

LS Power - T035		
REVISION: 1		
LS Power - T035 -DIRECT COST		
Substation Direct Costs		Total Each Segment
Direct Labor, Material & Equipment Costs	1 - Longshore GIS Substation	\$ 138,747,951
Direct Labor, Material & Equipment Costs	2 - Southgate HVDC Converter Station and GIS Substation	\$ 889,292,814
Direct Labor, Material & Equipment Costs	3 - Northgate HVDC Converter Station and GIS Substation	\$ 914,861,797
Direct Labor, Material & Equipment Costs	4 - Millwood Interconnection	\$ 255,937
Direct Labor, Material & Equipment Costs	5 - Barrett Interconnection	\$ -
Direct Labor, Material & Equipment Costs	6 - Ruland Road Substation_ Interconnection	\$ 7,339,250
Direct Labor, Material & Equipment Costs	7 - Pleasant Valley Substation_ Interconnection	\$ 482,787
Direct Labor, Material & Equipment Costs	8 - Buchanan Substation_ Interconnection	\$ 482,787
Direct Labor, Material & Equipment Costs	9 - Pilgrim Road Substation_ Interconnection	\$ 14,375,435
Direct Labor, Material & Equipment Costs	10 - Freeport Substation_ Interconnection	\$ 482,787
Direct Labor, Material & Equipment Costs	11 - Valley Stream Substation_ Interconnection	\$ 568,100
Direct Labor, Material & Equipment Costs	12 - Empire Offshore Wind Substation_ Interconnection	\$ 568,100
Direct Labor, Material & Equipment Costs	13 - Control Center Upgrade	\$ 66,800
SUBTOTAL (Costs):		\$ 1,967,524,547
CONTRACTOR MARK-UP (OH&P)		\$ 160,109,618
SUBTOTAL (AFTER MU):		\$ 2,127,634,165
CONTINGENCY ON ENTIRE PROJECT		\$ 425,526,833
Substation TOTAL:		\$ 2,553,160,998
Transmission Line Direct Costs		Total Each Segment
Direct Labor, Material & Equipment Costs	A Longshore-Southgate 345kV Onshore UG Cables -Three circuits	\$ 557,272,228
Direct Labor, Material & Equipment Costs	B Southgate-Northgate 400kV Onshore UG Cables -Three circuits	\$ 800,180,902
Direct Labor, Material & Equipment Costs	C. Southgate to Northgate Offshore Submarine Cables- Three Circuits	\$ 379,314,289
Direct Labor, Material & Equipment Costs	D. OH Transmission_ Existing Millwood Substation	\$ 3,600,000
Direct Labor, Material & Equipment Costs	E. 138kV Upgrades	\$ 6,855,142
SUBTOTAL (Costs):		\$ 1,747,222,561
CONTRACTOR MARK-UP (OH&P)		\$ 314,500,061
SUBTOTAL (AFTER MU):		\$ 2,061,722,622
CONTINGENCY ON ENTIRE PROJECT		\$ 412,344,524
Transmission Line TOTAL:		\$ 2,474,067,146
LS Power - T035Total Direct Cost		\$ 5,027,228,144

LS Power - T035 -INDIRECT COST		
Substation Indirect Costs		Total Each Segment
Indirect Costs	1 - Longshore GIS Substation	\$ 46,569,858
Indirect Costs	2 - Southgate HVDC Converter Station and GIS Substation	\$ 99,806,761
Indirect Costs	3 - Northgate HVDC Converter Station and GIS Substation	\$ 103,842,723
Indirect Costs	4 - Millwood Interconnection	\$ 126,760
Indirect Costs	5 - Barrett Interconnection (Cost not included)	\$ -
Indirect Costs	6 - Ruland Road Substation_ Interconnection	\$ 1,924,421
Indirect Costs	7 - Pleasant Valley Substation_ Interconnection	\$ 224,232
Indirect Costs	8 - Buchanan Substation_ Interconnection	\$ 224,232
Indirect Costs	9 - Pilgrim Road Substation_ Interconnection	\$ 4,625,250
Indirect Costs	10 - Freeport Substation_ Interconnection	\$ 224,232
Indirect Costs	11 - Valley Stream Substation_ Interconnection	\$ 169,210
Indirect Costs	12 - Empire Offshore Wind Substation_ Interconnection	\$ 262,106
Indirect Costs	13 - Control Center Upgrade	\$ 9,000
SUBTOTAL (Costs):		\$ 258,008,786
CONTRACTOR MARK-UP (OH&P)		\$ 46,441,581
SUBTOTAL (AFTER MU):		\$ 304,450,367
CONTINGENCY ON ENTIRE PROJECT		\$ 60,890,073
Substation TOTAL:		\$ 365,340,440
Transmission Line Indirect Costs		Total Each Segment
Indirect Costs	A Longshore-Southgate 345kV Onshore UG Cables -Three circuits	\$ 138,612,644
Indirect Costs	B Southgate-Northgate 400kV Onshore UG Cables -Three circuits	\$ 197,718,723
Indirect Costs	C. Southgate to Northgate Offshore Submarine Cables- Three Circuits	\$ 88,714,142
Indirect Costs	D. OH Transmission_Existing Millwood Substation	\$ 900,000
Indirect Costs	E. 138kV Upgrades	\$ 1,741,743
SUBTOTAL (Costs):		\$ 427,687,251
CONTRACTOR MARK-UP (OH&P)		\$ 76,983,705
SUBTOTAL (AFTER MU):		\$ 504,670,956
CONTINGENCY ON ENTIRE PROJECT		\$ 100,934,191
Transmission Line TOTAL:		\$ 605,605,147
LS Power - T035 Total Indirect Cost		\$ 970,945,588
LS Power - T035 Total		\$ 5,998,173,732

LS Power - T035

1 - Longshore GIS Substation

Total: \$ 257,992,097

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
1 - Longshore GIS Substation				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 1,588,879	\$ 1,604,454	\$ 957,642	\$ 4,150,974
2. SUBSTATION FOUNDATIONS	\$ 5,124,404	\$ 5,095,699	\$ 3,095,369	\$ 13,315,472
3. SUBSTATION STRUCTURES	\$ 872,139	\$ 712,387	\$ 466,848	\$ 2,051,373
4. MAJOR EQUIPMENT	\$ 81,903,923	\$ 16,501,120	\$ 9,233,718	\$ 107,638,760
5. LOW VOLTAGE & CONTROL CABLE	\$ 363,938	\$ 98,413	\$ 19,683	\$ 482,034
6. CONDUIT & CABLE TRENCH	\$ 369,975	\$ 112,248	\$ 40,212	\$ 522,435
7. GROUND GRID	\$ 164,647	\$ 118,974	\$ 27,782	\$ 311,403
8. CONTROL ENCLOSURE	\$ 5,013,250	\$ 3,823,309	\$ 1,438,941	\$ 10,275,499
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 8,395,302	\$ 26,427,534	\$ 11,747,022	\$ 46,569,858
Turnkey cost (HVDC, GIS)	\$ 15,340,000	\$ 9,204,000	\$ 6,136,000	\$ 30,680,000
Non-Turnkey cost	\$ 88,456,456	\$ 45,290,138	\$ 20,891,215	\$ 154,637,809
SUBTOTAL (Costs):	\$ 103,796,456	\$ 54,494,138	\$ 27,027,215	\$ 185,317,809
CONTRACTOR MARK-UP (OH&P):	\$ 16,842,562	\$ 8,704,465	\$ 4,128,579	\$ 29,675,606
SUBTOTAL:	\$ 120,639,018	\$ 63,198,603	\$ 31,155,793	\$ 214,993,414
CONTINGENCY ON ENTIRE PROJECT	\$ 24,127,804	\$ 12,639,721	\$ 6,231,159	\$ 42,998,683
TOTAL:	\$ 144,766,821	\$ 75,838,324	\$ 37,386,952	\$ 257,992,097

Description of Work: New 345/138kV substation in a breaker and a half configuration to be located near the existing Barrett 138/69kV substation. The substation will have 3 connections to the Barrett 138kV substation controlled by phase angle regulators, positions to connect the Empire II offshore wind generation and/or other future offshore wind generation and 3 connections to the Southgate substation with shunt reactors to provide reactive compensation for the cables.

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 - Longshore GIS Substation										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	4.5	ACRE	-	10,800.00	7,200.00	\$ -	\$ 48,600	\$ 32,400	\$ 81,000
1.2	Demolition	0	ACRE	-	-	-	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'	3,433	SY	4.85	7.20	4.80	\$ 16,652	\$ 24,720	\$ 16,480	\$ 57,852
1.4	Strip and Dispose Top Soil	7,260	CY		24.50	10.50	\$ -	\$ 177,870	\$ 76,230	\$ 254,100
1.5	Site Grading- Excavation for Substation Pad	21,780	CY		9.00	6.00	\$ -	\$ 196,020	\$ 130,680	\$ 326,700
1.6	Site Grading- Excavation for Substation Pad- Hauling and disposal	11,761	CY		21.00	9.00	\$ -	\$ 246,985.20	\$ 105,850.80	\$ 352,836.00
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	17,642	CY		2.40	1.60	\$ -	\$ 42,340	\$ 28,227	\$ 70,567
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	11,761	CY	25.00	2.40	1.60	\$ 294,030	\$ 28,227	\$ 18,818	\$ 341,075
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	21,780	SY	11.00	6.00	4.00	\$ 239,580	\$ 130,680	\$ 87,120	\$ 457,380
1.11	Site Surfacing - Aggregate 6" Thick	21,780	SY	16.50	4.50	3.00	\$ 359,370	\$ 98,010	\$ 65,340	\$ 522,720
1.12	7' Station Fence w/ Barbed Wire & Grounding	1,572	LF	13.85	13.85	6.92	\$ 21,769	\$ 21,769	\$ 10,885	\$ 54,423
1.13	24' 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	Underground Detention Basin	2	EA	291,144.00	262,029.60	174,686.40	\$ 582,288	\$ 524,059	\$ 349,373	\$ 1,455,720
1.16	Seeding	12,896	SF	1.50	1.50	1.00	\$ 19,344	\$ 19,344	\$ 12,896	\$ 51,584
1.17	Erosion Control-Silt fence install & remove	2,430	LF	2.41	3.16	0.72	\$ 5,856	\$ 7,679	\$ 1,750	\$ 15,285

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
1.18	Temporary fencing	1,620	LF	7.50	5.25	2.25	\$ 12,150	\$ 8,505	\$ 3,645	\$ 24,300
1.19	Substation entrance with asphalt	667	SY	19.50	26.00	19.50	\$ 13,000	\$ 17,333	\$ 13,000	\$ 43,333
1.20	Concrete curb	140	LF	26.00	27.30	11.70	\$ 3,640	\$ 3,822	\$ 1,638	\$ 9,100
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ 1,588,879	\$ 1,604,454	\$ 957,642	\$ 4,150,974
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, H Frame -SHARED COLUMN (3 BAY)	235	CY	703.89	804.44	502.78	\$ 165,160	\$ 188,754	\$ 117,971	\$ 471,885
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-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS support-1 Ph	305	CY	703.89	804.44	502.78	\$ 214,333	\$ 244,952	\$ 153,095	\$ 612,380
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	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, Disconnect Switch -(Double Break)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	345/138KV, Single-Phase 420/560/700MVA 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-150MVAR	915	CY	703.89	804.44	502.78	\$ 644,055	\$ 736,063	\$ 460,039	\$ 1,840,157
2.16	345kV, Shunt Reactor with oil containment-100MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Phase Angle Regulator with oil containment	1,335	CY	703.89	804.44	502.78	\$ 939,686	\$ 1,073,927	\$ 671,205	\$ 2,684,819
2.18	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.20	345kV, Surge arrester	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	345/138 Kv, Control Enclosure-BLDG with generator pad	576	CY	703.89	804.44	502.78	\$ 405,438	\$ 463,357	\$ 289,598	\$ 1,158,394
2.22	345kV, GIS Enclosure-BLDG	1,176	CY	703.89	804.44	502.78	\$ 827,769	\$ 946,021	\$ 591,263	\$ 2,365,054
2.23	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.24	138kV, Dead-Tank Breaker	13	CY	703.89	804.44	502.78	\$ 9,385	\$ 10,726	\$ 6,704	\$ 26,815
2.25	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.27	138kV, Disconnect Switch	145	CY	703.89	804.44	502.78	\$ 102,373	\$ 116,998	\$ 73,124	\$ 292,494
2.28	138kV, Cable sealing end	36	CY	703.89	804.44	502.78	\$ 25,593	\$ 29,249	\$ 18,281	\$ 73,124
2.29	138kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	138kV, Surge arrester	48	CY	703.89	804.44	502.78	\$ 33,892	\$ 38,734	\$ 24,209	\$ 96,834
2.31	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.32	Precast Firewall for transformer, PARs, reactors		SF	25.00	15.00	10.00	\$ -	\$ -	\$ -	\$ -
2.33	Precast Concrete Piles-12"X80"	-	EA				\$ -	\$ -	\$ -	\$ -
2.34	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.35	Steel grating and support beams-transformer moat	389,520	LB	2.73	1.17	0.50	\$ 1,064,098	\$ 455,349	\$ 195,150	\$ 1,714,596
TOTAL - 345KV FOUNDATION							\$ 5,124,404	\$ 5,095,699	\$ 3,095,369	\$ 13,315,472
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	0	EA	23,400.00	14,040.00	9,360.00	\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, H Frame -SHARED COLUMN (3 BAY)	2	EA	64,350.00	38,610.00	25,740.00	\$ 128,700	\$ 77,220	\$ 51,480	\$ 257,400
3.4	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
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	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS air terminal-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS support-1 Ph	75	EA	8,346.00	5,758.74	3,839.16	\$ 625,950	\$ 431,906	\$ 287,937	\$ 1,345,793
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	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.13	345kV, Disconnect Switch -(Double Break)	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.14	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	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Disconnect Switch	6	EA	4,896.84	4,896.84	2,448.42	\$ 29,381	\$ 29,381	\$ 14,691	\$ 73,453
3.18	138kV, Cable sealing end	3	EA	4,810.00	2,886.00	1,924.00	\$ 14,430	\$ 8,658	\$ 5,772	\$ 28,860

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
3.19	138kV, Surge arrester	9	EA	4,066.40	1,443.00	962.00	\$ 36,598	\$ 12,987	\$ 8,658	\$ 58,243
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	720	LF	25.00	184.94	123.29	\$ 18,000	\$ 133,155	\$ 88,770	\$ 239,926
3.25	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							\$ 872,139	\$ 712,387	\$ 466,848	\$ 2,051,373
4. MAJOR EQUIPMENT										
4.1	345Kv, GIS indoor	18	EA	852,222.22	511,333.33	340,888.89	\$ 15,340,000	\$ 9,204,000	\$ 6,136,000	\$ 30,680,000
4.2	345kV, GIS air terminal-3 Ph									
4.3	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, Cable sealing end	0	EA	27,144.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.5	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.6	345kV, Disconnect Switch -(Double Break)	0	EA	68,900.00	51,948.00	34,632.00	\$ -	\$ -	\$ -	\$ -
4.7	345/138KV, Single-Phase 420/560/700MVA Power Transformer with oil containment	3	EA	6,280,000.00	3,520.00	880.00	\$ 18,840,000	\$ 10,560	\$ 2,640	\$ 18,853,200
4.8	Transport & Testing- Transformer	3	EA		1,030,400.00	441,600.00	\$ -	\$ 3,091,200	\$ 1,324,800	\$ 4,416,000
4.9	345kV, Shunt Reactor with oil containment-150MVAR	3	EA	2,629,516.50	3,520.00	880.00	\$ 7,888,550	\$ 10,560	\$ 2,640	\$ 7,901,750
4.10	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	Transport & Testing- Shunt Reactor	3	EA		339,150.00	145,350.00	\$ -	\$ 1,017,450	\$ 436,050	\$ 1,453,500
4.12	345kV, Phase Angle Regulator with oil containment	3	EA	12,570,303.00	3,520.00	880.00	\$ 37,710,909	\$ 10,560	\$ 2,640	\$ 37,724,109
4.13	Transport & Testing- PAR	3	EA		715,400.00	306,600.00	\$ -	\$ 2,146,200	\$ 919,800	\$ 3,066,000
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	8,450.00	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, Dead-Tank Breaker	3	EA	112,000.00	13,559.00	5,811.00	\$ 336,000	\$ 40,677	\$ 17,433	\$ 394,110
4.21	138kV, Disconnect Switch	6	EA	12,566.67	11,875.50	5,089.50	\$ 75,400	\$ 71,253	\$ 30,537	\$ 177,190
4.22	138kV, Cable sealing end	3	EA	11,600.00	3,150.00	1,350.00	\$ 34,800	\$ 9,450	\$ 4,050	\$ 48,300
4.23	138kV, CCVT	0	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.24	138kV, Surge arrester	9	EA	4,446.00	4,200.00	1,800.00	\$ 40,014	\$ 37,800	\$ 16,200	\$ 94,014
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 (outdoor)	1,815	LF	550.00	275.00	82.50	\$ 998,250	\$ 499,125	\$ 149,738	\$ 1,647,113
4.27	345kV Gas-Insulated Bus Conductor-elbow (outdoor)	48	EA	2,500.00	1,250.00	375.00	\$ 120,000	\$ 60,000	\$ 18,000	\$ 198,000
4.28	Transport & Testing- GIL	1	LS		201,285.00	134,190.00	\$ -	\$ 201,285	\$ 134,190	\$ 335,475
TOTAL - MAJOR EQUIPMENT							\$ 81,903,923	\$ 16,501,120	\$ 9,233,718	\$ 107,638,760

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	68,700	LF	5.30	1.43	0.29	\$ 363,938	\$ 98,413	\$ 19,683	\$ 482,034
5.2			LF		-	-	\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 363,938	\$ 98,413	\$ 19,683	\$ 482,034
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	4,500	LF	11.15	10.80	5.40	\$ 50,175	\$ 48,600	\$ 24,300	\$ 123,075
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	1,200	LF	266.50	53.04	13.26	\$ 319,800	\$ 63,648	\$ 15,912	\$ 399,360
6.7										
6.8	138kV UG	0	LF	-	-	-	\$ -	\$ -	\$ -	\$ -
6.9							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 369,975	\$ 112,248	\$ 40,212	\$ 522,435
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	16,890	LF	2.09	3.42	1.46	\$ 35,317	\$ 57,684	\$ 24,722	\$ 117,723
7.2	Caweld, DSA, 4/0 , T, CROSS	450	EA	165.00	75.00		\$ 74,250	\$ 33,750	\$ -	\$ 108,000
7.3	Ground Rod, 3/4" x 15'	408	EA	135.00	67.50	7.50	\$ 55,080	\$ 27,540	\$ 3,060	\$ 85,680
TOTAL - GROUND GRID							\$ 164,647	\$ 118,974	\$ 27,782	\$ 311,403
8. CONTROL ENCLOSURE										
8.1	345/138 Kv, Control Enclosure-BLDG with generator pad	1	EA	964,411.37	675,087.96	289,323.41	\$ 964,411	\$ 675,088	\$ 289,323	\$ 1,928,823
8.2	345kV, GIS Enclosure-BLDG	1	EA	2,211,495.05	1,548,046.53	663,448.51	\$ 2,211,495	\$ 1,548,047	\$ 663,449	\$ 4,422,990
8.3	Primary Line Relays (87L): SEL-411L	9	EA	21,328.12	17,062.49	4,265.62	\$ 191,953	\$ 153,562	\$ 38,391	\$ 383,906
8.4	Backup Line Relays (87L): GE L90	9	EA	21,328.12	17,062.49	4,265.62	\$ 191,953	\$ 153,562	\$ 38,391	\$ 383,906
8.5	Primary Bay Control: SEL-451	9	EA	21,328.12	17,062.49	4,265.62	\$ 191,953	\$ 153,562	\$ 38,391	\$ 383,906
8.6	Backup Bay Control: SEL-451	9	EA	21,328.12	17,062.49	4,265.62	\$ 191,953	\$ 153,562	\$ 38,391	\$ 383,906
8.7	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	9	EA	21,328.12	17,062.49	4,265.62	\$ 191,953	\$ 153,562	\$ 38,391	\$ 383,906
8.8	Backup Transformer/Reactor/PAR Differential Relays: GE T60	9	EA	21,328.12	17,062.49	4,265.62	\$ 191,953	\$ 153,562	\$ 38,391	\$ 383,906
8.9	Primary Bus Differential Relays: SEL-487B	4	EA	21,328.12	17,062.49	4,265.62	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
8.10	Backup Bus Differential Relays: GE B90	4	EA	21,328.12	17,062.49	4,265.62	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
8.11	RTU Panel A: SEL-2240 Axion, SEL-2730M ENET SW., SEL-2407 GPS	2	EA	12,500.00	10,000.00	2,500.00	\$ 25,000	\$ 20,000	\$ 5,000	\$ 50,000
8.12	RTU Panel B: SEL-2730M Ethernet Switch, SEL-2407 GPS Clock	2	EA	12,500.00	10,000.00	2,500.00	\$ 25,000	\$ 20,000	\$ 5,000	\$ 50,000
8.13	HMI Panel	2	EA	12,500.00	10,000.00	2,500.00	\$ 25,000	\$ 20,000	\$ 5,000	\$ 50,000
8.14	125VDC Battery System	2	EA	25,000.00	22,750.00	9,750.00	\$ 50,000	\$ 45,500	\$ 19,500	\$ 115,000
8.15	Control house AC Panel	2	EA	65,000.00	91,000.00	39,000.00	\$ 130,000	\$ 182,000	\$ 78,000	\$ 390,000
8.16	Control House DC Panel	2	EA	65,000.00	91,000.00	39,000.00	\$ 130,000	\$ 182,000	\$ 78,000	\$ 390,000
8.17	Generator	1	EA	130,000.00	72,800.00	31,200.00	\$ 130,000	\$ 72,800	\$ 31,200	\$ 234,000
TOTAL - CONTROL ENCLOSURE							\$ 5,013,250	\$ 3,823,309	\$ 1,438,941	\$ 10,275,499
1 - Longshore GIS Substation							\$ 95,401,154	\$ 28,066,604	\$ 15,280,192	\$ 138,747,951
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		980,237.88	420,101.95	\$ -	\$ 980,238	\$ 420,102	\$ 1,400,340
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		1,080,679.51		\$ -	\$ 1,080,680	\$ -	\$ 1,080,680
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		4,322,718.03		\$ -	\$ 4,322,718	\$ -	\$ 4,322,718
9.4	Utility PM and Project Oversight	1.00	LS		1,080,679.51		\$ -	\$ 1,080,680	\$ -	\$ 1,080,680
9.5	Site Accommodation, Facilities, Storage	1.00	LS			1,080,679.51	\$ -	\$ -	\$ 1,080,680	\$ 1,080,680
	Engineering									
9.6	Design Engineering	1.00	LS		8,645,436.06		\$ -	\$ 8,645,436	\$ -	\$ 8,645,436
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		756,475.65		\$ -	\$ 756,476	\$ -	\$ 756,476
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		4,052,548.15		\$ -	\$ 4,052,548	\$ -	\$ 4,052,548
	Permitting and Additional Costs									
9.11	Physical Security	1.00	LS		101,477.88		\$ -	\$ 101,478	\$ -	\$ 101,478
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		1,080,679.51		\$ -	\$ 1,080,680	\$ -	\$ 1,080,680
9.13	Environmental-special studies/investigation	1.00	LS		3,850,000.00		\$ -	\$ 3,850,000	\$ -	\$ 3,850,000
9.14	Warranties / LOC's	1.00	LS		324,203.85		\$ -	\$ 324,204	\$ -	\$ 324,204
9.15	Laydown Lease	-	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
9.16	Real Estate (Acquisition)	1.00	LS		-	4,890,428.00	\$ -	\$ -	\$ 4,890,428	\$ 4,890,428
9.17	Legal Fees (Real estate)	1.00	LS		-	146,712.84	\$ -	\$ -	\$ 146,713	\$ 146,713
9.18	Insurance	-	LS			-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS			\$ 5,200,000	\$ -	\$ -	\$ 5,200,000	\$ 5,200,000
9.20	Sales Tax on Materials	8.80%	LS	95,401,154.17			\$ 8,395,302	\$ -	\$ -	\$ 8,395,302
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		138,747.95		\$ -	\$ 138,748	\$ -	\$ 138,748
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 8,395,302	\$ 26,427,534	\$ 11,747,022	\$ 46,569,858

LS Power - T035

2 - Southgate HVDC Converter Station and GIS Substation

Total: \$ 1,285,987,078

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
2 - Southgate HVDC Converter Station and GIS Substation				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 5,528,344	\$ 5,571,006	\$ 3,475,822	\$ 14,575,171
2. SUBSTATION FOUNDATIONS	\$ 2,840,173	\$ 2,738,737	\$ 1,652,082	\$ 7,230,992
3. SUBSTATION STRUCTURES	\$ 349,932	\$ 429,409	\$ 280,223	\$ 1,059,564
4. MAJOR EQUIPTMENT	\$ 513,940,664	\$ 167,230,050	\$ 161,279,125	\$ 842,449,839
5. LOW VOLTAGE & CONTROL CABLE	\$ 790,652	\$ 213,801	\$ 42,760	\$ 1,047,213
6. CONDUIT & CABLE TRENCH	\$ 5,965,897	\$ 3,167,060	\$ 1,672,921	\$ 10,805,879
7. GROUND GRID	\$ 676,335	\$ 490,642	\$ 115,432	\$ 1,282,409
8. CONTROL ENCLOSURE	\$ 5,296,374	\$ 4,049,809	\$ 1,495,566	\$ 10,841,749
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 47,114,177	\$ 20,766,920	\$ 31,925,664	\$ 99,806,761
Turnkey cost (HVDC, GIS)	\$ 474,340,000	\$ 162,204,000	\$ 159,136,000	\$ 795,680,000
Non-Turnkey cost	\$ 108,162,547	\$ 42,453,433	\$ 42,803,595	\$ 193,419,575
SUBTOTAL (Costs):	\$ 582,502,547	\$ 204,657,433	\$ 201,939,595	\$ 989,099,575
CONTRACTOR MARK-UP (OH&P):	\$ 47,929,658	\$ 17,373,858	\$ 17,252,807	\$ 82,556,323
SUBTOTAL:	\$ 630,432,205	\$ 222,031,291	\$ 219,192,402	\$ 1,071,655,898
CONTINGENCY ON ENTIRE PROJECT	\$ 126,086,441	\$ 44,406,258	\$ 43,838,480	\$ 214,331,180
TOTAL:	\$ 756,518,646	\$ 266,437,550	\$ 263,030,882	\$ 1,285,987,078

Description of Work: New 345/138kV substation in a breaker and a half configuration with 3 +400kV monopole DC converter stations to located near the existing Ruland Road 138/69kV substation. The AC portion of the substation will have 3 connections to the Ruland road 138kV substation, positions to connect the future "Ruland Road" offshore wind generation, 3 connections to HVDC converter stations and 3 connections to Longshore substation with shunt reactors to provide reactive compensation for the cables.

