Northeast Utilities

107 Selden Street, Berlin, CT 06037

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December 15, 2011

Mr. Robert Stein
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. LIFE-CYCLE 2011 - LIFE-CYCLE 2011

Dear Mr. Stein:

This letter provides the response to requests for the information listed below.

Response to CSC-02 Interrogatories dated 10/21/2011
CSC-001, 003, 004

Response to OCC-01 Interrogatories dated 10/21/2011
OCC-001, 002, 006, 007, 008, 010

Very truly yours,

John Morissette /tr

John Morissette
Manager
Transmission siting and Permitting
NUSCO
As Agent for CL&P

cc: Service List

Witness: Michael B. McKinnon
Request from: Office of Consumer Counsel

Question:
Reference Response to CSC-001. Provide details on the work force used for operations and maintenance, including the number of workers by job title, the number of supervisors, and whether the workers are employees of the utility, or from an outside contractor.

For FERC accounts 560 and 568 (operations and maintenance supervision accounts), provide a best estimate of the costs for these supervisory functions by overhead and underground lines. The cost estimate may be in the form of a supervisory loading percentage.

Response:
Please see the chart below for details of the Transmission work force used for operation and maintenance activities associated with transmission lines.

For FERC account 560, the best estimate of total cost attributable to overhead and underground line work is $307,000, and for FERC account 568, the best estimate of total cost attributable to overhead and underground line work is $245,000. In both cases the division of these costs between overhead and underground activities is 79% and 21%, respectively. (Please note these estimates are based on 2010 actuals.)

CL&P Transmission Operations and Maintenance Staffing	
CL&P Employees	
1	Manager - Transmission Line Construction & Maintenance*
5	Field Supervisor - Transmission Line Construction & Maintenance
29	Transmission Line Mechanic
1	Records Technician A-T&D
1	Manager - Transmission Vegetation Management*
2	Transmission Arborists
2	Engineer - Operational Engineering
	* Is a Northeast Utilities Service Company employee who is also responsible for transmission maintenance at other operating companies
	Additional engineering and operations support is provided by Civil/Line Engineering, CL&P Substation Electricians and CONVEX as needed.
Non CL&P Employees (annual average)	
20	Transmission Line Clearance Contractor employees
5	Vault Inspection Contractor employees
3	Vault Cleaning Contractor employees
3	Construction Contractor employees (road clearing, site preparations)
1	Traffic Control
1	Environmental Specialist
1	Helicopter Service Company employee*
1	Infra-red Inspection Contractor employee*
	* Used only a portion of the year when these activities are performed (3 - 4 months)

Witness: Michael B. McKinnon
Request from: Office of Consumer Counsel

Question:
Ref. Response to CSC-001. For underground costs in 2007 and 2009, provide the following: (a) details of the referenced "significant events" impacting underground costs and (b) a breakout of the dollar amount of the "significant events" costs for 2007 and 2009.

Response:
a)The 2007 "significant event" is the failure of a then-existing Long Island cable in a segment of the cable that was located on-shore at Northport Long Island.

The 2009 "significant event" is the failure of a new Long Island cable approximately 5.1 miles south of the Manresa Island landfall location.

b) The total cost associated with the 2007 "significant event" was $1,240,261. CL&P's contractual share of repair costs of the installed cable is 51%. Accordingly, the cost to CL&P of this event was $632,533.

The total cost associated with the 2009 "significant event" was $222,799 in 2009, and CL&P's contractual share of this cost was $113,627.

Witness: Raymond L. Gagnon
Request from: Office of Consumer Counsel

Question:
Ref. Response to CSC-004. Provide the following additional information:
(a) Include the cost of the required pressurization plants in the HPFF underground line cost.
(b) Provide the current average cost for a shunt reactor. Then, using CL&P's number of reactors for current plant, and the associated circuit miles, provide an average per-mile cost for a reactor.
(c) Provide the current average cost of an overhead-to-underground transition station. Then, using CL&P's current number of stations, and associated circuit miles, provide an average per mile cost for a station.
(d) Provide the current average cost for a splicing vault. Then, using CL&P's current number of vaults, and associated circuit miles, provide an average per mile cost for a vault.

