middletown | norwalk

VIA MESSENGER

March 15, 2004

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

Re: The Connecticut Light and Power Company and The United Illuminating Company Application for a Certificate of Environmental Compatibility and Public Need for the Construction of a New 345-kV Electric Transmission Line and Associated Facilities Between Scovill Rock Switching Station in Middletown and Norwalk Substation in Norwalk, Connecticut Including the Reconstruction of Portions of Existing 115-kV and 345-kV Electric Transmission Lines, the Construction of the Beseck Switching Station in Wallingford, East Devon Substation in Milford, and Singer Substation in Bridgeport, Modifications at Scovill Rock Switching Station and Norwalk Substation and the Reconfiguration of Certain Interconnections

Dear Chairman Katz:

In its Application to the Connecticut Siting Council (the "Council"), The Connecticut Light & Power Company ("CL&P") and The United Illuminating Company ("UI") (together, the "Companies") provided an assessment of electric and magnetic fields ("EMF") for the Project in Volume 6 of the Application. See "Electric and Magnetic Field Assessment" prepared by Exponent, Inc. (the "EMF Report"). Following submittal of the Application, the Companies determined that certain assumptions for the load flow analysis used in determining the proposed magnetic fields at various cross sections of the Project should be updated to reflect the information listed below:

1. The Companies' analysis was prepared before the Bethel to Norwalk transmission line (CSC Docket 217) was approved by the Council. Since the project has now been approved by the Council, the modeling has been updated to reflect the incorporation of the Bethel to Norwalk transmission line approved in Docket 217.

2. Also, since the Towantic Project has been withdrawn from the ISO-NE interconnection process, the modeling of load flows has been updated by adjusting the line loadings associated with the interconnection of Towantic.

3. The original 15 GW load flow analysis assumed a 200 MW import from Long Island on the 1385 cables. As the Connecticut Siting Council found in Docket 224: "The cables typically operate in a floating mode, meaning that there is no real power flowing from Connecticut to Long Island or vice versa." (FOF ¶ 10). "The primary purpose of the cable system is to provide power in the case of a contingency." (FOF ¶36). To better reflect typical system conditions, the flow on the 1385 cables has been changed to 0 MW.

4. The original 15 GW load flow analysis assumed some small generators to be in service, which are now deemed inappropriate for this load level. The output of these generators was set to zero.

With the above changes, the Companies have also created three separate models to reflect the individual line characteristics of the Proposed Route and Alternatives A and B. The modeled electric fields are unchanged by the updated load flow conditions. However, the updated load flow conditions have resulted in some increases and some decreases in the modeled magnetic fields.

Existing Transmission Lines – 15 GW Case

Exponent™ had calculated magnetic fields (included in Volume 6 of the Application) at the edge of the right of way ("ROW") of the proposed route for the existing transmission lines at the annual average loading of 15 GW that range from 0.5 mG to 35.6 mG along the various cross sections of the ROW. As a result of the changes in conditions discussed above, the magnetic fields at the edge of the ROW for the existing transmission lines are now calculated to range from 0.2 mG to 33.8 mG for the 15 GW case.

Proposed Configuration – 15 GW Case

Exponent™ had calculated magnetic fields (included in Volume 6 of the Application) at the edge of the ROW of the proposed route for the proposed configuration at the annual average loading of 15 GW that range from 1.7 mG to 31.5 mG along the various cross sections of the ROW. As a result of the changes in conditions discussed above, the magnetic fields at the edge of the ROW for the proposed configuration are now calculated to range 5.4 mG to 30.4 mG for the 15 GW case.

Existing Transmission Lines – 27.7 GW Case

In Volume 6 of the Application, Exponent™ did not calculate the magnetic fields for the existing transmission lines along the proposed route as the existing transmission lines would not support the projected load associated with the 27.7 GW case. Since, as a result of incorporating the changes identified above, the existing transmission lines, on a pre-contingency basis, would support the 27.7 GW case the calculated magnetic fields magnetic fields for the existing transmission lines are shown in the revised Table A-3.

