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September 24, 2004

VIA HAND DELIVERY

Ms. Pamela Katz
Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06501

Re: Docket No. 272

Dear Chairman Katz:

Enclosed are the original and twenty (20) copies of the Supplemental Direct Testimony of Roger Zaklukiewicz, Anne Bartosewicz, and John Prete regarding the East Shore Route.

Very truly yours,

Brian T. Henebry

BTH/da
Enclosure

cc: Service List

{W1319559}

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STATE OF CONNECTICUT

SITING COUNCIL

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	)	Docket 272 September 24, 2004

SUPPLEMENTAL DIRECT TESTIMONY OF ROGER ZAKLUKIEWICZ, ANNE BARTOSEWICZ, AND JOHN PRETE REGARDING THE EAST SHORE ROUTE

INTRODUCTION

Q. Have The Connecticut Light and Power Company and The United Illuminating Company ("the Companies") previously filed direct testimony regarding the East Shore Route?

A. Yes, the Companies filed direct testimony regarding the East Shore Route dated May 25, 2004 (hereinafter "Companies' East Shore Prefiled Testimony") (Exhibit 91). In addition, the East Shore Route was discussed during the hearings held on June 2-3, 2004, during which the Companies gave a visual presentation regarding the East Shore Route (Exhibit 101).

Q. Please summarize your prior testimony regarding the East Shore Route.

A. The Companies have concluded that the East Shore Route would require the construction of a second 345-kV line on the ROW occupied by the existing 387 line (i.e., the "second-line option"). The Companies reached this conclusion on the basis of power flow studies conducted by PowerGEM.[1] (Companies' East Shore Prefiled Testimony at 3-7). As part of their analysis of whether a second 345-kV line would be required as part of any East Shore Route, the Companies evaluated whether all or a portion of the existing 387 line could be reconductored in order to produce a "single line" East Shore Route that would satisfy reliability criteria. The Companies concluded that even a reconductored 387 line would not satisfy such criteria. (Id. at 6-7).

The Companies also reviewed the viability of a "two-line" East Shore Route using a variety of routing alternatives and ultimately concluded that the East Shore Route would require more undergrounding (and therefore would pose reliability and operability disadvantages in comparison to the Proposed Route), would cost significantly more than the Proposed Route, would involve commensurate or greater environmental impacts, and would have to be located in the vicinity of approximately the same number of schools, residential areas, and other facilities referenced in P.A. 04-246 as the Proposed Route. (Id. at at 28-29).

As a result, the Companies concluded that none of the potential East Shore Routes were "technically, environmentally and economically practical" so as to merit consideration by the Siting Council as an alternative route. (Id.)

[1] As of the June 2-3 hearings on the East Shore Route, the Companies had filed eight thermal load flow studies by PowerGEM regarding the East Shore Route. Studies 1-7 had been filed as attachments to Addenda #1, 2, and 3 to the Supplemental Filing. (*See* Companies' East Shore Prefiled Testimony at 5-6) Study #8 was filed as the Companies' supplemental response to D-W-01, Q-D-W-016-SP01, which was filed on May 28, 2004.

ADDITIONAL POWERGEM STUDIES REGARDING THE EAST SHORE ROUTE

Q. Following the discussion of the East Shore Route at the hearings conducted on June 2-3, 2004, did the Companies commission additional power flow studies by PowerGEM?

A. Yes, the Companies asked PowerGEM to prepare four additional studies (Studies 9-12) regarding the East Shore Route. Study #9 was filed as part of Addenda #4 to the Supplemental Filing dated July 22, 2004, while Studies 10, 11, and 12 were attached to Addenda #5 to the Supplemental Filing dated September 21, 2004.

Q. Why did you conduct these additional studies?

A. PowerGEM prepared power flow studies of three different variations on potential "single line" East Shore Route configurations (Studies 9, 11, and 12) that were suggested during the testimony of the Towns' consultant, David Schlissel on June 3, 2004. (6/3/04 Tr. at 40-43, 105). Additionally, a fourth study (Study 10) was conducted to supplement the Companies' review of configurations involving the construction of a second 345-kV line into East Shore.

Q. Please describe these additional PowerGEM studies and their results.

A. We will address each of these studies separately:

Study 9: (PowerGEM Report 10021.001-9)

This study summarizes the power flow analysis of a "single line" East Shore configuration that would employ an upgraded 387 line reconductored with a bundled Genessee conductor and looped into Beseck Switching Station. The study concludes that, despite this reconductoring, the Beseck to East Shore section of the 387 line remains

above its normal rating. In addition, the 345-kV Southington-Frost Bridge line exceeds its emergency rating.