Response:

(a) As indicated in Note 12 of the response to CSC-01, Q-CSC-004, the cost for a 345-kV HPFF pressurization plant is $1million. This cost is not included in per-mile 345-kV HPFF line costs because it is a fixed cost that does not depend on line length.

b) The current installed cost of a generic 345-kV three-phase shunt reactor would be approximately $6.5 million. CL&P has seven 345-kV three-phase reactors in service on its 345-kV transmission system, two of which are installed at the ends of 345-kV HPFF cables, and five of which are installed at the ends of 345-kV XLPE cables. Using the generic cost estimate of $6.5 million and the existing cable lengths, the approximate average cost for a new 345-kV shunt reactor would be: $890 thousand per mile of three XLPE transmission cables, $670 thousand per mile of one three-phase HPFF transmission cable system. CL&P has no shunt reactors installed on its 115-kV underground transmission lines. CL&P and UI own portions of a 345-kV line that interconnects their transmission systems.

c) The current cost for an overhead to underground 345-kV line transition station would be$12 million excluding land cost. CL&P currently has three 345-kV transition stations, all in the Bethel to Norwalk 345-kV circuit, one of which does not include circuit breakers or shunt reactors. Based on CL&P's current number of three-phase 345-kV cable miles in the Bethel to Norwalk 345-kV circuit (23.8), the average cost of a 345-kV line transition station would be approximately $1.5 million per mile CL&P has no transition stations installed on its 115-kV transmission system.

(d) The current average installed cost for a splice vault would be $200 thousand per vault. Using CL&P's current number of splice vaults and associated underground circuit miles the average cost would be: 345-kV XLPE splice vault would be $690 thousand per mile, 345-kV HPFF splice vault is $230 thousand per mile, 115-kV XLPE splice vault would be $650 thousand per mile. CL&P has not used 115-kV HPFF cable technology in recent years.

Witness: Michael B. McKinnon
Request from: Office of Consumer Counsel

Question:
Ref. Response to CSC-005.
(a) UI: Provide an itemization of the costs included in the overhead and underground categories. Explain why the overhead costs per mile are so much higher than the underground costs per mile.
(b) CL&P: Provide an itemization of the costs included in the overhead and underground categories. Explain why the underground costs per mile are so much higher than the overhead costs per mile.

Response:
(b) The 2010 costs for underground transmission line maintenance are strongly influenced by costs relating to repair of a Long Island Cble. Repairing underwater cable requires specialized equipment and personnel and is quite time consuming. In recent years, making repairs to sections of cable in Long Island Sound have cost between a half million dollars and more than 15 million dollars, each. These transmission cables are approximately 11 miles long.

Specialized equipment, materials and personnel are also required for underground cable repairs making cable repairs considerably more expensive than repairs for overhead lines. Earlier this year when a Norwalk to Singer underground 345-KV cable was repaired, the cost exceeded $250,000. The section of line repaired was less than a mile long.

The time required to repair underground transmission lines is also considerably more than that required to repair overhead transmission lines. For example, repairing all damaged overhead transmission lines following the October 2011 snow storm was accomplished in one tenth the time required to make just one repair earlier this year on the Norwalk to Singer underground transmission line.

Given the requirements of the maintenance program including vault inspections and the labor-intensive nature of this work, preventive maintenance of underground lines is generally more expensive than that of overhead lines, costing approximately $4,100 per mile, as compared to $2,400 per mile of overhead line. Here too, specialized equipment, specialized personnel, and specialized materials are necessary to perform routine maintenance. In addition, a significant contributor to the cost of repairing or maintaining underground lines is the requirement to pump sediment and water from the vaults prior to entry. Costs savings techniques such as the use of more efficient means of transportation including aircraft, hover craft and track vehicles are available and regularly employed for routine maintenance of overhead lines but no similar opportunities have been identified for maintenance of underground transmission lines.