Proposed Configuration – 27.7 GW Case

For the 27.7 GW case, Exponent™ had calculated magnetic fields (included in Volume 6 of the Application) at the edge of the ROW of the proposed route for the proposed

configuration that range from 5.5 mG to 58.8 mG along the various cross sections of the ROW. As a result of the changes in conditions discussed above, the magnetic fields at the edge of the ROW for the proposed configuration are now calculated to range from 3.0 mG to 60.4 mG for the 27.7 GW case.

The specific results of this modeling effort are set forth in the attached updated Tables 5, A-1, A-2 and A-3, which replace the corresponding tables on page 26 and in the Appendix of the EMF Report.

Very truly yours,

Anne Bartosewicz, Project Director
The Connecticut Light & Power Company

John J. Prete, Project Director
The United Illuminating Company

cc: Service List
Enclosure

SERVICE LIST
Docket: 272

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

Anthony M. Fitzgerald, Esq.
Brian T. Henebry, Esq.
Carmody & Torrance, LLP
50 Leavenworth Street
P. O. Box 1110
Waterbury, CT 06721-1110

Linda L. Randell, Esq.
Bruce L. McDermott, Esq.
Wiggin and Dana, LLP
One Century Tower
New Haven, CT 06508-1832

Norwalk Assoc. of Silvermine
Homeowners
c/o Leigh Grant
99 Comstock Hill Road
Norwalk, CT 06850

The Honorable Robert W. Megna
State Representative – 97th District
40 Foxon Hill Rd. #54
New Haven, CT 06513

The Honorable Al Adinolfi
State Representative – 103rd District
235 Sorghum Mill Dr.
Cheshire, CT 06410

Eric Knapp, Esq.
Branse & Willis, LLC
41-C New London Turnpike
Glen Lochen East
Glastonbury, CT 06033-2038

Julie Donaldson Kohler, Esq.
Hurwitz & Sagarin, LLC
147 North Broad St.
Milford, CT 06460

Peter G. Boucher, Esq.
Halloran & Sage, LLP
225 Asylum Street
Hartford, CT 06103

Janice M. Small, Esq.
Town Attorney
Wallingford Town Hall
45 South Main Street
Wallingford, CT 06492

Ms. MaryAnn Boord
First Selectwoman
Durham Town Hall
30 Townhouse Rd.
Durham, CT 06422

Mr. Louis S. Ciccarello
Corporation Counsel
P. O. Box 798
Norwalk, CT 06856-0798

Town of Westport
c/o Ira W. Bloom, Esq.
27 Imperial Ave.
Westport, CT 06880

The Honorable Mary G. Fritz
State Representative – 90th District
43 Grove St.
Yalesville, CT 06492

David A. Ball, Esq.
Cohen & Wolf, P.C.
1115 Broad Street
Bridgeport, CT 06604

Deborah L. Moore, Esq.
Legal Department
Meriden City Hall
142 East Main St.
Meriden, CT 06450

Atty. Michael C. Wertheimer
Assistant Attorney General
Office of the Attorney General
10 Franklin Square
New Britain, CT 06051

The Honorable Raymond Kalinowski
State Representative – 100th District
P.O. Box 391
Durham, CT 06422

Ms. Melanie J. Howlett
Associate City Attorney
Office of the City Attorney
999 Broad Street
Bridgeport, CT 06604

Ms. Trish Bradley, President
Mr. Ed Schwartz, Treasurer
Communities for Responsible Energy, Phase II
45 Ironwood Lane
Durham, CT 06422

Mr. Bruce Johnson
Litigation Attorney
Office of Consumer Counsel
10 Franklin Square
New Britain, CT 06051

The Honorable Themis Klarides
State Representative – 114th District
23 East Court
Derby, CT 06418

