

**Attachment 1 to DW-031  
Middletown - Norwalk Project Cost Summary (2003 Dollars)**

<b>Cost Summary (Thousands of 2003 Dollars)</b>	<b>Proposed Route w/ Supported Changes</b>	<b>Proposed Route</b>	<b>Alternative A</b>	<b>Alternative B</b>
New OH 345/115-kV Lines	136,386	135,447	188,210	230,994
New UG 345-kV Line	172,908	177,904	107,801	35,194
New UG 115-kV Line	3,658	0	14,458	14,458
Substations/Switching Stations	104,109	104,109	107,989	109,310
Generator Interconnection Mods	10,635	10,635	10,635	10,635
ROW Easements	738	639	11,949	16,968
Land Acquisition	8,125	8,125	8,750	17,124
<b>Sub-Total Eng/Mat/Constr/ROW/Land</b>	436,558	436,859	449,791	434,683
<b>Project Support &amp; Overhead 2002 - 2008</b>	78,035	78,040	78,246	78,016
<b>Sub-Total Direct Charges</b>	514,593	514,899	528,037	512,698
<b>Project AFUDC</b>	89,066	89,119	91,501	88,845
<b>Total Project with AFUDC (2003 Dollars)</b>	<b>\$603,659</b>	<b>\$604,018</b>	<b>\$619,538</b>	<b>\$601,543</b>
Approximate Escalation 2004 - 2007 @ 3%	16,650	16,650	17,100	16,600
<b>Total Project Time of Performance Dollars</b>	<b>620,309</b>	<b>620,668</b>	<b>636,638</b>	<b>618,143</b>

**Attachment 1 to DW-031  
Middletown - Norwalk Project Cost Summary (2003 Dollars)**

<b>Cost for Proposed Route with Supported Changes (Thousands of 2003 dollars)</b>	<b>Total Direct</b>	<b>Total w/ Project Support &amp; OH</b>	<b>Total Project w/ AFUDC</b>
<b>New OH 345/115-kV Lines</b>			
Scovill Rock S/S to Chestnut Jct	4,597	5,419	6,357
Oxbow Jct to Beseck S/S	16,583	19,547	22,930
Black Pond Jct to Beseck S/S	12,358	14,567	17,089
Beseck S/S to East Wallingford Jct	10,278	12,115	14,212
East Wallingford to Cook Hill Supported Change	10,780	12,707	14,906
Cook Hill Jct to East Devon S/S	72,060	84,940	99,642
<b>Sub-Total Beseck S/S to East Devon S/S</b>	<u>93,117</u>	<u>109,762</u>	<u>128,760</u>
Removal of existing OH 115-kV Lines	9,730	11,469	13,454
<b>Sub-Total New OH 345-115 kV Line</b>	<u>136,386</u>	<u>160,765</u>	<u>188,590</u>
<b>New UG 345-kV Line</b>			
East Devon S/S to Singer S/S (HPFF)	64,769	76,347	89,561
Singer S/S to Norwalk S/S (HPFF)	108,139	127,468	149,531
<b>Sub-Total New UG 345-kV Line</b>	<u>172,908</u>	<u>203,815</u>	<u>239,092</u>
<b>Installation of UG 115-kV Lines ~4900' at Cook Hill Jct (XLPE)</b>	3,658	4,311	5,057
<b>Substations/Switching Stations</b>			
Beseck Switching Station	9,004	10,614	12,451
East Devon Substation	31,392	37,004	43,409
Singer Substation	48,122	56,724	66,542
Scovill Rock Switching Station	2,590	3,053	3,582
Norwalk Substation	13,000	15,324	17,976
<b>Sub-Total S/S &amp; Switching Stations</b>	<u>104,109</u>	<u>122,719</u>	<u>143,959</u>
<b>Generator Interconnection Modifications</b>			
Bridgeport Energy .	500	589	691
Milford Power	500	589	691
Pequonnock	3,000	3,536	4,148
Devon Tie	500	589	691
Devon Power	2,210	2,605	3,056
E Devon - Devon Generator	3,925	4,626	5,427
<b>Sub-Total Generator Interconnection Mods</b>	<u>10,635</u>	<u>12,536</u>	<u>14,706</u>
ROW Easements	738	870	1,021
Land Acquisition	8,125	9,577	11,235
<b>Sub-Total Eng/Mat/Constr/ROW/Land</b>	<u>436,558</u>	<u>514,593</u>	<u>603,659</u>
Project Support & Overhead	78,035		
<b>Sub-Total Direct Charges</b>	<u>514,593</u>		
Project AFUDC	89,066		
<b>Total Project</b>	<u><u>603,659</u></u>		

**Attachment 1 to DW-031**  
**Middletown - Norwalk Project Cost Summary (2003 Dollars)**

<b>Cost for Proposed Route (Thousands of 2003 dollars)</b>	<b>Total Direct</b>	<b>Total w/ Project Support &amp; OH</b>	<b>Total Project w/ AFUDC</b>
<b>New OH 345/115-kV Lines</b>			
Scovill Rock S/S to Chestnut Jct	4,597	5,419	6,357
Oxbow Jct to Beseck S/S	16,583	19,545	22,928
Black Pond Jct to Beseck S/S	12,358	14,566	17,087
Beseck S/S to East Wallingford Jct	10,278	12,114	14,211
East Wallingford to Cook Hill	9,886	11,652	13,669
Cook Hill Jct to East Devon S/S	72,060	84,932	99,632
<b>Sub-Total Beseck S/S to East Devon S/S</b>	92,224	108,699	127,512
Removal of existing OH 115-kV Lines	9,685	11,415	13,391
<b>Sub-Total New OH 345-115 kV Line</b>	135,447	159,643	187,274
<b>New UG 345-kV Line</b>			
East Devon S/S to Singer S/S (HPFF)	66,955	78,916	92,575
Singer S/S to Norwalk S/S (HPFF)	110,949	130,769	153,402
<b>Sub-Total New UG 345-kV Line</b>	177,904	209,685	245,977
 <b>Substations/Switching Stations</b>			
Beseck Switching Station	9,004	10,613	12,450
East Devon Substation	31,392	37,000	43,404
Singer Substation	48,122	56,718	66,535
Scovill Rock Switching Station	2,590	3,053	3,581
Norwalk Substation	13,000	15,322	17,974
<b>Sub-Total S/S &amp; Switching Stations</b>	104,109	122,707	143,945
 <b>Generator Interconnection Modifications</b>			
Bridgeport Energy .	500	589	691
Milford Power	500	589	691
Pequonnock	3,000	3,536	4,148
Devon Tie	500	589	691
Devon Power	2,210	2,605	3,056
E Devon - Devon Generator	3,925	4,626	5,427
<b>Sub-Total Generator Interconnection Mods</b>	10,635	12,535	14,704
ROW Easements	639	753	883
Land Acquisition	8,125	9,576	11,234
<b>Sub-Total Eng/Mat/Constr/ROW/Land</b>	436,859	514,899	604,018
Project Support & Overhead	78,040		
<b>Sub-Total Direct Charges</b>	514,899		
Project AFUDC	89,119		
<b>Total Project</b>	604,018		

**Attachment 1 to DW-031**  
**Middletown - Norwalk Project Cost Summary (2003 Dollars)**

<b>Cost for Alternative A with Supported Changes (Thousands of 2003 Dollars)</b>	<b>Total Direct</b>	<b>Total w/ Project Support &amp; OH</b>	<b>Total Project w/ AFUDC</b>
<b>New OH 345/115-kV Lines</b>			
Scovill Rock S/S to Chestnut Jct	4,597	5,397	6,332
Oxbow Jct to Beseck S/S	16,583	19,467	22,841
Black Pond Jct to Beseck S/S	12,358	14,508	17,022
Beseck S/S to East Wallingford Jct	10,278	12,066	14,157
East Wallingford to Cook Hill Supported Change	10,780	12,655	14,848
Cook Hill Jct to East Devon S/S	72,060	84,595	99,254
<b>Sub-Total Beseck S/S to East Devon S/S</b>	93,117	109,316	128,259
Hawthorne Transition Sta to Norwalk Jct to Norwalk S/S	49,754	58,409	68,531
Removal of existing OH 115-kV Lines	11,800	13,853	16,253
<b>Sub-Total New OH 345/115-kV Line</b>	188,210	220,951	259,238
<b>New UG 345-kV Line</b>			
East Devon S/S to Singer S/S (HPFF)	64,769	76,037	89,213
Singer S/S to Hawthorne Transition Station (XLPE)	43,032	50,517	59,271
<b>Sub-Total New UG 345-kV Line</b>	107,801	126,554	148,484
<b>Installation of UG 115-kV Lines</b>			
~4900' at Cook Hill Jct (XLPE)	3,658	4,294	5,038
Norwalk Jct to Norwalk S/S (XLPE)	10,800	12,679	14,876
<b>Sub-Total Installation of UG 115-kV Lines</b>	14,458	16,973	19,914
<b>Substations/Switching Stations</b>			
Beseck Switching Station	9,004	10,571	12,403
East Devon Substation	31,392	36,853	43,240
Singer Substation	48,122	56,493	66,283
Hawthorne Transition Station	3,880	4,555	5,344
Scovill Rock Switching Station	2,590	3,041	3,568
Norwalk Substation	13,000	15,261	17,906
<b>Sub-Total S/S &amp; Switching Stations</b>	107,989	126,775	148,743
<b>Generator Interconnection Modifications</b>			
Bridgeport Energy .	500	587	689
Milford Power	500	587	689
Pequonnock	3,000	3,522	4,132
Devon Tie	500	587	689
Devon Power	2,210	2,594	3,044
E Devon - Devon Generator	3,925	4,608	5,406
<b>Sub-Total Generator Interconnection Mods</b>	10,635	12,485	14,648
ROW Easements	11,949	14,028	16,459
Land Acquisition	8,750	10,272	12,052
<b>Sub-Total Eng/Mat/Constr/ROW/Land</b>	449,791	528,037	619,538
Project Support & Overhead	78,246		
<b>Sub-Total Direct Charges</b>	528,037		
Project AFUDC	91,501		
<b>Total Project</b>	619,538		

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Middletown - Norwalk Project Cost Summary (2003 Dollars)**

<b>Cost for Alternative B with Supported Changes (Thousands of 2003 Dollars)</b>	<b>Total Direct</b>	<b>Total w/ Project Support &amp; OH</b>	<b>Total Project w/ AFUDC</b>
<b>New OH 345/115-kV Lines</b>			
Scovill Rock S/S to Chestnut Jct	4,597	5,423	6,362
Oxbow Jct to Beseck S/S	16,583	19,559	22,948
Black Pond Jct to Beseck S/S	12,358	14,576	17,102
Beseck S/S to East Wallingford Jct	10,278	12,123	14,224
East Wallingford to Cook Hill Supported Change	10,780	12,714	14,918
Cook Hill Jct to East Devon S/S	72,060	84,993	99,721
<b>Sub-Total Beseck S/S to East Devon S/S</b>	<b>93,117</b>	<b>109,830</b>	<b>128,862</b>
East Devon to Trumbull Junction	10,286	12,133	14,235
Trumbull Junction to Seaview Transition Station	15,691	18,507	21,714
Trumbull Junction to Norwalk S/S	64,472	76,043	89,221
<b>Sub-Total East Devon to Norwalk S/S</b>	<b>90,449</b>	<b>106,682</b>	<b>125,169</b>
Removal of existing OH 115-kV Lines	13,890	16,383	19,222
<b>Sub-Total New OH 345/115-kV Line</b>	<b>230,994</b>	<b>272,453</b>	<b>319,666</b>
<b>New UG 345-kV Line</b>			
Seaview Transition Station to Singer S/S (XLPE)	35,194	41,511	48,704
<b>Sub-Total New UG 345-kV Line</b>	<b>35,194</b>	<b>41,511</b>	<b>48,704</b>
<b>Installation of UG 115-kV Lines</b>			
~4900 at Cook Hill Jct (XLPE)	3,658	4,314	5,061
Norwalk Jct to Norwalk S/S (XLPE)	10,800	12,738	14,946
<b>Sub-Total Installation of UG 115-kV Lines</b>	<b>14,458</b>	<b>17,052</b>	<b>20,007</b>
<b>Substations/Switching Stations</b>			
Beseck Switching Station	9,004	10,620	12,461
East Devon Substation	31,056	36,630	42,978
Singer Substation	48,122	56,759	66,594
Seaview Transition Station	5,874	6,928	8,128
Scovill Rock Switching Station	2,590	3,055	3,585
Norwalk Substation	12,664	14,937	17,525
<b>Sub-Total S/S &amp; Switching Stations</b>	<b>109,310</b>	<b>128,929</b>	<b>151,271</b>
<b>Generator Interconnection Modifications</b>			
Bridgeport Energy .	500	590	692
Milford Power	500	590	692
Pequonnock	3,000	3,538	4,152
Devon Tie	500	590	692
Devon Power	2,210	2,607	3,058
E Devon - Devon Generator	3,925	4,629	5,432
<b>Sub-Total Generator Interconnection Mods</b>	<b>10,635</b>	<b>12,544</b>	<b>14,717</b>
ROW Easements	16,968	20,013	23,481
Land Acquisition	17,124	20,197	23,697
<b>Sub-Total Eng/Mat/Constr/ROW/Land</b>	<b>434,683</b>	<b>512,698</b>	<b>601,543</b>
Project Support	78,016		
<b>Sub-Total Direct Charges</b>	<b>512,698</b>		
Project AFUDC	88,845		
<b>Total Project</b>	<b>601,543</b>		

**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>Middletown to Norwalk Transmission Line Project</b>				
	<b>Proposed Route</b>	<b>Proposed w/Supported Changes</b>	<b>Alternative A</b>	<b>Alternative B</b>
ROW Expansion	9.5	9.5	63.7	116.7
River Crossings	2.2	2.2	1.1	0.2
Underground Easements	0.9	1.5	1.5	1.0
<b>Total</b>	<b>12.6</b>	<b>13.2</b>	<b>66.3</b>	<b>117.9</b>
<b>Middletown to Norwalk Transmission Line Project</b>				
	<b>Proposed Route</b>	<b>Proposed w/Supported Changes</b>	<b>Alternative A</b>	<b>Alternative B</b>
Number Homes / Businesses	0	0	0	29
Land for Substations and / or Transition Stations (Acres)	17.5	17.5	19.5	21.5

**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>Middletown to Norwalk Transmission Line Project Summary of Costs for Easements and Acquisitions</b>				
<b>Type</b>	<b>Proposed Route</b>	<b>Proposed w/ Supported Changes</b>	<b>Alternative A</b>	<b>Alternative B</b>
ROW Easements	\$108,586	\$108,586	\$9,227,301	\$13,419,489
River Crossing Easements	\$286,800	\$290,400	\$137,850	\$24,750
Underground Easements	\$115,650	\$191,475	\$194,175	\$129,825
SubTotal	\$511,036	\$590,461	\$9,559,326	\$13,574,064
Contingency @ 25%	\$127,759	\$147,615	\$2,389,832	\$3,393,516
<b>Total Easements</b>	<b>\$638,795</b>	<b>\$738,077</b>	<b>\$11,949,158</b>	<b>\$16,967,580</b>
Sub Station Property	\$6,500,000	\$6,500,000	\$6,500,000	\$6,500,000
Transition Station Property	\$0	\$0	\$500,000	\$500,000
Homes	\$0	\$0	\$0	\$6,699,064
Sub Total	\$6,500,000	\$6,500,000	\$7,000,000	\$13,699,064
Contingency @ 25%	\$1,625,000	\$1,625,000	\$1,750,000	\$3,424,766
<b>Total Acquisitions</b>	<b>\$8,125,000</b>	<b>\$8,125,000</b>	<b>\$8,750,000</b>	<b>\$17,123,830</b>
Rate for River Crossing and UG Easements			\$3	per sq ft*
Rate for UG easements on existing ROW			\$3	per sq ft*
* Based on Ellis Report for UG easements in Stratford (near Housatonic River)				
Contingency Rate	25%			