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 - Southgate HVDC Converter Station and GIS Substation										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	18.0	ACRE	-	21,000.00	14,000.00	\$ -	\$ 378,000	\$ 252,000	\$ 630,000
1.2	Demolition	0	ACRE	-	-	-	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'	10,841	SY	4.85	7.20	4.80	\$ 52,577	\$ 78,053	\$ 52,035	\$ 182,665
1.4	Strip and Dispose Top Soil	29,040	CY		24.50	10.50	\$ -	\$ 711,480	\$ 304,920	\$ 1,016,400
1.5	Site Grading- Excavation for Substation Pad	87,120	CY		9.00	6.00	\$ -	\$ 784,080	\$ 522,720	\$ 1,306,800
1.6	Site Grading- Excavation for Substation Pad-Hauling and disposal	47,045	CY		21.00	9.00	\$ -	\$ 987,940.80	\$ 423,403.20	\$ 1,411,344.00
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	70,567	CY		2.40	1.60	\$ -	\$ 169,361	\$ 112,908	\$ 282,269
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	47,045	CY	25.00	2.40	1.60	\$ 1,176,120	\$ 112,908	\$ 75,272	\$ 1,364,299
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	87,120	SY	11.00	6.00	4.00	\$ 958,320	\$ 522,720	\$ 348,480	\$ 1,829,520
1.11	Site Surfacing - Aggregate 6" Thick	87,120	SY	16.50	4.50	3.00	\$ 1,437,480	\$ 392,040	\$ 261,360	\$ 2,090,880
1.12	7' Station Fence w/ Barbed Wire & Grounding	3,708	LF	13.85	13.85	6.92	\$ 51,348	\$ 51,348	\$ 25,674	\$ 128,371
1.13	25' 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	Underground Detention Basin	2	EA	579,024.00	521,121.60	347,414.40	\$ 1,158,048	\$ 1,042,243	\$ 694,829	\$ 2,895,120
1.16	Seeding	30,048	SF	1.50	1.50	1.00	\$ 45,072	\$ 45,072	\$ 30,048	\$ 120,192
1.17	Erosion Control-Silt fence install & remove	5,634	LF	2.41	3.16	0.72	\$ 13,578	\$ 17,803	\$ 4,056	\$ 35,438
1.18	Temporary fencing	3,756	LF	7.50	5.25	2.25	\$ 28,170	\$ 19,719	\$ 8,451	\$ 56,340
1.19	Substation entrance with asphalt	667	SY	19.50	26.00	19.50	\$ 13,000	\$ 17,333	\$ 13,000	\$ 43,333
1.20	Concrete curb	180	LF	26.00	27.30	11.70	\$ 4,680	\$ 4,914	\$ 2,106	\$ 11,700

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	Noise/Visual Wall	2,500	LF	227.50	91.00	136.50	\$ 568,750	\$ 227,500	\$ 341,250	\$ 1,137,500
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ 5,528,344	\$ 5,571,006	\$ 3,475,822	\$ 14,575,171
2. SUBSTATION FOUNDATIONS										
2.1	345kV, Lightning mast foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, A Frame 70'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, H Frame -SHARED COLUMN (3 BAY)	117	CY	703.89	804.44	502.78	\$ 82,580	\$ 94,377	\$ 58,986	\$ 235,942
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	119	CY	703.89	804.44	502.78	\$ 83,622	\$ 95,567	\$ 59,730	\$ 238,919
2.7	345kV, GIS air terminal-3 Ph	-	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	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345kV, SSVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.15	345/138KV, Single-Phase 720/900/1200MVA Power Transformer with oil containmenet	984	CY	703.89	804.44	502.78	\$ 692,623	\$ 791,569	\$ 494,731	\$ 1,978,922
2.16	345kV, Shunt Reactor with oil containment-150MVAR	915	CY	703.89	804.44	502.78	\$ 644,055	\$ 736,063	\$ 460,039	\$ 1,840,157
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	345kV, Surge arrester	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	345/138 Kv, Control Enclosure-BLDG with generator pad	576	CY	703.89	804.44	502.78	\$ 405,438	\$ 463,357	\$ 289,598	\$ 1,158,394
2.23	345kV, GIS Enclosure-BLDG		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.24	HVDC VSC Converter Station -DC Equipment foundations		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.25	HVDC VSC Converter Station -Converter phase reactor pad		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	HVDC VSC Converter Station -Converter enclosure pad		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.27	HVDC VSC Converter Station -Control room pad		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.28	HVDC VSC Converter Station-Station transformer pad		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	HVDC VSC Converter Station -Cooling fans pad		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	HVDC VSC Converter Station-AC Switch Yard Equipment foundations		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.31	HVDC VSC Converter Station- Converter Transformer pad with oil containment		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.32	HVDC VSC Converter Station- DE A frame foundation		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.33	HVDC VSC Converter Station- Cable sealing end		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.34	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.35	138kV, Dead-Tank Breaker	13	CY	703.89	804.44	502.78	\$ 9,385	\$ 10,726	\$ 6,704	\$ 26,815
2.36	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.37	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.38	138kV, Disconnect Switch	145	CY	703.89	804.44	502.78	\$ 102,373	\$ 116,998	\$ 73,124	\$ 292,494
2.39	138kV, Cable sealing end	36	CY	703.89	804.44	502.78	\$ 25,593	\$ 29,249	\$ 18,281	\$ 73,124
2.40	138kV, Surge arrester	48	CY	703.89	804.44	502.78	\$ 33,892	\$ 38,734	\$ 24,209	\$ 96,834
2.41	138kV, H Frame H Frame -SHARED COLUMN (3 BAY)	73	CY	703.89	804.44	502.78	\$ 51,215	\$ 58,531	\$ 36,582	\$ 146,328
2.42	Steel grating and support beams-transformer moat	259,680	LB	2.73	1.17	0.50	\$ 709,398	\$ 303,566	\$ 130,100	\$ 1,143,064
TOTAL - 345KV FOUNDATION							\$ 2,840,173	\$ 2,738,737	\$ 1,652,082	\$ 7,230,992
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast foundation	0	EA	23,400.00	14,040.00	9,360.00	\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	0	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, H Frame -SHARED COLUMN (3 BAY)	1	EA	64,350.00	38,610.00	25,740.00	\$ 64,350	\$ 38,610	\$ 25,740	\$ 128,700
3.4	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-3 Ph, low	15	EA	8,346.00	5,758.74	3,839.16	\$ 125,190	\$ 86,381	\$ 57,587	\$ 269,159
3.6	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS air terminal-3 Ph	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	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.13	345kV, SSVT	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	\$ -	\$ -	\$ -	\$ -
3.16	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	6	EA							

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
3.19	138kV, Cable sealing end	3	EA	4,066.40	1,443.00	962.00	\$ 12,199	\$ 4,329	\$ 2,886	\$ 19,414
3.20	138kV, Surge arrester	9	EA	4,066.40	1,443.00	962.00	\$ 36,598	\$ 12,987	\$ 8,658	\$ 58,243
3.21	138kV, H Frame H Frame -SHARED COLUMN (3 BAY)	1	EA	45,045.00	27,027.00	18,018.00	\$ 45,045	\$ 27,027	\$ 18,018	\$ 90,090
3.22	AL. Bus Tubing, 5" SCH 80	1,210	LF	25.00	184.94	123.29	\$ 30,250	\$ 223,775	\$ 149,183	\$ 403,208
3.23	AL. Bus fittings	1	LS	36,300.00	36,300.00	18,150.00	\$ 36,300	\$ 36,300	\$ 18,150	\$ 90,750
3.24	HVDC VSC Converter Station -DC Equipment stands	78	EA				\$ -	\$ -	\$ -	\$ -
3.25	HVDC VSC Converter Station-AC Switch Yard Equipment stands	63	EA				\$ -	\$ -	\$ -	\$ -
3.26	HVDC VSC Converter Station- DE A frame	3	EA				\$ -	\$ -	\$ -	\$ -
3.27	HVDC VSC Converter Station- Cable sealing end stand	9	EA				\$ -	\$ -	\$ -	\$ -
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 349,932	\$ 429,409	\$ 280,223	\$ 1,059,564
4. MAJOR EQUIPMENT										
4.1	345Kv, GIS indoor	18	EA	852,222.22	511,333.33	340,888.89	\$ 15,340,000	\$ 9,204,000	\$ 6,136,000	\$ 30,680,000
4.2	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS- Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.5	345kV, SSVT	0	EA				\$ -	\$ -	\$ -	\$ -
4.6	345kV, Disconnect Switch	0	EA		7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.7	345/138KV, Single-Phase 720/900/1200MVA Power Transformer with oil containmenet	3	EA	9,980,000.00	3,520.00	880.00	\$ 29,940,000	\$ 10,560	\$ 2,640	\$ 29,953,200
4.8	Transport & Testing- Transformer	3	EA		1,170,400.00	501,600.00	\$ -	\$ 3,511,200	\$ 1,504,800	\$ 5,016,000
4.9	345kV, Shunt Reactor with oil containment-150MVAR	3	EA	2,629,516.50	3,520.00	880.00	\$ 7,888,550	\$ 10,560	\$ 2,640	\$ 7,901,750
4.10	345kV, Shunt Reactor with oil containment-100MVAR	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	Transport & Testing- Shunt Reactor	3	EA		339,150.00	145,350.00	\$ -	\$ 1,017,450	\$ 436,050	\$ 1,453,500
4.12	345kV, Phase Angle Regulator	0	EA	16,120,693.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.13	Transport & Testing- Phase Angle Regulating Transformer, 345kV	0	EA		715,400.00	306,600.00	\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	0	EA	1,341,857.17	805,114.30	536,742.87	\$ -	\$ -	\$ -	\$ -
4.16	345kV, surge Arrester	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.17	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.18	138kV, Phase Angle Regulator	0	EA	11,902,178.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.19	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		701,400.00	300,600.00	\$ -	\$ -	\$ -	\$ -
4.20	138kV, Dead-Tank Breaker	3	EA	183,000.00	13,559.00	5,811.00	\$ 549,000	\$ 40,677	\$ 17,433	\$ 607,110
4.21	138kV, Disconnect Switch	6	EA	37,700.00	11,875.50	5,089.50	\$ 226,200	\$ 71,253	\$ 30,537	\$ 327,990
4.22	138kV, Cable sealing end-3 Ph	9	EA	11,600.00	1,050.00	450.00	\$ 104,400	\$ 9,450	\$ 4,050	\$ 117,900
4.23	138kV, Surge arrester	9	EA	4,446.00	4,200.00	1,800.00	\$ 40,014	\$ 37,800	\$ 16,200	\$ 94,014
4.24	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
4.25	HVDC 1200MW Monopoles	3.0	EA	153,000,000.00	51,000,000.00	51,000,000.00	\$ 459,000,000	\$ 153,000,000	\$ 153,000,000	\$ 765,000,000
4.26	HVDC VSC Converter Station -DC transducer	6.0	EA				\$ -	\$ -	\$ -	\$ -
4.27	HVDC VSC Converter Station -Converter phase reactor	18.0	EA				\$ -	\$ -	\$ -	\$ -
4.28	HVDC VSC Converter Station -Cooling fans	3.0	EA				\$ -	\$ -	\$ -	\$ -
4.29	HVDC VSC Converter Station- Converter Transformer	9.0	EA				\$ -	\$ -	\$ -	\$ -
4.30	HVDC VSC Converter Station -Converter enclosure	3.0	EA				\$ -	\$ -	\$ -	\$ -
4.31	HVDC VSC Converter Station -Control enclosure	3.0	EA				\$ -	\$ -	\$ -	\$ -
4.32	345kV Gas-Insulated Bus Conductor (Ourdoor)	550	LF	550.00	275.00	82.50	\$ 302,500.00	\$ 151,250.00	\$ 45,375.00	\$ 499,125
4.33	345kV Gas-Insulated Bus Conductor-elbow (Ourdoor)	12	EA	2,500.00	1,250.00	375.00	\$ 30,000	\$ 15,000	\$ 4,500	\$ 49,500
4.28	Transport & Testing- GIL	1	LS		59,850.00	39,900.00	\$ -	\$ 59,850	\$ 39,900	\$ 99,750
TOTAL - MAJOR EQUIPMENT							\$ 513,940,664	\$ 167,230,050	\$ 161,279,125	\$ 842,449,839
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables	149,250	LF	5.30	1.43	0.29	\$ 790,652	\$ 213,801	\$ 42,760	\$ 1,047,213
5.2			LF	5.30	1.43	0.29	\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 790,652	\$ 213,801	\$ 42,760	\$ 1,047,213
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	36,000	LF	11.15	10.80	5.40	\$ 401,400	\$ 388,800	\$ 194,400	\$ 984,600
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	2,125	LF	266.50	53.04	13.26	\$ 566,313	\$ 112,710	\$ 28,178	\$ 707,200
6.7	345kV UG Duct Bank- 6 conduits	2,925	FT	333.12	190.65	79.74	\$ 974,365.35	\$ 557,656.94	\$ 233,235.08	\$ 1,765,257.36
6.8	400kV HVDC UG Duct Bank- 2 conduits	4,790	FT	133.04	63.55	26.58	\$ 637,255.78	\$ 304,407.60	\$ 127,315.79	\$ 1,068,979.17
6.9	Procurement & Installation- 345kV single-core, 2000mm^2 XLPE cable	8,775	FT	154.00	105.00	70.00	\$ 1,351,350.00	\$ 921,375.00	\$ 614,250.00	\$ 2,886,975.00
6.10	Procurement & Installation- 400kV single-core, 2500mm^2 XLPE cable	4,790	FT	183.00	105.00	70.00	\$ 876,570.00	\$ 502,950.00	\$ 335,300.00	\$ 1,714,820.00
6.11	Cable termination- 345kV single-core, 2000mm^2 XLPE cable	24	EA	27,805.00	8,205.40	2,344.40	\$ 667,320.00	\$ 196,929.60	\$ 56,265.60	\$ 920,515.20

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
6.12	Cable termination- 400kV single-core, 2500mm^2 XLPE cable	12	EA	27,805.00	8,205.40	2,344.40	\$ 333,660.00	\$ 98,464.80	\$ 28,132.80	\$ 460,257.60
6.13	Fiber Optic Cable	7,715	LF	7.40	3.33	2.22	\$ 57,068	\$ 25,696	\$ 17,130	\$ 99,894
6.14	Ground Continuity Conductor	7,715	LF	13.04	7.53	5.02	\$ 100,596	\$ 58,071	\$ 38,714	\$ 197,381
TOTAL - CONDUIT & CABLE TRENCH							\$ 5,965,897	\$ 3,167,060	\$ 1,672,921	\$ 10,805,879
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	70,050	LF	2.09	3.42	1.46	\$ 146,475	\$ 239,242	\$ 102,532	\$ 488,249
7.2	Caweld, DSA, 4/0 , T, CROSS	1,804	EA	165.00	75.00		\$ 297,660	\$ 135,300	\$ -	\$ 432,960
7.3	Ground Rod, 3/4" x 15'	1,720	EA	135.00	67.50	7.50	\$ 232,200	\$ 116,100	\$ 12,900	\$ 361,200
TOTAL - GROUND GRID							\$ 676,335	\$ 490,642	\$ 115,432	\$ 1,282,409
8. CONTROL ENCLOSURE										
8.1	345/138 Kv, Control Enclosure-BLDG with generator pad	1	EA	964,411.37	675,087.96	289,323.41	\$ 964,411	\$ 675,088	\$ 289,323	\$ 1,928,823
8.2	345kV, GIS Enclosure-BLDG	1	EA	2,211,495.05	1,548,046.53	663,448.51	\$ 2,211,495	\$ 1,548,047	\$ 663,449	\$ 4,422,990
8.3	Primary Line Relays (87L): SEL-411L	12	EA	21,328.12	17,062.49	4,265.62	\$ 255,937	\$ 204,750	\$ 51,187	\$ 511,875
8.4	Backup Line Relays (87L): GE L90	12	EA	21,328.12	17,062.49	4,265.62	\$ 255,937	\$ 204,750	\$ 51,187	\$ 511,875
8.5	Primary Bay Control: SEL-451	9	EA	21,328.12	17,062.49	4,265.62	\$ 191,953	\$ 153,562	\$ 38,391	\$ 383,906
8.6	Backup Bay Control: SEL-451	9	EA	21,328.12	17,062.49	4,265.62	\$ 191,953	\$ 153,562	\$ 38,391	\$ 383,906
8.7	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	12	EA	21,328.12	17,062.49	4,265.62	\$ 255,937	\$ 204,750	\$ 51,187	\$ 511,875
8.8	Backup Transformer/Reactor/PAR Differential Relays: GE T60	12	EA	21,328.12	17,062.49	4,265.62	\$ 255,937	\$ 204,750	\$ 51,187	\$ 511,875
8.9	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
8.10	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
8.11	RTU Panel A: SEL-2240 Axion, SEL-2730M ENET SW., SEL-2407 GPS	5	EA	12,500.00	10,000.00	2,500.00	\$ 62,500	\$ 50,000	\$ 12,500	\$ 125,000
8.12	RTU Panel B: SEL-2730M Ethernet Switch, SEL-2407 GPS Clock	5	EA	12,500.00	10,000.00	2,500.00	\$ 62,500	\$ 50,000	\$ 12,500	\$ 125,000
8.13	HMI Panel	5	EA	12,500.00	10,000.00	2,500.00	\$ 62,500	\$ 50,000	\$ 12,500	\$ 125,000
8.14	125VDC Battery System	2	LS	25,000.00	22,750.00	9,750.00	\$ 50,000	\$ 45,500	\$ 19,500	\$ 115,000
8.15	Control house AC Panel	2	EA	65,000.00	91,000.00	39,000.00	\$ 130,000	\$ 182,000	\$ 78,000	\$ 390,000
8.16	Control House DC Panel	2	EA	65,000.00	91,000.00	39,000.00	\$ 130,000	\$ 182,000	\$ 78,000	\$ 390,000
8.17	Generator	1	EA	130,000.00	72,800.00	31,200.00	\$ 130,000	\$ 72,800	\$ 31,200	\$ 234,000
TOTAL - CONTROL ENCLOSURE							\$ 5,296,374	\$ 4,049,809	\$ 1,495,566	\$ 10,841,749
2 - Southgate HVDC Converter Station and GIS Substation							\$ 535,388,370	\$ 183,890,514	\$ 170,013,930	\$ 889,292,814
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		1,139,755.54	488,466.66	\$ -	\$ 1,139,756	\$ 488,467	\$ 1,628,222
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		936,128.14		\$ -	\$ 936,128	\$ -	\$ 936,128
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		3,744,512.58		\$ -	\$ 3,744,513	\$ -	\$ 3,744,513
9.4	Utility PM and Project Oversight	1.00	LS		936,128.14		\$ -	\$ 936,128	\$ -	\$ 936,128
9.5	Site Accommodation, Facilities, Storage	1.00	LS			936,128.14	\$ -	\$ -	\$ 936,128	\$ 936,128
	Engineering									
9.6	Design Engineering	1.00	LS		7,489,025.15		\$ -	\$ 7,489,025	\$ -	\$ 7,489,025
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		655,289.70		\$ -	\$ 655,290	\$ -	\$ 655,290
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		3,510,480.54		\$ -	\$ 3,510,481	\$ -	\$ 3,510,481
	Permitting and Additional Costs									
9.11	Physical Security	1.00	LS		235,690.56		\$ -	\$ 235,691	\$ -	\$ 235,691
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		936,128.14		\$ -	\$ 936,128	\$ -	\$ 936,128
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		280,838.44		\$ -	\$ 280,838	\$ -	\$ 280,838
9.15	Laydown Lease	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate (Acquisition)	1.00	LS		-	4,632,980.00	\$ -	\$ -	\$ 4,632,980	\$ 4,632,980
9.17	Legal Fees (Real estate)	1.00	LS		-	138,989.40	\$ -	\$ -	\$ 138,989	\$ 138,989
9.18	Insurance	-	LS			-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 25,720,000	\$ -	\$ -	\$ 25,720,000	\$ 25,720,000
9.20	Sales Tax on Materials	8.80%	LS	535,388,370.36			\$ 47,114,177	\$ -	\$ -	\$ 47,114,177
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		889,292.81		\$ -	\$ 889,293	\$ -	\$ 889,293
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 47,114,177	\$ 20,766,920	\$ 31,925,664	\$ 99,806,761

LS Power - T035

3 - Northgate HVDC Converter Station and GIS Substation

Total: \$ 1,328,627,681

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
3 - Northgate HVDC Converter Station and GIS Substation				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 10,337,697	\$ 34,865,838	\$ 39,497,979	\$ 84,701,514
2. SUBSTATION FOUNDATIONS	\$ 2,302,316	\$ 2,631,219	\$ 1,644,512	\$ 6,578,047
3. SUBSTATION STRUCTURES	\$ 1,727,682	\$ 1,614,244	\$ 1,063,322	\$ 4,405,248
4. MAJOR EQUIPMENT	\$ 477,031,750	\$ 163,130,875	\$ 158,875,763	\$ 799,038,388
5. LOW VOLTAGE & CONTROL CABLE	\$ 475,451	\$ 128,567	\$ 25,713	\$ 629,731
6. CONDUIT & CABLE TRENCH	\$ 4,522,578	\$ 2,249,529	\$ 1,200,010	\$ 7,972,117
7. GROUND GRID	\$ 855,372	\$ 621,302	\$ 146,455	\$ 1,623,129
8. CONTROL ENCLOSURE	\$ 4,832,312	\$ 3,678,559	\$ 1,402,753	\$ 9,913,624
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 44,183,494	\$ 28,977,890	\$ 30,681,340	\$ 103,842,723
Turnkey cost (HVDC, GIS)	\$ 471,840,000	\$ 160,704,000	\$ 158,136,000	\$ 790,680,000
Non-Turnkey cost	\$ 74,428,651	\$ 77,194,022	\$ 76,401,847	\$ 228,024,520
SUBTOTAL (Costs):	\$ 546,268,651	\$ 237,898,022	\$ 234,537,847	\$ 1,018,704,520
CONTRACTOR MARK-UP (OH&P):	\$ 41,707,557	\$ 23,537,164	\$ 23,240,492	\$ 88,485,214
SUBTOTAL:	\$ 587,976,208	\$ 261,435,187	\$ 257,778,339	\$ 1,107,189,734
CONTINGENCY ON ENTIRE PROJECT	\$ 117,595,242	\$ 52,287,037	\$ 51,555,668	\$ 221,437,947
TOTAL:	\$ 705,571,450	\$ 313,722,224	\$ 309,334,007	\$ 1,328,627,681