Lawrence J. Golden, Esq.
Pullman & Comley, LLC
90 State House Square
Hartford, CT 06103-3702

Anthony M. MacLeod, Esq.
Whitman, Breed, Abbott & Morgan, LLC
100 Field Point Road
Greenwich, CT 06830

Arthur W. Gruhn, P.E.
Chief Engineer, Bureau of Engineering
And Highway Operations
Department of Transportation
2800 Berlin Turnpike, P.O. Box 317546
Newington, CT Connecticut 06131-7546

The Honorable Kenneth A. Flatto
First Selectman
Independence Hall
725 Old Post Rd.
Fairfield, CT 06824

David A. Reif
Jane K. Warren
Joel B. Casey
McCarter & English, LLP
CityPlace I
Hartford, CT 06103

Monte E. Frank, Esq.
Cohen & Wolf, P.C.
158 Deer Hill Avenue
Danbury, CT 06810

Andrew W. Lord, Esq.
Murtha Cullina LLP
CityPlace I, 29th Floor
185 Asylum Street
Hartford, CT 06103-3469

Mitchell R. Goldblatt
First Selectman
Town of Orange
617 Orange Center Road
Orange, CT 06477-2499

Robert E. Earley
Connecticut Business & Industry Assoc.
350 Church Street
Hartford, CT 06103-1106

Richard J. Buturla, Esq.
Town Attorney
Berchem, Moses & Devlin, P.C.
75 Broad Street
Milford, CT 06460

Joaquina Borges King
Assistant Town Attorney
Hamden Government Center
2750 Dixwell Avenue
Hamden, CT 06518

Timothy P. Lynch
Deputy City Attorney
City Attorney's Office
245 deKoven Drive, P.O. Box 1300
Middletown, CT 06457-1300

The Honorable Derrylyn Gorski
First Selectwoman
Bethany Town Hall
40 Peck Road
Bethany, CT 06524-3378

William J. Kupinse, Jr.
First Selectman
Easton Town Hall
225 Center Road, P.O. Box 61
Easton, CT 06612

The Honorable William A. Aniskovich
State Senate—12th District
15 Grove Avenue
Branford, CT 06405

David J. Monz
Updike, Kelly & Spellacy, P.C.
One Century Tower
265 Church Street
New Haven, CT 06510

Updated Table 5 for the Electric and Magnetic Field Assessment:
Middletown-Norwalk Transmission Reinforcement report
March 12, 2004

Table 5. Edge of right-of-way magnetic field values for existing, proposed, and alternative line configurations

2007 annual average loading (15 GW)

Cross Section	Existing Magnetic Field (mG)		Route	Proposed Magnetic Field (mG)	
	East/South* ROW	West/North# ROW		East/South ROW	West/North ROW
Proposed 345-kV Overhead Route					
1	32.6	33.8	Proposed Alternative A Alternative B	29.0 22.9 29.8	18.7 18.1 17.5
2	9.2	13.9	Proposed Alternative A Alternative B	30.4 29.6 29.8	17.1 16.5 16.6
3	12.2	4.7	Proposed Alternative A Alternative B	5.9 6.0 5.5	12.9 14.2 15.0
4	6.1	11.9	Proposed Alternative A Alternative B	5.3 5.4 5.4	11.5 13.1 14.2
5	5.2	24.7	Proposed Alternative A Alternative B	15.9 14.3 13.2	27.8 27.1 26.4
6	0.2	1.2	Proposed Alternative A Alternative B	5.4 4.7 4.1	14.3 12.3 10.9
7 and 7a	0.4	4.4	Proposed Alternative A Alternative B	11.9 10.2 9.1	10.2 9.0 8.4
8 and 8b	6.2	2.8	Proposed Alternative A Alternative B	8.7 7.6 6.8	15.7 13.5 12.0
"Supported Changes" – 345-kV Overhead and Relocation of 115-kV to Underground					
7b *(25')*▽	0.4	4.4	Proposed	6.2	17.9
8a *(-20')*Ψ	6.2	2.8	Proposed	5.0	16.0
(-400') Ψ	6.2	2.8	Proposed	5.0	16.0
Proposed and Alternative Underground Line Routes+					
9 (HPFF) (East Devon to Singer) (Singer to Norwalk)	- na -	- na -	Proposed	0.2 0.2	0.2 0.2
9A (XLPE) (East Devon to Singer) (Singer to Hawthorne)	- na -	- na -	Alternative A	1.1 3.6	1.0 3.3
10 (XLPE) (Singer to Seaview Loop)	- na -	- na -	Alternative B	2.4	3.2