Please see the "Details FERC Accounts" table, OCC-01, Q-OCC-007, page 2 of 2.

Account 564 Maintenance of Underground Lines	2006	2007	2008	2009	2010
EPRDT - EPRI Nonevironmental T	$ 172,289	$ 158,369	$ 197,738	$ 279,526	$ 280,338
T503R - Underground Line Patrols	$ 13,407	$ 145	$ 5,970	$ 0	$ -
Other	$ 663	$ -	$ -	$ 3,034	$ -
	$ 186,359	**$ 158,514**	**$ 203,708**	**$ 282,561**	**$ 280,338**

Account 572 Maintenance of Underground Lines	2006	2007	2008	2009	2010
BFORDCBL - Branford Cable	$ 87,579	$ -	$ -	$ -	$ -
05LEAK01 - Track 2005 Fluid lead LI Cable #1	$ 23,427	$ -	$ -	$ -	$ -
05LEAK04 - Track 2005 Fluid leak LI Cable #4, insulating fluid leak occurred at Northport, LI NU incurred 51% of the repair cost.	$ -	$ 632,533	$ (213,251)	$ -	$ -
[illegible] - Long Island Cable [illegible] Fault - Repair Related	$ -	$ -	$ -	$ 222,799	$ 997,326
LICBLO01 - LIS Cable Exposure issue (Credit for project reclassified as capital)	$ -	$ -	$ -	$ 123,437	$ (82,154)
BNCDOT01 - BN CDOT encroachment	$ -	$ 95,561	$ 198,210	$ 45,513	$ -
Preventive Maitnenance - Cable Vault Inpections/Cleaning	$ -	$ 155,000	$ 228,194	$ 37,200	$ 328,196
Preventive Maintenance	$ 68,064	$ 155,923	$ 218,506	$ 71,968	$ 146,081
	$ 179,070	**$ 1,039,017**	**$ 431,659**	**$ 500,917**	**$ 1,389,449**
Total Underground Lines	**$ 365,429**	**$ 1,197,531**	**$ 635,367**	**$ 783,477**	**$ 1,669,787**

Account 563 Overhead Line Expenses	2006	2007	2008	2009	2010
EPRDT - EPRI Nonevironmental T	$ 175,090	$ 164,833	$ 205,809	$ 290,062	$ 286,203
Line Maintenance and Line Patrols	$ 394,145	$ 348,474	$ 711,067	$ 893,955	$ 531,095
Air Patrols	$ 89,085	$ 125,712	$ 177,130	$ 219,702	$ 172,965
	$ 658,319	**$ 639,019**	**$ 1,094,006**	**$ 1,403,719**	**$ 990,263**

Account 571 Maintenance of Overhead Lines	2006	2007	2008	2009	2010
115KVCSP - 115kV overhead conductor and sturcture augmente	$ -	$ -	$ 105,367	$ 14,910	$ -
B1T04735 line restaple pole grounds	$ -	$ -	$ 534,365	$ 72,833	$ 149
BH345LLW - Track Bare hand live line expenditures	$ -	$ 3,057	$ 156,500	$ 8,195	$ -
CLPROW09 - 2009 CL&P ROW road improvements	$ -	$ -	$ -	$ 1,223,151	$ 582,517
Preventive Maintenance Vegetation Management	$ 1,778,962	$ 2,416,799	$ 2,835,731	$ 2,747,048	$ 2,793,148
Preventive Maintenance Lines / Patrols	$ 912,477	$ 1,595,437	$ 1,587,738	$ 917,834	$ 1,911,733
	$ 2,691,439	**$ 4,015,293**	**$ 5,219,701**	**$ 4,983,971**	**$ 5,287,547**
Total Overhead Lines	**$ 3,349,759**	**$ 4,654,312**	**$ 6,313,707**	**$ 6,387,690**	**$ 6,277,810**

Witness: Michael B. McKinnon
Request from: Office of Consumer Counsel

Question:
Provide the operations and maintenance (O&M) costs to date for the underground Bethel-to-Norwalk 345kV XLPE cable lines. Include O&M costs for associated overhead-to-underground transition stations and cable splicing vaults. Detail in narrative form the experience to date with operating and maintaining these underground lines.