Description of Work: New 345 switchyard in a breaker and a half configuration with 3 +400kV monopole DC converter stations to be located near the existing Millwood 345kV substation. The AC portion of the substation will have 3 connections to the Millwood 345kV substation, 3 connections to HVDC converter stations, 2 connections to the Wood Street 345kV substation and 2 connections to the Buchanan 345kV 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
3 - Northgate HVDC Converter Station and GIS Substation										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	18.5	ACRE	-	42,000.00	28,000.00	\$ -	\$ 777,000	\$ 518,000	\$ 1,295,000
1.2	Demolition	0	ACRE	-	-	-	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20' (interior)	11,450	SY	4.85	7.20	4.80	\$ 55,533	\$ 82,440	\$ 54,960	\$ 192,933
1.4	Existing access road improvement	15,000	SF	10.50	14.00	9.00	\$ 157,500.00	\$ 210,000.00	\$ 135,000.00	\$ 502,500.00
1.5	New access road- exterior	500	LF	773.76	696.38	464.26	\$ 386,880.00	\$ 348,192.00	\$ 232,128.00	\$ 967,200.00
1.6	Strip and Dispose Top Soil	29,847	CY		24.50	10.50	\$ -	\$ 731,243	\$ 313,390	\$ 1,044,633
1.7	Site Grading- Excavation for Substation Pad- Soil excavation	179,080	CY		9.00	6.00	\$ -	\$ 1,611,720	\$ 1,074,480	\$ 2,686,200
1.8	Site Grading- Excavation for Substation Pad-Rock excavaton	179,080	CY		120.00	180.00	\$ -	\$ 21,489,600.00	\$ 32,234,400.00	\$ 53,724,000.00
1.9	Site Grading- Excavation for Substation Pad-Rock excavaton-Hauling and disposal	193,406	CY		21.00	9.00	\$ -	\$ 4,061,534.40	\$ 1,740,657.60	\$ 5,802,192.00
1.10	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	214,896	CY		2.40	1.60	\$ -	\$ 515,750.40	\$ 343,833.60	\$ 859,584.00
1.11	Site Grading -Fill for Substation Pad (import, compacted in place)	143,264	CY	25.00	2.40	1.60	\$ 3,581,600.00	\$ 343,833.60	\$ 229,222.40	\$ 4,154,656.00
1.12	Site Grading- Excavation for Substation Pad-Rock excavation-Hauling and disposal	96,703	CY		21.00	9.00	\$ -	\$ 2,030,767.20	\$ 870,328.80	\$ 2,901,096.00
1.13	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	145,055	CY		2.40	1.60	\$ -	\$ 348,132	\$ 232,088	\$ 580,219
1.14	Site Grading -Fill for Substation Pad (import, compacted in place)	96,703	CY	25.00	2.40	1.60	\$ 2,417,580	\$ 232,088	\$ 154,725	\$ 2,804,393
1.15	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.16	Install substation 8" pad base	89,540	SY	11.00	6.00	4.00	\$ 984,940	\$ 537,240	\$ 358,160	\$ 1,880,340
1.17	Site Surfacing - Aggregate 6" Thick	89,540	SY	16.50	4.50	3.00	\$ 1,477,410	\$ 402,930	\$ 268,620	\$ 2,148,960
1.18	7' Station Fence w/ Barbed Wire & Grounding	3,886	LF	13.85	13.85	6.92	\$ 53,813	\$ 53,813	\$ 26,907	\$ 134,533
1.19	25' Slide Gate & Grounding	2	EA	8,100.00	3,245.00	1,305.00	\$ 16,200	\$ 6,490	\$ 2,610	\$ 25,300

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
1.20	4' Pedestrian gate	2	EA	2,500.00	1,000.00	350.00	\$ 5,000	\$ 2,000	\$ 700	\$ 7,700
1.21	Underground Detention Basin	2	EA	579,024.00	521,121.60	347,414.40	\$ 1,158,048	\$ 1,042,243	\$ 694,829	\$ 2,895,120
1.22	Seeding		SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.23	Erosion Control-Silt fence install & remove	5,829	LF	2.41	3.16	0.72	\$ 14,048	\$ 18,420	\$ 4,197	\$ 36,664
1.24	Temporary fencing	3,886	LF	7.50	5.25	2.25	\$ 29,145	\$ 20,402	\$ 8,744	\$ 58,290
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ 10,337,697	\$ 34,865,838	\$ 39,497,979	\$ 84,701,514
2. SUBSTATION FOUNDATIONS										
2.1	345kV, Lightning mast foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, A Frame 70'	440	CY	703.89	804.44	502.78	\$ 309,653	\$ 353,889	\$ 221,181	\$ 884,723
2.3	345kV, H Frame -SHARED COLUMN (3 BAY)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.4	345kV, H Frame -SHARED COLUMN (2 BAY)	264	CY	703.89	804.44	502.78	\$ 185,805	\$ 212,348	\$ 132,718	\$ 530,870
2.5	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS air terminal-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS support-1 Ph	597	CY	703.89	804.44	502.78	\$ 420,093	\$ 480,106	\$ 300,066	\$ 1,200,265
2.10	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, GIS Cable sealing end	218	CY	703.89	804.44	502.78	\$ 153,560	\$ 175,497	\$ 109,685	\$ 438,742
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, SSVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.15	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.16	345/138KV, Single-Phase 300/400/500MVA Power Transformer with oil containmenet	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.17	345kV, Shunt Reactor with oil containment-150MVAR	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Shunt Reactor with oil containment-100MVAR	-	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	345kV, Surge arrester	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.23	345/138 Kv, Control Enclosure-BLDG with generator pad	576	CY	703.89	804.44	502.78	\$ 405,438	\$ 463,357	\$ 289,598	\$ 1,158,394
2.24	345kV, GIS Enclosure-BLDG	1,176	CY	703.89	804.44	502.78	\$ 827,769	\$ 946,021	\$ 591,263	\$ 2,365,054
2.25	HVDC VSC Converter Station -DC Equipment foundations		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	HVDC VSC Converter Station -Converter phase reactor pad		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.27	HVDC VSC Converter Station -Converter enclosure pad		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.28	HVDC VSC Converter Station -Control room pad		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	HVDC VSC Converter Station-Station transformer pad		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	HVDC VSC Converter Station -Cooling fans pad		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.31	HVDC VSC Converter Station-AC Switch Yard Equipment foundations		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.32	HVDC VSC Converter Station- Converter Transformer pad with oil containment		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.33	HVDC VSC Converter Station- DE A frame foundation		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.34	HVDC VSC Converter Station- Cable sealing end		CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.35	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.36	138kV, Dead-Tank Breaker	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.37	138kV, Bus support-3 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.38	138kV, Bus support-1 Ph, low	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.39	138kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.40	138kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.41	138kV, Surge arrester	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.42	Steel grating and support beams-transformer moat	0	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ 2,302,316	\$ 2,631,219	\$ 1,644,512	\$ 6,578,047
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast foundation	0	EA	23,400.00	14,040.00	9,360.00	\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	3	EA	48,100.00	28,860.00	19,240.00	\$ 144,300	\$ 86,580	\$ 57,720	\$ 288,600
3.3	345kV, H Frame -SHARED COLUMN (3 BAY)	0	EA	64,350.00	38,610.00	25,740.00	\$ -	\$ -	\$ -	\$ -
3.4	345kV, H Frame -SHARED COLUMN (2 BAY)	3	EA	42,900.00	25,740.00	17,160.00	\$ 128,700	\$ 77,220	\$ 51,480	\$ 257,400
3.5	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.6	345kV, Bus support-3 Ph, low	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS air terminal-3 Ph	147	EA	8,346.00	5,758.74	3,839.16	\$ 1,226,862	\$ 846,535	\$ 564,357	\$ 2,637,753
3.9	345kV, GIS support-1 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	18	EA	4,810.00	2,886.00	1,924.00	\$ 86,580	\$ 51,948	\$ 34,632	\$ 173,160
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, SSVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.15	345kV, Disconnect Switch	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -

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
3.16	345kV, Surge arrester	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Bus support-3 Ph, low	0	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Bus support-1 Ph, low	0	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.19	138kV, Disconnect Switch	0	EA							
3.20	138kV, Cable sealing end	0	EA	4,066.40	1,443.00	962.00	\$ -	\$ -	\$ -	\$ -
3.21	138kV, Surge arrester	0	EA	4,066.40	1,443.00	962.00	\$ -	\$ -	\$ -	\$ -
3.22	AL. Bus Tubing, 5" SCH 80	2,568	LF	25.00	184.94	123.29	\$ 64,200	\$ 474,921	\$ 316,614	\$ 855,735
3.23	AL. Bus fittings	1	LS	77,040.00	77,040.00	38,520.00	\$ 77,040	\$ 77,040	\$ 38,520	\$ 192,600
3.24	HVDC VSC Converter Station -DC Equipment stands		EA				\$ -	\$ -	\$ -	\$ -
3.25	HVDC VSC Converter Station-AC Switch Yard Equipment stands		EA				\$ -	\$ -	\$ -	\$ -
3.26	HVDC VSC Converter Station- DE A frame		EA				\$ -	\$ -	\$ -	\$ -
3.27	HVDC VSC Converter Station- Cable sealing end stand		EA				\$ -	\$ -	\$ -	\$ -
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 1,727,682	\$ 1,614,244	\$ 1,063,322	\$ 4,405,248
4. MAJOR EQUIPMENT										
4.1	345Kv, GIS indoor	15	EA	856,000.00	513,600.00	342,400.00	\$ 12,840,000	\$ 7,704,000	\$ 5,136,000	\$ 25,680,000
4.2	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS- Cable sealing end	18	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, CCVT	0	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.5	345kV, SSVT	0	EA				\$ -	\$ -	\$ -	\$ -
4.6	345kV, Disconnect Switch	0	EA		7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.7	345/138KV, Single-Phase 300/400/500MVA Power Transformer with oil containmenet	0	EA	9,980,000.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.8	Transport & Testing- Transformer	0	EA		1,170,400.00	501,600.00	\$ -	\$ -	\$ -	\$ -
4.9	345kV, Shunt Reactor with oil containment-150MVAR	0	EA	2,629,516.50	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	0	EA		339,150.00	145,350.00	\$ -	\$ -	\$ -	\$ -
4.12	345kV, Phase Angle Regulator	0	EA	16,120,693.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.13	Transport & Testing- Phase Angle Regulating Transformer, 345kV	0	EA		715,400.00	306,600.00	\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	0	EA		57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	0	EA	1,341,857.17	805,114.30	536,742.87	\$ -	\$ -	\$ -	\$ -
4.16	345kV, surge Arrester	0	EA		5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.17	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.18	138kV, Phase Angle Regulator	0	EA	11,902,178.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.19	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		701,400.00	300,600.00	\$ -	\$ -	\$ -	\$ -
4.20	138kV, Dead-Tank Breaker	0	EA	112,000.00	13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Disconnect Switch	0	EA				\$ -	\$ -	\$ -	\$ -
4.22	138kV, Cable sealing end	0	EA	11,600.00	1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.23	138kV, Surge arrester	0	EA	4,446.00	4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.24	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
4.25	HVDC 1200MW Monopoles	3.0	EA	153,000,000.00	51,000,000.00	51,000,000.00	\$ 459,000,000.00	\$ 153,000,000.00	\$ 153,000,000.00	\$ 765,000,000
4.26	HVDC VSC Converter Station -DC transducer	6.0	EA				\$ -	\$ -	\$ -	\$ -
4.27	HVDC VSC Converter Station -Converter phase reactor	18.0	EA				\$ -	\$ -	\$ -	\$ -
4.28	HVDC VSC Converter Station -Cooling fans	3.0	EA				\$ -	\$ -	\$ -	\$ -
4.29	HVDC VSC Converter Station- Converter Transformer	9.0	EA				\$ -	\$ -	\$ -	\$ -
4.30	HVDC VSC Converter Station -Converter enclosure	3.0	EA				\$ -	\$ -	\$ -	\$ -
4.31	HVDC VSC Converter Station -Control enclosure	3.0	EA				\$ -	\$ -	\$ -	\$ -
4.32	345kV Gas-Insulated Bus Conductor (OUTDOOR)	8,235	LF	550.00	275.00	82.50	\$ 4,529,250.00	\$ 2,264,625.00	\$ 679,387.50	\$ 7,473,262.50
4.33	345kV Gas-Insulated Bus Conductor-elbow (OUTDOOR)	57	EA	2,500.00	1,250.00	375.00	\$ 142,500	\$ 71,250	\$ 21,375	\$ 235,125
TOTAL - MAJOR EQUIPMENT							\$ 477,031,750	\$ 163,130,875	\$ 158,875,763	\$ 799,038,388

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	89,750	LF	5.30	1.43	0.29	\$ 475,451	\$ 128,567	\$ 25,713	\$ 629,731
5.2			LF	5.30	1.43	0.29	\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 475,451	\$ 128,567	\$ 25,713	\$ 629,731
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	14,000	LF	11.15	10.80	5.40	\$ 156,100	\$ 151,200	\$ 75,600	\$ 382,900
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	2,125	LF	266.50	53.04	13.26	\$ 566,313	\$ 112,710	\$ 28,178	\$ 707,200
6.7	345kV UG Duct Bank- 6 conduits	1,205	FT	333.12	190.65	79.74	\$ 401,405.21	\$ 229,735.59	\$ 96,084.88	\$ 727,225.68
6.8	400kV HVDC UG Duct Bank- 2 conduits	6,638	FT	133.04	63.55	26.58	\$ 883,111.46	\$ 421,849.20	\$ 176,434.69	\$ 1,481,395.36
6.9	Procurement & Installation- 345kV single-core, 2000mm^2 XLPE cable	3,615	FT	154.00	105.00	70.00	\$ 556,710.00	\$ 379,575.00	\$ 253,050.00	\$ 1,189,335.00
6.10	Procurement & Installation- 400kV single-core, 2500mm^2 XLPE cable	6,638	FT	183.00	105.00	70.00	\$ 1,214,754.00	\$ 696,990.00	\$ 464,660.00	\$ 2,376,404.00
6.11	Cable termination- 345kV single-core, 2000mm^2 XLPE cable	9	EA	27,805.00	8,205.40	2,344.40	\$ 250,245.00	\$ 73,848.60	\$ 21,099.60	\$ 345,193.20
6.12	Cable termination- 400kV single-core, 2500mm^2 XLPE cable	12	EA	27,805.00	8,205.40	2,344.40	\$ 333,660.00	\$ 98,464.80	\$ 28,132.80	\$ 460,257.60
6.13	Fiber Optic Cable	7,843	LF	7.40	3.33	2.22	\$ 58,015	\$ 26,122	\$ 17,415	\$ 101,551
6.14	Ground Continuity Conductor	7,843	LF	13.04	7.53	5.02	\$ 102,265	\$ 59,034	\$ 39,356	\$ 200,655
TOTAL - CONDUIT & CABLE TRENCH							\$ 4,522,578	\$ 2,249,529	\$ 1,200,010	\$ 7,972,117
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	88,908	LF	2.09	3.42	1.46	\$ 185,907	\$ 303,647	\$ 130,135	\$ 619,689
7.2	Caweld, DSA, 4/0 , T, CROSS	2,277	EA	165.00	75.00		\$ 375,705	\$ 170,775	\$ -	\$ 546,480
7.3	Ground Rod, 3/4" x 15'	2,176	EA	135.00	67.50	7.50	\$ 293,760	\$ 146,880	\$ 16,320	\$ 456,960
TOTAL - GROUND GRID							\$ 855,372	\$ 621,302	\$ 146,455	\$ 1,623,129
8. CONTROL ENCLOSURE										
8.1	345/138 Kv, Control Enclosure-BLDG with generator pad	1	EA	964,411.37	675,087.96	289,323.41	\$ 964,411	\$ 675,088	\$ 289,323	\$ 1,928,823
8.2	345kV, GIS Enclosure-BLDG	1	EA	2,211,495.05	1,548,046.53	663,448.51	\$ 2,211,495	\$ 1,548,047	\$ 663,449	\$ 4,422,990
8.3	Primary Line Relays (87L): SEL-411L	12	EA	21,328.12	17,062.49	4,265.62	\$ 255,937	\$ 204,750	\$ 51,187	\$ 511,875
8.4	Backup Line Relays (87L): GE L90	12	EA	21,328.12	17,062.49	4,265.62	\$ 255,937	\$ 204,750	\$ 51,187	\$ 511,875
8.5	Primary Bay Control: SEL-451	5	EA	21,328.12	17,062.49	4,265.62	\$ 106,641	\$ 85,312	\$ 21,328	\$ 213,281
8.6	Backup Bay Control: SEL-451	5	EA	21,328.12	17,062.49	4,265.62	\$ 106,641	\$ 85,312	\$ 21,328	\$ 213,281
8.7	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E	6	EA	21,328.12	17,062.49	4,265.62	\$ 127,969	\$ 102,375	\$ 25,594	\$ 255,937
8.8	Backup Transformer/Reactor/PAR Differential Relays: GE T60	6	EA	21,328.12	17,062.49	4,265.62	\$ 127,969	\$ 102,375	\$ 25,594	\$ 255,937
8.9	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
8.10	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
8.11	RTU Panel A: SEL-2240 Axion, SEL-2730M ENET SW., SEL-2407 GPS	4	EA	12,500.00	10,000.00	2,500.00	\$ 50,000	\$ 40,000	\$ 10,000	\$ 100,000
8.12	RTU Panel B: SEL-2730M Ethernet Switch, SEL-2407 GPS Clock	4	EA	12,500.00	10,000.00	2,500.00	\$ 50,000	\$ 40,000	\$ 10,000	\$ 100,000
8.13	HMI Panel	4	EA	12,500.00	10,000.00	2,500.00	\$ 50,000	\$ 40,000	\$ 10,000	\$ 100,000
8.14	125VDC Battery System	2	LS	25,000.00	22,750.00	9,750.00	\$ 50,000	\$ 45,500	\$ 19,500	\$ 115,000
8.15	Control house AC Panel	2	EA	65,000.00	91,000.00	39,000.00	\$ 130,000	\$ 182,000	\$ 78,000	\$ 390,000
8.16	Control House DC Panel	2	EA	65,000.00	91,000.00	39,000.00	\$ 130,000	\$ 182,000	\$ 78,000	\$ 390,000
8.17	Generator	1	EA	130,000.00	72,800.00	31,200.00	\$ 130,000	\$ 72,800	\$ 31,200	\$ 234,000
TOTAL - CONTROL ENCLOSURE							\$ 4,832,312	\$ 3,678,559	\$ 1,402,753	\$ 9,913,624
3 - Northgate HVDC Converter Station and GIS Substation							\$ 502,085,157	\$ 208,920,133	\$ 203,856,507	\$ 914,861,797
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		3,287,782.39	1,409,049.60	\$ -	\$ 3,287,782	\$ 1,409,050	\$ 4,696,832
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		1,241,817.97		\$ -	\$ 1,241,818	\$ -	\$ 1,241,818
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		4,967,271.88		\$ -	\$ 4,967,272	\$ -	\$ 4,967,272
9.4	Utility PM and Project Oversite	1.00	LS		1,241,817.97		\$ -	\$ 1,241,818	\$ -	\$ 1,241,818
9.5	Site Accommodation, Facilities, Storage	1.00	LS			1,241,817.97	\$ -	\$ -	\$ 1,241,818	\$ 1,241,818
	Engineering									
9.6	Design Engineering	1.00	LS		9,934,543.76		\$ -	\$ 9,934,544	\$ -	\$ 9,934,544
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		869,272.58		\$ -	\$ 869,273	\$ -	\$ 869,273
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		4,656,817.39		\$ -	\$ 4,656,817	\$ -	\$ 4,656,817
	Permitting and Additional Costs									
9.11	Physical Security	1.00	LS		235,690.56		\$ -	\$ 235,691	\$ -	\$ 235,691
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		1,241,817.97		\$ -	\$ 1,241,818	\$ -	\$ 1,241,818
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		372,545.39		\$ -	\$ 372,545	\$ -	\$ 372,545
9.15	Laydown Lease	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.16	Real Estate (Acquisition)	1.00	LS		-	1,418,808.00	\$ -	\$ -	\$ 1,418,808	\$ 1,418,808

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
9.17	Legal Fees (Real estate)	1.00	LS		-	42,564.24	\$ -	\$ -	\$ 42,564	\$ 42,564
9.18	Insurance	-	LS			-	\$ -	\$ -	\$ -	\$ -
9.19	Bonds	1	LS		-	\$ 26,560,000	\$ -	\$ -	\$ 26,560,000	\$ 26,560,000
9.20	Sales Tax on Materials	8.80%	LS	502,085,157.19			\$ 44,183,494	\$ -	\$ -	\$ 44,183,494
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		914,861.80		\$ -	\$ 914,862	\$ -	\$ 914,862
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 44,183,494	\$ 28,977,890	\$ 30,681,340	\$ 103,842,723

LS Power - T035

4 - Millwood Interconnection

Total: \$ 541,900

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
4 - Millwood Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ -	\$ -	\$ -
2. SUBSTATION FOUNDATIONS	\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES	\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT	\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE	\$ -	\$ -	\$ -	\$ -
6. CONDUIT CABLE TRENCH AND OH INTERCONNECTIONS	\$ -	\$ -	\$ -	\$ -
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE	\$ 127,969	\$ 102,375	\$ 25,594	\$ 255,937
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 11,261	\$ 97,661	\$ 17,838	\$ 126,760
SUBTOTAL (Costs):	\$ 139,230	\$ 200,036	\$ 43,432	\$ 382,698
CONTRACTOR MARK-UP (OH&P)	\$ 25,061	\$ 36,006	\$ 7,818	\$ 68,886
SUBTOTAL:	\$ 164,291	\$ 236,042	\$ 51,250	\$ 451,583
CONTINGENCY ON ENTIRE PROJECT	\$ 32,858	\$ 47,208	\$ 10,250	\$ 90,317
TOTAL:	\$ 197,150	\$ 283,250	\$ 61,500	\$ 541,900

Description of Work: Interconnection										
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 - Millwood Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing		ACRE	-	21,000.00	14,000.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition		LS	-	75,000.00	45,000.00	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'		SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil		CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad		CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad-Rock excavation-Hauling and disposal		CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)		CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)		CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base		SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick		SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding		LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	20' Slide Gate & Grounding		EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate		EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE, INFILTRATION TRENCH, INLET and Hydrodynamic Separator		LS	45,000.00	27,000.00	18,000.00	\$ -	\$ -	\$ -	\$ -
1.16	Seeding		SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove		LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing		LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt		SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -

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	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 support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
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)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.20	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	138kV, Circuit Breaker (Dead-tank)	-	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	138kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.27	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.28	138kV, H Frame H Frame -Single Bay	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	138kV, H Frame H Frame -SHARED COLUMN (2 BAY)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.30	Steel grating and support beams-transformer moat	0	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	0	EA	23,400.00	14,040.00	9,360.00	\$ -	\$ -	\$ -	\$ -
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 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	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, CCVT	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Disconnect Switch	0	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
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	4,896.84	4,896.84	2,448.42	\$ -	\$ -	\$ -	\$ -
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	138kV, H Frame H Frame -Single Bay	0	EA	19,305.00	11,583.00	7,722.00	\$ -	\$ -	\$ -	\$ -
3.20	138kV, H Frame H Frame -SHARED COLUMN (2 BAY)	0	EA	32,175.00	19,305.00	12,870.00	\$ -	\$ -	\$ -	\$ -
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		LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -
3.24	AL. Bus fittings		LS	-	-	-	\$ -	\$ -	\$ -	\$ -
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	0	EA				\$ -	\$ -	\$ -	\$ -