Updated Table 5 for the Electric and Magnetic Field Assessment:
Middletown-Norwalk Transmission Reinforcement report
March 12, 2004

Cross Section	Existing Magnetic Field (mG)		Route	Proposed Magnetic Field (mG)	
	East/South* ROW	West/North# ROW		East/South ROW	West/North ROW
Alternative 345-kV Overhead Line Routes					
11	2.3	8.5	Alternative B	3.2	7.4
12	7.1	30.9	Alternative B	8.0	25.8
13	2.8	1.5	Alternative B	4.9	8.3
14	48.4	5.2	Alternative B	22.5	9.6
15	62.2	59.9	Alternative B	22.5	16.4
16	55.7	51.2	Alternative B	12.5	22.6
17	40.8	40.9	Alternative A Alternative B	23.9 14.2	36.0 26.7
18	29.4	41.0	Alternative A Alternative B	31.0 27.5	39.9 34.7
19	57.1	8.7	Alternative A Alternative B	30.7 26.9	14.4 9.4
20	48.7	4.9	Alternative A Alternative B	75.9 67.0	13.1 9.0
21	13.1	5.9	Alternative A Alternative B	45.3 40.0	13.1 9.0
22	42.9	11.1	Alternative A Alternative B	75.9 67.0	13.1 9.0

* Identified in NU documentation as left ROW
# Identified in NU documentation as right ROW
▽ Distance from edge of ROW. +25' indicates 25' outside of the right (West/North) ROW.
Ψ Distance from edge of ROW. -20' *(or –400')* indicates 20' *(or 400')* outside of the left (East/South) ROW
\+ ROW edge taken as –20' left (East/South) ROW and +20' right (West/North) ROW

Updated Table A-3 for the Electric and Magnetic Field Assessment:
Middletown-Norwalk Transmission Reinforcement report
March 12, 2004

Table A-3. Edge of right-of-way magnetic field values for existing, proposed, and alternative line configurations

2007 annual average loading (27 GW)

Cross Section	Existing Magnetic Field (mG)		Route	Proposed Magnetic Field (mG)	
	East/South* ROW	West/North# ROW		East/South ROW	West/North ROW
Proposed 345-kV Overhead Route					
1	80.6	87.2	Proposed Alternative A Alternative B	57.3 57.8 52.8	44.3 43.4 42.1
2	14.8	22.2	Proposed Alternative A Alternative B	43.0 42.2 41.7	22.7 22.2 21.8
3	29.6	11.5	Proposed Alternative A Alternative B	14.3 14.1 13.3	5.9 8.3 8.4
4	13.7	22.0	Proposed Alternative A Alternative B	9.0 9.3 9.0	3.8 3.0 3.0
5	12.6	60.1	Proposed Alternative A Alternative B	48.5 46.5 43.1	61.3 60.3 59.1
6	0.9	6.6	Proposed Alternative A Alternative B	19.0 18.0 16.4	49.4 47.0 42.8
7 and 7a	4.6	34.3	Proposed Alternative A Alternative B	42.0 39.9 36.2	35.5 34.2 32.6
8 and 8b	44.0	25.4	Proposed Alternative A Alternative B	31.4 30.1 28.3	54.8 52.0 47.1
"Supported Changes" – 345-kV Overhead and Relocation of 115-kV to Underground					
7b *(25')*▽	4.6	34.3	Proposed	21.3	60.4
8a *(-20')*Ψ	44.0	25.4	Proposed	15.6	54.3
*(-400')*Ψ	44.0	25.4	Proposed	15.6	54.3
Proposed and Alternative Underground Line Routes+					
9 (HPFF) (East Devon to Singer) (Singer to Norwalk)	- na -	- na -	Proposed	0.3 0.2	0.3 0.2
9A (XLPE) (East Devon to Singer) (Singer to Hawthorne)	- na -	- na -	Alternative A	4.9 3.8	4.5 3.4
10 (XLPE) (Singer to Seaview Loop)	- na -	- na -	Alternative B	6.9	4.0

