



**Northeast
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SITING COUNCIL

November 19, 2009

Mr. S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. 370 - CT Greater Springfield Reliability Project

Dear Mr. Phelps:

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

Response to CSC-03 Interrogatories dated 11/06/2009
CSC-001, 002, 003, 004, 005, 006

Very truly yours,

Robert Carberry

Robert Carberry
Project Manager
NEEWS Siting and Permitting
NUSCO
As Agent for CL&P

cc: Service List

Witness: CL&P Panel
Request from: Connecticut Siting Council

Question:

Assuming that the present 345 kV Manchester to North Bloomfield to Ludlow 3-terminal line is replaced by two 2-terminal lines: Manchester North Bloomfield and Manchester Ludlow:

- a. Quantify the import capability of the interface between Connecticut and the rest of New England:
 - i. under normal conditions;
 - ii. under N 1 conditions; and
 - iii. under N 1 – 1 conditions.

Compare the values with the comparable transfer capability as proposed in the application .

- b. Would any changes to the 115 kV system be necessary to accomplish these 345 kV connections? If so, please explain.
- c. How would the system stability be affected by this assumed configuration? Please qualitatively explain.
- d. Are there other benefits and liabilities associated with the assumed change? (ex. reduced line losses, avoidance or delay in construction of other facilities.) Explain.

Response:

- a. The Company estimates the following Connecticut Import interface limits for the project as proposed (maintaining the 3-terminal 395 circuit) and also assuming the present 345-kV Barbour Hill-North Bloomfield-Manchester 395 circuit is replaced with two 2-terminal 345-kV circuits, North Bloomfield-Manchester and Barbour Hill-Manchester.

<u>proposal</u>	<u>As Proposed (3-terminal 395 circuit) Increased import capability</u>	<u>New two 2-terminal</u>
N-1 Conditions	2,740 MW 20 MW	2,760 MW
N-1-1 Conditions	1,990 MW 120 MW	2,110 MW

The Company performed these transfer analyses using standard planning and operating methods. This includes the use of contingencies to determine N-1 and N-1-1 transfer limits. Normal conditions and N-1 conditions are the same in that the system is normally operated in anticipation of an N-1 event.

The new two 2-terminal proposal increases the Connecticut Import interface between 20 and 120 MW's for the cases tested by the Company. A more detailed power-flow analysis to determine the exact range of transfer capability must be performed by ISO-NE. The calculated increases may be reduced based on power transfers between eastern and western New England (East - West Interface).

b. Some relocations of 115-kV circuits sharing the right-of-way north of Manchester Substation must be performed to accommodate the construction of the new 345-kV circuit into the Manchester Substation. No system 115-kV circuits need to be modified or constructed for system performance reasons.

c. In this part of the Company's transmission system, this change in electrical configuration would cause no significant change to the dynamic performance of the system. The "As Proposed" project did not exhibit adverse stability performance or violations of reliability standards. The Company anticipates the new configuration would also not violate reliability standards.

d. Other benefits of the two, 2-terminal lines configuration include the following :

- This configuration allows the Company to schedule and perform maintenance at any of the three substation terminals while maintaining a bulk 345-kV circuit from western Massachusetts to the Manchester Substation.
- The long-term expansion plans for Connecticut include the construction of 345-kV loops to enhance reliability for the state. This is a general transmission planning philosophy used throughout New England that does not include the construction of any new 345-kV 3-terminal bulk-power circuits for long-term reliability purposes. In general it is advantageous to also remove existing 3-terminal circuits that limit power transfers and hinder more efficient operations of the bulk power network.

The Connecticut Light and Power Company
Docket No. 370

Data Request CSC-03
Dated: 11/06/2009
Q-CSC-002
Page 1 of 1

Witness: CL&P Panel
Request from: Connecticut Siting Council

Question:

Given the assumed change to the 345 kV lines to North Bloomfield and Ludlow (i.e., that the present 345 kV Manchester to North Bloomfield to Ludlow 3-terminal line is replaced by two 2-terminal lines: Manchester North Bloomfield and Manchester Ludlow), is there still a need to separate the existing 115 kV and 345 kV circuits between Manchester and Meekville Junction? Explain.