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
4.2	345kV, GIS Cable sealing end	0	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, Cable sealing end	0	EA	27,144.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.4	345kV, CCVT	0	EA	16,900.00	15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.5	345kV, Disconnect Switch	0	EA	57,720.00	34,632.00	23,088.00	\$ -	\$ -	\$ -	\$ -
4.6	345/138KV, Power Transformer with oil containment	0	EA	4,420,000.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.7	Transport & Testing- Transformer	0	EA		834,400.00	357,600.00	\$ -	\$ -	\$ -	\$ -
4.8	345kV, Shunt Reactor with oil containment-150MVAR	0	EA	2,901,774.00	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		384,650.00	164,850.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Phase Angle Regulator with oil containment	0	EA	16,086,712.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Phase Angle Regulating Transformer, 345kV	0	EA		715,400.00	306,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Circuit Breaker (PASS)	0	EA	980,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (GIS), outdoor rated	0	EA				\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester (3phase)	0	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, surge Arrester	0	EA	8,450.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.17	138kV, Phase Angle Regulator with oil containment	0	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.18	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Circuit Breaker (Dead-tank)	0	EA	183,000.00	13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.20	138kV, Disconnect Switch	0	EA	37,700.00	11,875.50	5,089.50	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Cable sealing end	0	EA	11,600.00	1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.22	138kV, CCVT	0	EA	10,000.00	7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.23	138kV, Surge arrester	0	EA	4,446.00	4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.24	Station service transformers- 120/208v-250VA	0	EA	260,000.00	45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables	0	LF	5.30	1.43	0.29	\$ -	\$ -	\$ -	\$ -
5.2							\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ -	\$ -	\$ -	\$ -
6. CONDUIT CABLE TRENCH AND OH INTERCONNECTIONS										
6.1	Conduit, PVC, 6", SCH 40		LF	20.70	13.28	6.64	\$ -	\$ -	\$ -	\$ -
6.2	Conduit, PVC, 4", SCH 40		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		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										
6.8	138kV UG- Conduit		LF	41.00	30.00	16.00	\$ -	\$ -	\$ -	\$ -
6.9	138kV UG- Cable		LF	125.00	75.00	50.00	\$ -	\$ -	\$ -	\$ -
6.10	138kV UG- Termination		EA	5,664.00	9,846.48	2,813.28	\$ -	\$ -	\$ -	\$ -
6.11	Fiber Optic Cable		LF	7.40	3.33	2.22	\$ -	\$ -	\$ -	\$ -
6.12	Ground Continuity Conductor		LF	13.04	7.53	5.02	\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
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	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 I90	3	EA	21,328.12	17,062.49	4,265.62	\$ 63,984	\$ 51,187	\$ 12,797	\$ 127,969
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							\$ 127,969	\$ 102,375	\$ 25,594	\$ 255,937
4 - Millwood Interconnection							\$ 127,969	\$ 102,375	\$ 25,594	\$ 255,937
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		4,478.90	1,919.53	\$ -	\$ 4,479	\$ 1,920	\$ 6,398
	Project Management, Material Handling & Amenities									

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	LS		5,118.75		\$ -	\$ 5,119	\$ -	\$ 5,119
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		20,474.99		\$ -	\$ 20,475	\$ -	\$ 20,475
9.4	Utility PM and Project Oversight	1.00	LS		5,118.75		\$ -	\$ 5,119	\$ -	\$ 5,119
9.5	Site Accommodation, Facilities, Storage	1.00	LS			5,118.75	\$ -	\$ -	\$ 5,119	\$ 5,119
	Engineering									
9.6	Design Engineering	1.00	LS		40,949.98		\$ -	\$ 40,950	\$ -	\$ 40,950
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	-	EA		2,730.00	1,820.00	\$ -	\$ -	\$ -	\$ -
9.9	Surveying/Staking	1.00	Site		1,791.56		\$ -	\$ 1,792	\$ -	\$ 1,792
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		9,597.65		\$ -	\$ 9,598	\$ -	\$ 9,598
	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		2,559.37		\$ -	\$ 2,559	\$ -	\$ 2,559
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		767.81		\$ -	\$ 768	\$ -	\$ 768
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		-	\$ 10,800	\$ -	\$ -	\$ 10,800	\$ 10,800
9.20	Sales Tax on Materials	8.80%	LS	127,968.69			\$ 11,261	\$ -	\$ -	\$ 11,261
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		255.94		\$ -	\$ 256	\$ -	\$ 256
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 11,261	\$ 97,661	\$ 17,838	\$ 126,760

LS Power - T035

5 - Barrett Interconnection

Total: \$ -

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
5 - Barrett Interconnection (Cost not included)				
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: Interconnection										
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 - Barrett Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing		ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition		ACRE	-	-	-	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'		SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil		CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad		CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad-Rock excavation-Hauling and disposal		CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)		CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)		CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base		SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick		SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding		LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	20' Slide Gate & Grounding		EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate		EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE, INFILTRATION TRENCH, INLET and Hydrodynamic Separator		LS	446,976.00	115,200.00	76,104.00	\$ -	\$ -	\$ -	\$ -
1.16	Seeding		SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove		LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing		LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt		SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ -	\$ -	\$ -	\$ -

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 foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.2	345kV, Bus support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.3	345kV, Bus support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.4	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.5	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.6	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.7	345kV, Shunt Reactor with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, Circuit Breaker (PASS)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	138kV, Phase Angle Regulator	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	138kV, Disconnect Switch-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	138kV, Cable sealing end-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	Firewall Foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.14	Steel grating and support beams-transformer moat	0	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast- 90'	0	EA	23,400.00	14,040.00	9,360.00	\$ -	\$ -	\$ -	\$ -
3.2	345kV, Bus support-3 Ph	0	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-1 Ph	0	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Cable sealing end	0	EA	4,066.40	1,443.00	962.00	\$ -	\$ -	\$ -	\$ -
3.5	345kV, CCVT	0	EA	4,066.40	1,443.00	962.00	\$ -	\$ -	\$ -	\$ -
3.6	138kV, Disconnect Switch-3 Ph	0	EA	12,251.20	3,928.86	2,619.24	\$ -	\$ -	\$ -	\$ -
3.7	138kV, Cable sealing end-3 Ph	0	EA	4,066.40	1,443.00	962.00	\$ -	\$ -	\$ -	\$ -
3.8	AL. Bus Tubing, 5" SCH 80		LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -
3.9	AL. Bus fittings		LS	18,330.00	18,330.00	9,165.00	\$ -	\$ -	\$ -	\$ -
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT										
4.1	345/138kV, Power Transformer	0	EA	4,420,000.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.2	Transport & Testing- Transformer	0	EA		834,400.00	357,600.00	\$ -	\$ -	\$ -	\$ -
4.3	Shunt Reactor, 345kV	0	EA	2,385,863.50	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.4	Transport & Testing- Shunt Reactor	0	EA		323,400.00	138,600.00	\$ -	\$ -	\$ -	\$ -
4.5	345kV Circuit Breakers, PASS	0	EA	980,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, Cable sealing end	0	EA	27,144.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.7	345kV, CCVT	0	EA	16,900.00	15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.8	345kV, Surge arrester	0	EA	8,450.00	4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.9	Phase Angle Regulating Transformer, 138kV	0	EA	10,713,172.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.10	Transport & Testing- Phase Angle Regulating Transformer, 138kV	0	EA		701,400.00	300,600.00	\$ -	\$ -	\$ -	\$ -
4.11	138kV, Cable sealing end	0	EA	11,600.00	1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.12	138kV, Disconnect Switch- 3 Phase	0	EA	12,566.67	3,958.50	1,696.50	\$ -	\$ -	\$ -	\$ -
4.13	138kV, Surge arrester	0	EA	4,446.00	4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.14	Station service transformers- 120/208v-250VA	0	EA	260,000.00	45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables		LF	5.30	1.43	0.29	\$ -	\$ -	\$ -	\$ -
5.2			LF				\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ -	\$ -	\$ -	\$ -
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		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		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							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ -	\$ -	\$ -	\$ -

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. 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		EA	190,880.15	133,616.11	57,264.05	\$ -	\$ -	\$ -	\$ -
8.2	Primary Line Relays (87L): SEL-411L		EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.3	Backup Line Relays (87L): GE L90		EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.4	Primary Bay Control: SEL-451		EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.5	Backup Bay Control: SEL-451		EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.6	Primary Transformer/Reactor/PAR Differential Relays: SEL-487E		EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.7	Backup Transformer/Reactor/PAR Differential Relays: GE T60		EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.8	Primary Bus Differential Relays: SEL-487B		EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.9	Backup Bus Differential Relays: GE B90		EA	21,328.12	17,062.49	4,265.62	\$ -	\$ -	\$ -	\$ -
8.10	RTU Panel A: SEL-2240 Axion, SEL-2730M ENET SW., SEL-2407 GPS		EA	12,500.00	10,000.00	2,500.00	\$ -	\$ -	\$ -	\$ -
8.11	RTU Panel B: SEL-2730M Ethernet Switch, SEL-2407 GPS Clock		EA	12,500.00	10,000.00	2,500.00	\$ -	\$ -	\$ -	\$ -
8.12	HMI Panel		EA	12,500.00	10,000.00	2,500.00	\$ -	\$ -	\$ -	\$ -
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							\$ -	\$ -	\$ -	\$ -
5 - Barrett Interconnection							\$ -	\$ -	\$ -	\$ -
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob		LS		-	-	\$ -	\$ -	\$ -	\$ -
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)		MO		67,600.00		\$ -	\$ -	\$ -	\$ -
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)		MO		54,340.00		\$ -	\$ -	\$ -	\$ -
9.4	Utility PM and Project Oversight		MO		34,666.67		\$ -	\$ -	\$ -	\$ -
9.5	Site Accommodation, Facilities, Storage		MO	18,000.00			\$ -	\$ -	\$ -	\$ -
	Engineering									
9.6	Design Engineering		LS		-		\$ -	\$ -	\$ -	\$ -
9.7	LiDAR /GPR		LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech		EA		2,730.00	1,820.00	\$ -	\$ -	\$ -	\$ -
9.9	Surveying/Staking		Site		-		\$ -	\$ -	\$ -	\$ -
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment		LS		-		\$ -	\$ -	\$ -	\$ -
	Permitting and Additional Costs									
9.11	Physical Security		LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost		LS		-		\$ -	\$ -	\$ -	\$ -
9.13	Environmental-special studies/investigation		LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's		LS		-		\$ -	\$ -	\$ -	\$ -
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	-	LS		-	\$ -	\$ -	\$ -	\$ -	\$ -
9.20	Sales Tax on Materials		LS	-			\$ -	\$ -	\$ -	\$ -
9.21	Fees for permits, including roadway, railroad, building or other local permits		LS		-		\$ -	\$ -	\$ -	\$ -
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ -	\$ -	\$ -	\$ -

LS Power - T035

6 - Ruland Road Substation Interconnection

Total: \$ 13,117,359

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
6 - Ruland Road Substation_Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ 175,525	\$ 249,880	\$ 146,255	\$ 571,661
2. SUBSTATION FOUNDATIONS	\$ 487,171	\$ 556,766	\$ 347,979	\$ 1,391,916
3. SUBSTATION STRUCTURES	\$ 415,447	\$ 815,675	\$ 519,379	\$ 1,750,501
4. MAJOR EQUIPMENT	\$ 1,550,400	\$ 223,860	\$ 95,940	\$ 1,870,200
5. LOW VOLTAGE & CONTROL CABLE	\$ 162,104	\$ 43,835	\$ 8,767	\$ 214,705
6. CONDUIT & CABLE TRENCH	\$ 452,683	\$ 244,236	\$ 110,849	\$ 807,767
7. GROUND GRID	\$ 26,574	\$ 19,053	\$ 4,373	\$ 50,000
8. CONTROL ENCLOSURE	\$ 341,250	\$ 273,000	\$ 68,250	\$ 682,500
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 86,470	\$ 1,489,334	\$ 348,618	\$ 1,924,421
SUBTOTAL (Costs):	\$ 3,697,623	\$ 3,915,638	\$ 1,650,410	\$ 9,263,671
CONTRACTOR MARK-UP (OH&P)	\$ 665,572	\$ 704,815	\$ 297,074	\$ 1,667,461
SUBTOTAL:	\$ 4,363,195	\$ 4,620,453	\$ 1,947,484	\$ 10,931,132
CONTINGENCY ON ENTIRE PROJECT	\$ 872,639	\$ 924,091	\$ 389,497	\$ 2,186,226
TOTAL:	\$ 5,235,834	\$ 5,544,544	\$ 2,336,981	\$ 13,117,359

Description of Work: Construct two new 138kv bays and Interconneciton										
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 - Ruland Road Substation_Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing	0.6	ACRE	-	21,000.00	14,000.00	\$ -	\$ 12,600	\$ 8,400	\$ 21,000
1.2	Demolition	1	LS	-	75,000.00	45,000.00	\$ -	\$ 75,000	\$ 45,000	\$ 120,000
1.3	New Access Road - 20'	667	SY	4.85	7.20	4.80	\$ 3,233	\$ 4,800	\$ 3,200	\$ 11,233
1.4	Strip and Dispose Top Soil	968	CY		24.50	10.50	\$ -	\$ 23,716	\$ 10,164	\$ 33,880
1.5	Site Grading- Excavation for Substation Pad	2,904	CY		9.00	6.00	\$ -	\$ 26,136	\$ 17,424	\$ 43,560
1.6	Site Grading- Excavation for Substation Pad-Rock excavation-Hauling and disposal	1,568	CY		21.00	9.00	\$ -	\$ 32,931.36	\$ 14,113.44	\$ 47,045
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)	2,352	CY		2.40	1.60	\$ -	\$ 5,645	\$ 3,764	\$ 9,409
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)	1,568	CY	25.00	2.40	1.60	\$ 39,204	\$ 3,764	\$ 2,509	\$ 45,477
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base	2,904	SY	11.00	6.00	4.00	\$ 31,944	\$ 17,424	\$ 11,616	\$ 60,984
1.11	Site Surfacing - Aggregate 6" Thick	2,904	SY	16.50	4.50	3.00	\$ 47,916	\$ 13,068	\$ 8,712	\$ 69,696
1.12	7' Station Fence w/ Barbed Wire & Grounding	320	LF	13.85	13.85	6.92	\$ 4,431	\$ 4,431	\$ 2,216	\$ 11,078
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	1	LS	45,000.00	27,000.00	18,000.00	\$ 45,000	\$ 27,000	\$ 18,000	\$ 90,000
1.16	Seeding		SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove	480	LF	2.41	3.16	0.72	\$ 1,157	\$ 1,517	\$ 346	\$ 3,019
1.18	Temporary fencing	352	LF	7.50	5.25	2.25	\$ 2,640	\$ 1,848	\$ 792	\$ 5,280
1.19	Substation entrance with asphalt		SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -

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							\$ 175,525	\$ 249,880	\$ 146,255	\$ 571,661
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 support-1 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.8	345kV, GIS support-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.9	345kV, GIS Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.10	345kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.11	345kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.12	345kV, Disconnect Switch	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.13	345/138KV, Power Transformer with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
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)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.18	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.19	345/138 Kv, Control Enclosure-BLDG with generator pad	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.20	138kV, Phase Angle Regulator with oil containment	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	138kV, Circuit Breaker (Dead-tank)	27	CY	703.89	804.44	502.78	\$ 18,770	\$ 21,452	\$ 13,407	\$ 53,629
2.22	138kV, Bus support-3 Ph, low	150	CY	703.89	804.44	502.78	\$ 105,442	\$ 120,505	\$ 75,316	\$ 301,263
2.23	138kV, Bus support-1 Ph, low	97	CY	703.89	804.44	502.78	\$ 68,587	\$ 78,385	\$ 48,990	\$ 195,962
2.24	138kV, Disconnect Switch	291	CY	703.89	804.44	502.78	\$ 204,746	\$ 233,996	\$ 146,247	\$ 584,989
2.25	138kV, Cable sealing end	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.26	138kV, CCVT	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.27	138kV, A Frame 50'	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.28	138kV, H Frame H Frame -Single Bay	73	CY	703.89	804.44	502.78	\$ 51,215	\$ 58,531	\$ 36,582	\$ 146,328
2.29	138kV, H Frame H Frame -SHARED COLUMN (2 BAY)	55	CY	703.89	804.44	502.78	\$ 38,411	\$ 43,898	\$ 27,436	\$ 109,746
2.30	Steel grating and support beams-transformer moat	0	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ 487,171	\$ 556,766	\$ 347,979	\$ 1,391,916
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	-	EA	23,400.00	14,040.00	9,360.00	\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	-	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS support-1 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS support-3 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS Cable sealing end	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.10	345kV, Cable sealing end	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, CCVT	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Disconnect Switch	-	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.13	138kV, Bus support-3 Ph, low	14	EA	4,173.00	2,879.76	1,919.84	\$ 58,422	\$ 40,317	\$ 26,878	\$ 125,616
3.14	138kV, Bus support-1 Ph, low	24	EA	2,782.00	1,919.84	1,279.89	\$ 66,768	\$ 46,076	\$ 30,717	\$ 143,562
3.15	138kV, Disconnect Switch	12	EA	4,896.84	4,896.84	2,448.42	\$ 58,762	\$ 58,762	\$ 29,381	\$ 146,905
3.16	138kV, Cable sealing end	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.17	138kV, CCVT	-	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.18	138kV, A Frame 50'	-	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.19	138kV, H Frame H Frame -Single Bay	2	EA	19,305.00	11,583.00	7,722.00	\$ 38,610	\$ 23,166	\$ 15,444	\$ 77,220
3.20	138kV, H Frame H Frame -SHARED COLUMN (2 BAY)	1	EA	32,175.00	19,305.00	12,870.00	\$ 32,175	\$ 19,305	\$ 12,870	\$ 64,350
3.21	345kV Gas-Insulated Bus Conductor	-	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
3.22	345kV Gas-Insulated Bus Conductor-elbow	-	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
3.23	AL. Bus Tubing, 5" SCH 80	2,922	LF	25.00	184.94	123.29	\$ 73,050	\$ 540,389	\$ 360,259	\$ 973,698
3.24	AL. Bus fittings	1	LS	87,660.00	87,660.00	43,830.00	\$ 87,660	\$ 87,660	\$ 43,830	\$ 219,150

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							\$ 415,447	\$ 815,675	\$ 519,379	\$ 1,750,501
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	-	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS Cable sealing end	-	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, Cable sealing end	-	EA	27,144.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.4	345kV, CCVT	-	EA	16,900.00	15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.5	345kV, Disconnect Switch	-	EA	57,720.00	34,632.00	23,088.00	\$ -	\$ -	\$ -	\$ -
4.6	345/138KV, Power Transformer with oil containment	-	EA	4,420,000.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.7	Transport & Testing- Transformer	-	EA		834,400.00	357,600.00	\$ -	\$ -	\$ -	\$ -
4.8	345kV, Shunt Reactor with oil containment-150MVAR	-	EA	2,901,774.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	345kV, Shunt Reactor with oil containment-100MVAR	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.10	Transport & Testing- Shunt Reactor	-	EA		384,650.00	164,850.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Phase Angle Regulator with oil containment	-	EA	16,086,712.00	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Phase Angle Regulating Transformer, 345kV	-	EA		715,400.00	306,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Circuit Breaker (PASS)	-	EA	980,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (GIS), outdoor rated	-	EA				\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester (3phase)	-	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, surge Arrester	-	EA	8,450.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.17	138kV, Phase Angle Regulator with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.18	Transport & Testing- Phase Angle Regulating Transformer, 138kV	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Circuit Breaker (Dead-tank)	6	EA	183,000.00	13,559.00	5,811.00	\$ 1,098,000	\$ 81,354	\$ 34,866	\$ 1,214,220
4.20	138kV, Disconnect Switch	12	EA	37,700.00	11,875.50	5,089.50	\$ 452,400	\$ 142,506	\$ 61,074	\$ 655,980
4.21	138kV, Cable sealing end	-	EA	11,600.00	1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.22	138kV, CCVT	-	EA	10,000.00	7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.23	138kV, Surge arrester	-	EA	4,446.00	4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.24	Station service transformers- 120/208v-250VA	-	EA	260,000.00	45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ 1,550,400	\$ 223,860	\$ 95,940	\$ 1,870,200
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables	30,600	LF	5.30	1.43	0.29	\$ 162,104	\$ 43,835	\$ 8,767	\$ 214,705
5.2							\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 162,104	\$ 43,835	\$ 8,767	\$ 214,705
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	5,400	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	838	LF	266.50	53.04	13.26	\$ 223,194	\$ 44,421	\$ 11,105	\$ 278,720
6.7										
6.8	138kV UG- Conduit	310	LF	41.00	30.00	16.00	\$ 12,710	\$ 9,300	\$ 4,960	\$ 26,970
6.9	138kV UG- Cable	930	LF	125.00	75.00	50.00	\$ 116,250	\$ 69,750	\$ 46,500	\$ 232,500
6.10	138kV UG- Termination	6	EA	5,664.00	9,846.48	2,813.28	\$ 33,984	\$ 59,079	\$ 16,880	\$ 109,943
6.11	Fiber Optic Cable	310	LF	7.40	3.33	2.22	\$ 2,293	\$ 1,032	\$ 688	\$ 4,014
6.12	Ground Continuity Conductor	310	LF	13.04	7.53	5.02	\$ 4,042	\$ 2,333	\$ 1,556	\$ 7,931
TOTAL - CONDUIT & CABLE TRENCH							\$ 452,683	\$ 244,236	\$ 110,849	\$ 807,767
7. GROUND GRID										
7.1	Cable, 4/0 AWG Bare Copper, 7 Strand Ground Conductor	2,680	LF	2.09	3.42	1.46	\$ 5,604	\$ 9,153	\$ 3,923	\$ 18,680
7.2	Caweld, DSA, 4/0 , T, CROSS	78	EA	165.00	75.00		\$ 12,870	\$ 5,850	\$ -	\$ 18,720
7.3	Ground Rod, 3/4" x 15'	60	EA	135.00	67.50	7.50	\$ 8,100	\$ 4,050	\$ 450	\$ 12,600
TOTAL - GROUND GRID							\$ 26,574	\$ 19,053	\$ 4,373	\$ 50,000
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg		EA	171,028.62	119,720.03	51,308.59	\$ -	\$ -	\$ -	\$ -
8.2	Primary Line Relays (87L): SEL-411L	4	EA	21,328.12	17,062.49	4,265.62	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
8.3	Backup Line Relays (87L): GE L90	4	EA	21,328.12	17,062.49	4,265.62	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
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	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
8.7	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
8.8	125VDC Battery System		LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.9	Control house AC Panel		EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.10	Control House DC Panel		EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -

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 COST
8.11	Generator		EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
TOTAL - CONTROL ENCLOSURE							\$ 341,250	\$ 273,000	\$ 68,250	\$ 682,500
6 - Ruland Road Substation_Interconnection							\$ 982,610	\$ 580,123	\$ 192,238	\$ 7,339,250
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		27,032.65	11,585.42	\$ -	\$ 27,033	\$ 11,585	\$ 38,618
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		73,392.50		\$ -	\$ 73,393	\$ -	\$ 73,393
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		293,570.00		\$ -	\$ 293,570	\$ -	\$ 293,570
9.4	Utility PM and Project Oversight	1.00	LS		73,392.50		\$ -	\$ 73,393	\$ -	\$ 73,393
9.5	Site Accommodation, Facilities, Storage	1.00	LS			73,392.50	\$ -	\$ -	\$ 73,393	\$ 73,393
	Engineering									
9.6	Design Engineering	1.00	LS		587,140.01		\$ -	\$ 587,140	\$ -	\$ 587,140
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		51,374.75		\$ -	\$ 51,375	\$ -	\$ 51,375
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		275,221.88		\$ -	\$ 275,222	\$ -	\$ 275,222
	Permitting and Additional Costs									
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		73,392.50		\$ -	\$ 73,393	\$ -	\$ 73,393
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		22,017.75		\$ -	\$ 22,018	\$ -	\$ 22,018
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		-	\$ 260,000	\$ -	\$ -	\$ 260,000	\$ 260,000
9.20	Sales Tax on Materials	8.80%	LS	982,610.13			\$ 86,470	\$ -	\$ -	\$ 86,470
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		7,339.25		\$ -	\$ 7,339	\$ -	\$ 7,339
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 86,470	\$ 1,489,334	\$ 348,618	\$ 1,924,421

LS Power - T035

7 - Pleasant Valley Substation Interconnection

Total: \$ 1,001,140

LS Power - T035					
	Material Supply	Labor Supply	Equip Supply	Total	
7 - Pleasant Valley Substation Interconnection					
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ -	\$ -	\$ -	
2. SUBSTATION FOUNDATIONS	\$ -	\$ -	\$ -	\$ -	
3. SUBSTATION STRUCTURES	\$ -	\$ -	\$ -	\$ -	
4. MAJOR EQUIPTMENT	\$ -	\$ -	\$ -	\$ -	
5. LOW VOLTAGE & CONTROL CABLE	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413	
6. CONDUIT & CABLE TRENCH	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750	
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -	
8. CONTROL ENCLOSURE	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625	
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 24,068	\$ 167,369	\$ 32,795	\$ 224,232	
SUBTOTAL (Costs):	\$ 297,568	\$ 325,432	\$ 84,020	\$ 707,020	
CONTRACTOR MARK-UP (OH&P)	\$ 53,562	\$ 58,578	\$ 15,124	\$ 127,264	
SUBTOTAL:	\$ 351,130	\$ 384,009	\$ 99,144	\$ 834,283	
CONTINGENCY ON ENTIRE PROJECT	\$ 70,226	\$ 76,802	\$ 19,829	\$ 166,857	
TOTAL:	\$ 421,356	\$ 460,811	\$ 118,972	\$ 1,001,140	