Response:
O&M Costs
Only 2.1 miles of the Bethel to Norwalk 345kV line employ parallel underground XLPE cables. The question excludes the 9.8 miles of parallel 345kV HPFF cables also in the Bethel to Norwalk 345kV line. CL&P's current accounting software does not make it possible to break out just the Bethel -to- Norwalk 345kV portion of the overall UG O&M costs . Total O&M costs associated with underground lines are included in the table below.

		Year				
FERC						
No.	Description	2006	2007	2008	2009	2010
564	Underground Lines Expenses	$186,359	$158,514	$203,708	$282,561	$280,338
572	Maintenance of Undergound Lines	$179,070	$1,039,017	$431,659	$500,917	$1,389,449
	Total O&M Cost Underground Lines	$365,429	$1,197,531	$635,367	$783,478	$1,669,787
	Underground circuit miles	71	71	135	135	135

Operational Experience
See OCC-01, Q-OCC-08, pages 2 -7 for operational experience of the Bethel to Norwalk Line.

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Robert E. Carberry
Manager – Transmission Siting and
Permitting

December 31, 2007

Daniel F. Caruso, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Docket No. 217, Bethel-Norwalk Transmission Project
Decision and Order Condition #7

Dear Judge Caruso:

On July 14, 2003 in Docket 217 the Connecticut Siting Council ("Council") approved The Connecticut Light and Power Company's ("CL&P's") Application for a Certificate of Environmental Compatibility and Public Need for the construction of the Bethel-Norwalk Transmission Project. Condition #7 of that approval was that CL&P "provide the Council with an operating report within three months after the conclusion of the first year of operation, and annually thereafter, with information relevant to the condition, safety, reliability and operation of the cable system."

The purpose of this letter is to respond to this condition of approval. The Bethel-Norwalk 345-kV transmission line, including its cable systems, entered service on October 12, 2006.

The overall condition and safety of the 115- and 345-kV cable systems constructed as part of the Bethel-Norwalk Transmission Project, including the 345-kV XLPE cables in Bethel and the 345-kV HPFF cable systems in Redding and Wilton, has been excellent to date. Reliability and operation of the hybrid 345-kV circuit has been acceptable for the first year. No forced circuit interruptions have occurred. To date, the 345-kV circuit has operated with one or the other of the two HPFF cable systems as part of the circuit, but not both together. Operating events which have caused CL&P to manually remove from service either a 345-kV cable system or the entire 345-kV circuit are as follows:

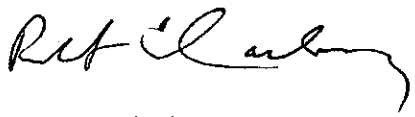
- The 345-kV circuit was switched out of service for approximately 62 hours from January 9, 2007 to January 11, 2007 and for approximately 105 hours from April 24, 2007 to April 28, 2007 to install and test an emergency isolation scheme for transient overvoltage protection, a requirement imposed on this circuit by the Middletown-Norwalk Transmission Project.
- The 345-kV circuit was switched out of service for approximately 12 hours on January 17, 2007 to adjust contacts in two new 345-kV disconnect switches at Plumtree Substation.

- The 345-kV circuit was switched out of service for approximately 20 hours from April 16, 2007 to April 17, 2007 for flooding inspections of control equipment at Norwalk Junction Transition Station.
- The 345-kV circuit was switched out of service for approximately 50 hours from August 23, 2007 to August 25, 2007 because the circuit switcher protecting the 345-kV shunt reactor at Plumtree Substation required maintenance. The circuit must be removed from service if this shunt reactor is unavailable.
- The 345-kV circuit was switched out of service for approximately 60 hours from October 31, 2007 to November 2, 2007 for splice-vault modifications.
- The 345-kV circuit was switched out of service for approximately 14 hours on December 5, 2007 due to excavation damage to one of the HPFF cable system pipes. The circuit was returned to service with the other cable pending repairs.