**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>Right-of-Way Expansion</b>						
<b>400 Scale Map Segment</b>	<b>Str to Str.</b>	<b>Area (Sq Ft)</b>	<b>Unit Cost (\$/sqft) (1) 2002 \$</b>	<b>Property Type</b>	<b>Cost w/Admin (\$/sqft) (2) 2003 \$</b>	<b>ROW Easement Cost</b>
Haddam	2.08	90,605	\$ 0.20	Res-Undev	\$ 0.32	\$ 28,994
2 - 3		43,124	\$ 0.20	Res-Undev	\$ 0.32	\$ 13,800
		6,534	\$ 0.20	Res-Undev	\$ 0.32	\$ 2,091
		14,810	\$ 0.20	Res-Undev	\$ 0.32	\$ 4,739
		16,117	\$ 0.20	Res-Undev	\$ 0.32	\$ 5,158
		55,321	\$ 0.20	Res-Undev	\$ 0.32	\$ 17,703
		108,464	\$ 0.20	Res-Undev	\$ 0.32	\$ 34,709
		2,178	\$ 0.20	Res-Undev	\$ 0.32	\$ 697
		76,666	\$ 0.20	Res-Undev	\$ 0.32	\$ 24,533
	7.42	323,215				\$ 103,429
<b>17</b>	<b>8785 - 8787</b>	<b>41,250</b>	<b>\$ 3.00</b>	<b>Res-Undev</b>	<b>\$ 3.40</b>	
<b>Amount Common to All</b>		<b>9.50</b>	<b>Acres</b>			<b>\$ 108,586</b>
19	8803 - 4695	562,426	\$ -			\$ -
	4694 - 4690	6,032				\$ -
						\$ -
20	4690 - 4685	58,566				\$ -
	4684 - 4682	15,642				\$ -
						\$ -
47	817 - 820	17,151	\$ 3.00	Res-Devel	\$ 3.40	\$ 58,313
	820 - 821	10,058	\$ 0.25	Park	\$ 0.38	\$ 3,772
	821 - 822	10,596	\$ 3.00	Res-Devel	\$ 3.40	\$ 36,026
						\$ 98,112



**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>400 Scale Map Segment</b>	<b>Str to Str.</b>	<b>Area (Sq Ft)</b>	<b>Unit Cost (\$/sqft) (1) 2002 \$</b>	<b>Property Type</b>	<b>Cost w/Admin (\$/sqft) (2) 2003 \$</b>	<b>ROW Easement Cost</b>
48	822 - 828	43,757	\$ 6.50	Res-Devel	\$ 7.25	\$ 317,238
	828 - 830	26,338	\$ 6.50	Res-Devel	\$ 7.25	\$ 190,951
						\$ 508,189
49	831 - 831A	6,173	\$ 10.00	Res-Devel	\$ 11.10	\$ 68,520
	833 - 838	41,142	\$ 4.75	Res-Devel	\$ 5.33	\$ 219,081
						\$ 287,601
51	NB15 - NB12	457,700	\$ 3.00	Comm/Indus	\$ 0.92	\$ 421,084
						\$ 421,084
52	NB12 - NB3	1,127,000	\$ 3.00	Comm/Indus	\$ 0.92	\$ 1,036,840
						\$ 1,036,840
53	NB3 - Seaview Transfer Station	0		Comm/Indus		\$ -
55	838 - 840	18,830	\$ 4.75	Res-Devel	\$ 5.33	\$ 100,270
	840 - 842	15,505	\$ 0.25	Park	\$ 0.38	\$ 5,814
	842 - 843	17,682	\$ 0.25	Park	\$ 0.38	\$ 6,631
	843 - 844	21,096	\$ 3.00	Comm/Indus	\$ 3.10	\$ 65,398
	845 - 848	36,850	\$ 6.00	Res-Devel	\$ 6.70	\$ 246,895
						\$ 425,007
56	848 - 850	62,116	\$ 3.00	Comm/Indus	\$ 3.10	\$ 192,560
	850 - 851	20,340	\$ 5.25	Res-Devel	\$ 5.88	\$ 119,498
	851 - 855	83,380	\$ 5.25	Res-Devel	\$ 5.88	\$ 489,858
	855 - 857	58,294	\$ 0.25	Park	\$ 0.38	\$ 21,860
						\$ 823,775
57	857 - 857A	20,516	\$ 5.25	Res-Devel	\$ 5.88	\$ 120,532
	857A - 858	4,296	\$ 5.25	Res-Devel	\$ 5.88	\$ 25,239
	858 - 859	34,428	\$ 2.75	MU-Edu/Med	\$ 3.13	\$ 107,588
	859 - 862	49,550	\$ 5.25	Res-Devel	\$ 5.88	\$ 291,106

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<b>400 Scale Map Segment</b>	<b>Str to Str.</b>	<b>Area (Sq Ft)</b>	<b>Unit Cost (\$/sqft) (1) 2002 \$</b>	<b>Property Type</b>	<b>Cost w/Admin (\$/sqft) (2) 2003 \$</b>	<b>ROW Easement Cost</b>
	862 - 867	125,641	\$ 0.25	Park	\$ 0.38	\$ 47,115
						\$ 591,580
58	867 - 870	130,616	\$ 1.00	Golf Course	\$ 1.20	\$ 156,739
	870 - 874	105,905	\$ 10.00	Res-Devel	\$ 11.10	\$ 1,175,546
	874 - 876	84,640	\$ 0.25	Park	\$ 0.38	\$ 31,740
						\$ 1,364,025
59	876 - 877	17,859	\$ 10.00	Res-Devel	\$ 11.10	\$ 198,235
	877 - 878	60,075	\$ 4.50	Res-Devel	\$ 5.05	\$ 303,379
	878 - 880	58,963	\$ 0.25	Cons Area	\$ 0.38	\$ 22,111
	880 - 882	76,208	\$ 4.50	Res-Devel	\$ 5.05	\$ 384,850
						\$ 908,575
60	882 - 883	29,885	\$ 0.25	Water Co.	\$ 0.38	\$ 11,207
	883 - 883	14,231	\$ 4.50	Res-Devel	\$ 5.05	\$ 71,867
	883 - 892	251,564	\$ 0.25	Water Co.	\$ 0.38	\$ 94,337
						\$ 177,410
61	892 - 895	112,731	\$ 0.25	Water Co.	\$ 0.38	\$ 42,274
	895 - 899	123,190	\$ 2.25	Res-Devel	\$ 2.58	\$ 317,214
						\$ 359,488
62	889 - 906	205,249	\$ 4.50	Res-Devel	\$ 5.05	\$ 1,036,507
						\$ 1,036,507
63	906 - 909	89,643	\$ 0.25	Open Space	\$ 0.38	\$ 33,616
	909 - 910	26,486	\$ 4.50	Res-Devel	\$ 5.05	\$ 133,754
	910 - 913	47,402	\$ 5.75	Res-Devel	\$ 6.43	\$ 304,558
						\$ 471,928
64	915 - 921	227,717	\$ 5.75	Res-Devel	\$ 6.43	\$ 1,463,082
						\$ 1,463,082

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<b>400 Scale Map Segment</b>	<b>Str to Str.</b>	<b>Area (Sq Ft)</b>	<b>Unit Cost (\$/sqft) (1) 2002 \$</b>	<b>Property Type</b>	<b>Cost w/Admin (\$/sqft) (2) 2003 \$</b>	<b>ROW Easement Cost</b>
65	921 - 923	50,816	\$ 0.25	Park	\$ 0.38	\$ 19,056
	923 - 925	71,588	\$ 5.75	Res-Devel	\$ 6.43	\$ 459,953
	925 - 927	27,645	\$ 5.75	Res-Devel	\$ 6.43	\$ 177,619
	927 - 930	68,645	\$ 5.75	Res-Devel	\$ 6.43	\$ 441,044
						\$ 1,097,672
66	930 - 932	85,135	\$ 4.00	Res-Devel	\$ 4.50	\$ 383,108
	932 - 939	159,667	\$ 4.50	Res-Devel	\$ 5.05	\$ 806,318
						\$ 1,189,426
67	939 - 947	233,467	\$ 4.00	Res-Devel	\$ 4.50	\$ 1,050,602
						\$ 1,050,602
	Alternate B West of E Devon SS	107.16	Acres			\$ 13,310,903
	Alternate A West of E Devon SS	54.16	Acres			\$ 9,118,715
	<b>ROW Easements</b>					
	Total Proposed	9.5	Acres			\$ 108,586
	Total Alternate A	63.7	Acres			\$ 9,227,301
	Total Alternate B	116.7	Acres			\$ 13,419,489
NOTES:	1. Unit Costs from CB Richard Ellis Appraisal Report dated August 1, 2002					
	2. 2002 Values escalated to 2003 at 10% for residential and 0% for Commercial / Indust					
<b>Client</b>	<b>NUSCO</b>		<b>Made by</b>	<b>M.McCarty</b>	Modified by A. W. Cretella	
<b>Project</b>	<b>30520</b>		<b>Date</b>	<b>09/24/2002</b>	Date: 09/11/2003	

**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>Notes</b>
2.08 Acres
Subtotal 7.42 Acres
0.95 acres not included in total. Can be avoided by switching to 125' monopoles in this area
R/W between I-91 & Traditions GC to be provided by TGC at no cost
Add'l R/W is from discrepancy between R/W figs and P&P
Subtotal
Add'l R/W is from discrepancy between R/W figs and P&P
Add'l R/W is from discrepancy between R/W figs and P&P
Subtotal
Ends @ Property line between (50-17 2 5, 50-17 2 6)
Ends @ E side Ross Dr
Subtotal

**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>Notes</b>
Ends W End Reut Dr before Cul-Da-Sac
Subtotal
Subtotal
UI Estimate
Subtotal
UI Estimate
Subtotal
See Land Acquisition Sheet
Park Land
Park Land
Subtotal
Subtotal

**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>Notes</b>
Subtotal
GC, Ends @ Residential Property Line
Ends @ New PI
Subtotal
Residential Lots only
Subtotal
Water Plant Property
Residential Property
Water Plant Property
Subtotal
Water Plant Property
Residential Property
Subtotal
Subtotal
Subtotal
Subtotal
Subtotal



**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>Easements Needed for River Crossing</b>												
<b>Drill Length (ft)</b>	<b>Side of Road</b>	<b>Entry</b>	<b>Exit</b>	<b>Drill Depth (ft)</b>	<b>Drilling Pit (ft<sup>2</sup>)</b>	<b>East</b>	<b>West</b>	<b>Easement (ft<sup>2</sup>)</b>	<b>Acres "Proposed Route"</b>	<b>Acres "Supported Changes"</b>	<b>Acres Alternative A</b>	<b>Acres Alternative B</b>
450	S I-95	W	E	-	3600	250	250	12500	0.29	0.29	0.29	
1600	S I-95	W	E	50	7200	300	300	15000	0.34	0.34	0.34	
--	--	--	--	--	7200	-	-	-	-		0.00	
300	S Barnum Ave.	E	W	13	3600	180	170	5250	0.12	0.12	0.12	
300	S Barnum Ave.	E	W	18	3600	180	150	4950	0.11	0.11	0.11	
600	S Washington Ave.	E	W	45	3600	200	180	9500	0.22			
650	End of Noble St.	E	W	45	3600	160	170	8250		0.19	0.19	0.19
450	N US 1	W	E	15	3600	140	-	3500	0.08	0.08		
					3600	-	140	3500	0.08	0.08		
350	N US 1	E	W	20	3600	200	180	9500	0.22	0.22		
300	S US 1	E	W	12	3600	140	140	4200	0.10	0.10		
--	--	--	--	--	7200	-	-	-	-			
200	W Myrtle Ave.	S	N	12	3600	170	140	4650	0.11			
200	S Myrtle Ave.	N	S	12	3600	350	-	5250	0.12			
400	S King's Highway	E	W	20	3600	-	250	6250	0.14			
1000	Lincoln - Imperial	W	E	35	7200	225	225	11250		0.26		
200	S Post Rd.	W	E	12	3600	220	270	7350		0.17		
--	--	--	--	--	7200	-	-	-	-			
500	S Byington Place	E	W	25' pit depth	3600	300	170	7050	0.16	0.16		
300	S New Canaan Ave.	W	E	25' pit depth	3600	100	200	4500	0.10	0.10		
								122450	2.19	2.22	1.05	0.19
								Rounded	2.2	2.2	1.1	0.2



**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>Other Underground Easements Needed</b>							
<b>Location</b>	<b>Type of Easment Required</b>	<b>Easement Length (ft.) (15' ft. wide)</b>	<b>Square Feet</b>	<b>Acreage</b>	<b>Proposed Route</b>	<b>Proposed w/supported changes</b>	<b>Alternative A</b>
Cheshire (Supported Change)	UG on Existing ROW	625	9,375	0.22		0.22	0.22
Housatonic River	New UG	1,430	21,450	0.49	0.49	0.49	0.49
Pequonnock (West Side)	New UG	860	12,900	0.30		0.30	0.30
Pequonnock (East Side)	New UG	200	3,000	0.07		0.07	0.07
Saugatuck (East Side)	New UG	300	4,500	0.10		0.10	
Saugatuck (West Side)	New UG	300	4,500	0.10	0.10		
Norwalk South Crossing (West Side)	New UG	220	3,300	0.08	0.08	0.08	
Norwalk Substation	UG on Existing ROW	620	9,300	0.21	0.21	0.21	
Norwalk Substaion	UG on Existing ROW	1,200	18,000	0.41			0.41
Subtotal UG on ROW					0.21	0.43	0.63
Subtotal New UG					0.67	1.04	0.86
TOTAL					0.88	1.47	1.49
Rounded					0.9	1.5	1.5

**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>Alternative B</b>
0.22
0.30
0.07
0.41
0.63
0.37
0.99
1.0

**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>Properties to be Acquired</b>								
<b>Municipality</b>	<b>Segment</b>	<b>Structure #</b>	<b>Property #</b>	<b>Property Type</b>	<b>CB Ellis Report Mean (2002 \$)</b>	<b>Report Reference</b>	<b>Value escalated to 2003\$ w/Admin</b>	<b>Comments</b>
Stratford	47	821	50-16 113	Residential	\$243,658	pg 19	\$275,524	
Stratford	48	824	40-16 1 33	Residential	\$243,658	pg 19	\$275,524	
Stratford	48	826	40-16 1 1	Residential	\$243,053	pg 20	\$274,858	
Stratford	48	826	30-17 8 2	Residential	\$243,053	pg 20	\$274,858	
Stratford	48	826	30-16 3 10	Residential	\$243,053	pg 20	\$274,858	
Stratford	48	828	30-17 5 1	Residential	\$243,053	pg 20	\$274,858	
Stratford	48	828	30-17 3 13	Residential	\$243,053	pg 20	\$274,858	
Trumbull	55	846	G-11 49 22	Residential	\$217,200	pg 29	\$246,420	
Trumbull	56	847	G11 78-2	Residential	\$217,200	pg 29	\$246,420	
Bridgeport	56	851	2651 37	Residential	\$169,469	pg 39	\$193,916	
Bridgeport	56	851	2647A 9	Residential	\$169,469	pg 39	\$193,916	
Bridgeport	56	851	2647A 10	Residential	\$169,469	pg 39	\$193,916	
Bridgeport	56	851	2647A 11	Residential	\$169,469	pg 39	\$193,916	
Bridgeport	56	853	2647A 14	Residential	\$169,469	pg 39	\$193,916	
Bridgeport	56	853	2647A 29	Residential	\$169,469	pg 39	\$193,916	
Bridgeport	56	853	2647A 31	Residential	\$169,469	pg 39	\$193,916	
Bridgeport	56	853	2647A 4	Residential	\$169,469	pg 39	\$193,916	
Bridgeport	56	853	2645 17	Residential	\$169,469	pg 39	\$193,916	
Bridgeport	56	854	2645 4	Residential	\$169,469	pg 39	\$193,916	
Bridgeport	56	854	2645 15	Residential	\$169,469	pg 39	\$193,916	
Bridgeport	56	855	2645 5	Residential	\$156,925	pg 39	\$180,118	
Bridgeport	57	857A	2601 3	Residential	\$156,925	pg 39	\$180,118	
Bridgeport	57	861	2503A 1A	Residential	\$156,925	pg 39	\$180,118	
Bridgeport	57	861	2503A 3	Residential	\$156,925	pg 39	\$180,118	
Bridgeport	57	862	2502A 1	Residential	\$156,925	pg 39	\$180,118	
Fairfield	58	871	24 25	Residential	\$371,128	pg 48	\$415,741	
Fairfield	58	871	24 55	Residential	\$371,128	pg 48	\$415,741	
Fairfield	58	871	24 37	Residential	\$371,128	pg 48	\$415,741	
Fairfield	58	871	24 111	Residential	\$371,128	pg 48	\$415,741	
<b>Count</b>	<b>29</b>					<b>Total</b>	<b>\$6,699,064</b>	<b>Alternative B Only</b>
<b>Substations</b>				Acreage				
Singer S/S				2.5	\$1,500,000		\$1,500,000	UI Estimate
E Devon S/S				15.0	\$5,000,000		\$5,000,000	NU Estimate
<b>Proposed Route (Common to all three alternatives)</b>				17.5			<b>\$6,500,000</b>	
Seaview Station Alternate B				4.0			\$500,000	Based on UI Estimate
<b>TOTAL for Alternates B</b>				21.5			<b>\$13,699,064</b>	
Hawthorn Station Alternate A				2.0			\$500,000	NU Estimate

