March 2, 2004

Ms. Pamela B. Katz
Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. 272 - Middletown-Norwalk 345kV Transmission Line

Dear Ms. Katz:

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

With this filing, the Company has completed responding to all of the interrogatories requested during this proceeding.

Response to D-W-02 Interrogatories dated 01/28/2004
D-W - 059 , 060 , 061

Very truly yours,

Anne B. Bartosewicz
Project Director - Transmission Business

ABB/tms
cc: Service List

Witness: **Peter T. Brandien**
Request from: **Towns of Durham and Wallingford**

Question:
Reference the CL&P/UI response to Data Request D-W-01, Question D-W-016(c). Provide specific page and quotation references in the GE studies attached as exhibits b, c and d of the Companies Supplemental Filing dated December 16, 2003 which form the basis for the conclusion that the addition of these "seven miles" of additional underground cable would be highly undesirable from a reliability and operability point of view.

Response:
The reports and analyses in total form the basis for the conclusion that the addition of underground cable is undesirable from a reliability and operability point of view. The reports indicate that the proposed 345-kV cable project would have significant harmonic resonance issues, power quality concerns, and potential challenges for equipment duty.

The Executive Summary (pages E1 thru E3) in the report titled Connecticut Cable Transient and Harmonic Feasibility Study - Final Report dated March 2003 performed by General Electric Power Systems Energy Consulting (Attachment B to the Supplemental Filing made on December 16, 2003) contains a description of the results and GE's conclusion on the impact of the proposed transmission line design on the electric power system.

The Executive Summary (pages E1 thru E3) in the report titled Connecticut Cable Transient and Harmonic Study for Middletown to Norwalk Project East Devon - Beseck 40-mile Cable Option - Final Report dated November 2003 performed by General Electric Power Systems Energy Consulting (Attachment C to the Supplemental Filing made on December 16, 2003) contains a description of the results and GE's conclusion on the impact of the proposed transmission line design on the electric power system.

The Executive Summary (pages E1 thru E3) in the report titled Connecticut Cable Transient and Harmonic Study for Middletown to Norwalk Project East Devon - Beseck 20-mile Cable Option - Final Report dated December 2003 performed by General Electric Power Systems Energy Consulting (Attachment D to the Supplemental Filing made on December 16, 2003) contains a description of the results and GE's conclusion on the impact of the proposed transmission line design on the electric power system.

The Companies concerns with respect to system operability with added underground transmission line segments are not limited soley to the characteristics evaluated in the GE reports. See the Companies Application, Volume 1, Section H - Operability Limitions on pp H-8 and H-9 for a discussion of these issues.

Witness: **Anne Bartosewicz**
Request from: **Towns of Durham and Wallingford**

Question:
Reference the CL&P/UI response to Data Request D-W-01, Question D-W-004.

a. Please state whether CL&P/UI have any analyses, studies, reports, or documents, other than the referenced one line diagram, that formed the basis for its decision to dismiss the alternative under street route between Oxbow Junction and Beseck Switching Station.

b. If the answer to part a. is yes, please provide copies of all such materials.

Response:
The matters discussed in answer to D-W-01, Q D-W-004 reflect fundamental technical bases of system design. A formal report, study or analysis was not necessary to determine the feasibility of an understreet route between Oxbow Junction and Beseck Switching Station. As stated in that interrogatory answer, "this judgment was based on engineering knowledge and the configuration of the transmission system ." The basis for the judgment is stated in the response to that question.

Witness: **Peter T. Brandien**
Request from: **Towns of Durham and Wallingford**

Question:
Reference the CL&P/UI response to Data Request D-W-01, Question D-W-035(f).

a. Please provide copies of the analyses, studies, evaluations, and reports which examined the impact that underground construction of the 345-kV lines into the Beseck Substation (excluding the Beseck to East Devon line) would have on any or all of the following:
   (i) the output of the Millstone Generating Station.
   (ii) the reliability of the off-site power to the Millstone nuclear Generating Station.
   (iii) grid reliability.

b. Provide copies of the analyses, studies, evaluations and reports which form the basis for the statement that "Installing a small underground section, without additional switching stations, in the existing 345-kV line from Millstone would require the Companies to remove automatic closing operations and require manual on-site inspections of the entire 345-kV line prior to reenergizing the line."

Response:
a & b:
The Companies determined that it was undesirable to consider undergrounding portions of these lines that could adversely impact Millstone Station on the basis of their knowledge of the transmission grid, without the need for written studies or analyses. Accordingly, the Companies did not undertake studies of the use of underground construction for the new portion of the 345-kV line into Beseck Substation from Millstone Station.

The general knowledge upon which this judgement was based included the following:
Faults on underground cable systems are virtually always permanent, and energizing a permanently faulted cable can result in significant additional damage. Installing a small underground section, without additional switching stations, in the 345-kV line section from Millstone would require the Companies to remove automatic reclosing operations and require manual on site inspections of the entire 345-kV line prior to reenergizing the line. Automatic reclosing is typically used in overhead line construction where momentary faults occur primarily due to lightnening strikes to the sheild wire, conductor, or structure. The line can be restored quickly by closing the circuit breakers at the terminals of the transmissin line. In the event that the fault is permanent, the protective relaying scheme would detect the continuing faulted condition and open the circuit breaker(s). This condition would not likely result in additional and substantial damage to overhead equipment unlike underground systems.

This inspection and repair operation could take a significant amount of time. This outage would remove a source for power flow in (off-site power) and out of Millstone Station. The station would now only be fed by three 345-kV lines. Removing a 345-kV transmission line from a major generating station like Millstone can adversely impact grid reliability by increasing the reliance on alternative transmission paths that may not be designed to support such power transfers. Following this outage the power system would be readjusted to maintain security of the interconnected network that could include a restriction in the output from the station depending on system conditions.