Updated Table A-3 for the Electric and Magnetic Field Assessment:
Middletown-Norwalk Transmission Reinforcement report
March 12, 2004

Cross Section	Existing Magnetic Field (mG)		Route	Proposed Magnetic Field (mG)	
	East/South* ROW	West/North# ROW		East/South ROW	West/North ROW
Alternative 345kV Overhead Line Routes					
11	4.8	9.3	Alternative B	9.3	15.2
12	73.6	19.8	Alternative B	36.8	44.9
13	39.1	49.1	Alternative B	19.0	36.2
14	8.0	0.3	Alternative B	54.1	5.6
15	10.9	6.8	Alternative B	54.1	10.1
16	71.9	63.9	Alternative B	29.7	14.9
17	43.0	46.0	Alternative A Alternative B	22.2 13.7	36.3 21.5
18	28.0	36.1	Alternative A Alternative B	37.5 31.5	44.7 37.0
19	50.8	49.7	Alternative A Alternative B	38.2 32.1	20.5 21.5
20	35.8	26.5	Alternative A Alternative B	102.4 87.0	25.1 25.1
21	14.6	29.0	Alternative A Alternative B	61.4 52.2	25.1 25.1
22	39.3	32.4	Alternative A Alternative B	102.4 87.0	25.1 25.1

* Identified in NU documentation as left ROW
# Identified in NU documentation as right ROW
▽ Distance from edge of ROW. +25' indicates 25 feet outside of the right (West/North) ROW.
Ψ Distance from edge of ROW. -20' *(or –400')* indicates 20' *(or 400')* outside of the left (East/South) ROW
\+ ROW edge taken as –20' left (East/South) ROW and +20' right (West/North) ROW.

Updated Table A-1 for the Electric and Magnetic Field Assessment: Middletown-Norwalk Transmission Reinforcement report March 12, 2004

Table A-1. Measured and Calculated Electric and Magnetic Fields at Boundaries of Facility Locations Categorized by the Connecticut Siting Council

The data in this table reflect measurements of electric and magnetic fields made at, or near, the closest boundary of the facility to the proposed line, and the calculated contribution from the existing transmission lines (if any) and proposed transmission line to field levels at that boundary.