**Attachment 2 to DW-031  
Middletown - Norwalk Project Property Costs**

<b>TOTAL for Alternates A</b>			19.5			<b>\$7,000,000</b>	
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**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Summary of Direct Cost Estimates**

**Proposed Line**

Scovill Rock - Chestnut Jct.	Subtotal	\$4,597,440
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Oxbow - Beseck	Subtotal	\$16,582,598
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Black Pond - Beseck	Subtotal	\$12,358,167
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Beseck - E. Wallingford	H-Frames	\$8,922,917
	Delta	\$1,355,193
Subtotal		\$10,278,110

E.Wallingford - Cook Hill				
Proposed	Composite	\$5,835,885	E. Wallingford to Wallingford	
	Delta	\$4,050,331	Wallingford to Cook Hill	
Subtotal		\$9,886,216		

Supported Changes	Composite	\$5,835,885	E. Wallingford to Wallingford
	Delta	\$3,651,564	Wallingford to Cheshire
	Composite	\$1,292,186	Cheshire to Cook Hill
	UG	\$3,657,500	Cheshire to Cook Hill 4900' 115kV XLPE
Subtotal		\$14,437,134	

Cook Hill - E. Devon	345-kV	\$36,204,446
	115-kV	\$35,855,110
Subtotal		\$72,059,556

E. Devon - Devon Generator	115-kV	\$3,924,881
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<b>Total OH Supported</b>	<b>\$134,237,887</b>
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E. Devon - Norwalk	Proposed	\$177,904,420
	Supported Changes	\$172,907,932

Removal Cost	Subtotal Proposed	\$ 9,685,000
	Sup Chg	\$ 9,730,000

Grand Total	Proposed	<b>\$317,276,388</b>
	Supported Changes	<b>\$316,875,819</b>

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Alternative A**

<b>Proposed OH Supported</b>	Total	<b>\$134,237,887</b>
E. Devon - Singer	Subtotal	\$64,769,317
Singer - Hawthorne	Subtotal	\$43,031,663
Hawthorne - Norwalk Jct.	Subtotal	\$28,880,902
Norwalk Jct. - Norwalk	Subtotal	\$20,873,278
Removal Cost	Subtotal	\$ 11,800,000
Grand Total		<b>\$303,593,047</b>

**Alternative B**

<b>Proposed OH Supported</b>	Total	<b>\$134,237,887</b>
E. Devon - Trumbull		\$10,286,462
Trumbull - Seaview		\$15,690,537
Seaview - Singer		\$35,642,904
Trumbull - Norwalk Jct.		\$43,598,689
Norwalk Jct. - Norwalk		\$20,873,278
Removal Cost		\$ 13,890,000
Grand Total		<b>\$274,219,757</b>

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Estimated Cost of Removal**

<b>Line Segment</b>	<b>Type of Structure removed</b>	<b>Removal Cost (\$/mile)</b>	<b>Miles</b>	<b>Subtotal</b>	<b>Notes</b>
Scovill Rock - Chestnut	N/A				
Oxbow - Beseck	115-kV H-frame		7.0		
	115-kV H-frame		7.0		
Total					
Black Pond - E Meriden	N/A				
E Meriden - Beseck	115-kV H-frame		1.4		
Beseck - E. Wallingford	345-kV H-frame				6 Strs @ \$K each
E. Wallingford - Wallingford	115-kV H-frame		2.1		
Wallingford - Cook Hill Supt Chg.	N/A Lattice tower				3 Strs @ \$k each
Cook Hill - E Devon	115-kV H-frame		22.5		
	115-kV H-frame		22.5		
	Lattice tower		22.5		
Total					
E. Devon - Trumbull Jct	Lattice Tower		4.0		
Trumbull - Seaview	Lattice Tower		3.8		
Trumbull - Norwalk	Lattice Tower		18.9		
Hawthorne - Norwalk	Lattice Tower		14.1		
Housitonic River Crossing					Lump Sum
<b>Grand totals</b>					
Proposed	\$	9,685,000			
Proposed W/ SC	\$	9,730,000			
Alt A	\$	11,800,000	(using proposed)		
Alt B	\$	13,890,000			

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Scovill Rock - Chestnut Jct. H-frames**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Foundations									22
cont labor									
cont eq									
material									
borings									
Steel Poles									22
Labor									
Equip									
material									
Rungs									2200
Labor									
Equip									
material									
345 Insul & Dev									22
Labor									
Equip									
material									
115 Insul & Dev									0
Labor									
Equip									
material									
345 Conductor									2.5
Labor									
Equip									
material									
115 Conductor									0
Labor									
Equip									
material									
Fiber Optics & OHGW									2.5
Labor									
Equip									
material									





**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Scovill Rock - Chestnut Jct. H-frames**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Wood H-Fr									0
Labor									
Equip									
material									
SP (Steel H frames) 10 Deg									13
Labor									
Equip									
material									
SP 20 Deg									2
Labor									
Equip									
material									
DCSP 30 Deg									0
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									0
Labor									
Equip									
material									
115 SCSP 50 Deg									0
Labor									
Equip									
material									

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Scovill Rock - Chestnut Jct. H-frames**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
345 SCSP 60 Deg									0	
Labor										
Equip										
material										
115 SCSP 60 Deg									0	
Labor										
Equip										
material										
345 SCSP 70 Deg									0	
Labor										
Equip										
material										
115 SCSP 70 Deg									0	
Labor										
Equip										
material										
345 SCSP 90 Deg									7	
Labor										
Equip										
material										
115 SCSP 90 Deg									0	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$360,750	\$0	\$110,000	\$1,208,900	\$1,679,650	\$72,534	\$0	\$1,752,184	22

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH Oxbow - Beseck Composite**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax no cont	Sales Tax	Subtotal
74	Foundations							
	cont labor							
	cont eq							
	material							
	borings							
74	Steel Poles							
	Labor							
	Equip							
	material							
7400	Rungs							
	Labor							
	Equip							
	material							
74	345 Insul & Devices							
Sets	Labor							
	Equip							
	material							
74	115 Insul & Dev							
Sets	Labor							
	Equip							
	material							
7.0	345 Conductor							
mi.	Labor							
	Equip							
	material							
7	115 Conductor							
mi.	Labor							
	Equip							
	material							
7	Fiber Optics & OHGW							
mi.	Labor							
	Equip							
	material							

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH Oxbow - Beseck Composite**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax	Sales Tax	Subtotal
109 acres	Clearing Labor Equip material							
7 mi.	Roads Labor Equip material							
7 mi.	Counterpoise Labor Equip material							
7 mi.	Restoration Labor Equip material							

Sub Directs	\$0	\$4,558,500	\$0	\$1,387,800	\$6,749,560	\$12,695,860	\$448,528	\$13,144,388
Engineering	5%	\$657,219						\$657,219
Survey	3%	\$394,332						\$394,332
Superv	1%	\$45,585						\$45,585
Const mgmt	2%	\$91,170						\$91,170
		\$5,746,806	\$0	\$1,387,800	\$6,749,560	\$12,695,860	\$448,528	\$14,332,694

Contingency	15.00%	\$2,149,904
Subtotal		\$16,482,598
Stores @	25%	\$100,000
to \$100k		
Overhead	0% of labor	\$0
Subtotal		\$16,582,598
Administration	0%	\$0
Subtotal		\$16,582,598
AFUDC @	0%	\$0
Grand Total		\$16,582,598

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH Oxbow - Beseck Composite**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									52
Labor									
Equip									
material									
DCSP 10 Deg									1
Labor									
Equip									
material									
DCSP 20 Deg									2
Labor									
Equip									
material									
DCSP 30 Deg									3
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									0
Labor									
Equip									
material									
115 SCSP 50 Deg									0
Labor									
Equip									
material									
345 SCSP 60 Deg									0

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH Oxbow - Beseck Composite**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
Labor										
Equip										
material										
<b>115 SCSP 60 Deg</b>									0	
Labor										
Equip										
material										
<b>345 SCSP 70 Deg</b>									0	
Labor										
Equip										
material										
<b>115 SCSP 70 Deg</b>									0	
Labor										
Equip										
material										
<b>345 SCSP 90 Deg</b>									8	
Labor										
Equip										
material										
<b>115 SCSP 90 Deg</b>									8	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$897,000	\$0	\$370,000	\$4,423,860	\$5,690,860	\$265,432	\$0	\$5,956,292	74

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH Blackpond - Beseck Composite**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax no cont	Sales Tax	Subtotal
57	Foundations							
	cont labor							
	cont eq							
	material							
	borings							
57	Steel Poles							
	Labor							
	Equip							
	material							
5700	Rungs							
	Labor							
	Equip							
	material							
57	345 Insul & Devices							
	Sets							
	Labor							
	Equip							
	material							
57	115 Insul & Dev							
	Sets							
	Labor							
	Equip							
	material							
5.6	345 Conductor							
	mi.							
	Labor							
	Equip							
	material							
2.8	115 Conductor							
	mi.							
	Labor							
	Equip							
	material							
5.6	Fiber Optics & OHGW							
	mi.							
	Labor							
	Equip							
	material							



**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH Blackpond - Beseck Composite**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax	Sales Tax	Subtotal
44	Clearing							
acres		Labor						
		Equip						
		material						
2.8	Roads							
mi.		Labor						
		Equip						
		material						
2.8	Counterpoise							
mi.		Labor						
		Equip						
		material						
2.8	Restoration							
mi.		Labor						
		Equip						
		material						

Sub Directs	\$0	\$3,268,900	\$0	\$997,200	\$5,165,060	\$9,431,160	\$347,737	\$9,778,897
							\$9,778,897	
Engineering	5%	\$488,945						\$488,945
Survey	3%	\$293,367						\$293,367
Superv	1%	\$32,689						\$32,689
Const mgmt	2%	\$65,378						\$65,378
		\$4,149,279	\$0	\$997,200	\$5,165,060	\$9,431,160	\$347,737	\$10,659,276

Contingency		15.00%	\$1,598,891
Subtotal			\$12,258,167
Stores @	25%		\$100,000
to \$100k			
Overhead	0% of labor		\$0
Subtotal			\$12,358,167
Administration	0%		\$0
Subtotal			\$12,358,167
AFUDC @	0%		\$0
Grand Total			\$12,358,167
CIAC @	0%		\$0
			\$12,358,167

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Blackpond - Beseck Composite**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax cont	total	Quantity
						0.00%		
DCSP 2 Deg								24
Labor								
Equip								
material								
DCSP 10 Deg								2
Labor								
Equip								
material								
DCSP 20 Deg								4
Labor								
Equip								
material								
DCSP 30 Deg								6
Labor								
Equip								
material								
DCSP 40 Deg								0
Labor								
Equip								
material								
345 SCSP 50 Deg								8
Labor								
Equip								
material								
115 SCSP 50 Deg								8
Labor								
Equip								
material								

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Blackpond - Beseck Composite**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
345 SCSP 60 Deg									0	
Labor										
Equip										
material										
115 SCSP 60 Deg									0	
Labor										
Equip										
material										
345 SCSP 70 Deg									0	
Labor										
Equip										
material										
115 SCSP 70 Deg									0	
Labor										
Equip										
material										
345 SCSP 90 Deg									0	
Labor										
Equip										
material										
115 SCSP 90 Deg									5	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$741,000	\$0	\$285,000	\$3,468,640	\$4,494,640	\$208,118	\$0	\$4,702,758	57

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Beseck - East Wallingford Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Foundations									47
cont labor									
cont eq									
material									
borings									
Steel Poles									47
Labor									
Equip									
material									
Rungs									4700
Labor									
Equip									
material									
345 Insul & Dev									47
Labor									
Equip									
material									
115 Insul & Dev									0
Labor									
Equip									
material									
345 Conductor									5.3
Labor									
Equip									
material									
115 Conductor									0
Labor									
Equip									
material									
Fiber Optics & OHGW									5.3
Labor									
Equip									
material									

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Beseck - East Wallingford Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity
Clearing									67
Labor									
Equip									
material									
Roads									5.3
Labor									
Equip									
material									
Counterpoise									5.3
Labor									
Equip									
material									
Restoration									5.3
Labor									
Equip									
material									

Sub Directs	\$0	\$2,668,500	\$0	\$824,400	\$3,292,880	\$6,785,780	\$243,893	\$0	\$7,029,673
Engineering	5%	\$351,484							\$351,484
Survey	3%	\$210,890							\$210,890
Superv	1%	\$26,685							\$26,685
Const mgmt	2%	\$53,370							\$53,370
		\$3,310,929	\$0	\$824,400	\$3,292,880	\$6,785,780	\$243,893	\$0	\$7,672,102
								15.00%	\$1,150,815
									Subtotal
									\$8,822,917
									Stores @
									25.00%
									\$100,000
									to \$100k
									E&S @
									0.00% of labor
									\$0
									Subtotal
									\$8,922,917
									AS&E @
									0.00%
									\$0
									Subtotal
									\$8,922,917
									AFUDC @
									0.00%
									\$0
									Grand Total
									\$8,922,917
									CIAC @
									0%
									\$0
									\$8,922,917

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Beseck - East Wallingford Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Wood H-Fr									0
Labor									
Equip									
material									
SP (Steel H-frame) 10 Deg									34
Labor									
Equip									
material									
SP 20 Deg									6
Labor									
Equip									
material									
DCSP 30 Deg									0
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									0
Labor									
Equip									
material									
115 SCSP 50 Deg									0
Labor									
Equip									
material									

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Beseck - East Wallingford Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
345 SCSP 60 Deg									0	
Labor										
Equip										
material										
115 SCSP 60 Deg									0	
Labor										
Equip										
material										
345 SCSP 70 Deg									7	
Labor										
Equip										
material										
115 SCSP 70 Deg									0	
Labor										
Equip										
material										
345 SCSP 90 Deg									0	
Labor										
Equip										
material										
115 SCSP 90 Deg									0	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$698,750	\$0	\$235,000	\$2,031,540	\$2,965,290	\$121,892	\$0	\$3,087,182	47

**Attachment 3 to DW-031  
 Middletown - Norwalk Project Overhead Cost Estimates**

**Beseck - E. Wallingford Delta SP**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Foundations									7
cont labor									
cont eq									
material									
borings									
Steel Poles									7
Labor									
Equip									
material									
Rungs									700
Labor									
Equip									
material									
345 Insul & Dev									7
Labor									
Equip									
material									
115 Insul & Dev									0
Labor									
Equip									
material									
345 Conductor									0.6
Labor									
Equip									
material									
115 Conductor									0
Labor									
Equip									
material									
Fiber Optics & OHGW									0.6
Labor									
Equip									
material									



**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Beseck - E. Wallingford Delta SP**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity
Clearing									10.9
Labor									
Equip									
material									
Roads									0.6
Labor									
Equip									
material									
Counterpoise									0.6
Labor									
Equip									
material									
Restoration									0.6
Labor									
Equip									
material									