Description of Work: Interconneciton										
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 - Pleasant Valley Substation_ Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing		ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition		LS	-	3,000.00	2,000.00	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'		SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil		CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad		CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad-Rock excavation-Hauling and disposal		CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)		CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)		CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base		SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick		SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding		LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	40' Slide Gate & Grounding		EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate		EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE, drainage structures, UD lines		LS	89,529.60	38,400.00	18,120.00	\$ -	\$ -	\$ -	\$ -
1.16	Seeding		SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove		LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing		LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt		SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb		LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall		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	\$ -	\$ -	\$ -	\$ -
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	\$ -	\$ -	\$ -	\$ -

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
2.6	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	345kV, IPO circuit breaker	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	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	\$ -	\$ -	\$ -	\$ -
2.31	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'		EA	18,000.00	3,200.00	2,800.00	\$ -	\$ -	\$ -	\$ -
2.35	Precast Concrete Piles-18"X40'		EA	12,000.00	2,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
2.36	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.37	Steel grating and support beams-transformer moat	-	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	-	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	-	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	-	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	345kV, Surge arrester	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Bus support-3 Ph, low	-	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Bus support-1 Ph, low	-	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Disconnect Switch	-	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.19	138kV, Cable sealing end	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.20	138kV, CCVT	-	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.21	138kV, A Frame 50'	-	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.22	345kV Gas-Insulated Bus Conductor	-	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
3.23	345kV Gas-Insulated Bus Conductor-elbow	-	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
3.24	AL. Bus Tubing, 5" SCH 80		LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -
3.25	AL. Bus fittings		LS	30,570.00	30,570.00	15,285.00	\$ -	\$ -	\$ -	\$ -
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	-	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	-	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	-	EA				\$ -	\$ -	\$ -	\$ -

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, GIS Cable sealing end	-	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end	-	EA	27,144.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	-	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch	-	EA	57,720.00	34,632.00	23,088.00	\$ -	\$ -	\$ -	\$ -
4.8	345/138kV, Power Transformer with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	-	EA	2,385,863.50	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	-	EA		323,400.00	138,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	-	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	-	EA	980,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	-	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester (3phase)	-	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, IPO circuit breaker	-	EA	350,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.18	345kV, surge Arrester	-	EA	8,450.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Phase Angle Regulator with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.20	Transport & Testing- Phase Angle Regulating Transformer, 138kV	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Circuit Breaker (PASS)	-	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.22	138kV, Disconnect Switch	-	EA		3,958.50	1,696.50	\$ -	\$ -	\$ -	\$ -
4.23	138kV, Cable sealing end	-	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.24	138kV, CCVT	-	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	-	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.26	Station service transformers- 120/208v-250VA	-	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables	25,000	LF	5.30	1.43	0.29	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
5.2			LF				\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
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	5,000	LF	11.15	10.80	5.40	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
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- 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							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
7. GROUND GRID										
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	\$ -	\$ -	\$ -	\$ -
TOTAL - GROUND GRID							\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	-	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	125VDC Battery System	-	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.5	Control house AC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.6	Control House DC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.7	Generator	-	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
TOTAL - CONTROL ENCLOSURE							\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
7 - Pleasant Valley Substation_ Interconnection							\$ 273,500	\$ 158,062	\$ 51,225	\$ 482,787
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		7,325.06	3,139.31	\$ -	\$ 7,325	\$ 3,139	\$ 10,464
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		9,655.75		\$ -	\$ 9,656	\$ -	\$ 9,656
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		38,622.99		\$ -	\$ 38,623	\$ -	\$ 38,623
9.4	Utility PM and Project Oversight	1.00	LS		9,655.75		\$ -	\$ 9,656	\$ -	\$ 9,656
9.5	Site Accommodation, Facilities, Storage	1.00	LS			9,655.75	\$ -	\$ -	\$ 9,656	\$ 9,656

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
	Engineering									
9.6	Design Engineering	1.00	LS		77,245.99		\$ -	\$ 77,246	\$ -	\$ 77,246
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	-	EA		2,730.00	1,820.00	\$ -	\$ -	\$ -	\$ -
9.9	Surveying/Staking	-	Site		3,379.51		\$ -	\$ -	\$ -	\$ -
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		18,104.53		\$ -	\$ 18,105	\$ -	\$ 18,105
	Permitting and Additional Costs									
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		4,827.87		\$ -	\$ 4,828	\$ -	\$ 4,828
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		1,448.36		\$ -	\$ 1,448	\$ -	\$ 1,448
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		-	\$ 20,000	\$ -	\$ -	\$ 20,000	\$ 20,000
9.20	Sales Tax on Materials	8.80%	LS	273,499.96			\$ 24,068	\$ -	\$ -	\$ 24,068
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		482.79		\$ -	\$ 483	\$ -	\$ 483
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 24,068	\$ 167,369	\$ 32,795	\$ 224,232

LS Power - T035

8 - Buchanan Substation Interconnection

Total: \$ 1,001,140

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
8 - Buchanan Substation_ Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ -	\$ -	\$ -
2. SUBSTATION FOUNDATIONS	\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES	\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT	\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
6. CONDUIT & CABLE TRENCH	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 24,068	\$ 167,369	\$ 32,795	\$ 224,232
SUBTOTAL (Costs):	\$ 297,568	\$ 325,432	\$ 84,020	\$ 707,020
CONTRACTOR MARK-UP (OH&P)	\$ 53,562	\$ 58,578	\$ 15,124	\$ 127,264
SUBTOTAL:	\$ 351,130	\$ 384,009	\$ 99,144	\$ 834,283
CONTINGENCY ON ENTIRE PROJECT	\$ 70,226	\$ 76,802	\$ 19,829	\$ 166,857
TOTAL:	\$ 421,356	\$ 460,811	\$ 118,972	\$ 1,001,140

Description of Work: Interconneciton										
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 - Buchanan Substation_ Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing		ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition		LS	-	3,000.00	2,000.00	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'		SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil		CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad		CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad-Rock excavation-Hauling and disposal		CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)		CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)		CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base		SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick		SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding		LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	40' Slide Gate & Grounding		EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate		EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE, drainage structures, UD lines		LS	89,529.60	38,400.00	18,120.00	\$ -	\$ -	\$ -	\$ -
1.16	Seeding		SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove		LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing		LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt		SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb		LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall		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	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	345kV, IPO circuit breaker	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	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	\$ -	\$ -	\$ -	\$ -
2.31	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'		EA	18,000.00	3,200.00	2,800.00	\$ -	\$ -	\$ -	\$ -
2.35	Precast Concrete Piles-18"X40'		EA	12,000.00	2,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
2.36	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.37	Steel grating and support beams-transformer moat	-	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	-	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	-	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	-	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	345kV, Surge arrester	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Bus support-3 Ph, low	-	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Bus support-1 Ph, low	-	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Disconnect Switch	-	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.19	138kV, Cable sealing end	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.20	138kV, CCVT	-	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.21	138kV, A Frame 50'	-	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.22	345kV Gas-Insulated Bus Conductor	-	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
3.23	345kV Gas-Insulated Bus Conductor-elbow	-	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
3.24	AL. Bus Tubing, 5" SCH 80		LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -
3.25	AL. Bus fittings		LS	30,570.00	30,570.00	15,285.00	\$ -	\$ -	\$ -	\$ -

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 - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	-	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	-	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	-	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	-	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end	-	EA	27,144.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	-	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch	-	EA	22,966.67	7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	-	EA	2,385,863.50	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	-	EA		323,400.00	138,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	-	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	-	EA	980,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	-	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester (3phase)	-	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, IPO circuit breaker	-	EA	350,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.18	345kV, surge Arrester	-	EA	8,450.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Phase Angle Regulator with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.20	Transport & Testing- Phase Angle Regulating Transformer, 138kV	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Circuit Breaker (PASS)	-	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.22	138kV, Disconnect Switch	-	EA		3,958.50	1,696.50	\$ -	\$ -	\$ -	\$ -
4.23	138kV, Cable sealing end	-	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.24	138kV, CCVT	-	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	-	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.26	Station service transformers- 120/208v-250VA	-	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables	25,000	LF	5.30	1.43	0.29	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
5.2			LF				\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
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	5,000	LF	11.15	10.80	5.40	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
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- 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							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
7. GROUND GRID										
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	\$ -	\$ -	\$ -	\$ -
TOTAL - GROUND GRID							\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	-	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	125VDC Battery System	-	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.5	Control house AC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.6	Control House DC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.7	Generator	-	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
TOTAL - CONTROL ENCLOSURE							\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
8 - Buchanan Substation_ Interconnection							\$ 273,500	\$ 158,062	\$ 51,225	\$ 482,787
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		7,325.06	3,139.31	\$ -	\$ 7,325	\$ 3,139	\$ 10,464

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
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		9,655.75		\$ -	\$ 9,656	\$ -	\$ 9,656
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		38,622.99		\$ -	\$ 38,623	\$ -	\$ 38,623
9.4	Utility PM and Project Oversight	1.00	LS		9,655.75		\$ -	\$ 9,656	\$ -	\$ 9,656
9.5	Site Accommodation, Facilities, Storage	1.00	LS			9,655.75	\$ -	\$ -	\$ 9,656	\$ 9,656
	Engineering									
9.6	Design Engineering	1.00	LS		77,245.99		\$ -	\$ 77,246	\$ -	\$ 77,246
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	-	EA		2,730.00	1,820.00	\$ -	\$ -	\$ -	\$ -
9.9	Surveying/Staking	-	Site		3,379.51		\$ -	\$ -	\$ -	\$ -
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		18,104.53		\$ -	\$ 18,105	\$ -	\$ 18,105
	Permitting and Additional Costs									
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		4,827.87		\$ -	\$ 4,828	\$ -	\$ 4,828
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		1,448.36		\$ -	\$ 1,448	\$ -	\$ 1,448
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		-	\$ 20,000	\$ -	\$ -	\$ 20,000	\$ 20,000
9.20	Sales Tax on Materials	8.80%	LS	273,499.96			\$ 24,068	\$ -	\$ -	\$ 24,068
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		482.79		\$ -	\$ 483	\$ -	\$ 483
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 24,068	\$ 167,369	\$ 32,795	\$ 224,232

LS Power - T035

9 - Pilgrim Road Substation Interconnection

Total: \$ 26,904,970

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
9 - Pilgrim Road Substation_ Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ 300,000	\$ 200,000	\$ 500,000
2. SUBSTATION FOUNDATIONS	\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES	\$ 27,500	\$ 107,469	\$ 69,146	\$ 204,115
4. MAJOR EQUIPMENT	\$ 11,977,578	\$ 630,671	\$ 409,659	\$ 13,017,908
5. LOW VOLTAGE & CONTROL CABLE	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
6. CONDUIT & CABLE TRENCH	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE	\$ 170,625	\$ 136,500	\$ 34,125	\$ 341,250
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 1,088,022	\$ 2,823,300	\$ 713,928	\$ 4,625,250
SUBTOTAL (Costs):	\$ 13,451,913	\$ 4,087,752	\$ 1,461,020	\$ 19,000,685
CONTRACTOR MARK-UP (OH&P)	\$ 2,421,344	\$ 735,795	\$ 262,984	\$ 3,420,123
SUBTOTAL:	\$ 15,873,257	\$ 4,823,548	\$ 1,724,004	\$ 22,420,808
CONTINGENCY ON ENTIRE PROJECT	\$ 3,174,651	\$ 964,710	\$ 344,801	\$ 4,484,162
TOTAL:	\$ 19,047,908	\$ 5,788,257	\$ 2,068,804	\$ 26,904,970

Description of Work: Interconneciton										
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 - Pilgrim Road Substation_ Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing		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'		SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil		CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad		CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad-Rock excavation-Hauling and disposal		CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)		CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)		CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base		SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick		SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding		LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	40' Slide Gate & Grounding		EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate		EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE, drainage structures, UD lines		LS	89,529.60	38,400.00	18,120.00	\$ -	\$ -	\$ -	\$ -
1.16	Seeding		SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove		LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing		LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt		SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb		LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall		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							\$ -	\$ 300,000	\$ 200,000	\$ 500,000
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)	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.20	345kV, Circuit Breaker (GIS), outdoor rated	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.21	345kV, IPO circuit breaker	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	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	\$ -	\$ -	\$ -	\$ -
2.31	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'	-	EA	18,000.00	3,200.00	2,800.00	\$ -	\$ -	\$ -	\$ -
2.35	Precast Concrete Piles-18"X40'	-	EA	12,000.00	2,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
2.36	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.37	Steel grating and support beams-transformer moat	-	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	-	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	-	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch	-	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	345kV, Surge arrester	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Bus support-3 Ph, low	-	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Bus support-1 Ph, low	-	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Disconnect Switch	-	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.19	138kV, Cable sealing end	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.20	138kV, CCVT	-	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.21	138kV, A Frame 50'	-	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.22	345kV Gas-Insulated Bus Conductor	-	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
3.23	345kV Gas-Insulated Bus Conductor-elbow	-	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
3.24	AL. Bus Tubing, 5" SCH 80	500	LF	25.00	184.94	123.29	\$ 12,500	\$ 92,469	\$ 61,646	\$ 166,615
3.25	AL. Bus fittings	1	LS	15,000.00	15,000.00	7,500.00	\$ 15,000	\$ 15,000	\$ 7,500	\$ 37,500

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
TOTAL - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ 27,500	\$ 107,469	\$ 69,146	\$ 204,115
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal	-	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	-	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	-	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	-	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end	-	EA	27,144.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	-	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch	-	EA	22,966.67	7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	-	EA	2,385,863.50	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	-	EA		323,400.00	138,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	-	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	-	EA	980,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	-	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester (3phase)	-	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, IPO circuit breaker	-	EA	350,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.18	345kV, surge Arrester	-	EA	8,450.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Phase Angle Regulator with oil containment	1	EA	\$ 11,902,178	\$ 3,520	\$ 880	\$ 11,902,178	\$ 3,520	\$ 880	\$ 11,906,578
4.20	Transport & Testing- Phase Angle Regulating Transformer, 138kV	1	EA		603,400.00	398,600.00	\$ -	\$ 603,400	\$ 398,600	\$ 1,002,000
4.21	138kV, Circuit Breaker (PASS)	-	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.22	138kV, Disconnect Switch	2	EA	37,700.00	11,875.50	5,089.50	\$ 75,400	\$ 23,751	\$ 10,179	\$ 109,330
4.23	138kV, Cable sealing end	-	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.24	138kV, CCVT	-	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	-	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.26	Station service transformers- 120/208v-250VA	-	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ 11,977,578	\$ 630,671	\$ 409,659	\$ 13,017,908
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables	25,000	LF	5.30	1.43	0.29	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
5.2			LF				\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
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	5,000	LF	11.15	10.80	5.40	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
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- 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							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
7. GROUND GRID										
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	\$ -	\$ -	\$ -	\$ -
TOTAL - GROUND GRID							\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	-	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 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	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
8.7	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
8.8	125VDC Battery System	-	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.9	Control house AC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.10	Control House DC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.11	Generator	-	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
TOTAL - CONTROL ENCLOSURE							\$ 170,625	\$ 136,500	\$ 34,125	\$ 341,250

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 - Pilgrim Road Substation_ Interconnection							\$ 12,363,890	\$ 1,264,452	\$ 747,092	\$ 14,375,435
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		70,404.07	30,173.17	\$ -	\$ 70,404	\$ 30,173	\$ 100,577
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		143,754.35		\$ -	\$ 143,754	\$ -	\$ 143,754
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		575,017.41		\$ -	\$ 575,017	\$ -	\$ 575,017
9.4	Utility PM and Project Oversight	1.00	LS		143,754.35		\$ -	\$ 143,754	\$ -	\$ 143,754
9.5	Site Accommodation, Facilities, Storage	1.00	LS			143,754.35	\$ -	\$ -	\$ 143,754	\$ 143,754
	Engineering									
9.6	Design Engineering	1.00	LS		1,150,034.83		\$ -	\$ 1,150,035	\$ -	\$ 1,150,035
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	-	EA		2,730.00	1,820.00	\$ -	\$ -	\$ -	\$ -
9.9	Surveying/Staking	-	Site		100,628.05		\$ -	\$ -	\$ -	\$ -
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		539,078.83		\$ -	\$ 539,079	\$ -	\$ 539,079
	Permitting and Additional Costs									
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		143,754.35		\$ -	\$ 143,754	\$ -	\$ 143,754
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		43,126.31		\$ -	\$ 43,126	\$ -	\$ 43,126
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		-	\$ 540,000	\$ -	\$ -	\$ 540,000	\$ 540,000
9.20	Sales Tax on Materials	8.80%	LS	12,363,890.42			\$ 1,088,022	\$ -	\$ -	\$ 1,088,022
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		14,375.44		\$ -	\$ 14,375	\$ -	\$ 14,375
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 1,088,022	\$ 2,823,300	\$ 713,928	\$ 4,625,250

LS Power - T035

10 - Freeport Substation Interconnection

Total: \$ 1,001,140

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
10 - Freeport Substation_ Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ -	\$ -	\$ -
2. SUBSTATION FOUNDATIONS	\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES	\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT	\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
6. CONDUIT & CABLE TRENCH	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE	\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 24,068	\$ 167,369	\$ 32,795	\$ 224,232
SUBTOTAL (Costs):	\$ 297,568	\$ 325,432	\$ 84,020	\$ 707,020
CONTRACTOR MARK-UP (OH&P)	\$ 53,562	\$ 58,578	\$ 15,124	\$ 127,264
SUBTOTAL:	\$ 351,130	\$ 384,009	\$ 99,144	\$ 834,283
CONTINGENCY ON ENTIRE PROJECT	\$ 70,226	\$ 76,802	\$ 19,829	\$ 166,857
TOTAL:	\$ 421,356	\$ 460,811	\$ 118,972	\$ 1,001,140

Description of Work: Interconneciton										
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 - Freeport Substation_ Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing		ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition		LS	-	3,000.00	2,000.00	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'		SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil		CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad		CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad-Rock excavation-Hauling and disposal		CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)		CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)		CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base		SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick		SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding		LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	40' Slide Gate & Grounding		EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate		EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE, drainage structures, UD lines		LS	89,529.60	38,400.00	18,120.00	\$ -	\$ -	\$ -	\$ -
1.16	Seeding		SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove		LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing		LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt		SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb		LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall		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	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-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	345kV, IPO circuit breaker	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	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-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	138kV, Cable sealing end-3 Ph	-	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'		EA	18,000.00	3,200.00	2,800.00	\$ -	\$ -	\$ -	\$ -
2.35	Precast Concrete Piles-18"X40'		EA	12,000.00	2,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
2.36	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.37	Steel grating and support beams-transformer moat	-	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	-	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	-	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end - 3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch - 3Ph	-	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	345kV, Surge arrester	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Bus support-3 Ph, low	-	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Bus support-1 Ph, low	-	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Disconnect Switch-3 Ph	-	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.19	138kV, Cable sealing end-3 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.20	138kV, CCVT	-	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.21	138kV, A Frame 50'	-	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.22	345kV Gas-Insulated Bus Conductor	-	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
3.23	345kV Gas-Insulated Bus Conductor-elbow	-	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
3.24	AL. Bus Tubing, 5" SCH 80		LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -
3.25	AL. Bus fittings		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-3 Ph	-	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	-	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	-	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	-	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end - 3 Ph	-	EA	27,144.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	-	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch - 3Ph	-	EA	22,966.67	7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	-	EA	2,385,863.50	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	-	EA		323,400.00	138,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	-	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	-	EA	980,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	-	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester (3phase)	-	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, IPO circuit breaker	-	EA	350,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.18	345kV, surge Arrester	-	EA	8,450.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Phase Angle Regulator with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.20	Transport & Testing- Phase Angle Regulating Transformer, 138kV	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Circuit Breaker (PASS)	-	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.22	138kV, Disconnect Switch-3 Ph	-	EA		3,958.50	1,696.50	\$ -	\$ -	\$ -	\$ -
4.23	138kV, Cable sealing end-3 Ph	-	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.24	138kV, CCVT	-	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	-	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.26	Station service transformers- 120/208v-250VA	0	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables	25,000	LF	5.30	1.43	0.29	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
5.2			LF				\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
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	5,000	LF	11.15	10.80	5.40	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
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- 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							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
7. GROUND GRID										
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	\$ -	\$ -	\$ -	\$ -
TOTAL - GROUND GRID							\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	-	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	125VDC Battery System	-	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.5	Control house AC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.6	Control House DC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.7	Generator	-	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
TOTAL - CONTROL ENCLOSURE							\$ 85,312	\$ 68,250	\$ 17,062	\$ 170,625
10 - Freeport Substation_ Interconnection							\$ 273,500	\$ 158,062	\$ 51,225	\$ 482,787
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		7,325.06	3,139.31	\$ -	\$ 7,325	\$ 3,139	\$ 10,464

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
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		9,655.75		\$ -	\$ 9,656	\$ -	\$ 9,656
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		38,622.99		\$ -	\$ 38,623	\$ -	\$ 38,623
9.4	Utility PM and Project Oversight	1.00	LS		9,655.75		\$ -	\$ 9,656	\$ -	\$ 9,656
9.5	Site Accommodation, Facilities, Storage	1.00	LS			9,655.75	\$ -	\$ -	\$ 9,656	\$ 9,656
	Engineering									
9.6	Design Engineering	1.00	LS		77,245.99		\$ -	\$ 77,246	\$ -	\$ 77,246
9.7	LIDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	-	EA		2,730.00	1,820.00	\$ -	\$ -	\$ -	\$ -
9.9	Surveying/Staking	-	Site		3,379.51		\$ -	\$ -	\$ -	\$ -
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		18,104.53		\$ -	\$ 18,105	\$ -	\$ 18,105
	Permitting and Additional Costs									
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		4,827.87		\$ -	\$ 4,828	\$ -	\$ 4,828
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		1,448.36		\$ -	\$ 1,448	\$ -	\$ 1,448
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		-	\$ 20,000	\$ -	\$ -	\$ 20,000	\$ 20,000
9.20	Sales Tax on Materials	8.80%	LS	273,499.96			\$ 24,068	\$ -	\$ -	\$ 24,068
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		482.79		\$ -	\$ 483	\$ -	\$ 483
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 24,068	\$ 167,369	\$ 32,795	\$ 224,232

LS Power - T035

11 - Valley Stream Substation Interconnection

Total: Total: \$ 1,044,031

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
11 - Valley Stream Substation_ Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ -	\$ -	\$ -
2. SUBSTATION FOUNDATIONS	\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES	\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT	\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
6. CONDUIT & CABLE TRENCH	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE	\$ 127,969	\$ 102,375	\$ 25,594	\$ 255,937
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 27,822	\$ 106,247	\$ 35,141	\$ 169,210
SUBTOTAL (Costs):	\$ 343,978	\$ 298,435	\$ 94,897	\$ 737,310
CONTRACTOR MARK-UP (OH&P)	\$ 61,916	\$ 53,718	\$ 17,082	\$ 132,716
SUBTOTAL:	\$ 405,894	\$ 352,153	\$ 111,979	\$ 870,026
CONTINGENCY ON ENTIRE PROJECT	\$ 81,179	\$ 70,431	\$ 22,396	\$ 174,005
TOTAL:	\$ 487,073	\$ 422,583	\$ 134,375	\$ 1,044,031

Description of Work: Interconneciton

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 - Valley Stream Substation_ Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing		ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition		LS	-	3,000.00	2,000.00	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'		SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil		CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad		CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad-Rock excavation-Hauling and disposal		CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)		CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)		CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base		SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick		SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding		LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	40' Slide Gate & Grounding		EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate		EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE, drainage structures, UD lines		LS	89,529.60	38,400.00	18,120.00	\$ -	\$ -	\$ -	\$ -
1.16	Seeding		SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove		LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing		LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt		SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb		LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall		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	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-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	345kV, IPO circuit breaker	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	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-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	138kV, Cable sealing end-3 Ph	-	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'		EA	18,000.00	3,200.00	2,800.00	\$ -	\$ -	\$ -	\$ -
2.35	Precast Concrete Piles-18"X40'		EA	12,000.00	2,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
2.36	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.37	Steel grating and support beams-transformer moat	-	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	-	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	-	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end - 3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch - 3Ph	-	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	345kV, Surge arrester	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Bus support-3 Ph, low	-	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Bus support-1 Ph, low	-	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Disconnect Switch-3 Ph	-	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.19	138kV, Cable sealing end-3 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.20	138kV, CCVT	-	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.21	138kV, A Frame 50'	-	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.22	345kV Gas-Insulated Bus Conductor	-	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
3.23	345kV Gas-Insulated Bus Conductor-elbow	-	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
3.24	AL. Bus Tubing, 5" SCH 80		LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -
3.25	AL. Bus fittings		LS	30,570.00	30,570.00	15,285.00	\$ -	\$ -	\$ -	\$ -

