
2.25	Additional misc. testing allowance (Native Backfill, Asphalt Density, Concrete Curb etc.)	1	LS		\$ 444,444	\$ 296,296	\$ -	\$ 444,444	\$ 296,296	\$ 740,740
2.26	Excess Materials Disposal to Certified Backfill	28,517	CY		\$ 24.5	\$ 10.5	\$ -	\$ 698,654	\$ 299,423	\$ 998,078
2.27	Rock Excavation and Removal	16,184	CY		\$ 243	\$ 162	\$ -	\$ 3,932,675	\$ 2,621,783	\$ 6,554,458
2.28	Dewatering	40	EA			\$ 4,000	\$ -	\$ -	\$ 160,000	\$ 160,000
2.29	Contaminated Water Treatment and Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.30	Contaminated Spoils Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.31	Excavated material - stockpile management	24,276	CF		\$ 1.0	\$ 0.5	\$ -	\$ 24,276	\$ 12,138	\$ 36,414
TOTAL - ONSHORE CABLE CONDUITS & VAULTS INSTALLATION:							\$ 13,413,863	\$ 17,463,031	\$ 12,869,325	\$ 43,746,219
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION										
3.1	Circuit #1- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable	135,384	FT	\$ 154	\$ 92	\$ 62	\$ 20,849,210	\$ 12,509,526	\$ 8,339,684	\$ 41,698,420
3.2	Circuit #1- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable	120	EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ 1,406,640	\$ 984,648	\$ 281,328	\$ 2,672,616
3.3	Circuit #1- Cable Termination- 345kV 4000kcmil Cu XLPE Cable	6	EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ 166,830	\$ 49,232	\$ 14,066	\$ 230,129
3.4	Circuit #2- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable		FT	\$ 154	\$ 92	\$ 62	\$ -	\$ -	\$ -	\$ -
3.5	Circuit #2- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.6	Circuit #2- Cable Termination- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.7	Circuit #3- Procurement & Installation- 345kV 4000kcmil Cu XLPE Cable		FT	\$ 154	\$ 92	\$ 62	\$ -	\$ -	\$ -	\$ -
3.8	Circuit #3- Cable Splicing- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.9	Circuit #3- Cable Termination- 345kV 4000kcmil Cu XLPE Cable		EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ -	\$ -	\$ -	\$ -
3.10	Link Box & MH racking	40	EA	\$ 26,500	\$ 18,550	\$ 7,950	\$ 1,060,018	\$ 742,013	\$ 318,005	\$ 2,120,036
3.11	Fiber Optic Cable	45,128	FT	\$ 7	\$ 3	\$ 2	\$ 333,813	\$ 150,304	\$ 100,203	\$ 584,319
3.12	Ground Continuity Conductor	45,128	FT	\$ 13	\$ 8	\$ 5	\$ 588,426	\$ 339,680	\$ 226,453	\$ 1,154,559
TOTAL - ONSHORE CABLE PROCUREMENT AND INSTALLATION							\$ 24,404,937	\$ 14,775,402	\$ 9,279,739	\$ 48,460,079
BS2.4b New Rochelle to Sprainbrook 345kV Onshore UG Cables -single circuit							\$ 39,881,776	\$ 42,454,859	\$ 26,206,815	\$ 108,543,450
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
4.1	Mob / Demob	1	LS		\$ 2,059,850	\$ 1,373,233	\$ -	\$ 2,059,850	\$ 1,373,233	\$ 3,433,084
	Project Management, Material Handling & Amenities									
4.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1.0	LS		1,085,434.50		\$ -	\$ 1,085,434	\$ -	\$ 1,085,434
4.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.0	LS		4,341,737.99		\$ -	\$ 4,341,738	\$ -	\$ 4,341,738
4.4	Utility PM and Project Oversight	1.0	LS		1,085,434.50		\$ -	\$ 1,085,434	\$ -	\$ 1,085,434
4.5	Site Accommodation, Facilities, Storage	1.0	LS	1,085,434.50			\$ 1,085,434	\$ -	\$ -	\$ 1,085,434
	Engineering									
4.6	Design Engineering	1.0	LS		\$ 5,427,172	\$ -	\$ -	\$ 5,427,172	\$ -	\$ 5,427,172
4.7	LiDAR /GPR	1.0	LS		\$ 195,378	\$ 130,252	\$ -	\$ 195,378	\$ 130,252	\$ 325,630
4.8	Geotech	9.0	Location		\$ 2,730	\$ 1,820	\$ -	\$ 24,570	\$ 16,380	\$ 40,950
4.9	Surveying/Staking	1	LS		\$ 455,882		\$ -	\$ 455,882	\$ -	\$ 455,882
	Testing & Commissioning									
4.10	Testing & Commissioning of T-Line and Equipment	1	EA		\$ 20,000		\$ -	\$ 20,000	\$ -	\$ 20,000
	Permitting, Indirects and Additional Costs									
4.11	Environmental Licensing & Permitting Costs & related legal cost	1	LS		\$ 1,085,434		\$ -	\$ 1,085,434	\$ -	\$ 1,085,434
4.12	Environmental-special studies/investigation	-	LS		\$ -		\$ -	\$ -	\$ -	\$ -
4.13	Warranties / LOC's	1	LS		\$ 325,630		\$ -	\$ 325,630	\$ -	\$ 325,630
4.14	Laydown Lease & temporary easement	1	LS		\$ 1,000,000		\$ -	\$ 1,000,000	\$ -	\$ 1,000,000
4.15	Real Estate ( Acquisition)	1	LS		\$ -	\$ 164,858	\$ -	\$ -	\$ 164,858	\$ 164,858
4.16	Legal Fees (Real estate)	1.00	LS		-	4,945.74	\$ -	\$ -	\$ 4,946	\$ 4,946