Sub Directs	\$0	\$361,150	\$0	\$122,000	\$483,680	\$966,830	\$33,761	\$0	\$1,000,591
Engineering	5%	\$50,030							\$50,030
Survey	3%	\$30,018							\$30,018
Superv	1%	\$3,612							\$3,612
Const mgmt	2%	\$7,223							\$7,223
		\$452,032	\$0	\$122,000	\$483,680	\$966,830	\$33,761	\$0	\$1,091,473

Addit Cont	15.00%	\$163,721
Subtotal		\$1,255,193
Stores @ 25.00% to \$100k		\$100,000
E&S @ 0.00% of labor		\$0
Subtotal		\$1,355,193
AS&E @ 0.00%		\$0
Subtotal		\$1,355,193
AFUDC @ 0.00%		\$0
Grand Total		\$1,355,193
CIAC @ 0%		\$0
		\$1,355,193

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Beseck - E. Wallingford Delta SP**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									3
Labor									
Equip									
material									
DCSP 10 Deg									2
Labor									
Equip									
material									
DCSP 20 Deg									1
Labor									
Equip									
material									
DCSP 30 Deg									0
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									0
Labor									
Equip									
material									
115 SCSP 50 Deg									0
Labor									
Equip									
material									

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Beseck - E. Wallingford Delta SP**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
345 SCSP 60 Deg									0	
Labor										
Equip										
material										
115 SCSP 60 Deg									0	
Labor										
Equip										
material										
345 SCSP 70 Deg									0	
Labor										
Equip										
material										
115 SCSP 70 Deg									0	
Labor										
Equip										
material										
345 SCSP 90 Deg									1	
Labor										
Equip										
material										
115 SCSP 90 Deg									0	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$94,250	\$0	\$35,000	\$311,500	\$440,750	\$18,690	\$0	\$459,440	7

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH East Wallingford - Wallingford Compact Composite Supported Change**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax no cont	Sales Tax	Subtotal
22	Foundations							
	cont labor							
	cont eq							
	material							
	borings							
22	Steel Poles							
	Labor							
	Equip							
	material							
2200	Rungs							
	Labor							
	Equip							
	material							
22	345 Insul & Devices							
Sets	Labor							
	Equip							
	material							
22	115 Insul & Dev							
Sets	Labor							
	Equip							
	material							
2.1	345 Conductor							
mi.	Labor							
	Equip							
	material							
2.1	115 Conductor							
mi.	Labor							
	Equip							
	material							
2.1	Fiber Optics & OHGW							
mi.	Labor							
	Equip							
	material							

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH East Wallingford - Wallingford Compact Composite Supported Change**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax	Sales Tax	Subtotal
20	Clearing							
acres	Labor							
	Equip							
	material							
2.1	Roads							
mi.	Labor							
	Equip							
	material							
2.1	Counterpoise							
mi.	Labor							
	Equip							
	material							
2.1	Restoration							
mi.	Labor							
	Equip							
	material							

Sub Directs	\$0	\$1,416,100	\$0	\$400,600	\$2,593,470	\$4,410,170	\$168,758	\$4,578,928
							\$4,578,928	
Engineering	5%	\$228,946						\$228,946
Survey	3%	\$137,368						\$137,368
Superv	1%	\$14,161						\$14,161
Const mgmt	2%	\$28,322						\$28,322
		\$1,824,897	\$0	\$400,600	\$2,593,470	\$4,410,170	\$168,758	\$4,987,726
					Contingency		15.00%	\$748,159
							Subtotal	\$5,735,885
					Stores @		25%	\$100,000
							to \$100k	
					Overhead		0% of labor	\$0
							Subtotal	\$5,835,885
					Administration		0%	\$0
							Subtotal	\$5,835,885
					AFUDC @		0%	\$0
							Grand Total	\$5,835,885

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH East Wallingford - Wallingford Compact Composite Supported Change**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									4
Labor									
Equip									
material									
DCSP 10 Deg									0
Labor									
Equip									
material									
DCSP 20 Deg									4
Labor									
Equip									
material									
DCSP 30 Deg									1
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									0
Labor									
Equip									
material									
115 SCSP 50 Deg									1
Labor									
Equip									
material									

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH East Wallingford - Wallingford Compact Composite Supported Change**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
345 SCSP 60 Deg									0	
Labor										
Equip										
material										
115 SCSP 60 Deg									0	
Labor										
Equip										
material										
345 SCSP 70 Deg									0	
Labor										
Equip										
material										
115 SCSP 70 Deg									0	
Labor										
Equip										
material										
345 SCSP 90 Deg									6	
Labor										
Equip										
material										
115 SCSP 90 Deg									6	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$347,750	\$0	\$110,000	\$1,899,660	\$2,357,410	\$113,980	\$0	\$2,471,390	22

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Wallingford - Cook Hill Delta**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Foundations									20
cont labor									
cont eq									
material									
borings									
Steel Poles									20
Labor									
Equip									
material									
Rungs									2000
Labor									
Equip									
material									
345 Insul & Dev									20
Labor									
Equip									
material									
115 Insul & Dev									0
Labor									
Equip									
material									
345 Conductor									3
Labor									
Equip									
material									
115 Conductor									0
Labor									
Equip									
material									
Fiber Optics & OHGW									2.9
Labor									
Equip									
material									



**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Wallingford - Cook Hill Delta**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity
Clearing									12
Labor									
Equip									
material									
Roads									2.9
Labor									
Equip									
material									
Counterpoise									2.9
Labor									
Equip									
material									
Restoration									2.9
Labor									
Equip									
material									
Sub Directs	\$0	\$1,161,550	\$0	\$340,500	\$1,527,760	\$3,029,810	\$118,546	\$0	\$3,148,356
Engineering	5%	\$157,418							\$157,418
Survey	3%	\$94,451							\$94,451
Superv	1%	\$11,616							\$11,616
Const mgmt	2%	\$23,231							\$23,231
		\$1,448,265	\$0	\$340,500	\$1,527,760	\$3,029,810	\$118,546	\$0	\$3,435,071
						Addit Cont	15.00%		\$515,261
						Subtotal			\$3,950,331
						Stores @	25.00%		\$100,000
						to \$100k			
						E&S @	0.00% of labor		\$0
						Subtotal			\$4,050,331
						AS&E @	0.00%		\$0
						Subtotal			\$4,050,331
						AFUDC @	0.00%		\$0
						Grand Total			\$4,050,331
						CIAC @	0%		\$0
									\$4,050,331

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Wallingford - Cook Hill Delta**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									16
Labor									
Equip									
material									
DCSP 10 Deg									0
Labor									
Equip									
material									
DCSP 20 Deg									0
Labor									
Equip									
material									
DCSP 30 Deg									0
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									0
Labor									
Equip									
material									
115 SCSP 50 Deg									0
Labor									
Equip									
material									

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Wallingford - Cook Hill Delta**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
345 SCSP 60 Deg									0	
Labor										
Equip										
material										
115 SCSP 60 Deg									0	
Labor										
Equip										
material										
345 SCSP 70 Deg									0	
Labor										
Equip										
material										
115 SCSP 70 Deg									0	
Labor										
Equip										
material										
345 SCSP 90 Deg									4	
Labor										
Equip										
material										
115 SCSP 90 Deg									0	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$247,000	\$0	\$100,000	\$934,640	\$1,281,640	\$56,078	\$0	\$1,337,718	20

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Middletown - Norwalk Project Overhead Cost Estimates

Wallingford - Cheshire Delta Supported Change

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Foundations									18
cont labor									
cont eq									
material									
borings									
Steel Poles									18
Labor									
Equip									
material									
Rungs									1800
Labor									
Equip									
material									
345 Insul & Dev									18
Labor									
Equip									
material									
115 Insul & Dev									0
Labor									
Equip									
material									
345 Conductor									2.4
Labor									
Equip									
material									
115 Conductor									0
Labor									
Equip									
material									
Fiber Optics & OHGW									2.4
Labor									
Equip									
material									

**Attachment 3 to DW-031**

**Middletown - Norwalk Project Overhead Cost Estimates**

**Wallingford - Cheshire Delta Supported Change**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity
Clearing									35
Labor									
Equip									
material									
Roads									2.4
Labor									
Equip									
material									
Counterpoise									2.4
Labor									
Equip									
material									
Restoration									2.4
Labor									
Equip									
material									
<b>Sub Directs</b>	\$0	\$1,055,900	\$0	\$328,400	\$1,343,360	\$2,727,660	\$102,562	\$0	\$2,830,222
Engineering	5%	\$141,511							\$141,511
Survey	3%	\$84,907							\$84,907
Superv	1%	\$10,559							\$10,559
Const mgmt	2%	\$21,118							\$21,118
		\$1,313,995	\$0	\$328,400	\$1,343,360	\$2,727,660	\$102,562	\$0	\$3,088,316
								15.00%	\$463,247
									Subtotal
									\$3,551,564
									Stores @
									25.00%
									\$100,000
									to \$100k
									E&S @
									0.00% of labor
									\$0
									Subtotal
									\$3,651,564
									AS&E @
									0.00%
									\$0
									Subtotal
									\$3,651,564
									AFUDC @
									0.00%
									\$0
									Grand Total
									\$3,651,564
									CIAC @
									0%
									\$0
									\$3,651,564

Attachment 3 to DW-031

Middletown - Norwalk Project Overhead Cost Estimates

Wallingford - Cheshire Delta Supported Change

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									13
Labor									
Equip									
material									
DCSP 10 Deg									0
Labor									
Equip									
material									
DCSP 20 Deg									0
Labor									
Equip									
material									
DCSP 30 Deg									0
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									0
Labor									
Equip									
material									
115 SCSP 50 Deg									0
Labor									
Equip									
material									
345 SCSP 60 Deg									0
Labor									

Attachment 3 to DW-031

Middletown - Norwalk Project Overhead Cost Estimates

Wallingford - Cheshire Delta Supported Change

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
Equip material										
115 SCSP 60 Deg									1	
Labor Equip material										
345 SCSP 70 Deg									0	
Labor Equip material										
115 SCSP 70 Deg									0	
Labor Equip material										
345 SCSP 90 Deg									4	
Labor Equip material										
115 SCSP 90 Deg									0	
Labor Equip material										
<b>Sub Directs</b>	<b>\$0</b>	<b>\$227,500</b>	<b>\$0</b>	<b>\$90,000</b>	<b>\$829,640</b>	<b>\$1,147,140</b>	<b>\$49,778</b>	<b>\$0</b>	<b>\$1,196,918</b>	<b>18</b>

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cheshire - Cook Hill Supported Changes Composite**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax no cont	Sales Tax	Subtotal
5	Foundations							
	cont labor							
	cont eq							
	material							
	borings							
5	Steel Poles							
	Labor							
	Equip							
	material							
500	Rungs							
	Labor							
	Equip							
	material							
5	345 Insul & Devices							
Sets	Labor							
	Equip							
	material							
5	115 Insul & Dev							
Sets	Labor							
	Equip							
	material							
0.5	345 Conductor							
mi.	Labor							
	Equip							
	material							
0.5	115 Conductor							
mi.	Labor							
	Equip							
	material							
0.5	Fiber Optics & OHGW							
mi.	Labor							
	Equip							
	material							



**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cheshire - Cook Hill Supported Changes Composite**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax	Sales Tax	Subtotal
9	Clearing							
acres	Labor							
	Equip							
	material							
0.5	Roads							
mi.	Labor							
	Equip							
	material							
0.5	Counterpoise							
mi.	Labor							
	Equip							
	material							
0.5	Restoration							
mi.	Labor							
	Equip							
	material							

Sub Directs	\$0	\$322,250	\$0	\$96,000	\$499,490	\$917,740	\$33,200	\$950,940
							\$950,940	
Engineering	5%	\$47,547						\$47,547
Survey	3%	\$28,528						\$28,528
Superv	1%	\$3,223						\$3,223
Const mgmt	2%	\$6,445						\$6,445
		\$407,993	\$0	\$96,000	\$499,490	\$917,740	\$33,200	\$1,036,683
					Contingency		15.00%	\$155,502
							Subtotal	\$1,192,186
					Stores @		25%	\$100,000
							to \$100k	
					Overhead		0% of labor	\$0
							Subtotal	\$1,292,186
					Administration		0%	\$0
							Subtotal	\$1,292,186
					AFUDC @		0%	\$0
							Grand Total	\$1,292,186

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cheshire - Cook Hill Supported Changes Composite**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									3
Labor									
Equip									
material									
DCSP 10 Deg									0
Labor									
Equip									
material									
DCSP 20 Deg									0
Labor									
Equip									
material									
DCSP 30 Deg									0
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									0
Labor									
Equip									
material									
115 SCSP 50 Deg									0
Labor									
Equip									
material									
345 SCSP 60 Deg									0

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cheshire - Cook Hill Supported Changes Composite**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
Labor										
Equip										
material										
<b>115 SCSP 60 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>345 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>115 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>345 SCSP 90 Deg</b>									<b>1</b>	
Labor										
Equip										
material										
<b>115 SCSP 90 Deg</b>									<b>1</b>	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$65,000	\$0	\$25,000	\$338,940	\$428,940	\$20,336	\$0	\$449,276	5

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cook Hill - E. Devon 115 kV**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Foundations									211
cont labor									
cont eq									
material									
borings									
Steel Poles									211
Labor									
Equip									
material									
Rungs									21100
Labor									
Equip									
material									
345 Insul & Dev									211
Labor									
Equip									
material									
115 Insul & Dev									0
Labor									
Equip									
material									
345 Conductor									0
Labor									
Equip									
material									
115 Conductor									45
Labor									
Equip									
material									
Fiber Optics & OHGW									22.5
Labor									
Equip									
material									

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cook Hill - E. Devon 115 kV**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity
Clearing									65.5
Labor									
Equip									
material									
Roads									22.5
Labor									
Equip									
material									
Counterpoise									22.5
Labor									
Equip									
material									
Restoration									22.5
Labor									
Equip									
material									
Sub Directs	\$0	\$11,536,200	\$0	\$3,454,100	\$12,525,560	\$27,515,860	\$952,024	\$0	\$28,467,884
Engineering	5%	\$1,423,394							\$1,423,394
Survey	3%	\$854,037							\$854,037
Superv	1%	\$115,362							\$115,362
Const mgmt	2%	\$230,724							\$230,724
		\$14,159,717	\$0	\$3,454,100	\$12,525,560	\$27,515,860	\$952,024	\$0	\$31,091,400
								15.00%	\$4,663,710
									Subtotal
									\$35,755,110
									Stores @
									25.00%
									\$100,000
									to \$100k
									E&S @
									0.00% of labor
									\$0
									Subtotal
									\$35,855,110
									AS&E @
									0.00%
									\$0
									Subtotal
									\$35,855,110
									AFUDC @
									0.00%
									\$0
									Grand Total
									\$35,855,110
									CIAC @
									0%
									\$0
									\$35,855,110

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cook Hill - E. Devon 115 kV**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Wood H-Fr									0
Labor									
Equip									
material									
SP 10 Deg									180
Labor									
Equip									
material									
SP 20 Deg									9
Labor									
Equip									
material									
DCSP 30 Deg									4
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									0
Labor									
Equip									
material									
115 SCSP 50 Deg									0
Labor									
Equip									
material									
345 SCSP 60 Deg									0

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cook Hill - E. Devon 115 kV**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
Labor										
Equip										
material										
<b>115 SCSP 60 Deg</b>									<b>8</b>	
Labor										
Equip										
material										
<b>345 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>115 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>345 SCSP 90 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>115 SCSP 90 Deg</b>									<b>10</b>	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$2,772,250	\$0	\$1,055,000	\$7,091,560	\$10,918,810	\$425,494	\$0	\$11,344,304	211

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cook Hill - E. Devon 345 kV**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Foundations									211
cont labor									
cont eq									
material									
borings									
Steel Poles									211
Labor									
Equip									
material									
Rungs									21100
Labor									
Equip									
material									
345 Insul & Dev									211
Labor									
Equip									
material									
115 Insul & Dev									0
Labor									
Equip									
material									
345 Conductor									22.5
Labor									
Equip									
material									
115 Conductor									0
Labor									
Equip									
material									
Fiber Optics & OHGW									22.5
Labor									
Equip									
material									