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 - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal-3 Ph	-	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	-	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	-	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	-	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end - 3 Ph	-	EA	27,144.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	-	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch - 3Ph	-	EA	22,966.67	7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	-	EA	2,385,863.50	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	-	EA		323,400.00	138,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	-	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	-	EA	980,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	-	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester (3phase)	-	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, IPO circuit breaker	-	EA	350,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.18	345kV, surge Arrester	-	EA	8,450.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Phase Angle Regulator with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.20	Transport & Testing- Phase Angle Regulating Transformer, 138kV	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Circuit Breaker (PASS)	-	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.22	138kV, Disconnect Switch-3 Ph	-	EA		3,958.50	1,696.50	\$ -	\$ -	\$ -	\$ -
4.23	138kV, Cable sealing end-3 Ph	-	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.24	138kV, CCVT	-	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	-	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.26	Station service transformers- 120/208v-250VA	-	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables	25,000	LF	5.30	1.43	0.29	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
5.2			LF				\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
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	5,000	LF	11.15	10.80	5.40	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
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- 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							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
7. GROUND GRID										
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	\$ -	\$ -	\$ -	\$ -
TOTAL - GROUND GRID							\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	-	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 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
8.6	125VDC Battery System	-	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.7	Control house AC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.8	Control House DC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.9	Generator	-	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
TOTAL - CONTROL ENCLOSURE							\$ 127,969	\$ 102,375	\$ 25,594	\$ 255,937
11 - Valley Stream Substation_ Interconnection							\$ 316,156	\$ 192,187	\$ 59,756	\$ 568,100
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										

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
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		8,818.03	3,779.16	\$ -	\$ 8,818	\$ 3,779	\$ 12,597
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		11,362.00		\$ -	\$ 11,362	\$ -	\$ 11,362
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		45,447.99		\$ -	\$ 45,448	\$ -	\$ 45,448
9.4	Utility PM and Project Oversight	1.00	LS		11,362.00		\$ -	\$ 11,362	\$ -	\$ 11,362
9.5	Site Accommodation, Facilities, Storage	1.00	LS			11,362.00	\$ -	\$ -	\$ 11,362	\$ 11,362
	Engineering									
9.6	Design Engineering	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	-	EA		2,730.00	1,820.00	\$ -	\$ -	\$ -	\$ -
9.9	Surveying/Staking	-	Site		3,976.70		\$ -	\$ -	\$ -	\$ -
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		21,303.75		\$ -	\$ 21,304	\$ -	\$ 21,304
	Permitting and Additional Costs									
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		5,681.00		\$ -	\$ 5,681	\$ -	\$ 5,681
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		1,704.30		\$ -	\$ 1,704	\$ -	\$ 1,704
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		-	\$ 20,000	\$ -	\$ -	\$ 20,000	\$ 20,000
9.20	Sales Tax on Materials	8.80%	LS	316,156.19			\$ 27,822	\$ -	\$ -	\$ 27,822
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		568.10		\$ -	\$ 568	\$ -	\$ 568
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 27,822	\$ 106,247	\$ 35,141	\$ 169,210

LS Power - T035

12 - Empire Offshore Wind Substation Interconnection

Total: \$ 1,175,572

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
12 - Empire Offshore Wind Substation_ Interconnection				
1. SITE PREP/ GRADING/ FENCING / CIVIL	\$ -	\$ -	\$ -	\$ -
2. SUBSTATION FOUNDATIONS	\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES	\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT	\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
6. CONDUIT & CABLE TRENCH	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
7. GROUND GRID	\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE	\$ 127,969	\$ 102,375	\$ 25,594	\$ 255,937
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 27,822	\$ 197,143	\$ 37,141	\$ 262,106
SUBTOTAL (Costs):	\$ 343,978	\$ 389,331	\$ 96,897	\$ 830,206
CONTRACTOR MARK-UP (OH&P)	\$ 61,916	\$ 70,080	\$ 17,442	\$ 149,437
SUBTOTAL:	\$ 405,894	\$ 459,410	\$ 114,339	\$ 979,643
CONTINGENCY ON ENTIRE PROJECT	\$ 81,179	\$ 91,882	\$ 22,868	\$ 195,929
TOTAL:	\$ 487,073	\$ 551,292	\$ 137,207	\$ 1,175,572

Description of Work: Interconneciton										
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 - Empire Offshore Wind Substation_ Interconnection										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Clearing		ACRE	-	10,800.00	7,200.00	\$ -	\$ -	\$ -	\$ -
1.2	Demolition		LS	-	3,000.00	2,000.00	\$ -	\$ -	\$ -	\$ -
1.3	New Access Road - 20'		SY	4.85	7.20	4.80	\$ -	\$ -	\$ -	\$ -
1.4	Strip and Dispose Top Soil		CY		24.50	10.50	\$ -	\$ -	\$ -	\$ -
1.5	Site Grading- Excavation for Substation Pad		CY		9.00	6.00	\$ -	\$ -	\$ -	\$ -
1.6	Site Grading- Excavation for Substation Pad-Rock excavation-Hauling and disposal		CY		21.00	9.00	\$ -	\$ -	\$ -	\$ -
1.7	Site Grading- Fill for Substation Pad (site borrow, compacted in place)		CY		2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.8	Site Grading -Fill for Substation Pad (import, compacted in place)		CY	25.00	2.40	1.60	\$ -	\$ -	\$ -	\$ -
1.9	Blasting		EA				\$ -	\$ -	\$ -	\$ -
1.10	Install substation 8" pad base		SY	11.00	6.00	4.00	\$ -	\$ -	\$ -	\$ -
1.11	Site Surfacing - Aggregate 6" Thick		SY	16.50	4.50	3.00	\$ -	\$ -	\$ -	\$ -
1.12	7' Station Fence w/ Barbed Wire & Grounding		LF	13.85	13.85	6.92	\$ -	\$ -	\$ -	\$ -
1.13	40' Slide Gate & Grounding		EA	8,100.00	3,245.00	1,305.00	\$ -	\$ -	\$ -	\$ -
1.14	4' Pedestrian gate		EA	2,500.00	1,000.00	350.00	\$ -	\$ -	\$ -	\$ -
1.15	Storm drain-15" HDPE, drainage structures, UD lines		LS	89,529.60	38,400.00	18,120.00	\$ -	\$ -	\$ -	\$ -
1.16	Seeding		SF	1.50	1.50	1.00	\$ -	\$ -	\$ -	\$ -
1.17	Erosion Control-Silt fence install & remove		LF	2.41	3.16	0.72	\$ -	\$ -	\$ -	\$ -
1.18	Temporary fencing		LF	7.50	5.25	2.25	\$ -	\$ -	\$ -	\$ -
1.19	Substation entrance with asphalt		SY	19.50	26.00	19.50	\$ -	\$ -	\$ -	\$ -
1.20	Concrete curb		LF	26.00	27.30	11.70	\$ -	\$ -	\$ -	\$ -
1.21	Retaining Wall		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	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-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	345kV, IPO circuit breaker	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.22	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-3 Ph	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.29	138kV, Cable sealing end-3 Ph	-	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'		EA	18,000.00	3,200.00	2,800.00	\$ -	\$ -	\$ -	\$ -
2.35	Precast Concrete Piles-18"X40'		EA	12,000.00	2,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
2.36	Local Control Cabinet foundation	-	CY	703.89	804.44	502.78	\$ -	\$ -	\$ -	\$ -
2.37	Steel grating and support beams-transformer moat	-	LB	2.73	1.17	0.50	\$ -	\$ -	\$ -	\$ -
TOTAL - 345KV FOUNDATION							\$ -	\$ -	\$ -	\$ -
3. SUBSTATION STRUCTURES										
3.1	345kV, Lightning mast	-	EA				\$ -	\$ -	\$ -	\$ -
3.2	345kV, A Frame 70'	-	EA	48,100.00	28,860.00	19,240.00	\$ -	\$ -	\$ -	\$ -
3.3	345kV, Bus support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.4	345kV, Bus support-3 Ph, low	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.5	345kV, Bus support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.6	345kV, GIS air terminal-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.7	345kV, GIS fast acting GND SW	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.8	345kV, GIS to air bushing	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.9	345kV, GIS support-1 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.10	345kV, GIS support-3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.11	345kV, GIS Cable sealing end	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.12	345kV, Cable sealing end - 3 Ph	-	EA	8,346.00	5,758.74	3,839.16	\$ -	\$ -	\$ -	\$ -
3.13	345kV, CCVT	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.14	345kV, Disconnect Switch - 3Ph	-	EA	19,240.00	11,544.00	7,696.00	\$ -	\$ -	\$ -	\$ -
3.15	345kV, Surge arrester	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.16	138kV, Bus support-3 Ph, low	-	EA	4,173.00	2,879.76	1,919.84	\$ -	\$ -	\$ -	\$ -
3.17	138kV, Bus support-1 Ph, low	-	EA	2,782.00	1,919.84	1,279.89	\$ -	\$ -	\$ -	\$ -
3.18	138kV, Disconnect Switch-3 Ph	-	EA	-	-	-	\$ -	\$ -	\$ -	\$ -
3.19	138kV, Cable sealing end-3 Ph	-	EA	4,810.00	2,886.00	1,924.00	\$ -	\$ -	\$ -	\$ -
3.20	138kV, CCVT	-	EA	3,206.67	1,924.00	1,282.67	\$ -	\$ -	\$ -	\$ -
3.21	138kV, A Frame 50'	-	EA	33,000.00	19,800.00	13,200.00	\$ -	\$ -	\$ -	\$ -
3.22	345kV Gas-Insulated Bus Conductor	-	LF	550.00	275.00	82.50	\$ -	\$ -	\$ -	\$ -
3.23	345kV Gas-Insulated Bus Conductor-elbow	-	EA	2,500.00	1,250.00	375.00	\$ -	\$ -	\$ -	\$ -
3.24	AL. Bus Tubing, 5" SCH 80		LF	25.00	184.94	123.29	\$ -	\$ -	\$ -	\$ -
3.25	AL. Bus fittings		LS	30,570.00	30,570.00	15,285.00	\$ -	\$ -	\$ -	\$ -

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 - SUBSTATION STRUCTURES & GAS-INSULATED CONDUCTOR							\$ -	\$ -	\$ -	\$ -
4. MAJOR EQUIPMENT										
4.1	345kV, GIS air terminal-3 Ph	-	EA				\$ -	\$ -	\$ -	\$ -
4.2	345kV, GIS fast acting GND SW	-	EA				\$ -	\$ -	\$ -	\$ -
4.3	345kV, GIS to air bushing	-	EA				\$ -	\$ -	\$ -	\$ -
4.4	345kV, GIS Cable sealing end	-	EA				\$ -	\$ -	\$ -	\$ -
4.5	345kV, Cable sealing end - 3 Ph	-	EA	27,144.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.6	345kV, CCVT	-	EA		15,941.99	6,832.28	\$ -	\$ -	\$ -	\$ -
4.7	345kV, Disconnect Switch - 3Ph	-	EA	22,966.67	7,234.50	3,100.50	\$ -	\$ -	\$ -	\$ -
4.8	345/138KV, Power Transformer with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.9	Transport & Testing- Transformer	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.10	345kV, Shunt Reactor with oil containment-150MVAR	-	EA	2,385,863.50	3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.11	345kV, Shunt Reactor with oil containment-100MVAR	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.12	Transport & Testing- Shunt Reactor	-	EA		323,400.00	138,600.00	\$ -	\$ -	\$ -	\$ -
4.13	345kV, Phase Angle Regulator with oil containment	-	EA				\$ -	\$ -	\$ -	\$ -
4.14	345kV, Circuit Breaker (PASS)	-	EA	980,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.15	345kV, Circuit Breaker (GIS), outdoor rated	-	EA				\$ -	\$ -	\$ -	\$ -
4.16	345kV, Circuit Breaker (GIS), outdoor rated-Line surge Arrester (3phase)	-	EA				\$ -	\$ -	\$ -	\$ -
4.17	345kV, IPO circuit breaker	-	EA	350,000.00	57,239.00	24,531.00	\$ -	\$ -	\$ -	\$ -
4.18	345kV, surge Arrester	-	EA	8,450.00	5,460.00	2,340.00	\$ -	\$ -	\$ -	\$ -
4.19	138kV, Phase Angle Regulator with oil containment	-	EA		3,520.00	880.00	\$ -	\$ -	\$ -	\$ -
4.20	Transport & Testing- Phase Angle Regulating Transformer, 138kV	-	EA		15,400.00	6,600.00	\$ -	\$ -	\$ -	\$ -
4.21	138kV, Circuit Breaker (PASS)	-	EA		13,559.00	5,811.00	\$ -	\$ -	\$ -	\$ -
4.22	138kV, Disconnect Switch-3 Ph	-	EA		3,958.50	1,696.50	\$ -	\$ -	\$ -	\$ -
4.23	138kV, Cable sealing end-3 Ph	-	EA		1,050.00	450.00	\$ -	\$ -	\$ -	\$ -
4.24	138kV, CCVT	-	EA		7,970.08	3,415.75	\$ -	\$ -	\$ -	\$ -
4.25	138kV, Surge arrester	-	EA		4,200.00	1,800.00	\$ -	\$ -	\$ -	\$ -
4.26	Station service transformers- 120/208v-250VA	-	EA		45,500.00	19,500.00	\$ -	\$ -	\$ -	\$ -
TOTAL - MAJOR EQUIPMENT							\$ -	\$ -	\$ -	\$ -
5. LOW VOLTAGE & CONTROL CABLE										
5.1	Control Cables	25,000	LF	5.30	1.43	0.29	\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
5.2			LF				\$ -	\$ -	\$ -	\$ -
TOTAL - LOW VOLTAGE & CONTROL CABLE							\$ 132,438	\$ 35,813	\$ 7,163	\$ 175,413
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	5,000	LF	11.15	10.80	5.40	\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
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- 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							\$ -	\$ -	\$ -	\$ -
TOTAL - CONDUIT & CABLE TRENCH							\$ 55,750	\$ 54,000	\$ 27,000	\$ 136,750
7. GROUND GRID										
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	\$ -	\$ -	\$ -	\$ -
TOTAL - GROUND GRID							\$ -	\$ -	\$ -	\$ -
8. CONTROL ENCLOSURE										
8.1	345/138kV Control Bldg	-	EA	171,028.62	119,720.03	51,308.59	\$ -	\$ -	\$ -	\$ -
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	125VDC Battery System	-	LS	25,000.00	22,750.00	9,750.00	\$ -	\$ -	\$ -	\$ -
8.5	Control house AC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.6	Control House DC Panel	-	EA	65,000.00	91,000.00	39,000.00	\$ -	\$ -	\$ -	\$ -
8.7	Generator	-	EA	130,000.00	72,800.00	31,200.00	\$ -	\$ -	\$ -	\$ -
TOTAL - CONTROL ENCLOSURE							\$ 127,969	\$ 102,375	\$ 25,594	\$ 255,937
12 - Empire Offshore Wind Substation_ Interconnection							\$ 316,156	\$ 192,187	\$ 59,756	\$ 568,100
9. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
9.1	Mob / Demob	1.0	LS		8,818.03	3,779.16	\$ -	\$ 8,818	\$ 3,779	\$ 12,597

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
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		11,362.00		\$ -	\$ 11,362	\$ -	\$ 11,362
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		45,447.99		\$ -	\$ 45,448	\$ -	\$ 45,448
9.4	Utility PM and Project Oversight	1.00	LS		11,362.00		\$ -	\$ 11,362	\$ -	\$ 11,362
9.5	Site Accommodation, Facilities, Storage	1.00	LS			11,362.00	\$ -	\$ -	\$ 11,362	\$ 11,362
	Engineering									
9.6	Design Engineering	1.00	LS		90,895.98		\$ -	\$ 90,896	\$ -	\$ 90,896
9.7	LiDAR /GPR	1.00	LS		-		\$ -	\$ -	\$ -	\$ -
9.8	Geotech	-	EA		2,730.00	1,820.00	\$ -	\$ -	\$ -	\$ -
9.9	Surveying/Staking	-	Site		3,976.70		\$ -	\$ -	\$ -	\$ -
	Testing & Commissioning									
9.10	Testing & Commissioning of SS and Equipment	1.00	LS		21,303.75		\$ -	\$ 21,304	\$ -	\$ 21,304
	Permitting and Additional Costs									
9.11	Physical Security	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.12	Environmental Licensing & Permitting Costs & related legal cost	1.00	LS		5,681.00		\$ -	\$ 5,681	\$ -	\$ 5,681
9.13	Environmental-special studies/investigation	-	LS		-		\$ -	\$ -	\$ -	\$ -
9.14	Warranties / LOC's	1.00	LS		1,704.30		\$ -	\$ 1,704	\$ -	\$ 1,704
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		-	\$ 22,000	\$ -	\$ -	\$ 22,000	\$ 22,000
9.20	Sales Tax on Materials	8.80%	LS	316,156.19			\$ 27,822	\$ -	\$ -	\$ 27,822
9.21	Fees for permits, including roadway, railroad, building or other local permits	1.00	LS		568.10		\$ -	\$ 568	\$ -	\$ 568
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 27,822	\$ 197,143	\$ 37,141	\$ 262,106

LS Power - T035

13 - Control Center Upgrade

Total: \$ 107,333

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
13 - Control Center Upgrade				
1. Control Enclosure Upgrade	\$ 26,800	\$ 25,000	\$ 15,000	\$ 66,800
2. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 3,000	\$ 3,000	\$ 3,000	\$ 9,000
SUBTOTAL (Costs):	\$ 29,800	\$ 28,000	\$ 18,000	\$ 75,800
CONTRACTOR MARK-UP (OH&P)	\$ 5,364	\$ 5,040	\$ 3,240	\$ 13,644
SUBTOTAL:	\$ 35,164	\$ 33,040	\$ 21,240	\$ 89,444
CONTINGENCY ON ENTIRE PROJECT	\$ 7,033	\$ 6,608	\$ 4,248	\$ 17,889
TOTAL:	\$ 42,197	\$ 39,648	\$ 25,488	\$ 107,333

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 two new breakers in series with the existing 345 kV CB -1E and CB-6E respectively, 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
13 - Control Center Upgrade										
1. Control Enclosure Upgrade										
1.1	Control center upgrade	1.0	LS	26,800.00	25,000.00	15,000.00	\$ 26,800	\$ 25,000	\$ 15,000	\$ 66,800
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL							\$ 26,800	\$ 25,000	\$ 15,000	\$ 66,800
13 - Control Center Upgrade							\$ 26,800	\$ 25,000	\$ 15,000	\$ 66,800
2. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
2.1	Indirect Costs	1.00	LS	3,000.00	3,000.00	3,000.00	\$ 3,000	\$ 3,000	\$ 3,000	\$ 9,000
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 3,000	\$ 3,000	\$ 3,000	\$ 9,000

LS Power - T035

A Longshore-Southgate 345kV Onshore UG Cables -Three circuits

Total: \$ 985,372,979

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
A Longshore-Southgate 345kV Onshore UG Cables -Three circuits				
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT	\$ 5,171,776	\$ 25,260,706	\$ 10,218,270	\$ 40,650,752
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION	\$ 59,710,065	\$ 53,052,218	\$ 38,454,053	\$ 151,216,336
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION	\$ 183,601,148	\$ 110,655,603	\$ 71,148,389	\$ 365,405,139
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 22,065,289	\$ 83,771,855	\$ 32,775,500	\$ 138,612,644
SUBTOTAL (Costs):	\$ 270,548,279	\$ 272,740,381	\$ 152,596,212	\$ 695,884,872
CONTRACTOR MARK-UP (OH&P)	\$ 48,698,690	\$ 49,093,269	\$ 27,467,318	\$ 125,259,277
SUBTOTAL:	\$ 319,246,969	\$ 321,833,650	\$ 180,063,530	\$ 821,144,149
CONTINGENCY ON ENTIRE PROJECT	\$ 63,849,394	\$ 64,366,730	\$ 36,012,706	\$ 164,228,830
TOTAL:	\$ 383,096,363	\$ 386,200,380	\$ 216,076,236	\$ 985,372,979

Description of Work: 3 new 345kV cables estimated to be 21 miles in length. Conductor size is 4,000 kcmil XLPE UG cable UG cable will be placed n ducts encased in concrete under public roadways. Splice vaults will be placed along the route ot match cable reel lengths estimated at 2,000 ft. Each circuit will be spliced in its own vault to allow maintenance on individual circuits and avoid common contingencies. Grouted casing will be installed via horizontal directional drilling or jack and bore where traditional duct bank cannot be installed (major road/freeway crossings).										
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
A Longshore-Southgate 345kV Onshore UG Cables -Three circuits										
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT										
1.1	Environmental BMPs / SWPPP Installation, Maintenance & Repairs	0	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1.2	Existing Utility Conflict and Relocation	21.39	Mile		\$ 700,000	\$ 300,000	\$ -	\$ 14,973,000	\$ 6,417,000	\$ 21,390,000
1.3	Flaggers	580	DAY	\$ 1,600	\$ 4,800	\$ 1,600	\$ 928,000	\$ 2,784,000	\$ 928,000	\$ 4,640,000
1.4	K Rail / Lane Control / Metal Plates	112,939	LF	\$ 30	\$ 18	\$ 12	\$ 3,388,176	\$ 2,032,906	\$ 1,355,270	\$ 6,776,352
1.5	Police Support	23,200.0	HR		\$ 120	\$ 27	\$ -	\$ 2,784,000	\$ 626,400	\$ 3,410,400
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	21.39	Mile	\$ 40,000	\$ 120,000	\$ 40,000	\$ 855,600	\$ 2,566,800	\$ 855,600	\$ 4,278,000
TOTAL - SITE PREP/ACCESS/TRAFFIC MANAGEMENT/ ACCESS:							\$ 5,171,776	\$ 25,260,706	\$ 10,218,270	\$ 40,650,752
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION										
2.1	Trench Box Shoring & Trench Box Install Crew	21.39	Miles		\$ 139,800	\$ 93,200	\$ -	\$ 2,990,322	\$ 1,993,548	\$ 4,983,870
2.2	Formwork in Trench	867,514	SF	\$ 2	\$ 1.5	\$ 0.5	\$ 1,735,027	\$ 1,301,270	\$ 433,757	\$ 3,470,054
2.3	Trench Excavation	126,593	CY		\$ 17.5	\$ 7.5	\$ -	\$ 2,215,373	\$ 949,445	\$ 3,164,818
2.4	Supply & Install 6" Sand Bedding for direct bury conduits	7,912	CY	\$ 50	\$ 25	\$ 14	\$ 395,602	\$ 193,845	\$ 110,769	\$ 700,216
2.5	Supply & Install Thermal Backfill	41,538	CY	\$ 350	\$ 245	\$ 105	\$ 14,538,383	\$ 10,176,868	\$ 4,361,515	\$ 29,076,767
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	49,424	CY	\$ 200	\$ 125	\$ 50	\$ 9,884,836	\$ 6,178,022	\$ 2,471,209	\$ 18,534,067
2.9	Conduit 8" HDPE	1,016,453	LF	\$ 20.5	\$ 5.7	\$ 2.4	\$ 20,877,941	\$ 5,763,287	\$ 2,469,980	\$ 29,111,208
2.10	Conduit 4" HDPE	0	LF	\$ 5.4	\$ 4.20	\$ 1.8	\$ -	\$ -	\$ -	\$ -
2.11	Conduit 2" HDPE	338,818	LF	\$ 1.9	\$ 3.15	\$ 1.4	\$ 647,142	\$ 1,067,275	\$ 457,404	\$ 2,171,821
2.12	Warning Tape	225,878	LF	\$ 0.15	\$ 0.25	\$ 0.10	\$ 33,882	\$ 56,470	\$ 22,588	\$ 112,939
2.13	Trench Box Shoring (Vault)	186	EA	\$ -	\$ 18,079	\$ 27,119	\$ -	\$ 3,362,712	\$ 5,044,068	\$ 8,406,780
2.14	Splice Vault Excavation	70,223	CY		\$ 17.5	\$ 7.5	\$ -	\$ 1,228,905	\$ 526,674	\$ 1,755,579
2.15	Splice Vault Supply & Installation	186	EA	\$ 35,000	\$ 16,500	\$ 38,500	\$ 6,510,000	\$ 3,069,000	\$ 7,161,000	\$ 16,740,000
2.16	Splice Vault Backfill	21,067	CY		\$ 14.0	\$ 6.0	\$ -	\$ 294,937	\$ 126,402	\$ 421,339
2.17	Jack and Bore along Route	4,500	LF	\$ 800	\$ 1,600	\$ 1,600	\$ 3,600,000	\$ 7,200,000	\$ 7,200,000	\$ 18,000,000
2.18	HDD along Route	0	LF	\$ 800	\$ 1,600	\$ 1,600	\$ -	\$ -	\$ -	\$ -
2.19	Air Test Ducts	1,355,270	LF			\$ 0.25	\$ -	\$ -	\$ 338,818	\$ 338,818
2.20	PVMT, ASPHALT, 2" SURFACE COURSE	73,566	SY	\$ 14.00	\$ 14.00	\$ 7.00	\$ 1,029,920	\$ 1,029,920	\$ 514,960	\$ 2,574,800