Study 10 (PowerGEM Report 10021.001-10):

This study analyzes a configuration that involves the construction of a new 345-kV line from the new Beseck Switching Station into the East Shore Substation, similar to that of the proposed Project. From the East Shore Substation, this configuration includes three new underground circuits to East Devon Substation, Singer Substation, and Norwalk Substation. In addition, the limiting portion of the existing 387 line between Scovill Rock and East Shore is reconductored with 2-954 ACSR conductors. With the exception of the reconductoring of the 387 line, this is the same system configuration that was tested in Study 8, which the Companies filed on May 28, 2004 (Response to D-W-01, Q-D-W-016-SP01).

The results of Study 10 are almost identical to Study 8, with minor differences attributable to the change in impedance due to reconductoring the 387 line. Since this configuration adds a second line from the Middletown area to East Shore, it provides very similar steady state performance compared to the proposed Project.

Study 11 (PowerGEM Report 10021.001-11):

This study tests a configuration that involves the construction of a new Beseck Switching Station but does not connect the 387 line into Beseck. The study assumes that no new line is built from Beseck to East Shore Substation. The configuration also assumes that new underground circuits are added from East Shore Substation to East Devon Substation, Singer Substation, and Norwalk Substation. This configuration also

assumes the replacement of the existing conductor on the 387 and 329 lines with Genessee conductor.

The results of this study indicate that there are 345-kV overloads and 115-kV overloads predominantly in the Southington and Frost Bridge corridors. These overloads were not seen in Studies 8 and 10 because those configurations assume the construction of a second 345-kV line. This study shows that, without the new line from the Middletown area to East Shore, power is still attempting to reach southwest Connecticut via the 115-kV network under some contingency conditions, rather than the 345-kV network.

Study 12 (PowerGEM Report 10021.001-12):

This study analyzes a configuration that involves the construction of a new Beseck Switching Station, and then connects the 387 line into Beseck. This configuration creates a Scovill Rock to Beseck to East Shore path. The limiting portion of the 387 line was assumed to be replaced with 2-954 ACSR conductors.

The study shows that the 387 line between Beseck and East Shore is overloaded in the base case. Otherwise, the configuration performs very similar to the configuration tested in Study 9 (Exhibit 131). Both Study 9 and Study 12 have 345-kV overloads, as well as a number of 115-kV overloads in the Southington and Frost Bridge corridors.

Q. What did you conclude as a result of these additional studies.

A. These studies further corroborated our conclusion that any East Shore Route would require the construction of an additional 345-kV line to the East Shore Substation.

HOMEWORK ASSIGNMENT REGARDING "PROS AND CONS OF AN UNDERGROUND ROUTE ALONG ROUTE 1 FROM EAST SHORE SUBSTATION TO EAST DEVON SUBSTATION

Q. During the June 2nd hearing, the Companies were asked to report to the Council on the "pros and cons" of an underground Route along Route 1 from East Shore Substation to East Devon Substation. (Tr. 6/2/04 at 220) Please report on this "homework" assignment?

A. The Companies performed a "high level" constructability analysis of an underground route from East Shore to East Devon principally along Route 1. This investigation took the form of field reviews and discussions with the Cities of New Haven and West Haven. (Because both Orange and Milford had previously expressed a preference for the use of Route 1, no further discussions were held with those towns and it is assumed that they would fully cooperate with the Companies regarding all aspects of construction such as lane closures, traffic control, and working hours.) The route investigated follows Forbes Avenue, Water, Street, and Columbus Avenue in New Haven to the New Haven/West Haven border, where it is again designated as Route 1.

The Cities of New Haven and West Haven are adamantly opposed to an East Shore Route along Route 1. The City of New Haven contends that there is no technically viable route from Waterfront Street, where the East Shore Substation is located, to the West Haven border. The concerns raised by New Haven include, but are not limited to: (1) the disruption of multiple existing underground facilities (gas, sewer, and water, as well as jet fuel lines along Waterfront Street); (2) interference with the Pearl Harbor Memorial Bridge reconstruction and railroad reconstruction along Waterfront Street; (3) concerns regarding the limited amount of room available along

centuries-old city streets for the two six-foot wide openings that would be required, as well as the fragility of older utility infrastructure located in New Haven streets. The Companies agree that, given the amount and age of utility facilities in New Haven streets and the width of some of these streets, the constructability issues are serious.