**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cook Hill - E. Devon 345 kV**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity
Clearing									50
Labor									
Equip									
material									
Roads									22.5
Labor									
Equip									
material									
Counterpoise									22.5
Labor									
Equip									
material									
Restoration									22.5
Labor									
Equip									
material									
Sub Directs	\$0	\$10,468,450	\$0	\$3,438,600	\$13,847,700	\$27,754,750	\$1,024,062	\$0	\$28,778,812
Engineering	5%	\$1,438,941							\$1,438,941
Survey	3%	\$863,364							\$863,364
Superv	1%	\$104,685							\$104,685
Const mgmt	2%	\$209,369							\$209,369
		\$13,084,808	\$0	\$3,438,600	\$13,847,700	\$27,754,750	\$1,024,062	\$0	\$31,395,170
									Addit Cont
								15.00%	\$4,709,276
									Subtotal
									\$36,104,446
									Stores @
									25.00%
									\$100,000
									to \$100k
									E&S @
									0.00% of labor
									\$0
									Subtotal
									\$36,204,446
									AS&E @
									0.00%
									\$0
									Subtotal
									\$36,204,446
									AFUDC @
									0.00%
									\$0
									Grand Total
									\$36,204,446
									CIAC @
									0%
									\$0
									\$36,204,446

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cook Hill - E. Devon 345 kV**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									180
Labor									
Equip									
material									
DCSP 10 Deg									9
Labor									
Equip									
material									
DCSP 20 Deg									4
Labor									
Equip									
material									
DCSP 30 Deg									0
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									0
Labor									
Equip									
material									
115 SCSP 50 Deg									0
Labor									
Equip									
material									
345 SCSP 60 Deg									8

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Cook Hill - E. Devon 345 kV**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
Labor										
Equip										
material										
<b>115 SCSP 60 Deg</b>									0	
Labor										
Equip										
material										
<b>345 SCSP 70 Deg</b>									0	
Labor										
Equip										
material										
<b>115 SCSP 70 Deg</b>									0	
Labor										
Equip										
material										
<b>345 SCSP 90 Deg</b>									10	
Labor										
Equip										
material										
<b>115 SCSP 90 Deg</b>									0	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$2,320,500	\$0	\$1,055,000	\$8,292,200	\$11,667,700	\$497,532	\$0	\$12,165,232	211

Attachment 3 to DW-031

Middletown - Norwalk Project Overhead Cost Estimates

East Devon - Devon Generator Overhead

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Foundations									22
cont labor									
cont eq									
material									
borings									
Steel Poles									22
Labor									
Equip									
material									
Rungs									2200
Labor									
Equip									
material									
345 Insul & Dev									22
Labor									
Equip									
material									
115 Insul & Dev									0
Labor									
Equip									
material									
345 Conductor									1.35
Labor									
Equip									
material									
115 Conductor									1.35
Labor									
Equip									
material									
Fiber Optics & OHGW									1.35
Labor									
Equip									
material									

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**East Devon - Devon Generator Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity
Clearing									4.05
Labor									
Equip									
material									
Roads									1.35
Labor									
Equip									
material									
Counterpoise									1.35
Labor									
Equip									
material									
Restoration									1.35
Labor									
Equip									
material									
<b>Sub Directs</b>	\$0	\$1,035,761	\$0	\$351,100	\$1,269,385	\$2,656,246	\$83,957	\$0	\$2,740,203
Engineering	5%	\$137,010							\$137,010
Survey	3%	\$82,206							\$82,206
Superv	1%	\$10,358							\$10,358
Const mgmt	2%	\$20,715							\$20,715
		\$1,286,050	\$0	\$351,100	\$1,269,385	\$2,656,246	\$83,957	\$0	\$2,990,492
								15.00%	\$448,574
									Subtotal
									\$3,439,066
									Stores @
									25.00%
									\$100,000
									to \$100k
									E&S @
									30.00% of labor
									\$385,815
									Subtotal
									\$3,924,881
									AS&E @
									0.00%
									\$0
									Subtotal
									\$3,924,881
									AFUDC @
									0.00%
									\$0
									Grand Total
									\$3,924,881
									CIAC @
									0%
									\$0
									\$3,924,881

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**East Devon - Devon Generator Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
Wood H-Fr									0
Labor									
Equip									
material									
SP 10 Deg									6
Labor									
Equip									
material									
SP 20 Deg									0
Labor									
Equip									
material									
DCSP 30 Deg									12
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									0
Labor									
Equip									
material									
115 SCSP 50 Deg									0
Labor									
Equip									
material									

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**East Devon - Devon Generator Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity
345 SCSP 60 Deg									0
Labor									
Equip									
material									
115 SCSP 60 Deg									0
Labor									
Equip									
material									
345 SCSP 70 Deg									0
Labor									
Equip									
material									
115 SCSP 70 Deg									0
Labor									
Equip									
material									
345 SCSP 90 Deg									0
Labor									
Equip									
material									
115 SCSP 90 Deg									4
Labor									
Equip									
material									
<b>Sub Directs</b>	\$0	\$232,136	\$0	\$110,000	\$756,000	\$1,098,136	\$45,360	\$0 \$1,143,496	22

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**East Devon - Trumbull Junction Overhead**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax no cont	Sales Tax	Subtotal
42	Foundations							
	cont labor							
	cont eq							
	material							
	borings							
42	Steel Poles							
	Labor							
	Equip							
	material							
4200	Rungs							
	Labor							
	Equip							
	material							
42	345 Insul & Devices							
Sets	Labor							
	Equip							
	material							
42	115 Insul & Dev							
Sets	Labor							
	Equip							
	material							
4.0	345 Conductor							
mi.	Labor							
	Equip							
	material							
4	115 Conductor							
mi.	Labor							
	Equip							
	material							
4	Fiber Optics & OHGW							
mi.	Labor							
	Equip							
	material							



**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**East Devon - Trumbull Junction Overhead**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax	Sales Tax	Subtotal	
6	Clearing								
acres	Labor								
	Equip								
	material								
4	Roads								
mi.	Labor								
	Equip								
	material								
4	Counterpoise								
mi.	Labor								
	Equip								
	material								
4	Restoration								
mi.	Labor								
	Equip								
	material								
Sub Directs		\$0	\$2,580,750	\$0	\$732,400	\$4,520,580	\$7,833,730	\$296,243	\$8,129,973
								\$8,129,973	
Engineering	5%	\$406,499							\$406,499
Survey	3%	\$243,899							\$243,899
Superv	1%	\$25,808							\$25,808
Const mgmt	2%	\$51,615							\$51,615
		\$3,308,570	\$0	\$732,400	\$4,520,580	\$7,833,730	\$296,243		\$8,857,793
								15.00%	\$1,328,669
								Subtotal	\$10,186,462
								Stores @ 25%	\$100,000
								to \$100k	
								Overhead 0% of labor	\$0
								Subtotal	\$10,286,462
								Administration 0%	\$0
								Subtotal	\$10,286,462
								AFUDC @ 0%	\$0
								Grand Total	\$10,286,462

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**East Devon - Trumbull Junction Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									16
Labor									
Equip									
material									
DCSP 10 Deg									0
Labor									
Equip									
material									
DCSP 20 Deg									6
Labor									
Equip									
material									
DCSP 30 Deg									2
Labor									
Equip									
material									
DCSP 40 Deg									0
Labor									
Equip									
material									
345 SCSP 50 Deg									1
Labor									
Equip									
material									
115 SCSP 50 Deg									1
Labor									
Equip									
material									

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**East Devon - Trumbull Junction Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
345 SCSP 60 Deg									0	
Labor										
Equip										
material										
115 SCSP 60 Deg									0	
Labor										
Equip										
material										
345 SCSP 70 Deg									0	
Labor										
Equip										
material										
115 SCSP 70 Deg									0	
Labor										
Equip										
material										
345 SCSP 90 Deg									8	
Labor										
Equip										
material										
115 SCSP 90 Deg									8	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$607,750	\$0	\$210,000	\$3,197,180	\$4,014,930	\$191,831	\$0	\$4,206,761	42

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Middletown - Norwalk Project Overhead Cost Estimates**

**Trumbull Junction - Seaview Overhead**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax no cont	Sales Tax	Subtotal
72	Foundations							
	cont labor							
	cont eq							
	material							
	borings							
72	Steel Poles							
	Labor							
	Equip							
	material							
7200	Rungs							
	Labor							
	Equip							
	material							
72	345 Insul & Devices							
Sets	Labor							
	Equip							
	material							
72	115 Insul & Dev							
Sets	Labor							
	Equip							
	material							
7.6	345 Conductor							
mi.	Labor							
	Equip							
	material							
3.8	115 Conductor							
mi.	Labor							
	Equip							
	material							
7.6	Fiber Optics & OHGW							
mi.	Labor							
	Equip							
	material							

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Trumbull Junction - Seaview Overhead**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax	Sales Tax	Subtotal
6	Clearing							
acres	Labor							
	Equip							
	material							
2.2	Roads							
mi.	Labor							
	Equip							
	material							
2.2	Counterpoise							
mi.	Labor							
	Equip							
	material							
2.2	Restoration							
mi.	Labor							
	Equip							
	material							

Sub Directs	\$0	\$4,107,800	\$0	\$1,200,600	\$6,676,100	\$11,984,500	\$454,162	\$12,438,662
Engineering	5%	\$621,933						\$621,933
Survey	3%	\$373,160						\$373,160
Superv	1%	\$41,078						\$41,078
Const mgmt	2%	\$82,156						\$82,156
		\$5,226,127	\$0	\$1,200,600	\$6,676,100	\$11,984,500	\$454,162	\$13,556,989
					Contingency		15.00%	\$2,033,548
							Subtotal	\$15,590,537
					Stores @		25%	\$100,000
							to \$100k	
					Overhead		0% of labor	\$0
							Subtotal	\$15,690,537
					Administration		0%	\$0
							Subtotal	\$15,690,537
					AFUDC @		0%	\$0
							Grand Total	\$15,690,537

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Middletown - Norwalk Project Overhead Cost Estimates**

**Trumbull Junction - Seaview Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									34
Labor									
Equip									
material									
DCSP 10 Deg									0
Labor									
Equip									
material									
DCSP 20 Deg									2
Labor									
Equip									
material									
DCSP 30 Deg									0
Labor									
Equip									
material									
DCSP 40 Deg									4
Labor									
Equip									
material									
345 SCSP 50 Deg									14
Labor									
Equip									
material									
115 SCSP 50 Deg									14
Labor									
Equip									
material									
345 SCSP 60 Deg									0

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Middletown - Norwalk Project Overhead Cost Estimates**

**Trumbull Junction - Seaview Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
Labor										
Equip										
material										
<b>115 SCSP 60 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>345 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>115 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>345 SCSP 90 Deg</b>									<b>2</b>	
Labor										
Equip										
material										
<b>115 SCSP 90 Deg</b>									<b>2</b>	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$936,000	\$0	\$360,000	\$4,527,880	\$5,823,880	\$271,673	\$0	\$6,095,553	72

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Trumbull Junction - Norwalk Junction Overhead**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax no cont	Sales Tax	Subtotal
140	Foundations							
	cont labor							
	cont eq							
	material							
	borings							
140	Steel Poles							
	Labor							
	Equip							
	material							
14000	Rungs							
	Labor							
	Equip							
	material							
140	345 Insul & Devices							
Sets	Labor							
	Equip							
	material							
140	115 Insul & Dev							
Sets	Labor							
	Equip							
	material							
15.3	345 Conductor							
mi.	Labor							
	Equip							
	material							
15.3	115 Conductor							
mi.	Labor							
	Equip							
	material							
15.3	Fiber Optics & OHGW							
mi.	Labor							
	Equip							
	material							



**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Trumbull Junction - Norwalk Junction Overhead**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax	Sales Tax	Subtotal	
105.8	Clearing								
acres	Labor								
	Equip								
	material								
15.3	Roads								
mi.	Labor								
	Equip								
	material								
15.3	Counterpoise								
mi.	Labor								
	Equip								
	material								
15.3	Restoration								
mi.	Labor								
	Equip								
	material								
Sub Directs		\$0	\$8,972,400	\$0	\$2,570,400	\$13,103,430	\$24,646,230	\$890,534	\$25,536,764
								\$25,536,764	
Engineering	5%	\$1,276,838							\$1,276,838
Survey	3%	\$766,103							\$766,103
Superv	1%	\$89,724							\$89,724
Const mgmt	2%	\$179,448							\$179,448
		\$11,284,513	\$0	\$2,570,400	\$13,103,430	\$24,646,230	\$890,534		\$27,848,878
								15.00%	\$4,177,332
								Subtotal	\$32,026,209
								Stores @	\$100,000
								to \$100k	
								Overhead	\$0
								0% of labor	\$0
								Subtotal	\$32,126,209
								Administration	\$0
								0%	\$0
								Subtotal	\$32,126,209
								AFUDC @	\$0
								0%	\$0
								Grand Total	\$32,126,209
								CIAC @	\$0
								0%	\$0
									\$32,126,209
								Restricted Constuction Adder (Double Labor & Equipment)	\$11,472,480
								TOTAL	\$43,598,689

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Trumbull Junction - Norwalk Junction Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									87
Labor									
Equip									
material									
DCSP 10 Deg									0
Labor									
Equip									
material									
DCSP 20 Deg									12
Labor									
Equip									
material									
DCSP 30 Deg									0
Labor									
Equip									
material									
DCSP 40 Deg									7
Labor									
Equip									
material									
345 SCSP 50 Deg									10
Labor									
Equip									
material									
115 SCSP 50 Deg									10
Labor									
Equip									
material									
345 SCSP 60 Deg									0

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Trumbull Junction - Norwalk Junction Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
Labor										
Equip										
material										
<b>115 SCSP 60 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>345 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>115 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>345 SCSP 90 Deg</b>									<b>7</b>	
Labor										
Equip										
material										
<b>115 SCSP 90 Deg</b>									<b>7</b>	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$1,745,250	\$0	\$700,000	\$8,444,100	\$10,889,350	\$506,646	\$0	\$11,395,996	140

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Norwalk Junction - Norwalk S/S Overhead**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax no cont	Sales Tax	Subtotal
30	Foundations							
	cont labor							
	cont eq							
	material							
	borings							
30	Steel Poles							
	Labor							
	Equip							
	material							
3000	Rungs							
	Labor							
	Equip							
	material							
30	345 Insul & Devices							
Sets	Labor							
	Equip							
	material							
0	115 Insul & Dev							
Sets	Labor							
	Equip							
	material							
3.6	345 Conductor							
mi.	Labor							
	Equip							
	material							
0	115 Conductor							
mi.	Labor							
	Equip							
	material							
3.6	Fiber Optics & OHGW							
mi.	Labor							
	Equip							
	material							

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Norwalk Junction - Norwalk S/S Overhead**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax	Sales Tax	Subtotal
105.8	Clearing							
acres	Labor							
	Equip							
	material							
3.6	Roads							
mi.	Labor							
	Equip							
	material							
3.6	Counterpoise							
mi.	Labor							
	Equip							
	material							
3.6	Restoration							
mi.	Labor							
	Equip							
	material							

Sub Directs	\$0	\$1,928,400	\$0	\$630,800	\$3,396,020	\$5,955,220	\$235,801	\$6,191,021
							\$6,191,021	
Engineering	5%	\$309,551						\$309,551
Survey	3%	\$185,731						\$185,731
Superv	1%	\$19,284						\$19,284
Const mgmt	2%	\$38,568						\$38,568
		\$2,481,534	\$0	\$630,800	\$3,396,020	\$5,955,220	\$235,801	\$6,744,155
					Contingency		15.00%	\$1,011,623
							Subtotal	\$7,755,778
					Stores @		25%	\$100,000
							to \$100k	
					Overhead		0% of labor	\$0
							Subtotal	\$7,855,778
					Administration		0%	\$0
							Subtotal	\$7,855,778
					AFUDC @		0%	\$0
							Grand Total	\$7,855,778

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Norwalk Junction - Norwalk S/S Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									14
Labor									
Equip									
material									
DCSP 10 Deg									0
Labor									
Equip									
material									
DCSP 20 Deg									6
Labor									
Equip									
material									
DCSP 30 Deg									0
Labor									
Equip									
material									
DCSP 40 Deg									3
Labor									
Equip									
material									
345 SCSP 50 Deg									2
Labor									
Equip									
material									
115 SCSP 50 Deg									0
Labor									
Equip									
material									
345 SCSP 60 Deg									0