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
4.17	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
4.18	Insurance (specialty, e.g. railroad)	1	Crossing			\$ 1,000	\$ -	\$ -	\$ 1,000	\$ 1,000
4.19	Bonds	1	LS			\$ 3,840,000	\$ -	\$ -	\$ 3,840,000	\$ 3,840,000
4.20	Sales Tax on Materials	8.88%	% of material cost	\$ 39,881,775.62			\$ 3,541,502	\$ -	\$ -	\$ 3,541,502
4.21	Fees for permits, including roadway, railroad, building or other local permits	1	LS			\$ 108,543	\$ -	\$ -	\$ 108,543	\$ 108,543
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 4,626,936	\$ 17,106,525	\$ 5,639,213	\$ 27,372,674

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Other Misc. Upgrades

Total: \$ 15,301,296

Other Misc. Upgrades				
	Material Supply	Labor Supply	Equip Supply	Total
Other Misc. Upgrades				
1. Lake Success-Jamaica Cooling Upgrade	\$ 4,000,000	\$ 2,320,000	\$ 1,880,000	\$ 8,200,000
	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:	\$ 437,200	\$ 1,743,800	\$ 425,000	\$ 2,606,000
CONTRACTOR MARK-UP (OH&P)	\$ 798,696	\$ 731,484	\$ 414,900	\$ 1,945,080
SUBTOTAL:	\$ 5,235,896	\$ 4,795,284	\$ 2,719,900	\$ 12,751,080
CONTINGENCY ON ENTIRE PROJECT	\$ 1,047,179	\$ 959,057	\$ 543,980	\$ 2,550,216
TOTAL:	\$ 6,283,075	\$ 5,754,341	\$ 3,263,880	\$ 15,301,296

Description of Work: 5000KCMIL (Conductor size) (XLPE )armored cable buried below the Long Island Sound (buried 6' or protected by concrete mattresses or rock)

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
Other Misc. Upgrades										
1. Lake Success-Jamaica Cooling Upgrade										
1.1	Cooling upgrade	1	LS	4,000,000.00	2,320,000.00	1,880,000.00	\$ 4,000,000	\$ 2,320,000	\$ 1,880,000	\$ 8,200,000
1.2							\$ -	\$ -	\$ -	\$ -
1.3							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
							\$ 4,000,000	\$ 2,320,000	\$ 1,880,000	\$ 8,200,000
2.1	138kV Line Upgrade									
							\$ -	\$ -	\$ -	\$ -
TOTAL - :										
3.1	138kV Line Upgrade									
							\$ -	\$ -	\$ -	\$ -
TOTAL - :										
							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
Other Comp. 138kV Upgrades							\$ 4,000,000.00	\$ 2,320,000.00	\$ 1,880,000.00	\$ 8,200,000.00

