



**Northeast
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**CONNECTICUT
SITING COUNCIL**

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 OCC-01 Interrogatories dated 10/21/2011
OCC-006-RV01

Very truly yours,

John Morissette /tr

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

cc: Service List

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:

In this revised response, only part (b) is changed.

(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 \$1 million. 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 is approximately \$6.5 million. CL&P and UI together have installed nine 345-kV three-phase shunt reactors on the 345-kV transmission system, two of which are installed at the ends of 345-kV HPFF cables, and seven of which are installed at the ends of 345-kV XLPE cables. Using the generic cost estimate of \$6.5 million and the entire existing cable lengths (including UI's portion of the Middletown to Norwalk cables), the approximate average cost for a new 345-kV shunt reactor would be: \$873 thousand per mile of three XLPE transmission cables, and \$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.

(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.