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**Norwalk Junction - Norwalk S/S Overhead**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
Labor										
Equip										
material										
<b>115 SCSP 60 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>345 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>115 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>345 SCSP 90 Deg</b>									<b>5</b>	
Labor										
Equip										
material										
<b>115 SCSP 90 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$455,000	\$0	\$150,000	\$2,461,340	\$3,066,340	\$147,680	\$0	\$3,214,020	30

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH Hawthorne - Norwalk Composite**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax no cont	Sales Tax	Subtotal
94	Foundations							
	cont labor							
	cont eq							
	material							
	borings							
94	Steel Poles							
	Labor							
	Equip							
	material							
9400	Rungs							
	Labor							
	Equip							
	material							
94	345 Insul & Devices							
Sets	Labor							
	Equip							
	material							
94	115 Insul & Dev							
Sets	Labor							
	Equip							
	material							
10.5	345 Conductor							
mi.	Labor							
	Equip							
	material							
10.5	115 Conductor							
mi.	Labor							
	Equip							
	material							
10.5	Fiber Optics & OHGW							
mi.	Labor							
	Equip							
	material							



**Attachment 3 to DW-031  
 Middletown - Norwalk Project Overhead Cost Estimates**

**OH Hawthorne - Norwalk Composite**

Quantity	Description	Labor	Equipment	Equipment	Material	tot no tax	Sales Tax	Subtotal		
90	Clearing									
acres	Labor									
	Equip									
	material									
10.5	Roads									
mi.	Labor									
	Equip									
	material									
10.5	Counterpoise									
mi.	Labor									
	Equip									
	material									
10.5	Restoration									
mi.	Labor									
	Equip									
	material									
Sub Directs		\$0	\$6,070,250	\$0	\$1,749,800	\$8,523,250	\$16,343,300	\$583,866	\$16,927,166	
Engineering		5%	\$846,358						\$846,358	
Survey		3%	\$507,815						\$507,815	
Superv		1%	\$60,703						\$60,703	
Const mgmt		2%	\$121,405						\$121,405	
			\$7,606,531	\$0	\$1,749,800	\$8,523,250	\$16,343,300	\$583,866	\$18,463,447	
								Contingency	15.00%	\$2,769,517
								Subtotal		\$21,232,964
								Stores @	25%	\$100,000
								to \$100k		
								Overhead	0% of labor	\$0
								Subtotal		\$21,332,964
								Administration	0%	\$0
								Subtotal		\$21,332,964
								AFUDC @	0%	\$0
								Grand Total		\$21,332,964
								CIAC @	0%	\$0
										\$21,332,964
								Restricted Constuction Adder (Double Labor & Equipment)		\$7,547,938
								TOTAL		\$28,880,902

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH Hawthorn - Norwalk Composite**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax no cont	Sales Tax	cont 0.00%	total	Quantity
DCSP 2 Deg									64
Labor									
Equip									
material									
DCSP 10 Deg									0
Labor									
Equip									
material									
DCSP 20 Deg									8
Labor									
Equip									
material									
DCSP 30 Deg									0
Labor									
Equip									
material									
DCSP 40 Deg									2
Labor									
Equip									
material									
345 SCSP 50 Deg									5
Labor									
Equip									
material									
115 SCSP 50 Deg									5
Labor									
Equip									
material									
345 SCSP 60 Deg									0

**Attachment 3 to DW-031  
Middletown - Norwalk Project Overhead Cost Estimates**

**OH Hawthorn - Norwalk Composite**

Description	Cont labor	NU Equip	Cont Equip	Material	tot no tax	Sales Tax	cont	total	Quantity	
Labor										
Equip										
material										
<b>115 SCSP 60 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>345 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>115 SCSP 70 Deg</b>									<b>0</b>	
Labor										
Equip										
material										
<b>345 SCSP 90 Deg</b>									<b>5</b>	
Labor										
Equip										
material										
<b>115 SCSP 90 Deg</b>									<b>5</b>	
Labor										
Equip										
material										
<b>Sub Directs</b>	\$0	\$1,124,500	\$0	\$470,000	\$5,366,200	\$6,960,700	\$321,972	\$0	\$7,282,672	94

**Attachment 3 to DW-031**  
**Middletown - Norwalk Project Overhead Cost Estimates**

Notes

The following are the abbreviations for the various node on the lines

SR	Scovill Rock Substation
CJ	Chestnut Jct.
OX	Oxbow Jct.
BE	Beseck Substation
BP	Black Pond Jct.
EW	East Wallingford Jct.
W	Wallingford Jct.
CS	Cheshire Town Line
CH	Cook Hill
ED	East Devon
DG	Devon Generation Station
TB	Trumbull Jct.
SV	Seaview Transistion Station
HT	Hawthorne Transistion Station
NJ	Norwalk Jct.
NW	Norwalk Substation

- 1 The segment of line and the type of construction and/or if it is a supported change is marked on the top of each sheet.
- 2 The quantities of structures are based on the PLS-CADD models where available. Otherwise a line length divided by span length was used.
- 3 All cost associated with the supported changes around Cook Hill were added to the E. Wallingford - Cook Hill est.

**Attachment 4 to DW-031**  
**Middletown - Norwalk Project Underground Costs**  
**MN345 PROJECT 2-Ckt 345kV UNDERGROUND ESTIMATE**  
**PROPOSED ROUTE w/ SUPPORTED CHANGES (HPFF w/ 115kV XLPE)**

Item	Cost	Comment
Pavement Cutting/Restoration		Calcs square footage of pavement cut and patch
Trenching Costs		includes removal of spoils
Spoil Disposal		includes disposing of 20% of excavation.
Spoil Testing		
Shoring Costs		20% of trench length requires shoring
FTB - 3 ft depth		Calcs volume of fluidized thermal backfill in cubic yards for 3 ft depth
Fill top 3 ft		Calcs sq ft of compacted trench and allows for rake and re-seed at non-pavement sections
Relocating Existing Utilities		20 locations
Manholes in place		Provide and install 2-ckt splicing precast manholes
Traffic Control		
De-watering/NPDES BMP's (line)		35% of line
De-watering/NPDES BMP's (manholes)		environmental consultant for 22 manholes (35%)
Horizontal guided boring		3 Big Crossings / 10 Little Crossings
Jack & Bore		
Provide/install 8" ID steel pipe w/ butt weld		includes welding and testing on 2-1/4" wall steel pipes
5" fluid return steel pipe in place		2-5" fluid return pipes
Provide and Install 2-4" PVC		2-4" FO conduits per foot
6-2500 kcmil Copper HPFF cables in place		based on UTEC estimate
Dielectric fluid installed and tested		2 gallons per ckt ft.
Splices in place		splices per box per two circuits.
Potheads (terminations) in place		3 terminations (at transitions on either side of UG areas) per circuit x 2ckts
Spreaderhead assy for existing steel pole		OH to UG conversion support structure with foundation on fenced r/w
Provide and install 3 ph riser assembly		90 dg bend on steel riser into spreaderhead at takeoff structure
Fluid pressurization plant with power supply		4 plants with back-up systems and fluid reservoir on fenced r/w site
Leak detection/location system		Per J. Cooper of PDC, Inc at 4/93 EPRI conf
Cathodic protection		
Communication handholes		1 small precast handhole per manhole
Thermal Couples		Lump sum
Admin/Mob/De-mob by contractor		1% of entire project
Material Testing and Control		per foot of UG line
PM/Design Engineering (Elec/Civil/Draft)		At 5% of project total
Const. Management and Inspection		At 5% of project total
Site Clean-up and Restoration		
Fiber optic cable in existng ducts		provide and install duct
Spare parts		12000 ft of cable, 6 splices, and 2 terminations
	HPFF TOTAL	\$172,907,932
	East Devon to Singer	\$64,769,317
	Singer to Norwalk	\$108,138,615
115kV XLPE System (1 mile)		Based on Working Group plus escalation to 2003 dollars
Riser Structures		2 riser structures
	XLPE TOTAL	\$3,657,500
	UG TOTAL	\$176,565,432

**Attachment 4 to DW-031**  
**Middletown - Norwalk Project Underground Costs**  
**MN345 PROJECT 2-Ckt 345kV UNDERGROUND ESTIMATE**  
**PROPOSED ROUTE (HPFF)**

Item	Cost	Comment
Pavement Cutting/Restoration		Calcs square footage of pavement cut and patch
Trenching Costs		includes removal of spoils
Spoil Disposal		includes disposing of 20% of excavation.
Spoil Testing		
Shoring Costs		20% of trench length requires shoring
FTB - 3 ft depth		Calcs volume of fluidized thermal backfill in cubic yards for 3 ft depth
Fill top 3 ft		Calcs sq ft of compacted trench and allows for rake and re-seed at non-pavement sections
Relocating Existing Utilities		20 locations
Manholes in place		Provide and install 2-ckt splicing precast manholes
Traffic Control		
De-watering/NPDES BMP's (line)		35% of line
De-watering/NPDES BMP's (manholes)		environmental consultant for 22 manholes (35%)
Horizontal guided boring		3 Big Crossings / 10 Little Crossings
Jack & Bore		
Provide/install 8" ID steel pipe w/ butt weld		includes welding and testing on 2-1/4" wall steel pipes
5" fluid return steel pipe in place		2-5" fluid return pipes
Provide and Install 2-4" PVC		2-4" FO conduits
6-2500 kcmil Copper HPFF cables in place		based on UTEC estimate
Dielectric fluid installed and tested		2 gallons per ckt ft.
Splices in place		splices per box per two circuits.
Potheads (terminations) in place		3 terminations (at transitions on either side of UG areas) per circuit x 2ckts
Spreaderhead assy for existing steel pole		OH to UG conversion support structure with foundation on fenced r/w
Provide and install 3 ph riser assembly		90 dg bend on steel riser into spreaderhead at takeoff structure
Fluid pressurization plant with power supply		4 plants with back-up systems and fluid reservoir on fenced r/w site
Leak detection/location system		Per J. Cooper of PDC, Inc at 4/93 EPRI conf
Cathodic protection		
Communication handholes		1 small precast handhole per manhole
Thermal Couples		Lump sum
Admin/Mob/De-mob by contractor		1% of entire project
Material Testing and Control		per foot of UG line
PM/Design Engineering (Elec/Civil/Draft)		At 5% of project total
Const. Management and Inspection		At 5% of project total
Site Clean-up and Restoration		
Fiber optic cable in existng ducts		provide and install duct
Spare parts		12000 ft of cable, 6 splices, and 2 terminations
	\$177,904,420	
East Devon to Singer	\$66,955,280	
Singer to Norwalk S/S	\$110,949,140	
UG TOTAL	\$177,904,420	

**Attachment 4 to DW-031**  
**Middletown - Norwalk Project Underground Costs**  
**MN 345 PROJECT 2-Ckt 345kV UNDERGROUND ESTIMATE**  
**ALTERNATE A - E. DEVON TO SINGER w/Supported Changes (HPFF)**

Item	Cost	Comment
Pavement Cutting/Restoration		Calcs square footage of pavement cut and patch
Trenching Costs		includes removal of spoils
Spoil Disposal		includes disposing of 20% of excavation.
Spoil Testing		
Shoring Costs		20% of trench length requires shoring
FTB - 3 ft depth		Calcs volume of fluidized thermal backfill in cubic yards for 3 ft depth
Fill top 3 ft		Calcs sq ft of compacted trench and allows for rake and re-seed at non-pavement sections
Relocating Existing Utilities		7 locations
Manholes in place		Provide and install 2-ckt splicing precast manholes
Traffic Control		
De-watering/NPDES BMP's (line)		35% of line
De-watering/NPDES BMP's (manholes)		environmental consultant for 22 manholes (35%)
Horizontal guided boring		2 Big Crossings / 2 Little Crossings
Jack & Bore		
Provide/install 8" ID steel pipe w/ butt weld		includes welding and testing on 2-1/4" wall steel pipes
5" fluid return steel pipe in place		2-5" fluid return pipes
Provide and Install 2-4" PVC		2-4" FO conduits per foot
6-2500 kcmil Copper HPFF cables in place		based on UTEC estimate
Dielectric fluid installed and tested		2 gallons per ckt ft.
Splices in place		splices per box per two circuits.
Pothead (terminations) in place		3 terminations (at transitions on either side of UG areas) per circuit x 2ckts
Spreaderhead assy for existing steel pole		OH to UG conversion support structure with foundation on fenced r/w
Provide and install 3 ph riser assembly		90 dg bend on steel riser into spreaderhead at takeoff structure
Fluid pressurization plant with power supply		2 plants with back-up systems and fluid reservoir on fenced r/w site
Leak detection/location system		Per J. Cooper of PDC, Inc at 4/93 EPRI conf
Cathodic protection		
Communication handholes		1 small precast handhole per manhole
Thermal Couples		Lump sum
Admin/Mob/De-mob by contractor		1% of entire project
Material Testing and Control		per foot of UG line
PM/Design Engineering (Elec/Civil/Draft)		At 5% of project total
Const. Management and Inspection		At 5% of project total
Site Clean-up and Restoration		
Fiber optic cable in existng ducts		Per foot unit price to provide and install duct
Spare parts		6000 ft of cable, 3 splices, and 1 termination
UG TOTAL	\$64,769,317	

**Attachment 4 to DW-031**  
**Middletown - Norwalk Project Underground Costs**  
**MN 345 PROJECT 2-Ckt 345kV UNDERGROUND ESTIMATE**  
**ALTERNATE A - SINGER TO HAWTHORNE (XLPE)**

Item	Cost	Comment
Pavement Cutting/Restoration		Calcs square footage of pavement cut and patch
Trenching Costs with spoil removal		includes removal of spoils
Spoil Disposal		includes disposing of 20% of excavation.
Spoil Testing		
Shoring Costs		20% of trench length requires shoring
FTB- 3 ft		Calcs volume of fluidized thermal backfill in cubic yards for 3 ft depth
Fill top 3 ft		Calcs sq ft of compacted trench and allows for rake and re-seed (Stackhouse price)
Relocating Existing Utilities		5 locations
Manholes (10X16) in place		Provide and install 2-ckt splicing precast manholes
Traffic Control		
De-watering/NPDES BMP's (line)		35% of line
De-watering/NPDES BMP's (manholes)		environmental consultant for 22 manholes (35%)
Horizontal guided boring		
Jack & Bore		
Provide/install 6 - 8" PVC ducts		
Provide and Install 2 - 6" PVC ducts		2-4" FO conduits per foot
6-3000 kcmil Copper XLPE cables in place		Cable and installation
Splices in place		splices per box per two circuits.
Potheads (terminations) in place		3 terminations (at transitions on either side of UG areas) per circuit x 2ckts
Spreaderhead assy for existing steel pole		OH to UG conversion support structure with foundation on fenced r/w
Provide and install 3 ph riser assembly		90 dg bend on steel riser into spreaderhead at takeoff structure
Cathodic protection		
Communication handholes		1 small precast handhole per manhole
Thermal Couples		Lump sum
Admin/Mob/De-mob by contractor		1% of entire project
Material Testing and Control		per foot of UG line
PM/Design Engineering (Elec/Civil/Draft)		At 5% of project total
Const. Management and Inspection		At 5% of project total
Site Clean-up and Restoration		
Fiber optic cable in existng ducts		provide and install duct
Spare parts		6000 ft of cable, 2 3-phase splices, and 1 set of terminations
UG TOTAL	\$43,031,663	



**Attachment 4 to DW-031**  
**Middletown - Norwalk Project Underground Costs**  
**MN 345 PROJECT 2-Ckt 345kV UNDERGROUND ESTIMATE**  
**ALTERNATE A - E. DEVON TO SINGER (HPFF)**