In its first year of operation, the Bethel-Norwalk Transmission Project reduced Connecticut's congestion costs by nearly $150 million and improved the reliability of Southwest Connecticut's bulk power supply.

Please direct any questions you may have about this report to me at 860-665-6774. Also, I would like to ask the Council for a clarification on condition #7 of the Docket 217 certification. The condition requires this report and similar reports "annually thereafter". No end date for such reports is specified. For how many years would the Council like to receive such reports?

Sincerely,



Robert E. Carberry

Northeast
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December 31, 2008

Daniel F. Caruso, Chairman
Connecticut Siting council
Ten Franklin Square
New Britain, Ct 06051

Re: Docket No. 217, Bethel-Norwalk Transmission Project
Decision and Order Condition #7

Dear Judge Caruso:

On July 14, 2003, in Docket 217, the Connecticut Siting Council ("Council") approved The Connecticut Light and Power Company's ("CL&P's") Application for a Certificate of Environmental Compatibility and Public Need for the construction of the Bethel-Norwalk Transmission Project. Condition #7 of the approval was that CL&P "provide the Council with an operating report within three months after the conclusion of the first year of operation, and annually thereafter, with information relevant to the condition, safety, reliability and operation of the cable system."

The purpose of this letter is to respond to this condition of approval. The Bethel-Norwalk 345-kV transmission line, including its cable systems, entered service on October 12, 2006. CL&P's initial operating report was submitted to the Council on December 31, 2007.

The overall condition and safety of the 115- and 345-kV cable systems constructed as part of the Bethel-Norwalk Transmission Project, including the 345-kV XLPE cables in Bethel and the 345-kV HPFF cable systems in Redding and Wilton, continue to be excellent. Reliability and operation of the hybrid 345-kV circuit remains acceptable through the second year of operation. To date, the 345-kV circuit operated with one or the other of the two HPFF cable systems as part of the circuit, but not both together.

Operating events during 2008 which caused CL&P to remove from service either a 345-kV cable system or the entire 345-kV circuit are as follows:

- A disturbance on the line on April 8, 2008 resulting from the venting of an energized 345-kV GIS gas zone during a switching operation at Norwalk Substation caused the circuit to automatically trip. During the operation, which was being done to support the MN345-kV project addition of three new terminal sections, the wrong valve was operated, resulting in a fault condition. For safety purposes, the circuit was kept out of service until

the MN345-kV project additions to the Norwalk Substation GIS were completed on June 13, 2008.

- The line tripped out of service on August 7, 2008 due to a lightning strike to the overhead portion of the line. Since the line employs both overhead and underground construction, it is not equipped with automatic reclosing. The line was patrolled and inspected for damage, to assure no fault occurred in the underground cables, and was returned to service after 21 hours.
- A planned outage lasting five hours occurred on July 7, 2008. The 345-kV circuit and the Norwalk autotransformer were taken out-of-service to support testing of new GIS terminal sections at the Norwalk Substation.

Given that the condition, safety, reliability and operation of the cable system have been excellent over the past two years, CL&P will be requesting, under separate cover, that the need for these annual reports be discontinued.

Please direct any questions you may have about this report to me at 860-665-2036.

Sincerely,

John R. Morissette
Manager
Transmission Siting and Permitting

JRM:lpc

Northeast
Utilities System

107 Selden Street, Berlin CT 06037

Northeast Utilities Service Company
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Hartford, CT 06141-0270
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December 18, 2009

Daniel F. Caruso, Chairman
Connecticut Siting council
Ten Franklin Square
New Britain, Ct 06051

Re: Docket No. 217, Bethel-Norwalk Transmission Project
Decision and Order Condition #7

Dear Judge Caruso:

On July 14, 2003, in Docket 217, the Connecticut Siting Council ("Council") approved The Connecticut Light and Power Company's ("CL&P's") Application for a Certificate of Environmental Compatibility and Public Need for the construction of the Bethel-Norwalk Transmission Project. Condition #7 of the approval was that CL&P "provide the Council with an operating report within three months after the conclusion of the first year of operation, and annually thereafter, with information relevant to the condition, safety, reliability and operation of the cable system."

