Northeast Utilities

107 Selden Street, Berlin, CT 06037

Northeast Utilities Service Company
P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000
www.nu.com

December 12, 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-007, 013, 014

Response to OCC-01 Interrogatories dated 10/21/2011
OCC-009, 015, 016, 017

Very truly yours,

John Morissette Jr

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

cc: Service List

Witness: Raymond L. Gagnon
Request from: Connecticut Siting Council

Question:
Are there any updates or changes to the factors provided in the 2006 Council interrogatories that have an impact on CL&P's underground transmission line capital costs? If so, please identify these factors and the impacts they have on transmission line life-cycle costs.

Response:

The factors identified in the 2006 Council interrogatories, specifically CSC-02, Q-CSC-005, that can affect underground transmission line capital costs remain the same with similar impacts. There are no updates or changes to the factors provided in the 2006 Council interrogatories.

Witness: Anthony W. Johnson III
Request from: Connecticut Siting Council

Question:
Has CL&P's use of herbicides or growth retardants changed in any way since the 2006 CSC interrogatories? If so, please describe these changes and their effect on transmission line life-cycle costs.

Response:
No, the use of herbicides for controlling vegetation on CL&P's transmission rights-of-way has not changed since CL&P's submitted its response in December 2005 to CSC-02, Q-CSC-010. CL&P does not employ growth retardants as part of its vegetation management program.

Witness: Anthony W. Johnson III
Request from: Connecticut Siting Council

Question:
Have there been any additional regulations, policy changes or other factors that may impact the environmental or safety costs associated with CL&P's use of herbicides or growth retardants? If so, please identify the regulations or policy changes and discuss the effects they have had on life-cycle costs.

Response:
There have been no additional regulations, policy changes or other factors that have impacted the environmental or safety costs associated with the use of herbicides by CL&P. As noted in the response to CSC-02 Q-CSC-013, CL&P does not employ growth retardants as part of its vegetation management program.

Witness: Keith M. Sickles
Request from: Office of Consumer Counsel

Question:
Has CL&P used polymer insulators? If so, detail the company's experience with them.

Response:
Non-ceramic insulators (NCIs) were used on the 115-kV Lines associated with the Middletown-Norwalk and Bethel to Norwalk projects. The total number of NCIs installed on these projects is estimated to be approximately 2600. Other older lines constructed in the late 1980s through the 1990s account for about another 1100 NCIs. These NCIs have operated satisfactorily to date.

CL&P has had two failures of NCIs, both due to brittle fracture on its older lines (Southington to Cook Hill Junction). These failures happened early in the insulators' expected lives. Inspection and testing by EPRI of other NCIs on CL&P's system revealed that NCIs in a dead-end configuration experience degradation and resultant moisture intrusion in the fiberglass rod. This degradation led CL&P to replace older NCIs installed in this configuration.

Some manufacturers of NCIs have recently required the use of corona rings on 345-kV and 115-kV NCIs to prevent corona cutting. These issues coupled with the fact that live line work cannot be performed on lines with NCIs has led CL&P to no longer use NCI's on its transmission system.

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

Question:
Ref. Life Cycle 2007 Report, pp. 45 and 46. Provide a breakdown of dollar amounts for each of the items included in the Administrative category.

Response:
The Administrative category includes items such as legal costs, Siting and Permitting, Project Management and System Planning as well as other categories that are general in nature but specific to a project.

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

Question:
Ref. Life Cycle 2007 Report, p. 57. Regarding the Glenbrook Cables project's empty duct that ISO-New England localized to Connecticut ratepayers: Compare and contrast the cost of the empty duct with the duct-related costs on p. 57 in the 2007 Report. Explain and quantify the cost differences.

Response:
The first-cost information on page 57 of the 2007 report is for a 345-kV, Underground, XLPE, Double-Circuit Line using six 3000-kcmil cables, information that was provided in CL&P's response to an 11/23/2005 data request. CL&P's purpose in providing that cost estimate was to provide an estimate for a mile of this type of line in relatively favorable construction conditions, to be as fair as possible to underground lines in the Council's cost comparison. Such cost estimates therefore assume a trenching pace of at least 50 feet per day per crew with few needs to excavate deeper to pass beneath crossing obstacles. CL&P's underground portion of the Middletown-Norwalk project was completed a few years later and used a design very much like that depicted on page 56 of the 2007 Report, with two additional small conduits. The actual costs for this line on land were approximately $24.3 million/mile, a figure that is higher than the cost on page 57 of the 2007 Report owing largely to a slower trenching pace, in large part due to high rock quantity along the route and 52% of the route requiring trench depths of greater than 8 feet to pass by obstacles.

The underground cables portion of the Glenbrook Cables Project ("GCP") cost approximately $23.4 million/mile. This figure is slightly less than the underground 345-kV cables cost on the Middletown-Norwalk Project ("MN"), notwithstanding that the GCP duct bank included three additional (spare) conductor conduits (8-inch diameter), three additional small conduits for grounding and communications cables, and an additional splice vault at every cable-splice location. While the six 115-kV XLPE cables installed on GCP have cost less than the six 345-kV XLPE cables installed on MN, this total cost comparison reveals that, all else equal, the per-mile installed cost of the GCP duct bank was similar to the cost of the MN duct bank.

In underground transmission construction, the civil work typically accounts for the bulk of the cost. Because the GCP duct bank was somewhat taller than the MN duct bank, its trenching costs would be higher, all else equal. But a more significant factor in the trenching costs is the quantity of rock encountered along the route and the number of underground obstacles which require deeper excavations to cross under. Along the GCP and MN cable routes, these factors slowed the pace of construction progress to less than 50 feet per day per crew, causing higher costs.

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

Question:
Explain how the cost of line losses is calculated and illustrate with an example of the calculation formula .

Response:
The method to calculate the cost of line losses is shown in Section 7.5 of the Life Cycle 2007 report.