Item	Cost	Comment
Pavement Cutting/Restoration		Calcs square footage of pavement cut and patch
Trenching Costs		includes removal of spoils
Spoil Disposal		includes disposing of 20% of excavation.
Spoil Testing		
Shoring Costs		20% of trench length requires shoring
FTB - 3 ft depth		Calcs volume of fluidized thermal backfill in cubic yards for 3 ft depth
Fill top 3 ft		Calcs sq ft of compacted trench and allows for rake and re-seed at non-pavement sections
Relocating Existing Utilities		7 locations
Manholes in place		Provide and install 2-ckt splicing precast manholes
Traffic Control		
De-watering/NPDES BMP's (line)		35% of line
De-watering/NPDES BMP's (manholes)		environmental consultant for 22 manholes (35%)
Horizontal guided boring		2 Big Crossings / 2 Little Crossings
Jack & Bore		
Provide/install 8" ID steel pipe w/ butt weld		includes welding and testing on 2-1/4" wall steel pipes
5" fluid return steel pipe in place		2-5" fluid return pipes
Provide and Install 2-4" PVC		2-4" FO conduits per foot
6-2500 kcmil Copper HPFF cables in place		based on UTEC estimate
Dielectric fluid installed and tested		2 gallons per ckt ft.
Splices in place		splices per box per two circuits.
Pothead (terminations) in place		3 terminations (at transitions on either side of UG areas) per circuit x 2ckts
Spreaderhead assy for existing steel pole		OH to UG conversion support structure with foundation on fenced r/w
Provide and install 3 ph riser assembly		90 dg bend on steel riser into spreaderhead at takeoff structure
Fluid pressurization plant with power supply		2 plants with back-up systems and fluid reservoir on fenced r/w site
Leak detection/location system		Per J. Cooper of PDC, Inc at 4/93 EPRI conf
Cathodic protection		
Communication handholes		1 small precast handhole per manhole
Thermal Couples		Lump sum
Admin/Mob/De-mob by contractor		1% of entire project
Material Testing and Control		per foot of UG line
PM/Design Engineering (Elec/Civil/Draft)		At 5% of project total
Const. Management and Inspection		At 5% of project total
Site Clean-up and Restoration		
Fiber optic cable in existng ducts		Per foot unit price to provide and install duct
Spare parts		6000 ft of cable, 3 splices, and 1 termination
UG TOTAL	\$66,955,280	

**Attachment 4 to DW-031**  
**Middletown - Norwalk Project Underground Costs**  
**NORTHEAST UTILITIES 2-Ckt 345kV UNDERGROUND ESTIMATE**  
**ALTERNATE B (XLPE)**

Item	Cost	Comment
Pavement Cutting/Restoration		Calcs square footage of pavement cut and patch
Trenching Costs with spoil removal		includes removal of spoils
Spoil Disposal		includes disposing of 20% of excavation.
Spoil Testing		
Shoring Costs		20% of trench length requires shoring
FTB- 3 ft		Calcs volume of fluidized thermal backfill in cubic yards for 3 ft depth
Fill top 3 ft		Calcs sq ft of compacted trench and allows for rake and re-seed (Stackhouse price)
Relocating Existing Utilities		5 locations
Manholes (10X16) in place		Provide and install 2-ckt splicing precast manholes
Traffic Control		
De-watering/NPDES BMP's (line)		35% of line
De-watering/NPDES BMP's (manholes)		environmental consultant for 22 manholes (35%)
Horizontal guided boring		
Jack & Bore		
Provide/install 6 - 8" PVC ducts		
Provide and Install 2 - 6" PVC ducts		2-4" FO conduits per foot
6-3000 kcmil Copper XLPE cables in place		Cable and installation
Splices in place		splices per box per two circuits.
Potheads (terminations) in place		3 terminations (at transitions on either side of UG areas) per circuit x 2ckts
Spreaderhead assy for existing steel pole		OH to UG conversion support structure with foundation on fenced r/w
Provide and install 3 ph riser assembly		90 dg bend on steel riser into spreaderhead at takeoff structure
Cathodic protection		
Communication handholes		1 small precast handhole per manhole
Thermal Couples		Lump sum
Admin/Mob/De-mob by contractor		1% of entire project
Material Testing and Control		per foot of UG line
PM/Design Engineering (Elec/Civil/Draft)		At 5% of project total
Const. Management and Inspection		At 5% of project total
Site Clean-up and Restoration		
Fiber optic cable in existing ducts		Per foot unit price to provide and install duct
Spare parts		12000 ft of cable, 4 3-phase splices, and 2 terminations
345-kV XLPE TOTAL	\$35,194,404	
115kV XLPE System (3.6 miles)		Per the working group
115kV Adder		5% adder to account for 2003 dollars
Riser Structures		2 riser structures
115-kV XLPE TOTAL	\$13,017,500	
UG TOTAL	\$48,211,904	

**Attachment 5 to DW-031**  
**Middletown - Norwalk Project Substation Costs**  
**Scovill Rock Switching Station**

<i>Item Description</i>	<i>Unit</i>	<i>Qty. Required</i>	<i>Material Price</i>	<i>Labor Price</i>	<i>Total Price</i>
<b>MAJOR EQUIPMENT</b>					
345-kV Breaker	Ea	2			
345-kV Switch	Ea	3			
345-kV Switches with MO with Gnd. Switch	Ea	1			
345-kV Surge Arrestor (1-Phase)	Ea	12			
345-kV CVT (1-Phase)	Ea	3			
Station Service Transformer	Ea	0			
Emergency Station Generator (200kW)	Ea	0			
<b>TOTAL MAJOR EQUIPMENT</b>					
<b>STEEL STRUCTURES</b>					
345-kV Deadend Structure	Ea	1			
345-kV Low Switch Stand	Ea	3			
345-kV 3-Ph High Bus Support	Ea	0			
345-kV 3-Ph Low Bus Support	Ea	1			
345-kV CVT Stand	Ea	3			
345-kV Surge Arrestor Stand	Ea	12			
Lightning Mast	Ea	0			
<b>TOTAL STEEL STRUCTURES</b>					
<b>FOUNDATIONS</b>					
345-kV Deadend Structure Foundation	30 CU. YD.	4			
345-kV Low Switch Stand Foundation	5 CU. YD.	12			
345-kV 3-Ph High Bus Support Foundation	7.1 CU. YD.	0			
345-kV 3-Ph Low Bus Support Foundation	5 CU. YD.	2			
345-kV CVT Stand Foundation	3.5 CU. YD.	3			
345-kV Surge Arrestor Stand Foundation	3.5 CU. YD.	12			
345-kV Breaker Foundation	15 CU. YD.	2			
Control Building Foundations	2.5 CU. YD.	0			
Lightning Mast Foundation	12 CU. YD.	0			
<b>TOTAL FOUNDATIONS</b>					
<b>MISC. EQUIPMENT/CONSTRUCTION</b>					
Control Building	SQ-FT	0			
Site Work	1 Lot	1			
Relay/Comm Equipment	Ea	3			
Batteries/Chargers	Ea	2			
SCADA RTU	Ea	1			
Grounding	1 Lot	1			
Raceway/Wiring	1 Lot	1			
HV Bus/Conductor/Fittings	1 Lot	1			
Field Electrical Testing	1 Lot	1			
<b>TOTAL MISC. EQUIP./CONSTRUCTION</b>					
<b>ENGINEERING</b>					
Engineering & Field Inspection	1 Lot	1			
Survey	1Lot	1			
Soil Investigation	1Lot	1			
<b>TOTAL ENGINEERING</b>					
<b>PROPERTY ACQUISITION</b>					
<b>TOTAL W/O CONTINGENCY</b>					
<b>CONTINGENCY</b>					
<b>TOTAL</b>					<b>\$2,590,323</b>

**Attachment 5 to DW-031  
Middletown - Norwalk Project Substation Costs  
Beseck Substation**

<i>Item Description</i>	<i>Unit</i>	<i>Qty. Required</i>	<i>Material Price</i>	<i>Labor Price</i>	<i>Total Price</i>
<b>MAJOR EQUIPMENT</b>					
345-kV Breaker	Ea	7			
345-kV Switch	Ea	16			
345-kV Switches with MO with Gnd. Switch	Ea	4			
345-kV Surge Arrestor (1-Phase)	Ea	48			
345-kV CVT (1-Phase)	Ea	18			
Station Service Transformer	Ea	1			
Emergency Station Generator (200kW)	Ea	1			
<b>TOTAL MAJOR EQUIPMENT</b>					
<b>STEEL STRUCTURES</b>					
345-kV Deadend Structure	Ea	4			
345-kV Low Switch Stand	Ea	18			
345-kV 3-Ph High Bus Support	Ea	4			
345-kV 3-Ph Low Bus Support	Ea	14			
345-kV CVT Stand	Ea	18			
345-kV Surge Arrestor Stand	Ea	48			
Lightning Mast	Ea	1			
<b>TOTAL STEEL STRUCTURES</b>					
<b>FOUNDATIONS</b>					
345-kV Deadend Structure Foundation	30 CU. YD.	14			
345-kV Low Switch Stand Foundation	5 CU. YD.	72			
345-kV 3-Ph High Bus Support Foundation	7.1 CU. YD.	8			
345-kV 3-Ph Low Bus Support Foundation	5 CU. YD.	28			
345-kV CVT Stand Foundation	3.5 CU. YD.	18			
345-kV Surge Arrestor Stand Foundation	3.5 CU. YD.	48			
345-kV Breaker Foundation	15 CU. YD.	7			
Control Building Foundations	2.5 CU. YD.	15			
Lightning Mast Foundation	12 CU. YD.	1			
<b>TOTAL FOUNDATIONS</b>					
<b>MISC. EQUIPMENT/CONSTRUCTION</b>					
Control Building	SQ-FT	1800			
Site Work	1 Lot	1			
Relay/Comm Equipment	Ea	12			
Batteries/Chargers	Ea	2			
SCADA RTU	Ea	1			
Grounding	1 Lot	1			
Raceway/Wiring	1 Lot	1			
HV Bus/Conductor/Fittings	1 Lot	1			
Field Electrical Testing	1 Lot	1			
<b>TOTAL MISC. EQUIP./CONSTRUCTION</b>					
<b>ENGINEERING</b>					
Engineering & Field Inspection	1 Lot	1			
Survey	1Lot	1			
Soil Investigation	1Lot	1			
<b>TOTAL ENGINEERING</b>					
<b>PROPERTY ACQUISITION</b>					
<b>TOTAL W/O CONTINGENCY</b>					
<b>CONTINGENCY</b>					
<b>TOTAL</b>					<b>\$9,004,397</b>

**Attachment 5 to DW-031**  
**Middletown - Norwalk Project Substation Costs**  
**East Devon Substation**

<i>Item Description</i>	<i>Unit</i>	<i>Qty. Required</i>	<i>Material Price</i>	<i>Labor Price</i>	<i>Total Price</i>
<b>MAJOR EQUIPMENT</b>					
200 MVA - 345/115-kV Autotransformer	Ea	3			
345kV, 75-150 MVAR Shunt Reactor (3-Ph)	Ea	2			
345kV Series Reactor (1-Ph)	Ea	9			
345-kV Breaker (Dead Tank w/ Synch Closing)	Ea	7			
345-kV Breaker (Live Tank w/ Synch Closing)	Ea	2			
345-kV Disconnect Switch	Ea	17			
345-kV Motor Operated Disconnect Switch	Ea	4			
345-kV Surge Arrestor (1-Phase)	Ea	48			
345-kV Single Cable Termination	Ea	6			
345-kV CVT (1-Phase)	Ea	15			
HPFF Cable Oil Pressurization Station	Ea	1			
115kV Series Current Limiting Reactor (1-Ph)	Ea	6			
115-kV Breaker	Ea	8			
115-kV Disconnect Switch	Ea	22			
115-kV Motor Operated Disconnect Switch	Ea	4			
115-kV Surge arrester (1-Phase)	Ea	21			
115-kV CVT (1-Phase)	Ea	21			
Station Service Transformer	Ea	2			
Emergency Station Generator	Ea	1			
<b>TOTAL MAJOR EQUIPMENT</b>					
<b>STEEL STRUCTURES</b>					
345-kV Deadend Structure	Ea	1			
345-kV Low Switch Stand	Ea	14			
345-kV High Switch Stand	Ea	7			
345-kV 3-Ph High Bus Support	Ea	12			
345-kV 1-Ph High Bus Support	Ea	10			
345-kV 3-Ph Low Bus Support	Ea	13			
345-kV 1-Ph Low Bus Support	Ea	22			
345-kV CVT Stand	Ea	15			
345-kV Cable Termination Stand	Ea	6			
345-kV Surge Arrester Stand	Ea	48			
115-kV Deadend Structure	Ea	6			
115-kV Low Switch Stand	Ea	16			
115-kV High Switch Stand	Ea	6			
115-kV 3-Ph High Bus Support	Ea	10			
115-kV 3-Ph Low Bus Support	Ea	23			
115-kV CVT Stand	Ea	21			
115-kV Surge Arrester Stand	Ea	14			
Lightning Mast	Ea	21			
<b>TOTAL STEEL STRUCTURES</b>					
<b>FOUNDATIONS</b>					
345-kV Deadend Structure Foundation	30 CU. YD.	4			
345-kV Low Switch Stand Foundation	5 CU. YD.	56			
345-kV High Switch Stand Foundation	7.1 CU. YD.	28			
345-kV 3-Ph High Bus Support Foundation	7.1 CU. YD.	24			
345-kV 1-Ph High Bus Support Foundation	7.1 CU. YD.	10			
345-kV 3-Ph Low Bus Support Foundation	5 CU. YD.	26			
345-kV 1-Ph Low Bus Support Foundation	5 CU. YD.	22			
345-kV CVT Stand Foundation	3.5 CU. YD.	15			
345-kV Cable Termination Stand Foundation	3.5 CU. YD.	6			
345-kV Surge Arrester Stand Foundation	3.5 CU. YD.	48			

**Attachment 5 to DW-031  
Middletown - Norwalk Project Substation Costs**

<i>Item Description</i>	<i>Unit</i>	<i>Qty. Required</i>	<i>Material Price</i>	<i>Labor Price</i>	<i>Total Price</i>
345-kV Breaker Foundation	15 CU. YD.	9			
115-kV Deadend Structure Foundation	20 CU. YD.	22			
115-kV Low Switch Stand Foundation	3 CU. YD.	64			
115-kV High Switch Stand Foundation	4.3 CU. YD.	24			
115-kV 3-Ph High Bus Support Foundation	4.3 CU. YD.	20			
115-kV 3-Ph Low Bus Support Foundation	3 CU. YD.	46			
115-kV 3-Ph CVT Stand Foundation	2.4 CU. YD.	21			
115-kV 3-Ph Surge Arrester Stand Foundation	2.4 CU. YD.	14			
115-kV Breaker Foundation	6 CU. YD.	8			
200 MVA AutoTransformer Foundation	60 CU. YD.	3			
Firewall/Sound Barrier Wall	75 CU. YD.	5			
Lightning Mast Foundation	12 CU. YD.	21			
345kV, 75-150MVAR Shunt Reactor Fdn	70 CU. YD.	2			
345kV Series Reactor Foundation	20 CU. YD.	3			
Oil Containment	120 CU. YD.	5			
Control Building	2.5 CU. YD.	30			
<b>TOTAL FOUNDATIONS</b>					
<b>MISC. EQUIPMENT/CONSTRUCTION</b>					
Control Building	SQ-FT	3520			
Site Work	1 Lot	1			
Relay/Comm Equipment	Ea	28			
Batteries/Chargers	Ea	2			
SCADA RTU	Ea	1			
Grounding	1 Lot	1			
Raceway/Wiring	1 Lot	1			
HV Bus/Conductor/Fittings	1 Lot	1			
Field Electrical Testing	1 Lot	1			
<b>TOTAL MISC. EQUIP./CONSTRUCTION</b>					
<b>ENGINEERING</b>					
Engineering & Field Inspection	1 Lot	1			
Survey	1 Lot	1			
Soil Investigation	1 Lot	1			
<b>TOTAL ENGINEERING</b>					
<b>PROPERTY ACQUISITION</b>					
<b>TOTAL W/O CONTINGENCY</b>					
<b>CONTINGENCY</b>					
<b>TOTAL</b>					<b>\$ 31,392,436</b>