Item	Item Description	Estimated Quantity	Unit of Measure	Material Supply Rate	Labor Supply Rate	Const. Equipment Rate	Material Supply Cost	Labor Supply Cost	Const. Equipment Cost	TOTAL
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:										
	Contractor Mobilization / Demobilization									
4.1	Mob / Demob	1.0	LS		\$ 126,000	\$ 84,000	\$ -	\$ 126,000	\$ 84,000	\$ 210,000
	Project Management, Material Handling & Amenities									
4.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		82,000.00		\$ -	\$ 82,000	\$ -	\$ 82,000
4.3	Construction Project Management / Supervision	1	LS		328,000.00		\$ -	\$ 328,000	\$ -	\$ 328,000
4.4	Utility PM and Project Oversight	1	LS		82,000.00		\$ -	\$ 82,000	\$ -	\$ 82,000
4.5	Site Accommodation, Facilities, Storage	1	LS	82,000.00			\$ 82,000	\$ -	\$ -	\$ 82,000
	Engineering									
4.6	Design Engineering	1.00	LS		\$ 410,000	\$ -	\$ -	\$ 410,000	\$ -	\$ 410,000
4.7	LiDAR	1.00	LS		\$ 14,760	\$ 9,840	\$ -	\$ 14,760	\$ 9,840	\$ 24,600
4.8	Geotech	-	EA		\$ 2,730	\$ 1,820	\$ -	\$ -	\$ -	\$ -
4.9	Surveying/Staking	1.00	Site		\$ 34,440	\$ 22,960	\$ -	\$ 34,440	\$ 22,960	\$ 57,400
	Testing & Commissioning									
4.10	Testing & Commissioning of SS and Equipment	1.00	LS		\$ 60,000		\$ -	\$ 60,000	\$ -	\$ 60,000
	Permitting and Additional Costs									
4.11	Physical Security	-	LS				\$ -	\$ -	\$ -	\$ -
4.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		\$ 82,000		\$ -	\$ 82,000	\$ -	\$ 82,000
4.13	Environmental-special studies/investigation	-	LS		\$ -		\$ -	\$ -	\$ -	\$ -
4.14	Warranties / LOC's	1.00	LS		\$ 24,600		\$ -	\$ 24,600	\$ -	\$ 24,600
4.15	Laydown Lease & temporary easement	1	LS		\$ 500,000		\$ -	\$ 500,000	\$ -	\$ 500,000
4.16	Real Estate ( Acquisition)	1.00	LS				\$ -	\$ -	\$ -	\$ -
4.17	Legal Fees (Real estate)	1.00	LS		-	-	\$ -	\$ -	\$ -	\$ -
4.18	Insurance	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
4.19	Insurance (specialty, e.g. railroad)		Crossing			\$ 1,000	\$ -	\$ -	\$ -	\$ -
4.20	Bonds	1	LS			\$ 300,000	\$ -	\$ -	\$ 300,000	\$ 300,000
4.21	Sales Tax on Materials	8.88%	LS	\$ 4,000,000.00			\$ 355,200	\$ -	\$ -	\$ 355,200
4.22	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS			\$ 8,200	\$ -	\$ -	\$ 8,200	\$ 8,200
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 437,200	\$ 1,743,800	\$ 425,000	\$ 2,606,000