Response:

No. It is not necessary to separate the 115-kV and the 345-kV circuits that share towers between Manchester and Meekville Junction if the suggested modification to the project was made. There are no violations of reliability standards and criteria with this circuit sharing if there is a separate Manchester to North Bloomfield 345-kV line. The estimated net additional cost for this suggested modification is \$10 million, including substation costs.

The Connecticut Light and Power Company
Docket No. 370

Data Request CSC-03
Dated: 11/06/2009
Q-CSC-003
Page 1 of 1

Witness: CL&P Panel
Request from: Connecticut Siting Council

Question:

Given the assumed 345 kV reconfiguration in Data Request CSC-03, Q-CSC-003 and testimony that there is no record of any double-circuit outage on this existing 115 kV and 345 kV line of structures, do NERC and/or NPCC criteria allow for exceptions from separating circuits where only a few structures are involved? If so, describe in detail.

Response:

Section 3.1 of the ISO-NE Planning Procedure #3 states the following:

"Simultaneous permanent phase-to-ground faults on different phases of each of two adjacent transmission circuits on a multiple circuit transmission tower, with normal fault clearing. If multiple circuit towers are used only for station entrance and exit purposes, and if they do not exceed five towers at each station, then this condition and other similar situations can be excluded on the basis of acceptable risk, provided that the ISO specifically approves each request for exclusion. Similar approval must be granted by the NPCC Reliability Coordinating Committee."

This statement is found in the contingency assessment listing and provides ISO-NE guidance to transmission owners on the potential for seeking exemptions to the contingency assessment criteria based on a limited system exposure. NPCC's design criteria document includes a similar statement. Even though there may have been no previous double-circuit outages on this specific line of structures, these planning criteria make no reference to historical performance. The criteria assume that the plausible contingency could happen in the future. For this reason, extensive power-flow analyses must accompany an exemption request to ISO-NE and NPCC. The current proposed configuration of the 395 circuit would not qualify for an exemption because the existing number of double-circuit structures (16) is much more than the 5-structure limit.

Witness: CL&P Panel
Request from: Connecticut Siting Council

Question:

Would rebuilding (i.e., for the proposed Manchester-Meekville Junction circuit separation) still be required if both the 115 kV circuit (1448) and the 345 kV circuit (395) were ordered to be placed on new structures to "clean up the right of way?" Is there a cost at which such a requirement becomes unjustifiable?

Response:

The proposed separation of segments of the 1448 and 395 circuits between Manchester Substation and Meekville Junction involves building a new steel-pole line for the 1448 circuit while leaving the 395 circuit segment on existing lattice steel towers. As proposed, the former 1448 circuit conductors on the lattice steel towers would be bundled with the 395 circuit conductors to form a section of 345-kV split-phase line, per the Field Management Design Plan. If the 395 circuit segment was also rebuilt using steel monopole structures matching those of the new 1448 circuit segment, there would then be one remaining double-circuit 115-kV line on lattice steel towers on this right-of-way segment adjacent to the two new steel-pole lines.

Because there is no reliability need to rebuild this segment of the 395 line, the cost to so do would not qualify for regional cost allocation. This change would result in an estimated additional \$10.5 Million in project costs, additional wetland and environmental impacts and increases in magnetic field levels. The cost would be higher still if this 345-kV circuit segment was replaced by a split-phase line on steel monopoles to manage magnetic fields. And outages of the 395 circuit to rebuild the line in this segment would most likely also cause system congestion costs to Connecticut consumers. Permitting by the Army Corps of Engineers would also be at risk absent a reliability need. The outcome would not yield a right-of-way with all lines having a common structure type, the apparent objective of the question. CL&P perceives no justification for these extra costs in this instance.

Witness: CL&P Panel
Request from: Connecticut Siting Council

Question:

Please describe the history related to different projects that may have involved the reconductoring and possible expansion of the existing electric transmission right-of-way that is currently the subject of the Connecticut portion of the GSRP.