**Attachment 5 to DW-031  
Middletown - Norwalk Project Substation Costs**

<i>Item Description</i>	<i>Unit</i>	<i>Qty. Required</i>	<i>Material Price</i>	<i>Labor Price</i>	<i>Total Price</i>
<b>East Devon Substation - Alternative B</b>					
<b>MAJOR EQUIPMENT</b>					
200 MVA - 345/115-kV Autotransformer	Ea	3			
345kV, 75-150 MVAR Shunt Reactor (3-Ph)	Ea	2			
345kV Series Reactor (1-Ph)	Ea	9			
345-kV Breaker (Dead Tank w/ Synch Closing)	Ea	7			
345-kV Breaker (Live Tank w/ Synch Closing)	Ea	2			
345-kV Disconnect Switch	Ea	17			
345-kV Motor Operated Disconnect Switch	Ea	4			
345-kV Surge Arrestor (1-Phase)	Ea	48			
345-kV Single Cable Termination	Ea	0			
345-kV CVT (1-Phase)	Ea	15			
HPFF Cable Oil Pressurization Station	Ea	0			
115kV Series Current Limiting Reactor (1-Ph)	Ea	6			
115-kV Breaker	Ea	8			
115-kV Disconnect Switch	Ea	22			
115-kV Motor Operated Disconnect Switch	Ea	4			
115-kV Surge arrester (1-Phase)	Ea	21			
115-kV CVT (1-Phase)	Ea	21			
Station Service Transformer	Ea	2			
Emergency Station Generator	Ea	1			
<b>TOTAL MAJOR EQUIPMENT</b>					
<b>STEEL STRUCTURES</b>					
345-kV Deadend Structure	Ea	2			
345-kV Low Switch Stand	Ea	14			
345-kV High Switch Stand	Ea	7			
345-kV 3-Ph High Bus Support	Ea	12			
345-kV 1-Ph High Bus Support	Ea	10			
345-kV 3-Ph Low Bus Support	Ea	13			
345-kV 1-Ph Low Bus Support	Ea	22			
345-kV CVT Stand	Ea	15			
345-kV Cable Termination Stand	Ea	6			
345-kV Surge Arrester Stand	Ea	48			
115-kV Deadend Structure	Ea	6			
115-kV Low Switch Stand	Ea	16			
115-kV High Switch Stand	Ea	6			
115-kV 3-Ph High Bus Support	Ea	10			
115-kV 3-Ph Low Bus Support	Ea	23			
115-kV CVT Stand	Ea	21			
115-kV Surge Arrester Stand	Ea	14			
Lightning Mast	Ea	21			
<b>TOTAL STEEL STRUCTURES</b>					
<b>FOUNDATIONS</b>					
345-kV Deadend Structure Foundation	30 CU. YD.	8			
345-kV Low Switch Stand Foundation	5 CU. YD.	56			
345-kV High Switch Stand Foundation	7.1 CU. YD.	28			
345-kV 3-Ph High Bus Support Foundation	7.1 CU. YD.	24			
345-kV 1-Ph High Bus Support Foundation	7.1 CU. YD.	10			
345-kV 3-Ph Low Bus Support Foundation	5 CU. YD.	26			
345-kV 1-Ph Low Bus Support Foundation	5 CU. YD.	22			
345-kV CVT Stand Foundation	3.5 CU. YD.	15			
345-kV Cable Termination Stand Foundation	3.5 CU. YD.	6			
345-kV Surge Arrester Stand Foundation	3.5 CU. YD.	48			

**Attachment 5 to DW-031  
Middletown - Norwalk Project Substation Costs**

<i>Item Description</i>	<i>Unit</i>	<i>Qty. Required</i>	<i>Material Price</i>	<i>Labor Price</i>	<i>Total Price</i>
345-kV Breaker Foundation	15 CU. YD.	9			
115-kV Deadend Structure Foundation	20 CU. YD.	22			
115-kV Low Switch Stand Foundation	3 CU. YD.	64			
115-kV High Switch Stand Foundation	4.3 CU. YD.	24			
115-kV 3-Ph High Bus Support Foundation	4.3 CU. YD.	20			
115-kV 3-Ph Low Bus Support Foundation	3 CU. YD.	46			
115-kV 3-Ph CVT Stand Foundation	2.4 CU. YD.	21			
115-kV 3-Ph Surge Arrester Stand Foundation	2.4 CU. YD.	14			
115-kV Breaker Foundation	6 CU. YD.	8			
200 MVA AutoTransformer Foundation	60 CU. YD.	3			
Firewall/Sound Barrier Wall	75 CU. YD.	5			
Lightning Mast Foundation	12 CU. YD.	21			
345kV, 75-150MVAR Shunt Reactor Fdn	70 CU. YD.	2			
345kV Series Reactor Foundation	20 CU. YD.	3			
Oil Containment	120 CU. YD.	5			
Control Building	2.5 CU. YD.	30			
<b>TOTAL FOUNDATIONS</b>					
<b>MISC. EQUIPMENT/CONSTRUCTION</b>					
Control Building	SQ-FT	3520			
Site Work	1 Lot	1			
Relay/Comm Equipment	Ea	28			
Batteries/Chargers	Ea	2			
SCADA RTU	Ea	1			
Grounding	1 Lot	1			
Raceway/Wiring	1 Lot	1			
HV Bus/Conductor/Fittings	1 Lot	1			
Field Electrical Testing	1 Lot	1			
<b>TOTAL MISC. EQUIP./CONSTRUCTION</b>					
<b>ENGINEERING</b>					
Engineering & Field Inspection	1 Lot	1			
Survey	1 Lot	1			
Soil Investigation	1 Lot	1			
<b>TOTAL ENGINEERING</b>					
<b>PROPERTY ACQUISITION</b>					
<b>TOTAL W/O CONTINGENCY</b>					
<b>CONTINGENCY</b>					
<b>TOTAL Alternative B</b>					<b>\$ 31,056,107</b>



**Attachment 5 to DW-031**  
**Middletown - Norwalk Project Substation Costs**  
**Singer GIS Substation**

<i>Item Description</i>	<i>Unit</i>	<i>Qty. Required</i>	<i>Material Price</i>	<i>Labor Price</i>	<i>Total Price</i>
<b>MAJOR EQUIPMENT</b>					
200 MVA - 345/115-kV Autotransformer	Ea	6			
345-kV GIS	Ea	1			
345-kV, 75-150MVAR Shunt Reactor (3-Ph)	Ea	4			
115-kV Motor Operated Disconnect Switch	Ea	2			
115-kV Surge Arrestor (1-Phase)	Ea	6			
Station Service Transformer	Ea	2			
HPFF Cable Oil Pressurization Station	Ea	1			
<b>TOTAL MAJOR EQUIPMENT</b>					
<b>STEEL STRUCTURES</b>					
345-kV GIS Bus Support	Ea	12			
115-kV High Switch Stand	Ea	2			
115-kV 3-Ph High Bus Support	Ea	2			
115-kV 3-Ph Surge Arrestor Stand	Ea	2			
115-kV 3-Ph Cable Riser Stand	Ea	2			
Lightning Mast (55ft)	Ea	7			
<b>TOTAL STEEL STRUCTURES</b>					
<b>FOUNDATIONS</b>					
345-kV GIS Bus Support Foundation	7.1 CU. YD.	24			
115-kV High Switch Stand Foundation	4.3 CU. YD.	8			
115-kV 3-Ph High Bus Support Foundation	4.3 CU. YD.	4			
115-kV 3-Ph Surge Arrestor Stand Foundation	4.3 CU. YD.	4			
115-kV 3-Ph Cable Riser Stand Foundation	4.3 CU. YD.	4			
200 MVA Autotransformer Foundation	60 CU. YD.	6			
Firewall/Sound Barrier Wall	75 CU. YD.	12			
Lightning Mast Foundation	10 CU. YD.	7			
345-kV, 75-150MVAR Shunt Reactor Fdn	70 CU. YD.	4			
Oil Containment	120 CU. YD.	10			
Control Building Foundations	3.5 CU. YD.	24			
GIS Building Basement/Foundation	800 CU. YD.	1			
<b>TOTAL FOUNDATIONS</b>					
<b>MISC. EQUIPMENT/CONSTRUCTION</b>					
GIS Building	SQ-FT	15600			
Control Building	SQ-FT	2000			
Site Work	1 Lot	1			
Relay/Comm Equipment	Ea	28			
Batteries/Chargers	Ea	2			
SCADA RTU	Ea	1			
Grounding	1 Lot	1			
Raceway/Wiring	1 Lot	1			
HV Bus/Conductor/Fittings	1 Lot	1			
Masonry Wall	1 Lot	1			
Demolition of Existing Building	1 Lot	1			
<b>TOTAL MISC. EQUIP./CONSTRUCTION</b>					
<b>ENGINEERING</b>					
Engineering & Field Inspection	1 Lot	1			
Survey	1 Lot	1			
Soil Investigation	1 Lot	1			
<b>TOTAL ENGINEERING</b>					
<b>PROPERTY ACQUISITION</b>					
<b>TOTAL W/O CONTINGENCY</b>					
<b>CONTINGENCY</b>					
<b>TOTAL</b>					<b>\$ 48,121,900</b>

**Attachment 5 to DW-031  
Middletown - Norwalk Project Substation Costs  
Seaview Transition/Switching Station**

<i>Item Description</i>	<i>Unit</i>	<i>Qty. Required</i>	<i>Material Price</i>	<i>Labor Price</i>	<i>Total Price</i>
<b>MAJOR EQUIPMENT</b>					
345-kV Breaker	Ea	4			
345-kV Switch	Ea	8			
345-kV Switches with MO with Gnd. Switch	Ea	0			
345-kV Surge Arrestor (1-Phase)	Ea	18			
345-kV CVT (1-Phase)	Ea	18			
345-kV Single Cable Termination	Ea	12			
Station Service Transformer	Ea	2			
Emergency Station Generator (200kW)	Ea	0			
<b>TOTAL MAJOR EQUIPMENT</b>					
<b>STEEL STRUCTURES</b>					
345-kV Deadend Structure	Ea	2			
345-kV Low Switch Stand	Ea	8			
345-kV 1-Ph High Bus Support	Ea	6			
345-kV 1-Ph Low Bus Support	Ea	24			
345-kV CVT Stand	Ea	18			
345-kV Surge Arrestor Stand	Ea	18			
345-kV Cable Termination Stand	Ea	12			
Lightning Mast	Ea	4			
<b>TOTAL STEEL STRUCTURES</b>					
<b>FOUNDATIONS</b>					
345-kV Deadend Structure Foundation	30 CU. YD.	6			
345-kV Low Switch Stand Foundation	5 CU. YD.	32			
345-kV 1-Ph High Bus Support Foundation	7.1 CU. YD.	6			
345-kV 1-Ph Low Bus Support Foundation	5 CU. YD.	24			
345-kV CVT Stand Foundation	3.5 CU. YD.	18			
345-kV Surge Arrestor Stand Foundation	3.5 CU. YD.	18			
345-kV Cable Termination Stand Fdn	3.5 CU. YD.	12			
345-kV Breaker Foundation	15 CU. YD.	4			
Control Building Foundations	2.5 CU. YD.	12			
Lightning Mast Foundation	12 CU. YD.	4			
<b>TOTAL FOUNDATIONS</b>					
<b>MISC. EQUIPMENT/CONSTRUCTION</b>					
Control Building	SQ-FT	1280			
Site Work	1 Lot	1			
Relay/Comm Equipment	Ea	12			
Batteries/Chargers	Ea	2			
SCADA RTU	Ea	1			
Grounding	1 Lot	1			
Raceway/Wiring	1 Lot	1			
HV Bus/Conductor/Fittings	1 Lot	1			
Field Electrical Testing	1 Lot	1			
<b>TOTAL MISC. EQUIP./CONSTRUCTION</b>					
<b>ENGINEERING</b>					
Engineering & Field Inspection	1 Lot	1			
Survey	1Lot	1			
Soil Investigation	1Lot	1			
<b>TOTAL ENGINEERING</b>					
<b>PROPERTY ACQUISITION</b>					
<b>TOTAL W/O CONTINGENCY</b>					
<b>CONTINGENCY</b>					
<b>TOTAL</b>					<b>\$5,873,688</b>

**Attachment 5 to DW-031**  
**Middletown - Norwalk Project Substation Costs**  
**Hawthorne Transition/Switching Station**

<i>Item Description</i>	<i>Unit</i>	<i>Qty. Required</i>	<i>Material Price</i>	<i>Labor Price</i>	<i>Total Price</i>
<b>MAJOR EQUIPMENT</b>					
345-kV Breaker	Ea	2			
345-kV Switch	Ea	4			
345-kV Switches with MO with Gnd. Switch	Ea	0			
345-kV Surge Arrestor (1-Phase)	Ea	9			
345-kV CVT (1-Phase)	Ea	9			
345-kV Single Cable Termination	Ea	6			
Station Service Transformer	Ea	2			
Emergency Station Generator (200kW)	Ea	0			
<b>TOTAL MAJOR EQUIPMENT</b>					
<b>STEEL STRUCTURES</b>					
345-kV Deadend Structure	Ea	1			
345-kV Low Switch Stand	Ea	4			
345-kV 1-Ph High Bus Support	Ea	3			
345-kV 1-Ph Low Bus Support	Ea	18			
345-kV CVT Stand	Ea	9			
345-kV Surge Arrestor Stand	Ea	9			
345-kV Cable Termination Stand	Ea	6			
Lightning Mast	Ea	3			
<b>TOTAL STEEL STRUCTURES</b>					
<b>FOUNDATIONS</b>					
345-kV Deadend Structure Foundation	30 CU. YD.	4			
345-kV Low Switch Stand Foundation	5 CU. YD.	16			
345-kV 1-Ph High Bus Support Foundation	7.1 CU. YD.	3			
345-kV 1-Ph Low Bus Support Foundation	5 CU. YD.	18			
345-kV CVT Stand Foundation	3.5 CU. YD.	9			
345-kV Surge Arrestor Stand Foundation	3.5 CU. YD.	9			
345-kV Cable Termination Stand Fdn	3.5 CU. YD.	6			
345-kV Breaker Foundation	15 CU. YD.	2			
Control Building Foundations	2.5 CU. YD.	10			
Lightning Mast Foundation	12 CU. YD.	3			
<b>TOTAL FOUNDATIONS</b>					
<b>MISC. EQUIPMENT/CONSTRUCTION</b>					
Control Building	SQ-FT	1050			
Site Work	1 Lot	1			
Relay/Comm Equipment	Ea	6			
Batteries/Chargers	Ea	2			
SCADA RTU	Ea	1			
Grounding	1 Lot	1			
Raceway/Wiring	1 Lot	1			
HV Bus/Conductor/Fittings	1 Lot	1			
Field Electrical Testing	1 Lot	1			
<b>TOTAL MISC. EQUIP./CONSTRUCTION</b>					
<b>ENGINEERING</b>					
Engineering & Field Inspection	1 Lot	1			
Survey	1Lot	1			
Soil Investigation	1Lot	1			
<b>TOTAL ENGINEERING</b>					
<b>PROPERTY ACQUISITION</b>					
<b>TOTAL W/O CONTINGENCY</b>					
<b>CONTINGENCY</b>					
<b>TOTAL</b>					<b>\$3,879,922</b>

**Attachment 6 to DW-031  
Middletown - Norwalk Project  
Generator Interconnection Estimates**

<b>Bridgeport Energy Generator Interconnection</b>			
<b>Description</b>	<b>Material</b>	<b>Installation Total</b>	<b>Total</b>
Install new 5" bus at Bridgeport Energy switchyard			
Install new GIL from Bridgeport Energy switchyard to Singer Auto Txfr #1			
Grounding and yard conduits			
115-kV MOD (BE Backup)			
3 115-kV Series Reactors (BE Backup)			
Reactor Foundations (Assume Piles)			
Contingencies @12.5%			
Total (Rounded)			\$500,000
<b>Pequonnock Generator Interconnection</b>			
<b>Description</b>	<b>Material</b>	<b>Installation Total</b>	<b>Total</b>
Install new 50 bay at Pequonnock			
Install new GIL from the new 50 bay at Pequonnock to Singer Auto Txfr #2			
Protection and Control for new 50 bay			
Grounding and yard conduits			
Install 2- 115-kV, 63KA GCB's at Pequonnock			
Contingencies @25%			
Total (Rounded)			\$3,000,000