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
2.21	PVMT, AGGREGATE, 10", BASE COURSE	20,435	CY	\$ 22.38	\$ 23.50	\$ 10.07	\$ 457,333	\$ 480,200	\$ 205,800	\$ 1,143,334
2.22	Concrete Ductbank Compressive Strength Testing (every 100CY of concrete poured)	494	EA		\$ 10	\$ 15	\$ -	\$ 4,942	\$ 7,414	\$ 12,356
2.23	Backfill Thermal Resistivity Testing (every 100CY of backfill placed)	415	EA		\$ 400	\$ 1,200	\$ -	\$ 166,153	\$ 498,459	\$ 664,612
2.24	Additional misc. testing allowance (Native Backfill, Asphalt Density, Concrete Curb etc.)	1	LS		\$ 478,296	\$ 318,864	\$ -	\$ 478,296	\$ 318,864	\$ 797,160
2.25	Excess Materials Disposal to Certified Backfill	228,474	CY		\$ 24.5	\$ 10.5	\$ -	\$ 5,597,603	\$ 2,398,973	\$ 7,996,576
2.26	Rock Excavation and Removal	1	LS				\$ -	\$ -	\$ -	\$ -
2.27	Dewatering	186	EA			\$ 4,000	\$ -	\$ -	\$ 744,000	\$ 744,000
2.28	Contaminated Water Treatment and Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.29	Contaminated Spoils Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.30	Excavated material - stockpile management	196,816	CF		\$ 1.0	\$ 0.5	\$ -	\$ 196,816	\$ 98,408	\$ 295,224
TOTAL - ONSHORE CABLE CONDUITS & VAULTS INSTALLATION:							\$ 59,710,065	\$ 53,052,218	\$ 38,454,053	\$ 151,216,336
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION										
3.1	Circuit #1- Procurement & Installation- 345kV 4000 kcmil XLPE Cable	355,758	FT	\$ 154	\$ 92	\$ 62	\$ 54,786,806	\$ 32,872,084	\$ 21,914,722	\$ 109,573,612
3.2	Circuit #1- Cable Splicing- 345kV 4000 kcmil 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 4000 kcmil 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 4000 kcmil XLPE Cable	355,758	FT	\$ 154	\$ 92	\$ 62	\$ 54,786,806	\$ 32,872,084	\$ 21,914,722	\$ 109,573,612
3.5	Circuit #2- Cable Splicing- 345kV 4000 kcmil XLPE Cable	186	EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ 2,180,292	\$ 1,526,204	\$ 436,058	\$ 4,142,555
3.6	Circuit #2- Cable Termination- 345kV 4000 kcmil XLPE Cable	6	EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ 166,830	\$ 49,232	\$ 14,066	\$ 230,129
3.7	Circuit #3- Procurement & Installation- 345kV 4000 kcmil XLPE Cable	355,758	FT	\$ 154	\$ 92	\$ 62	\$ 54,786,806	\$ 32,872,084	\$ 21,914,722	\$ 109,573,612
3.8	Circuit #3- Cable Splicing- 345kV 4000 kcmil XLPE Cable	186	EA	\$ 11,722	\$ 8,205	\$ 2,344	\$ 2,180,292	\$ 1,526,204	\$ 436,058	\$ 4,142,555
3.9	Circuit #3- Cable Termination- 345kV 4000 kcmil XLPE Cable	6	EA	\$ 27,805	\$ 8,205	\$ 2,344	\$ 166,830	\$ 49,232	\$ 14,066	\$ 230,129
3.10	Link Box & MH racking	186	EA	\$ 26,500	\$ 18,550	\$ 7,950	\$ 4,929,084	\$ 3,450,359	\$ 1,478,725	\$ 9,858,167
3.11	Fiber Optic Cable	355,758	FT	\$ 7	\$ 3	\$ 2	\$ 2,631,545	\$ 1,184,889	\$ 789,926	\$ 4,606,361
3.12	Ground Continuity Conductor	355,758	FT	\$ 13	\$ 8	\$ 5	\$ 4,638,735	\$ 2,677,794	\$ 1,785,196	\$ 9,101,725
TOTAL - ONSHORE CABLE PROCUREMENT AND INSTALLATION							\$ 183,601,148	\$ 110,655,603	\$ 71,148,389	\$ 365,405,139
A Longshore-Southgate 345kV Onshore UG Cables -Three circuits							\$ 248,482,989	\$ 188,968,527	\$ 119,820,712	\$ 557,272,228
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
4.1	Mob / Demob	1	LS		\$ 9,263,677	\$ 6,175,785	\$ -	\$ 9,263,677	\$ 6,175,785	\$ 15,439,462
	Project Management, Material Handling & Amenities									
4.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		5,572,722.28		\$ -	\$ 5,572,722	\$ -	\$ 5,572,722
4.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		22,290,889.11		\$ -	\$ 22,290,889	\$ -	\$ 22,290,889
4.4	Utility PM and Project Oversight	1.00	LS		5,572,722.28		\$ -	\$ 5,572,722	\$ -	\$ 5,572,722
4.5	Site Accommodation, Facilities, Storage	1.00	LS			5,572,722.28	\$ -	\$ -	\$ 5,572,722	\$ 5,572,722
	Engineering									
4.6	Design Engineering	1.0	LS		\$ 27,863,611	\$ -	\$ -	\$ 27,863,611	\$ -	\$ 27,863,611
4.7	LiDAR /GPR	1.0	LS		\$ 1,003,090	\$ 668,727	\$ -	\$ 1,003,090	\$ 668,727	\$ 1,671,817
4.8	Geotech	22.00	EA		2,730.00	1,820.00	\$ -	\$ 60,060	\$ 40,040	\$ 100,100
4.9	Surveying/Staking	1	LS		\$ 2,340,543		\$ -	\$ 2,340,543	\$ -	\$ 2,340,543
	Testing & Commissioning									
4.10	Testing & Commissioning of T-Line and Equipment	1	EA		\$ 60,000		\$ -	\$ 60,000	\$ -	\$ 60,000
	Permitting, Indirects and Additional Costs									
4.11	Environmental Licensing & Permitting Costs & related legal cost	1	LS		\$ 5,572,722		\$ -	\$ 5,572,722	\$ -	\$ 5,572,722
4.12	Environmental-special studies/investigation	-	LS		\$ -		\$ -	\$ -	\$ -	\$ -
4.13	Warranties / LOC's	1	LS		\$ 1,671,817		\$ -	\$ 1,671,817	\$ -	\$ 1,671,817
4.14	Laydown Lease & temporary easement	1	LS		\$ 2,500,000		\$ -	\$ 2,500,000	\$ -	\$ 2,500,000
4.15	Real Estate (Acquisition)	1	LS			\$ 59,179	\$ -	\$ -	\$ 59,179	\$ 59,179
9.17	Legal Fees (Real estate)	1.00	LS		-	1,775.37	\$ -	\$ -	\$ 1,775	\$ 1,775
4.17	Insurance	-	LS			-	\$ -	\$ -	\$ -	\$ -
4.18	Insurance (specialty, e.g. railroad)	-	Crossing			\$ 1,000	\$ -	\$ -	\$ -	\$ -
4.19	Bonds	1	LS			\$ 19,700,000	\$ -	\$ -	\$ 19,700,000	\$ 19,700,000
4.20	Sales Tax on Materials	8.88%	% of material cost	\$ 248,482,989.22			\$ 22,065,289	\$ -	\$ -	\$ 22,065,289
4.21	Fees for permits, including roadway, railroad, building or other local permits	1	LS			\$ 557,272	\$ -	\$ -	\$ 557,272	\$ 557,272
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 22,065,289	\$ 83,771,855	\$ 32,775,500	\$ 138,612,644

LS Power - T035

B Southgate-Northgate 400kV Onshore UG Cables -Three circuits

Total: \$ 1,413,025,869

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
B Southgate-Northgate 400kV Onshore UG Cables -Three circuits				
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT	\$ 7,106,880	\$ 34,651,928	\$ 14,032,152	\$ 55,790,960
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION	\$ 125,481,246	\$ 127,514,811	\$ 85,614,554	\$ 338,610,611
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION	\$ 205,961,859	\$ 121,560,903	\$ 78,256,570	\$ 405,779,332
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	\$ 30,063,239	\$ 120,214,164	\$ 47,441,320	\$ 197,718,723
SUBTOTAL (Costs):	\$ 368,613,223	\$ 403,941,807	\$ 225,344,595	\$ 997,899,625
CONTRACTOR MARK-UP (OH&P)	\$ 66,350,380	\$ 72,709,525	\$ 40,562,027	\$ 179,621,932
SUBTOTAL:	\$ 434,963,603	\$ 476,651,332	\$ 265,906,622	\$ 1,177,521,557
CONTINGENCY ON ENTIRE PROJECT	\$ 86,992,721	\$ 95,330,266	\$ 53,181,324	\$ 235,504,311
TOTAL:	\$ 521,956,324	\$ 571,981,598	\$ 319,087,947	\$ 1,413,025,869

Description of Work: Onshore UG section of Southgate-Northgate 400kV transmission line. Total line length is 45 miles, this estimate includes 29 miles of underground line. The UG segments consist of 5,000 kcmil XLPE UG cable placed in ducts encased concrete. Splice vaults will be placed along the route to match cable reel lengths estimated at 2,000ft. Each line will be spliced in its own set of vaults to avoid common contingencies. Grouted casings will be installed via HDD or jack and bore to house the ducts where duct bank cannot be installed (major crossings).										
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 Southgate-Northgate 400kV Onshore UG Cables -Three circuits										
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT										
1.1	Environmental BMPs / SWPPP Installation, Maintenance & Repairs	0	LF	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1.2	Existing Utility Conflict and Relocation	29.45	Mile		\$ 700,000	\$ 300,000	\$ -	\$ 20,615,000	\$ 8,835,000	\$ 29,450,000
1.3	Flaggers	790	DAY	\$ 1,600	\$ 4,800	\$ 1,600	\$ 1,264,000	\$ 3,792,000	\$ 1,264,000	\$ 6,320,000
1.4	K Rail / Lane Control / Metal Plates	155,496	LF	\$ 30	\$ 18	\$ 12	\$ 4,664,880	\$ 2,798,928	\$ 1,865,952	\$ 9,329,760
1.5	Police Support	31,600.0	HR		\$ 120	\$ 27	\$ -	\$ 3,792,000	\$ 853,200	\$ 4,645,200
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	29.45	Mile	\$ 40,000	\$ 120,000	\$ 40,000	\$ 1,178,000	\$ 3,534,000	\$ 1,178,000	\$ 5,890,000
TOTAL - SITE PREP/ACCESS/TRAFFIC MANAGEMENT/ ACCESS:							\$ 7,106,880	\$ 34,651,928	\$ 14,032,152	\$ 55,790,960
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION										
2.1	Trench Box Shoring & Trench Box Install Crew	29.45	Miles		\$ 139,800	\$ 93,200	\$ -	\$ 4,117,110	\$ 2,744,740	\$ 6,861,850
2.2	Formwork in Trench	1,183,968	SF	\$ 2	\$ 1.5	\$ 0.5	\$ 2,367,936	\$ 1,775,952	\$ 591,984	\$ 4,735,872
2.3	Trench Excavation	216,917	CY		\$ 17.5	\$ 7.5	\$ -	\$ 3,796,047	\$ 1,626,877	\$ 5,422,925
2.4	Supply & Install 6" Sand Bedding for direct bury conduits	19,733	CY	\$ 50	\$ 25	\$ 14	\$ 986,640	\$ 483,454	\$ 276,259	\$ 1,746,353
2.5	Supply & Install Thermal Backfill	134,101	CY	\$ 350	\$ 245	\$ 105	\$ 46,935,287	\$ 32,854,701	\$ 14,080,586	\$ 93,870,574
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	116,259	CY	\$ 200	\$ 125	\$ 50	\$ 23,251,816	\$ 14,532,385	\$ 5,812,954	\$ 43,597,155
2.9	Conduit 10" HDPE	932,976	LF	\$ 37.0	\$ 5.7	\$ 2.4	\$ 34,520,112	\$ 5,289,974	\$ 2,267,132	\$ 42,077,218
2.10	Conduit 4" HDPE	0	LF	\$ 5.4	\$ 4.20	\$ 1.8	\$ -	\$ -	\$ -	\$ -
2.11	Conduit 2" HDPE	466,488	LF	\$ 1.9	\$ 3.15	\$ 1.4	\$ 890,992	\$ 1,469,437	\$ 629,759	\$ 2,990,188
2.12	Warning Tape	310,992	LF	\$ 0.15	\$ 0.25	\$ 0.10	\$ 46,649	\$ 77,748	\$ 31,099	\$ 155,496
2.13	Trench Box Shoring (Vault)	249	EA	\$ -	\$ 18,079	\$ 27,119	\$ -	\$ 4,501,695	\$ 6,752,542	\$ 11,254,237
2.14	Splice Vault Excavation	52,286	CY		\$ 17.5	\$ 7.5	\$ -	\$ 915,006	\$ 392,146	\$ 1,307,152
2.15	Splice Vault Supply & Installation	249	EA	\$ 30,000	\$ 16,500	\$ 38,500	\$ 7,470,000	\$ 4,108,500	\$ 9,586,500	\$ 21,165,000
2.16	Splice Vault Backfill	15,686	CY		\$ 14.0	\$ 6.0	\$ -	\$ 219,602	\$ 94,115	\$ 313,716
2.17	Jack and Bore along Route	7,500	LF	\$ 800	\$ 1,600	\$ 1,600	\$ 6,000,000	\$ 12,000,000	\$ 12,000,000	\$ 30,000,000
2.18	HDD along Route	0	LF	\$ 800	\$ 1,600	\$ 1,600	\$ -	\$ -	\$ -	\$ -
2.19	Air Test Ducts	1,399,464	LF			\$ 0.25	\$ -	\$ -	\$ 349,866	\$ 349,866
2.20	PVMT, ASPHALT, 2" SURFACE COURSE	148,977	SY	\$ 14.00	\$ 14.00	\$ 7.00	\$ 2,085,675	\$ 2,085,675	\$ 1,042,837	\$ 5,214,187
2.21	PVMT, AGGREGATE, 10", BASE COURSE	41,382	CY	\$ 22.38	\$ 23.50	\$ 10.07	\$ 926,139	\$ 972,446	\$ 416,763	\$ 2,315,347

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
2.21	Concrete Ductbank Thermal Resistivity Testing (every 100CY of concrete poured)	1,163	EA		\$ 400	\$ 1,200	\$ -	\$ 465,036	\$ 1,395,109	\$ 1,860,145
2.22	Concrete Ductbank Compressive Strength Testing (every 100CY of concrete poured)	1,163	EA		\$ 10	\$ 15	\$ -	\$ 11,626	\$ 17,439	\$ 29,065
2.23	Backfill Thermal Resistivity Testing (every 100CY of backfill placed)	1,341	EA		\$ 400	\$ 1,200	\$ -	\$ 536,403	\$ 1,609,210	\$ 2,145,613
2.24	Additional misc. testing allowance (Native Backfill, Asphalt Density, Concrete Curb etc.)	1	LS		\$ 478,296	\$ 318,864	\$ -	\$ 478,296	\$ 318,864	\$ 797,160
2.25	Excess Materials Disposal to Certified Backfill	329,572	CY		\$ 24.5	\$ 10.5	\$ -	\$ 8,074,524	\$ 3,460,510	\$ 11,535,035
2.26	Rock Excavation and Removal	117,202	CY		\$ 243	\$ 162	\$ -	\$ 28,479,991	\$ 18,986,661	\$ 47,466,651
2.27	Dewatering	249	EA			\$ 4,000	\$ -	\$ -	\$ 996,000	\$ 996,000
2.28	Contaminated Water Treatment and Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.29	Contaminated Spoils Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.30	Excavated material - stockpile management	269,203	CF		\$ 1.0	\$ 0.5	\$ -	\$ 269,203	\$ 134,602	\$ 403,805
TOTAL - ONSHORE CABLE CONDUITS & VAULTS INSTALLATION:							\$ 125,481,246	\$ 127,514,811	\$ 85,614,554	\$ 338,610,611
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION										
3.1	Circuit #1- Procurement & Installation- 400kV 5000 kcmil XLPE Cable	326,542	FT	\$ 183	\$ 110	\$ 73	\$ 59,757,113	\$ 35,854,268	\$ 23,902,845	\$ 119,514,226
3.2	Circuit #1- Cable Splicing- 400kV 5000 kcmil XLPE Cable	166	EA	\$ 21,837	\$ 9,846	\$ 2,813	\$ 3,624,942	\$ 1,634,516	\$ 467,004	\$ 5,726,462
3.3	Circuit #1- Cable Termination- 400kV 5000 kcmil XLPE Cable	4	EA	\$ 48,323	\$ 9,846	\$ 2,813	\$ 193,292	\$ 39,386	\$ 11,253	\$ 243,931
3.4	Circuit #2- Procurement & Installation- 400kV 5000 kcmil XLPE Cable	326,542	FT	\$ 183	\$ 110	\$ 73	\$ 59,757,113	\$ 35,854,268	\$ 23,902,845	\$ 119,514,226
3.5	Circuit #2- Cable Splicing- 400kV 5000 kcmil XLPE Cable	166	EA	\$ 21,837	\$ 9,846	\$ 2,813	\$ 3,624,942	\$ 1,634,516	\$ 467,004	\$ 5,726,462
3.6	Circuit #2- Cable Termination- 400kV 5000 kcmil XLPE Cable	4	EA	\$ 48,323	\$ 9,846	\$ 2,813	\$ 193,292	\$ 39,386	\$ 11,253	\$ 243,931
3.7	Circuit #3- Procurement & Installation- 400kV 5000 kcmil XLPE Cable	326,542	FT	\$ 183	\$ 110	\$ 73	\$ 59,757,113	\$ 35,854,268	\$ 23,902,845	\$ 119,514,226
3.8	Circuit #3- Cable Splicing- 400kV 5000 kcmil XLPE Cable	166	EA	\$ 21,837	\$ 9,846	\$ 2,813	\$ 3,624,942	\$ 1,634,516	\$ 467,004	\$ 5,726,462
3.9	Circuit #3- Cable Termination- 400kV 5000 kcmil XLPE Cable	4	EA	\$ 48,323	\$ 9,846	\$ 2,813	\$ 193,292	\$ 39,386	\$ 11,253	\$ 243,931
3.10	Link Box & MH racking	249	EA	\$ 20,988	\$ 14,692	\$ 6,296	\$ 5,226,012	\$ 3,658,208	\$ 1,567,804	\$ 10,452,024
3.11	Fiber Optic Cable	489,812	FT	\$ 7	\$ 3	\$ 2	\$ 3,623,142	\$ 1,631,369	\$ 1,087,579	\$ 6,342,091
3.12	Ground Continuity Conductor	489,812	FT	\$ 13	\$ 8	\$ 5	\$ 6,386,664	\$ 3,686,818	\$ 2,457,879	\$ 12,531,360
TOTAL - ONSHORE CABLE PROCUREMENT AND INSTALLATION							\$ 205,961,859	\$ 121,560,903	\$ 78,256,570	\$ 405,779,332
B Southgate-Northgate 400kV Onshore UG Cables -Three circuits							\$ 338,549,984	\$ 283,727,643	\$ 177,903,275	\$ 800,180,902
4. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS										
	Contractor Mobilization / Demobilization									
4.1	Mob / Demob	1	LS		\$ 13,848,928	\$ 9,232,618	\$ -	\$ 13,848,928	\$ 9,232,618	\$ 23,081,546
	Project Management, Material Handling & Amenities									
4.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		8,001,809.02		\$ -	\$ 8,001,809	\$ -	\$ 8,001,809
4.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		32,007,236.10		\$ -	\$ 32,007,236	\$ -	\$ 32,007,236
4.4	Utility PM and Project Oversite	1.00	LS		8,001,809.02		\$ -	\$ 8,001,809	\$ -	\$ 8,001,809
4.5	Site Accommodation, Facilities, Storage	1.00	LS			8,001,809.02	\$ -	\$ -	\$ 8,001,809	\$ 8,001,809
	Engineering									
4.6	Design Engineering	1.0	LS		\$ 40,009,045	\$ -	\$ -	\$ 40,009,045	\$ -	\$ 40,009,045
4.7	LiDAR /GPR	1.0	LS		\$ 1,440,326	\$ 960,217	\$ -	\$ 1,440,326	\$ 960,217	\$ 2,400,543
4.8	Geotech	30.0	Location		2,730.00	1,820.00	\$ -	\$ 81,900	\$ 54,600	\$ 136,500
4.9	Surveying/Staking	1	LS		\$ 3,360,760		\$ -	\$ 3,360,760	\$ -	\$ 3,360,760
	Testing & Commissioning									
4.10	Testing & Commissioning of T-Line and Equipment	1	EA		\$ 60,000		\$ -	\$ 60,000	\$ -	\$ 60,000
	Permitting, Indirects and Additional Costs									
4.11	Environmental Licensing & Permitting Costs & related legal cost	1	LS		\$ 8,001,809		\$ -	\$ 8,001,809	\$ -	\$ 8,001,809
4.12	Environmental-special studies/investigation		LS		\$ -		\$ -	\$ -	\$ -	\$ -
4.13	Warranties / LOC's	1	LS		\$ 2,400,543		\$ -	\$ 2,400,543	\$ -	\$ 2,400,543
4.14	Laydown Lease & temporary easement	1	LS		\$ 3,000,000		\$ -	\$ 3,000,000	\$ -	\$ 3,000,000
4.15	Real Estate (Acquisition)	1	LS			\$ 128,053	\$ -	\$ -	\$ 128,053	\$ 128,053
9.17	Legal Fees (Real estate)	1.00	LS		-	3,841.59	\$ -	\$ -	\$ 3,842	\$ 3,842
4.17	Insurance	-	LS			-	\$ -	\$ -	\$ -	\$ -
4.18	Insurance (specialty, e.g. railroad)	-	Crossing			\$ 1,000	\$ -	\$ -	\$ -	\$ -
4.19	Bonds	1	LS			\$ 28,260,000	\$ -	\$ -	\$ 28,260,000	\$ 28,260,000
4.20	Sales Tax on Materials	8.88%	% of material cost	\$ 338,549,984.31			\$ 30,063,239	\$ -	\$ -	\$ 30,063,239
4.21	Fees for permits, including roadway, railroad, building or other local permits	1	LS			\$ 800,181	\$ -	\$ -	\$ 800,181	\$ 800,181
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 30,063,239	\$ 120,214,164	\$ 47,441,320	\$ 197,718,723

LS Power - T035

C. Southgate to Northgate Offshore Submarine Cables- Three Circuits

Total: \$ 662,728,257

C. Southgate to Northgate Offshore Submarine Cables- Three Circuits				
	Material Supply	Labor Supply	Equip Supply	Total
C. Southgate to Northgate Offshore Submarine Cables- Three Circuits				
1. SUBMARINE CABLE	\$ 123,418,486	\$ 151,505,068	\$ 103,122,345	\$ 378,045,899
2. TRANSITION STATION	\$ 318,428	\$ 498,215	\$ 451,747	\$ 1,268,390
3. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:	\$ 10,860,827	\$ 55,820,172	\$ 22,033,143	\$ 88,714,142
SUBTOTAL (Costs):	\$ 134,597,741	\$ 207,823,454	\$ 125,607,235	\$ 468,028,430
CONTRACTOR MARK-UP (OH&P)	\$ 24,227,593	\$ 37,408,222	\$ 22,609,302	\$ 84,245,117
SUBTOTAL:	\$ 158,825,335	\$ 245,231,676	\$ 148,216,537	\$ 552,273,548
CONTINGENCY ON ENTIRE PROJECT	\$ 31,765,067	\$ 49,046,335	\$ 29,643,307	\$ 110,454,710
TOTAL:	\$ 190,590,401	\$ 294,278,011	\$ 177,859,845	\$ 662,728,257