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ESTIMATE ASSUMPTIONS & CLARIFICATIONS	
General assumptions/clarifications	
1	This TO48 estimating workbook includes the substation and transmission line components listed in the sheet.
2	Based on 2022 pricing
3	The estimate contains 20% contingency amount. To cover unknow risk allowance. Costs include contractor mark-up (6%-trunkey cost (i.e. HVDC, GIS), 18%-others) for OH and profit
4	Costs have been developed based on historical data from Projects of a similar nature (AACE Class 5 and 4 Estimating Practices). Major equipment pricing is based on budgetary quotes from equipment suppliers. However, we have not engaged any subcontractors or material venders for formal quotes for minor materials.
5	Cost for dust control is excluded, we assume that water trucks for construction are not required.
6	Excavation currently excludes rock. More detail required to quantify rock, as well as construction means and methods allowed. Rock adder is approximately \$405/CY for standard rock excavation.
7	Work schedule assumes working 5 days per week, 10 hours per day. The construction durations for each segment are based on Attachment B.04.1 Addendum Construction Schedule Revision 0.
8	Pricing assumes union labor will be required.
9	In indirect section, we assume that these construction contracts will be let on an EPC type basis (perhaps progressive design-build or similar contracting model) and that the construction contractor would have significant input into the pre-con planning stage. The project management staffing make up is based on the project scope and duration, for the substation interconnection/upgrade project only assume one construction manager and one environmental coordinator to meet EMCP requirement.
10	Costs will vary for handling and disposal of contaminated spoils, depending on type of contaminants and availability / location of the appropriate tippy facility. Since there is not enough information to provide a quantified estimate for this item, allowance is included in the contingency monies.
11	An allowance of 5% for transmission design and engineering is included in indirect section, cost of turnkey GIS and HVDC excluded
12	An allowance of 8% for substation design and engineering is included in indirect section, cost of turnkey GIS and HVDC excluded
13	An allowance of 0.3% for GPR of the transmission line is included in indirect section
14	An allowance of 0.7% for survey and staking of the tline and substation layout is included in indirect section, cost of turnkey GIS and HVDC excluded for substations.
15	An allowance of 3.75% for substation testing and commissioning is included in indirect section, cost of turnkey GIS and HVDC excluded
16	An allowance of \$20,000 per circuit for transmission line testing and commissioning is included in indirect section
17	An allowance of 1% for environmental Licensing & Permitting Costs & related legal cost is included in indirect section; and cost for environmental-special studies/investigation is quantified and included for required segment. Cost of turnkey GIS and HVDC excluded for substations.
18	The estimate does not include cost for insurance, assume it will be provided by he owner (i.e. OCIP) . The estimate includes cost for bond (2% of the total contract value)
19	New York State sales tax of 8.8% is included for all material pricing
20	A mob of 3% and demob of 2% has been included per segment (percentage is based on construction labor and equipment costs), except submarine segment.
21	An allowance of 1% for Preconstruction Supervision (Engineering, Permitting, Procurement) is included in indirect section.
22	An allowance of 4% for Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff) is included in indirect section.
23	An allowance of 1% for Utility PM and Project Oversight is included in indirect section.
24	An allowance of 1% for Site Accommodation, Facilities, Storage is included in indirect section.
25	An allowance of 3% of the real estate acquisition cost is included for real estate legal fees.
Tline assumptions/clarifications	
26	Assumed all UG conduits are installed with concrete encasement and no splicing point included inside substations. The conduit trench details please refer to each tab.
27	Not enough detail to quantify existing utility relocation. A plug of \$1M per mile has been included for relocation of existing utilities and \$200K / mile for protection of existing utilities.
28	Traffic control allows for k-rail, metal sheet plates and lane control for underground sections. We have not included for construction of new roads or any permanent traffic measures.
29	The trench excavation width and depth assumed details are shown in each tab.
30	The MH counts are based on our field and desktop review
31	Assumes that 30% of native spoils from vault excavation will be used as backfill.
32	Off haul / disposal spoils quantity includes a 1.3X multiplier for truck load.
33	Assumed asphalt paving repair includes a 2" surfacing course pavement
34	Additional 5% of route length is added to UG cable length, 10% of route length added to submarine cable length
35	Shore Road to Sprainbrook 345kv UG line, assume Shore Road to New Rochelle is 2-circuit, New Rochelle to Sprainbrook is 1 -circuit.
36	The submarine cable quantity and cost are calculated based on # of passes and the total cable length. We assume i.e 1 circuits, 2 cable per circuit, so there are 2 passes.
37	For transmission lines that are routed on the west side of the LI Sound (Bronx and Westchester County) assume 40% rock excavation.
Substation assumptions/clarifications	
38	Site grading: Excavation quantity in substations is based on 3', fill quantity is based on 60% site borrow and 40% import.
39	Substation new access road access road quantity is based on interior access road only, no new exterior access roads are required based on the plot drawings provided.
40	Substation pad is based on 8" base and 6" surfacing rock.
41	The firewalls for transformers/PAR/Reactors are assumed 30' tall, if required
42	All of the enclosure buildings are based on dimensions shown on the site plot plan, cost includes pre-engineered building structure, HVAC, mechanical, fire protection.
43	Costs for precast concrete piles (12"x80') were included in several substations by developer, there are no drawings nor geo technical report to verify if it is required and the quantities. We assumed it is required and included the costs based on developer's quantities.
44	The control panels quantities and values are provided by Sub Station Engineers.