The purpose of this letter is to respond to this condition of approval. The Bethel-Norwalk 345-kV transmission line, including its cable systems, entered service on October 12, 2006. CL&P's initial operating report was submitted to the Council on December 31, 2007, and its first annual report was submitted on December 31, 2008.

The overall condition and safety of the 115- and 345-kV cable systems constructed as part of the Bethel-Norwalk Transmission Project, including the 345-kV XLPE cables in Bethel and the 345-kV HPFF cable systems in Redding and Wilton, continue to be excellent. Reliability and operation of the hybrid 345-kV circuit remains acceptable through the third year of operation. To date, the 345-kV circuit operated with one or the other of the two HPFF cable systems as part of the circuit, but not both together.

Except as noted below, through December 18, 2009, CL&P has not had to remove from service either a 345-kV cable system or the entire 345-kV circuit during 2009:

- A planned outage occurred on December 14 - 15 in which the cable system was out of service to conduct Connecticut DOT vault inspections for the 3403A and 3403B cables.
- An outage is planned for December 21 - 23 in which the cable system will be out of service to conduct Connecticut DOT vault inspections for the 3403C and 3403D cables.

Please direct any questions you may have about this report to me at 860-665-2036.

Sincerely,

John R. Morissette
Manager
Transmission Siting and Permitting

JRM:lpc

Northeast
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P.O. Box 270
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December 13, 2010

Daniel F. Caruso, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Docket No. 217, Bethel-Norwalk Transmission Project
Decision and Order Condition #7

Dear Judge Caruso:

On July 14, 2003, in Docket 217, the Connecticut Siting Council ("Council") approved The Connecticut Light and Power Company's ("CL&P's") Application for a Certificate of Environmental Compatibility and Public Need for the construction of the Bethel-Norwalk Transmission Project. Condition #7 of the approval was that CL&P "provide the Council with an operating report within three months after the conclusion of the first year of operation, and annually thereafter, with information relevant to the condition, safety, reliability and operation of the cable system."

The purpose of this letter is to respond to this condition of approval. The Bethel-Norwalk 345-kV transmission line, including its cable systems, entered service on October 12, 2006. CL&P's initial operating report was submitted to the Council on December 31, 2007. Annual reports were also submitted in December 2008 and December 2009.

The overall condition and safety of the 115- and 345-kV cable systems constructed as part of the Bethel Norwalk Transmission Project, including the 345-kV XLPE cables in Bethel and the 345-kV HPFF cable systems in Redding and Wilton, continue to be excellent. Reliability and operation of the hybrid 345-kV circuit remains acceptable through the fourth year of operation. During the past year no operational concerns were experienced, no corrective or non-routine maintenance was required on the cables and vault inspections have shown no deficiencies that would affect the reliability of the circuit.

Only one outage was experienced on the cable system during the past year. On November 30, 2010, the 3403 line experienced an inadvertent trip during routine relay testing causing the line to be out of service for 3 hours and 26 minutes.

Please direct any questions you may have about this report to me at 860-665-2036.

Sincerely,

John R. Morissette
Manager
Transmission Siting and Permitting

JRM:lpc

Witness: John R. Morissette
Request from: Office of Consumer Counsel

Question:
Ref Response to CSC-011. Specify the five project sites with the most costly contamination and/or environmental management issues over the last five years. Detail actions taken and the associated costs.

Response:
The projects listed below are projects that have been completed in the past five years.

1. **Middletown to Norwalk Project--EMF Management**

Project Description:
The Connecticut Light and Power Company (CL&P) and The United Illuminating Company (UI) constructed a new 345-kV electric transmission line and associated facilities between the Scovill Rock Switching Station in Middletown and Norwalk Substation in Norwalk, Connecticut including the reconstruction of portions of existing 115-kV and 345-kV electric transmission lines, the construction of the Beseck Switching Station in Wallingford, East Devon Substation in Milford, and Singer Substation in Bridgeport, and modifications at Scovill Rock Switching Station and Norwalk Substation.