Description of Work: Submarine section of Southgate-Northgate 400kV transmission line. Total line length is 45 miles, this estimate includes 16 mile miles of submarine cable. The submarine segment will consist of 5,000 kmil XLPE armored cable buried below the Long Island Sound.
(response- updated length 14.87 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
C. Southgate to Northgate Offshore Submarine Cables- Three Circuits										
1. SUBMARINE CABLE										
1.1	Submarine Cable - 400kV DC, 5000kCMIL, Cu, Single Core, XLPE Armored, Submarine	518,190	FT	\$ 219			\$ 113,483,557	\$ -	\$ -	\$ 113,483,557
1.2	Submarine Cable - 400kV DC, 5000kCMIL, Cu, Single Core, XLPE Armored, Submarine	259,095	FT		\$ 400	\$ 250	\$ -	\$ 103,637,952	\$ 64,773,720	\$ 168,411,672
1.3	Submarine Cable- transportation from manufacture location to site	1	LS		\$ 28,220,544	\$ 18,813,696	\$ -	\$ 28,220,544	\$ 18,813,696	\$ 47,034,240
1.4	Submarine Cable Splicing if Required 400kV DC, 5000kCMIL, Cu, Single Core, XLPE Armored, Submarine	-	EA				\$ -	\$ -	\$ -	\$ -
1.5	Cable Transition Splice	12	EA	\$ 27,911	\$ 37,214	\$ 27,911	\$ 334,929	\$ 446,572	\$ 334,929	\$ 1,116,430
1.6	Outdoor Termination	-	EA	\$ 27,911	\$ 37,214	\$ 27,911	\$ -	\$ -	\$ -	\$ -
1.7	Jack and Bore along Route	0	LF	\$ 1,600	\$ 3,200	\$ 3,200	\$ -	\$ -	\$ -	\$ -
1.8	HDD along Route	12,000	LF	\$ 800	\$ 1,600	\$ 1,600	\$ 9,600,000	\$ 19,200,000	\$ 19,200,000	\$ 48,000,000
1.9	Trench Box Shoring & Trench Box Install Crew	0	LS		\$ 33,891	\$ 22,594	\$ -	\$ -	\$ -	\$ -
1.10	Formwork in Trench		SF	\$ 2	\$ 1.5	\$ 0.5	\$ -	\$ -	\$ -	\$ -
1.11	Trench Excavation	-	CY		\$ 17.5	\$ 7.5	\$ -	\$ -	\$ -	\$ -
1.12	Supply & Install 6" Sand Bedding for direct bury conduits	-	SF	\$ 50	\$ 25	\$ 14	\$ -	\$ -	\$ -	\$ -
1.13	Supply & Install Thermal Backfill	-	CY	\$ 350	\$ 245	\$ 105	\$ -	\$ -	\$ -	\$ -
1.14	Supply & Install Concrete Cap (6")	-	CY	\$ 200	\$ 125	\$ 50	\$ -	\$ -	\$ -	\$ -
1.15	Native Backfill -direct bury conduits sys Trench	-	CY		\$ 14.0	\$ 6.0	\$ -	\$ -	\$ -	\$ -
1.16	Conduit 15" HDPE	-	LF	\$ 150.0	\$ 45.0	\$ 30.0	\$ -	\$ -	\$ -	\$ -
1.17	Conduit 4" HDPE	-	LF	\$ 5.4	\$ 4.20	\$ 1.8	\$ -	\$ -	\$ -	\$ -
1.18	Conduit 2" HDPE	-	LF	\$ 1.9	\$ 3.15	\$ 1.4	\$ -	\$ -	\$ -	\$ -
1.19	Warning Tape	-	LF	\$ 0.15	\$ 0.25	\$ 0.10	\$ -	\$ -	\$ -	\$ -
TOTAL - SUBMARINE CABLE :							\$ 123,418,486	\$ 151,505,068	\$ 103,122,345	\$ 378,045,899
2. TRANSITION STATION										
2.1	Site Clearing	1.0	ACRE	-	10,800.00	7,200.00	\$ -	\$ 10,800	\$ 7,200	\$ 18,000
2.2	Demolition	1	LS	-	120,000.00	80,000.00	\$ -	\$ 120,000	\$ 80,000	\$ 200,000
2.3	Temporary fencing	1,000	LF	7.50	5.25	2.25	\$ 7,500	\$ 5,250	\$ 2,250	\$ 15,000
2.4	Trench Box Shoring (Vault)	6	EA	\$ -	\$ 18,079	\$ 27,119	\$ -	\$ 108,475	\$ 162,712	\$ 271,186
2.5	Splice Vault Excavation	1,053	CY		\$ 17.5	\$ 7.5	\$ -	\$ 18,431	\$ 7,899	\$ 26,330
2.6	Splice Vault Supply & Installation	6	EA	\$ 25,000	\$ 10,000	\$ 15,000	\$ 150,000	\$ 60,000	\$ 90,000	\$ 300,000
2.7	Splice Vault Backfill	316	CY		\$ 14.0	\$ 6.0	\$ -	\$ 4,423	\$ 1,896	\$ 6,319
2.8	Link Box & MH racking	6	EA	\$ 20,988	\$ 18,550	\$ 7,950	\$ 125,928	\$ 111,302	\$ 47,701	\$ 284,931
2.9	Air Test Ducts	0	LF			\$ 0.25	\$ -	\$ -	\$ -	\$ -
2.10	Restoration (incl. Paving)	2,500	SF	\$ 14.00	\$ 14.00	\$ 7.00	\$ 35,000	\$ 35,000	\$ 17,500	\$ 87,500
2.11	Concrete Ductbank Thermal Resistivity Testing (every 100CY of concrete poured)	0	EA		\$ 400	\$ 1,200	\$ -	\$ -	\$ -	\$ -
2.12	Concrete Ductbank Compressive Strength Testing (every 100CY of concrete poured)	0	EA		\$ 10	\$ 15	\$ -	\$ -	\$ -	\$ -
2.13	Backfill Thermal Resistivity Testing (every 100CY of backfill placed)	0	EA		\$ 400	\$ 1,200	\$ -	\$ -	\$ -	\$ -
2.14	Additional misc. testing allowance (Native Backfill, Asphalt Density, Concrete Curb etc.)	1	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
2.15	Excess Materials Disposal to Certified Backfill	958	CY		\$ 24.5	\$ 10.5	\$ -	\$ 23,481	\$ 10,063	\$ 33,544
2.16	Rock Excavation and Removal	1	LS				\$ -	\$ -	\$ -	\$ -
2.17	Dewatering	6	EA			\$ 4,000	\$ -	\$ -	\$ 24,000	\$ 24,000
2.18	Contaminated Water Treatment and Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.19	Contaminated Spoils Disposal	1	LS				\$ -	\$ -	\$ -	\$ -
2.20	Excavated material - stockpile management	1,053	CF		\$ 1.0	\$ 0.5	\$ -	\$ 1,053	\$ 527	\$ 1,580
2.21							\$ -	\$ -	\$ -	\$ -
TOTAL - Transition station :							\$ 318,428	\$ 498,215	\$ 451,747	\$ 1,268,390
C. Southgate to Northgate Offshore Submarine Cables- Three Circuits							\$ 123,736,914	\$ 152,003,282	\$ 103,574,092	\$ 379,314,289
3. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:										
	Contractor Mobilization / Demobilization									
3.1	Mob / Demob	1	LS		\$ 5,500,000	\$ 4,500,000	\$ -	\$ 5,500,000	\$ 4,500,000	\$ 10,000,000
	Project Management, Material Handling & Amenities									
3.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		3,793,142.89		\$ -	\$ 3,793,143	\$ -	\$ 3,793,143
3.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		15,172,571.55		\$ -	\$ 15,172,572	\$ -	\$ 15,172,572
3.4	Utility PM and Project Oversight	1.00	LS		3,793,142.89		\$ -	\$ 3,793,143	\$ -	\$ 3,793,143
3.5	Site Accommodation, Facilities, Storage	1.00	LS			3,793,142.89	\$ -	\$ -	\$ 3,793,143	\$ 3,793,143
	Engineering									
3.6	Design Engineering	1	LS		\$ 18,965,714		\$ -	\$ 18,965,714	\$ -	\$ 18,965,714
3.7	Surveying/Staking	1	LS		\$ 2,655,200		\$ -	\$ 2,655,200	\$ -	\$ 2,655,200
	Testing & Commissioning / Inspection									
3.8	Testing & Commissioning / End to End Testing of Subsea Cable	1	EA		\$ 60,000		\$ -	\$ 60,000	\$ -	\$ 60,000
3.9	Post Cable-Lay Inspection		EA				\$ -	\$ -	\$ -	\$ -
	Permitting and Additional Costs									
3.10	Environmental Licensing & Permitting Costs & related legal cost	1	LS		\$ 3,793,143		\$ -	\$ 3,793,143	\$ -	\$ 3,793,143
3.11	Environmental-special studies/investigation	1	LS		\$ 570,000		\$ -	\$ 570,000	\$ -	\$ 570,000
3.12	Warranties / LOC's	1	LS		\$ 1,137,943		\$ -	\$ 1,137,943	\$ -	\$ 1,137,943
3.13	Laydown Lease	1	LS		\$ -	\$ 500,000	\$ -	\$ -	\$ 500,000	\$ 500,000
3.14	Laydown Lease & temporary easement		LS		\$ -		\$ -	\$ -	\$ -	\$ -
9.17	Legal Fees (Real estate)	-	LS		-	-	\$ -	\$ -	\$ -	\$ -
3.16	Insurance	-	LS			-	\$ -	\$ -	\$ -	\$ -
3.17	Bonds	1	LS			\$ 13,240,000	\$ -	\$ -	\$ 13,240,000	\$ 13,240,000
3.18	Sales Tax on Materials	8.8%	LS	\$ 123,418,486			\$ 10,860,827	\$ -	\$ -	\$ 10,860,827
3.19	Contractor Permits	1	LS		\$ 379,314		\$ -	\$ 379,314	\$ -	\$ 379,314
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 10,860,827	\$ 55,820,172	\$ 22,033,143	\$ 88,714,142

LS Power - T035

D. OH Transmission_Existing Millwood Substation

Total: \$ 6,372,000

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
D. OH Transmission_Existing Millwood Substation				
1. OH Transmission_Millwood Substation	\$ 1,800,000	\$ 1,080,000	\$ 720,000	\$ 3,600,000
2.. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:	\$ 450,000	\$ 270,000	\$ 180,000	\$ 900,000
SUBTOTAL (Costs):	\$ 2,250,000	\$ 1,350,000	\$ 900,000	\$ 4,500,000
CONTRACTOR MARK-UP (OH&P)	\$ 405,000	\$ 243,000	\$ 162,000	\$ 810,000
SUBTOTAL:	\$ 2,655,000	\$ 1,593,000	\$ 1,062,000	\$ 5,310,000
CONTINGENCY ON ENTIRE PROJECT	\$ 531,000	\$ 318,600	\$ 212,400	\$ 1,062,000
TOTAL:	\$ 3,186,000	\$ 1,911,600	\$ 1,274,400	\$ 6,372,000

Description of Work:Various exisitng transmission system upgrades										
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
D. OH Transmission_Existing Millwood Substation										
1. OH Transmission_Millwood Substation										
1.1	345kV OH Ckt	0.9	CKT MILE	\$ 2,000,000	\$ 1,200,000	\$ 800,000	\$ 1,800,000	\$ 1,080,000	\$ 720,000	\$ 3,600,000
							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
TOTAL -OH Transmission_Existing Millwood Substation							\$ 1,800,000	\$ 1,080,000	\$ 720,000	\$ 3,600,000
D. OH Transmission_Existing Millwood Substation							\$ 1,800,000.00	\$ 1,080,000.00	\$ 720,000.00	\$ 3,600,000.00
2.. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:										
2.1	MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS	1.0	LS	\$ 450,000	\$ 270,000	\$ 180,000	\$ 450,000	\$ 270,000	\$ 180,000	\$ 900,000
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 450,000	\$ 270,000	\$ 180,000	\$ 900,000

LS Power - T035

E. 138kV Upgrades

Total: \$ 12,173,188

LS Power - T035				
	Material Supply	Labor Supply	Equip Supply	Total
E. 138kV Upgrades				
1. Ronkonkoma-Holbrook CT upgrade	\$ 232,029	\$ 131,707	\$ 64,347	\$ 428,083
2. West Bus-Kings-Pligrim CT Upgrade	\$ 278,435	\$ 158,049	\$ 77,216	\$ 513,700
3. Central Islip-Ronkonkoma CT Upgrade	\$ 162,420	\$ 92,195	\$ 45,043	\$ 299,658
4. Holbrook -West Bus CT Upgrade	\$ 278,435	\$ 158,049	\$ 77,216	\$ 513,700
5. Central Islip-Hauppauge 138kv Upgrade-				
6. Hauppauge Terminal Upgrades	\$ 120,000	\$ 90,000	\$ 90,000	\$ 300,000
7. Pilgrim Terminal Upgrades and PAR- See 9. Pilgrim Road Sub Int. Tab	\$ -	\$ -	\$ -	\$ -
8. Pilgrim-Hauppauge 138kV	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,000,000
9. East Garden City-Carle Place 138kV Upgrade	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,000,000
10. East Garden City-Rosyln 138kV Upgrade	\$ 1,250,000	\$ 625,000	\$ 625,000	\$ 2,500,000
11. Glenwood South-Shore Road Terminal Upgrade	\$ 120,000	\$ 90,000	\$ 90,000	\$ 300,000
12. Valley Stream Relay Upgrades-See 11. Valley Stream Sub Int. Tab	\$ -	\$ -	\$ -	\$ -
13. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:	\$ 305,589	\$ 1,115,626	\$ 320,527	\$ 1,741,743
SUBTOTAL (Costs):	\$ 3,746,909	\$ 2,960,626	\$ 1,889,349	\$ 8,596,884
CONTRACTOR MARK-UP (OH&P)	\$ 674,444	\$ 532,913	\$ 340,083	\$ 1,547,439
SUBTOTAL:	\$ 4,421,353	\$ 3,493,539	\$ 2,229,432	\$ 10,144,324
CONTINGENCY ON ENTIRE PROJECT	\$ -	\$ -	\$ -	\$ 2,028,865
TOTAL:	\$ 4,421,353	\$ 3,493,539	\$ 2,229,432	\$ 12,173,188

Description of Work:Various existng transmission system upgrades										
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
E. 138kV Upgrades										
1. Ronkonkoma-Holbrook CT upgrade										
1.1	CT Replacement	10	EA	\$ 18,000	\$ 7,970	\$ 3,416	\$ 180,000	\$ 79,701	\$ 34,158	\$ 293,858
1.2	CT Replacement-foundation	50	CY	\$ 704	\$ 804	\$ 503	\$ 35,194	\$ 40,222	\$ 25,139	\$ 100,555
1.3	CT Replacement-structure	10	EA	\$ 1,684	\$ 1,178	\$ 505	\$ 16,835	\$ 11,785	\$ 5,051	\$ 33,670
							\$ -	\$ -	\$ -	\$ -
TOTAL -Ronkonkoma-Holbrook CT upgrade:							\$ 232,029	\$ 131,707	\$ 64,347	\$ 428,083
2. West Bus-Kings-Pligrim CT Upgrade										
2.1	CT Replacement	12	EA	\$ 18,000	\$ 7,970	\$ 3,416	\$ 216,000	\$ 95,641	\$ 40,989	\$ 352,630
2.2	CT Replacement-foundation	60	CY	\$ 704	\$ 804	\$ 503	\$ 42,233	\$ 48,266	\$ 30,167	\$ 120,666
2.3	CT Replacement-structure	12	EA	\$ 1,684	\$ 1,178	\$ 505	\$ 20,202	\$ 14,141	\$ 6,061	\$ 40,404
							\$ -	\$ -	\$ -	\$ -
TOTAL - West Bus-Kings-Pligrim CT Upgrade :							\$ 278,435	\$ 158,049	\$ 77,216	\$ 513,700
3. Central Islip-Ronkonkoma CT Upgrade										
3.1	CT Replacement	7	EA	\$ 18,000	\$ 7,970	\$ 3,416	\$ 126,000	\$ 55,791	\$ 23,910	\$ 205,701
3.2	CT Replacement-foundation	35	CY	\$ 704	\$ 804	\$ 503	\$ 24,636	\$ 28,155	\$ 17,597	\$ 70,389
3.3	CT Replacement-structure	7	EA	\$ 1,684	\$ 1,178	\$ 505	\$ 11,785	\$ 8,249	\$ 3,535	\$ 23,569
							\$ -	\$ -	\$ -	\$ -
TOTAL - Central Islip-Ronkonkoma CT Upgrade:							\$ 162,420	\$ 92,195	\$ 45,043	\$ 299,658
4. Holbrook -West Bus CT Upgrade										
4.1	CT Replacement	12	EA	\$ 18,000	\$ 7,970	\$ 3,416	\$ 216,000	\$ 95,641	\$ 40,989	\$ 352,630
4.2	CT Replacement-foundation	60	CY	\$ 704	\$ 804	\$ 503	\$ 42,233	\$ 48,266	\$ 30,167	\$ 120,666
4.3	CT Replacement-structure	12	EA	\$ 1,684	\$ 1,178	\$ 505	\$ 20,202	\$ 14,141	\$ 6,061	\$ 40,404
							\$ -	\$ -	\$ -	\$ -
TOTAL - Holbrook -West Bus CT Upgrade :							\$ 278,435	\$ 158,049	\$ 77,216	\$ 513,700
5. Central Islip-Hauppauge 138kv Upgrade										
5.1	Pipe Type Cable Upgrade (2mi) & Bus Conductor upgrade	1	LS				\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
TOTAL - Central Islip-Hauppauge 138kv Upgrade :							\$ -	\$ -	\$ -	\$ -
6. Hauppauge Terminal Upgrades										
6.1	Bus Conductor and Switch Upgrades	1	LS				\$ 120,000	\$ 90,000	\$ 90,000	\$ 300,000
							\$ -	\$ -	\$ -	\$ -
TOTAL - Hauppauge Terminal Upgrades :							\$ 120,000	\$ 90,000	\$ 90,000	\$ 300,000

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
7. Pilgrim Terminal Upgrades and PAR- See 9. Pilgrim Road Sub Int. Tab										
7.1	Bus Conductor and Switch Upgrades		LS							
7.2	Phase Angle Regulating Transformer		EA				\$ -	\$ -	\$ -	\$ -
TOTAL - Pilgrim Terminal Upgrades and PAR :							\$ -	\$ -	\$ -	\$ -
8. Pilgrim-Hauppauge 138kV										
8.1	138kV Line Upgrade	2	MI	\$ 250,000	\$ 125,000	\$ 125,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,000,000
							\$ -	\$ -	\$ -	\$ -
TOTAL - Pilgrim-Hauppauge 138kV :							\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,000,000
9. East Garden City-Carle Place 138kV Upgrade										
9.1	138kV Line Upgrade	2	MI	\$ 250,000	\$ 125,000	\$ 125,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,000,000
							\$ -	\$ -	\$ -	\$ -
TOTAL - East Garden City-Carle Place 138kV Upgrade :							\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,000,000
10. East Garden City-Roslyn 138kV Upgrade										
10.1	138kV Line Upgrade	5	MI	\$ 250,000	\$ 125,000	\$ 125,000	\$ 1,250,000	\$ 625,000	\$ 625,000	\$ 2,500,000
							\$ -	\$ -	\$ -	\$ -
TOTAL - Control Center Upgrade :							\$ 1,250,000	\$ 625,000	\$ 625,000	\$ 2,500,000
11. Glenwood South-Shore Road Terminal Upgrade										
11.1	Bus Conductor and Terminal Upgrades	1	LS				\$ 120,000	\$ 90,000	\$ 90,000	\$ 300,000
							\$ -	\$ -	\$ -	\$ -
TOTAL - Glenwood South-Shore Road Terminal Upgrade :							\$ 120,000	\$ 90,000	\$ 90,000	\$ 300,000
12. Valley Stream Relay Upgrades-See 11. Valley Stream Sub Int. Tab										
12.1	Bus Differential Panel Replacement		EA	42,656.23	4,151.16	461.24	\$ -	\$ -	\$ -	\$ -
							\$ -	\$ -	\$ -	\$ -
TOTAL - Valley Stream Relay Upgrades :							\$ -	\$ -	\$ -	\$ -
E. 138kV Upgrades							\$ 3,441,319.93	\$ 1,845,000.07	\$ 1,568,821.68	\$ 6,855,141.67
13. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:										
9.1	Mob / Demob	1.0	LS		11,948.38	5,120.73	\$ -	\$ 11,948.38	\$ 5,120.73	\$ 17,069.11
	Project Management, Material Handling & Amenities									
9.2	Preconstruction Supervision (Engineering, Permitting, Procurement)	1	LS		68,551.42		\$ -	\$ 68,551	\$ -	\$ 68,551
9.3	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1.00	LS		274,205.67		\$ -	\$ 274,206	\$ -	\$ 274,206
9.4	Utility PM and Project Oversight	1.00	LS		68,551.42		\$ -	\$ 68,551	\$ -	\$ 68,551
9.5	Site Accommodation, Facilities, Storage	1.00	LS			68,551.42	\$ -	\$ -	\$ 68,551	\$ 68,551
	Engineering									
4.6	Design Engineering	1.0	LS		\$ 342,757	\$ -	\$ -	\$ 342,757	\$ -	\$ 342,757
4.7	LiDAR /GPR	-	LS		\$ 205,654	\$ 137,103	\$ -	\$ -	\$ -	\$ -
4.8	Geotech	-	Location		2,730.00	1,820.00	\$ -	\$ -	\$ -	\$ -
4.9	Surveying/Staking	-	LS		\$ -		\$ -	\$ -	\$ -	\$ -
	Testing & Commissioning									
4.10	Testing & Commissioning of T-Line and Equipment	1	EA		\$ 260,495		\$ -	\$ 260,495	\$ -	\$ 260,495
	Permitting, Indirects and Additional Costs									
4.11	Environmental Licensing & Permitting Costs & related legal cost	1	LS		\$ 68,551		\$ -	\$ 68,551	\$ -	\$ 68,551
4.12	Environmental-special studies/investigation	-	LS				\$ -	\$ -	\$ -	\$ -
4.13	Warranties / LOC's	1	LS		\$ 20,565		\$ -	\$ 20,565	\$ -	\$ 20,565
4.14	Laydown Lease & temporary easement		LS				\$ -	\$ -	\$ -	\$ -
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			\$ 240,000	\$ -	\$ -	\$ 240,000	\$ 240,000
4.20	Sales Tax on Materials	8.88%	% of material cost	\$ 3,441,319.93			\$ 305,589	\$ -	\$ -	\$ 305,589
4.21	Fees for permits, including roadway, railroad, building or other local permits	1	LS			\$ 6,855	\$ -	\$ -	\$ 6,855	\$ 6,855
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:							\$ 305,589	\$ 1,115,626	\$ 320,527	\$ 1,741,743

ESTIMATE ASSUMPTIONS & CLARIFICATIONS	
General assumptions/clarifications	
1	This T035 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
5	Cost for dust control is excluded, we assume that water trucks for construction are not required.
6	Excavation currently excludes rock (except areas in Westchester Co where rock is expected). 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
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	Longshore-Southgate, Southgate to Northgate construction duration is based on the milestone schedule provided. Assumed the construction duration is 12 months for 138kv upgrades
36	The submarine cable quantity is calculated based on # of cables and the route length with 10% addition. The submarine installation quantity is based on # of passes and the route length with 10% addition, we assumed 2 cables per pass, there are 3 passes for this segment.
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	If required, the firewalls for transformers/PAR/Reactors are assumed 30' tall.
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	The control panels quantities and values are provided by Sub Station Engineers.
44	Project management cost length for Longshore, Southgate and Northgate station is based on length provided in milestone schedule. Other interconnection segments based on assumptions.
45	Assumed a new access road (500') is required connecting Northgate to existing Millwood substation
46	Based on the proximity to the existing substation, assumed blasting is not permitted for rock removal at Northgate site. Assumed 50% rock excavation, the rock removal estimated cost is based on mechanical means. The cost could vary based on the geotechnical finding.
47	Project management cost length for Longshore, Southgate and Northgate station is based on length provided in milestone schedule. Other interconnection segments based on assumptions.