# CRISTINO ASSOCIATES INC.

ELECTRICAL POWER SYSTEMS ENGINEERING
DESIGN, FORENSICS AND TRAINING

National Academy of Forensic Engineers


April 18, 2013

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



Re: Docket No. 426
Development and Management Plan
Third Taxing District Electric Department
6 Fitch Street
Norwalk, CT 06855

Dear Chairman Caruso:

Enclosed is an addendum that was inadvertently omitted from the original filing. It is a letter from Christopher P. Soderman, P.E. providing the Connecticut Light and Power Company analysis of the proposed interconnection alternatives.

You will notice that the letter was addressed to the current General Manager, James W. Smith, but the salutation is to "Mr. Leary." George Leary was the outgoing General Manager at the time.

Sincerely,

Joseph A. Cristino, P.E.

JAC/ch

Enclosures (21)


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August 15, 2012

James W. Smith
General Manager
Norwalk Third Taxing District – Electric Department
2 Second Street
East Norwalk, CT 06855

Subject: The Connecticut Light and Power Company's Steel Monopoles Proposed for the Interconnection to Norwalk Third Taxing District's Proposed Fitch Street Substation

Dear Mr. Leary,

On June 14, 2012, the Connecticut Siting Council (the "Council") held a public hearing in Docket No. 426 regarding the Norwalk Third Taxing District's ("TTD") application concerning its proposal to construct a 115/13.8-kV substation located on Fitch Street in the City of Norwalk (the "Substation") adjacent to the existing East Avenue Substation. During this hearing, the Council requested that The Connecticut Light and Power Company ("CL&P") investigate the possibility of guying the proposed two new structures together in order to reduce the diameter of the poles and reduce the overall cost of the transmission interconnection between CL&P's 115-kV transmission line and the Substation. This letter provides the results of CL&P's analysis and highlights the advantages and disadvantages of the two options.

The first option is CL&P's original proposal of utilizing self-supporting deadend steel monopoles installed on drilled shaft foundations. This option would provide the most reliability for the looped transmission line into the Substation because both structures would be completely independent and have no mechanical or electrical connection between them. However, this option would require the heaviest pole because the angle for the line to turn and enter the Substation would be approximately 90°. Based on recent project bids that we have received, the weight of these steel poles would be approximately 32,500 pounds each. Assuming a cost of $1.75 per pound for steel and $1.50 dollars per pound for installation, this represents a cost of approximately $106,000 for each of the installed poles. The tip diameter would be approximately 18 inches and a base diameter of approximately 72 inches.

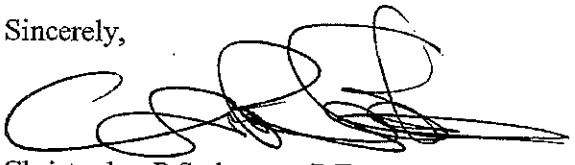
The second option would be to use lighter duty steel poles and tie both structures together with a guy wire. In order to electrically isolate the poles from each other, we would make use of insulating guy rods between the two poles. The poles would still support lower tension deadend loads heading towards the Substation, but would not support the heavy full tension loads that would be anticipated for the self-supporting structures.

Based on preliminary calculations using the "Petersen relationship" for pole weights, the weight of these poles would be approximately 20,000 pounds each. This would result in a cost of approximately $65,000 for each of the installed poles. This would represent about a 5% savings to the estimated total cost of the interconnection facilities. The cost to install the foundations, and preparation of the areas for both structures would be nearly same because most of the labor time would be based on mobilization and site preparation. Similar crane and drilling equipment would be needed for both options.

The diameter of the guyed poles at the tip would most likely be approximately 15 inches with a base diameter of 54 inches, which would be smaller than the self-supporting deadend structures. However, the smaller poles would also have an offsetting visual effect due to the guy wires with the insulating rods in between the two poles. Moreover, the smaller poles would lead to reduced reliability of service to the Substation because a failure of the guy wires between the two poles could result in the failure of both poles, causing interruption of the two circuits that supply the Substation. For that reason, using the guyed poles would compromise the enhanced reliability benefits of the "loop-through configuration" of the interconnection. (See the Council's August 9, 2012 Findings of Fact, Finding No. 75, which references the reliability benefits of the loop-through configuration.)

Based on this comparative analysis, the cost savings of 5% from the smaller, guyed poles and the minimal change in the visual profiles of the poles are outweighed by the reduced reliability of the interconnection to the Substation resulting from the smaller guyed poles. Consequently, CL&P recommends that the new poles be constructed as self-supporting structures because they will provide a more reliable interconnection to the Substation.

Sincerely,



Christopher P Soderman, P.E.
Senior Engineer
Transmission Line Engineering

CC: Bo Lindgren (NU)
Jeff Cochran (NU)
George Leary (TTD)