Response:

The Connecticut portion of the GSRP right-of-way was initially acquired in the early 1920's in order to build a double-circuit 69-kV line between the Agawam Substation of the Turners Falls Power and Electric Company and the South Meadow Station of the Hartford Electric Light Company. The initial right-of-way width in East Granby and Suffield, CT was 100 feet. The purpose of this line was to coordinate hydroelectric generation in Massachusetts with thermal generation in Springfield and Hartford. This pioneering interstate interconnection marked the formation of the Connecticut Valley Power Exchange, later to become CONVEX. The 69-kV lines employed 4/0 ACSR conductors, a first use of this conductor technology. In 1941-42, insulation upgrades were made to the two 69-kV circuits for 115-kV operation, and the circuits thereafter operated at 115 kV.

Sometime later the North Bloomfield Substation was constructed in Bloomfield, CT, and in 1957 a 115-kV line was constructed to make another interconnection with the Massachusetts transmission system. The existing 100-foot-wide right-of-way from North Bloomfield to Granby Junction was expanded on its west side to accommodate this new line.

In the late 1960's, a forecasted need to expand the then-young 345-kV transmission system led CL&P to acquire additional right-of-way in East Granby and Suffield along the east side of the existing right-of-way. That additional right-of-way has yet to be used for a transmission line. CSC Docket 11 concerning a 345-kV line from Manchester Substation to North Bloomfield Substation in 1977 highlighted long-term plans to build another 345-kV line from North Bloomfield Substation to Agawam Substation.

In the late 1970s, the two North Bloomfield to Agawam 115-kV circuits were bundled together to operate as a single circuit. Then in the late 1990s, with the addition of the Berkshire Power Generating Station in Agawam, MA and the multi-year shutdown of the Millstone Nuclear Power Station, the bundled circuit was returned to its original two-circuit design, however with reverse circuit phasing this time, and its conductors were replaced with 556-kcmil SSAC conductors (Reference CSC petition 362). Some structure modifications were also required at this time. These changes were some of several improvements made to quickly increase Connecticut's import capability during the extended loss of Millstone Station.

Witness: CL&P Panel
Request from: Connecticut Siting Council

Question:

Please describe the efforts that the Applicant takes within the company to ensure that employees have knowledge of possible transmission line expansion projects, particularly projects that might involve widening of the cleared area of the right-of-way, in order that the public is given factual and complete information when inquiries about such possible plans are made to the company.

Response:

The Company regularly updates its employees on current transmission line expansion projects, including by monthly project updates in the company's transmission newsletter for employees; by providing copies of customer service notifications of upcoming project-related work; and through website updates, and project briefings for field managers. Training sessions describing how to respond to residents' inquiries are held for project representatives, contractor field personnel and customer service representatives. For the NEEWS projects, presentations about the projects have been given to CL&P employees who have frequent customer interface in the communities affected by the NEEWS projects, and a 1-800 phone number has been developed exclusively for employees to call with questions. In addition, a NEEWS "IQ Quiz" is being sent to employees periodically to make sure the employee communications efforts are effective.

CL&P has provided several opportunities for the public to learn about its transmission projects including project web sites with email links to inquiries, and dedicated project "hotlines" (1-800 numbers), as well as mailers, door hangers, project brochures, and/or information kits with hotline and web site information. In addition, a comprehensive Stakeholder Inquiry Process has been instituted to address public stakeholder questions and concerns. Stakeholder contacts are acknowledged within 24 hours or the next business day, with the issue usually addressed within 72 hours. To ensure accuracy and consistency, each response is reviewed by subject matter experts and provided to the stakeholder by dedicated community relations personnel. Both the subject matter experts and community relations personnel are trained to be sensitive and responsive to residents affected by the proposed project. For areas where the widening of the cleared area of the right-of-way will be necessary, CL&P discusses the clearing process and potential impacts directly with the property owner.

In past years, when no major transmission project was underway (in siting or under construction), a customer call to CL&P's Customer Service Center would be answered by a representative who had no knowledge of future transmission project plans. The representative would most likely transfer or refer a caller to a Northeast Utilities manager or subject matter expert in the Transmission Group to get an answer to a transmission right-of-way or project question. The customer service representatives who answer calls are trained not to try to answer questions about plans for any specific transmission right-of-way. Subject matter experts to whom a caller may be transferred have been advised to respond that transmission project plans that could affect a right-of-way could arise at any time, and that neighbors should assume that the Company's rights along its rights-of-way are not limited to the existing lines there and may readily accommodate new line additions and/or line reconstruction.