Actions Taken:
The overhead lines portion of the project included management of magnetic field levels via use of a split-phase 345-kV line for 12.1 miles, use of taller structures in some areas, changes from horizontal line to a delta line design, and a short shift in a right-of-way segment.

Cost: Additional net costs of $30.8 million were associated with these magnetic field management actions.

2. **Long Island Replacement Cable Project--Cable Removal/Disposal and Environmental Monitoring**

Project Description:

The Long Island Replacement Cable Project replaced 7 underwater fluid filled single-phase cables with 3 solid core dielectic cables (each a bundle of three single-phase cables) between Norwalk CT and Northport NY. The project went into service July 2008. [In 2009, 1 of the three new cables faulted and needed to be repaired.]

Actions Taken:

Cable Removal
The purpose of replacing the 7 fluid-filled single-phased cables with 3 solid dielectric cables was to better protect the cables from damage and to eliminate the potential for accidental releases of dielectric fluid into the environment if the cables were damaged. The cable removal was completed in the Spring of 2008. The 7 cables were disposed of in accordance with state and federal guidelines.

Cost:** Removal and disposal of fluid-filled cables- $4.6 million. Net cost includes salvage value of fluid-filled cables.

Environmental Monitoring
The project required permits from the Connecticut Department of Environmental Protection (DEP), New York Department of Environmental Conservation and Public Service Commission, and the U.S. Army

Corps of Engineers. Permit requirements called for monitoring and mitigation for the project. Monitoring included: bi-annual photos of the ocean floor for 10 years, magnetic field surveys, and inspections of rock-filled mattresses in Northport and concrete mattresses on the Connecticut end of the replacement cable. Also, due to the cable fault in 2009, additional environmental oversight was required to ensure that a replacement section of cable was installed according to permit regulations.

Cost:** Rock-filled Mattress Installation- $1.1 million
Monitoring and Inspections to date- $2.5 million
Future Monitoring -- Annual average of $50,000 for the next 8 years.
Future Mitigation (for oyster beds)- $1 million

** CL&P paid 51% of all costs and the Long Island Power Authority paid the remainder.

3. **Middletown to Norwalk Project--Soil Removal**

Project Description:
See item #1 above.

Actions Taken:
The underground line portion of the project required soil excavation where the cable-duct banks would be located. After soil sampling and soil characterization were completed, most of the soil needed to be disposed of at an approved facility.

Cost: Total cost for soil sampling, testing, and disposal: $2.9 million

4. **Glenbrook Cables Project--Soil Removal**

Project Description
CL&P constructed a new 8.7-mile-long underground 115,000-volt (115-kV) cable system from Glenbrook Substation, located in the City of Stamford, to Norwalk Substation, located in the City of Norwalk. The cables and ducts were placed underground within state and local rights of way and entered into service in November 2008.

Actions Taken:
The project required soil excavation where the cable-duct banks would be located. After soil sampling and soil characterization were completed, most of the soil needed to be disposed of at an approved facility.

Cost: Total cost for soil sampling, testing, and disposal: $2.5 million

5. **Middletown to Norwalk Project--Wetlands Creation**

Project Description:
See item #1 above.

Actions Taken:
The project required a Section 404 Individual Permit from the U.S. Army Corps of Engineers and a Section 401 Water Quality Certification from the Connecticut Department of Environmental Protection. As required by the permits, CL&P created a 2.2 acre wetland at Eisenhower Park in Milford, CT and placed a conservation easement on 74-acres of CL&P property in Middletown, CT. Both the wetland creation and the conservation easement satisfied the ACOE and DEP with respect to the wetlands/watercourses impact as a result of the project. The wetland creation was completed in the spring of 2008 and will be monitored until 2013.

Cost: Costs of constructing the wetland (excavation and blended top soil), construction management, planting of new wetland plants, together with a long term conservation easement, engineering and legal

costs, totaled $2.2 million. Property acquisition was not required since the City of Milford donated distressed park property.