Location[#]	Cross Section	Aerial Segment	Category	Measurements of Fields from Existing Transmission Lines & Other Sources			Calculated Fields from Existing & Proposed Transmission Lines (Transmission Line Sources Only)					
							Existing			Proposed		
				Measurement Location to ROW[+] (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)		Electric Field (kV/m)	Magnetic Field (mG)	
								Average Load*	Peak Load**		Average Load*	Peak Load**
Overhead Lines												
Connecticut Baptist Home Meriden 06450	3	12	Assisted Living Facility	115	0.05	4.1	0.09	1.8	4.4	0.19	2.6	0.7
B'Nai Jacob Congregation Woodbridge 06525	8	34	Playground/School	in ROW	0.81	7.5	1.48	4.8	35.5	2.72	30.6	106.9
Peck Place School Orange, CT 06477	8	40/41	Playground/School	-500	0.01	0.2	0.00	0.1	0.3	0.01	0.3	0.9
Eisenhower Park Milford 06460	8	42	Bleachers/Playing field	24	0.12	4.6	0.05	1.7	14.0	0.84	9.8	34.0
Underground Lines												
Little Lamb Day Care Bridgeport 06608	9	51	Day Care Facility	3	- na -	1.5	- na -	- na -	- na -	- na -	0.2	0.2
Washington Park Bridgeport 06608	9	51/52	Park / Playground	0 Barnum Ave	- na -	0.8	- na -	- na -	- na -	- na -	0.2	0.2
Winslow Park Westport 06880	9	61	Park	5	- na -	2.2	- na -	- na -	- na -	- na -	0.2	0.2

\+ Distances are best estimates based upon measurements (where possible) or distances scaled from aerial photographs.
\# For locations within 500 feet of overhead line or 100 feet of underground line
* 15 GW Load Case (typical system loading in 2007)
** 27 GW Load Case (hour with the highest system loading in 2007)
- na - Not applicable

Updated Table A-2 for the Electric and Magnetic Field Assessment: Middletown-Norwalk Transmission Reinforcement report March 12, 2004

Table A-2. Summary of Calculated Electric and Magnetic Fields at Facility Locations Categorized by the Connecticut Siting Council

The data in this table reflect calculations of electric and magnetic fields at the nearest and most distant sides of the facility, or in the case of parks and playgrounds, the nearest and furthest boundaries from existing transmission lines (if any) and proposed transmission line.

Location#	Cross Section	Aerial Segment	Category	Depth of Facility Perpendicular to Future ROW+ (ft)	Calculated Fields from Existing & Proposed Transmission Lines (Transmission Line Sources Only)					
					Existing			Proposed		
					Electric Field (kV/m)	Magnetic Field (mG)		Electric Field (kV/m)	Magnetic Field (mG)	
						Average Load*	Peak Load**		Average Load*	Peak Load**
Overhead Lines										
Connecticut Baptist Home Meriden 06450	3	12	Assisted Living Facility	110 to 460	0.09 to 0.02	1.9 to 0.4	4.6 to 1.0	0.19 to 0.03	2.8 to 0.3	0.7 to 0.1
B'Nai Jacob Congregation Woodbridge 06525	8	34	Playground/School	-20 to -320	0.31 to 0.01	3.5 to 0.1	22.5 to 0.7	0.14 to 0.01	5.6 to 0.5	18.7 to 1.7
Peck Place School Orange 06477	8	40/41	Playground/School	-500 to -850	0 .00	0.1 to 0.0	0.3 to 0.1	0.01 to 0.00	0.3 to 0.1	0.9 to 0.4
Eisenhower Park Milford 06460	8	42	Bleachers/Playing field	0 to 250	0.62 to 0.02	2.8 to 0.2	25.4 to 0.8	1.48 to 0.04	15.7 to 0.9	54.8 to 3.2
Underground Lines										
Little Lamb Day Care Bridgeport 06608	9	51	Day Care Facility	125 to 175	- na -	- na -	- na -	- na -	0.0	0.0
Washington Park Bridgeport 06608	9	51/52	Park/Playground	0 to -285	- na -	- na -	- na -	- na -	0.2 to 0.0	0.2 to 0.0
Winslow Park Westport 06880	9	61	Park	5 to 780	- na -	- na -	- na -	- na -	0.2 to 0.0	0.2 to 0.0

\+ Distances are best estimates based upon measurements (where possible) or distances scaled from aerial photographs
nc Not calculated, loading data not provided
na Not applicable
\# For locations within 500 feet of overhead line or 100 feet of underground line
* 15 GW Load Case (typical system loading in 2007)
** 27 GW Load Case (hour with the highest system loading in 2007)