The West Haven representatives had three major concerns: (1) the disruption of multiple existing underground facilities; (2) the need to blast in densely developed commercial areas; and (3) construction impacts on businesses.

Additional negative aspects of an East Shore to East Devon underground route along Route 1 include:

- There are a total of 6 subsurface water crossings, all of which are avoided by the Proposed Route:
    - Using Forbes Avenue would require a 1200' water crossing at the junction of the Mill River and Quinnipiac River. This area is very limited in terms of set up room and thus might require takings to conduct a horizontal directional drill;
    - A water crossing of the West River would be required, and there is very limited set up room for this crossing;
    - Crossings would be required at the Cove, Indian and Wepawaug Rivers and at Beaver Brook.
- Two Metro North Railroad crossings would be required (these crossings are not needed for the Proposed Route).
- Two separate duct lines carrying a total of three cable circuits would be required. The finished width of each ductline would be approximately 40 inches and would

require a street opening for construction of at least 6 feet, for a total opening of 12 feet;

- Water Street in New Haven is narrow with multiple utilities in the street, including 3 – 115kV circuits feeding Water Street Substation, a major distribution facility for New Haven.
- Portions of Columbus Avenue in New Haven are residential.
- There are significant grade changes near the University of New Haven in West Haven, as well as evidence of ledge.

There are some limited constructability "pros" of an underground route along Route 1, specifically: (1) Route 1 is mainly four lanes wide once it leaves New Haven; (2) Route 1 provides the shortest route between East Shore and East Devon; (3) the vast majority of use along Route 1 is commercial, but not until after Route 1 leaves New Haven; and (4) the route is relatively straight. These "advantages", however, are far outweighed by the constructability challenges discussed above.

UPDATED TABLE REGARDING PROPOSED ROUTE VS. EAST SHORE ROUTE

Q. Have the Companies updated the table entitled "Comparative Analysis 'Proposed Route' vs. 'East Shore Shore Route'" (Applicants' Exhibit 104), which was provided to the Council during the June hearings?

A. Yes, on September 20th the Companies filed an updated version of Exhibit 104, which compares the Proposed Route and two different variations of the East Shore Route, with one variation assuming an all-underground line between East Shore and East Devon and the other assuming a combination of underground and overhead facilities

from East Shore to East Devon. The table compares these routes in terms of cost, acres of clearing, the number of homes within 150', and the number of non-residential "statutory facilities" within 1200'.[2] A copy of this table is attached as Exhibit 1.

Q. Please summarize the changes and additions to Exhibit 104?

A. The estimates for cost and acres of clearing are unchanged. We have provided both new and updated information with regard to homes and statutory facilities for both the Proposed Route and the two variations of the East Shore Route. The updated table demonstrates that, in comparison to the Proposed Route, (i) an East Shore Route that includes both underground facilities and overhead facilities would require the siting of overhead lines in the vicinity of approximately the same number of homes and non-residential statutory facilities, and (ii) that an East Shore Route utilizing an all-underground configuration from East Shore to East Devon would reduce the number of homes within 150' and statutory facilities within 1200' of overhead lines, but substantial numbers of homes and statutory facilities would still be located within these stated distances from overhead lines.

CONCLUSION

Q. Has the Companies' position regarding the East Shore Route changed since the June hearings.

A. No. Our additional studies provide further evidence of our conclusion that the East Shore Route would require the construction of a second line. Moreover, the

[2] The 1200' measurement was the value used by the Attorney General in his interrogatories dated December 19, 2003 regarding the number of statutory facilities along the ROW. The Companies used the 1200' value for purposes of this table so that the Proposed Route and East Shore Route could be compared using the same criteria. The 1200' foot distance is not relevant for estimating exposures to transmission line magnetic fields.

East Shore Route would require more underground 345-kV lines (with the attendant harmonics and operability issues that underlie the ongoing efforts by ROC), cost substantially more than the Proposed Route, involve a similar or greater level of environmental impacts, and would not offer any substantial benefits in terms of the number of homes and other statutory facilities in the vicinity of the route.

EXHIBIT 1

June 3, 2004
Updated September 20, 2004

middletown | norwalk

Comparative Analysis "Proposed Route" vs. "East Shore Route"[3]

	Proposed			Beseck to East Devon with all UG from East Shore to East Devon			Beseck to East Devon with UG/OH from East Shore to East Devon		
	Segment			Segment			Segment		
	1	2	Total	1	Beseck/East Shore/East Devon	Total	1	Beseck/East Shore/East Devon	Total
Clearing Acres	40.2	54.9	95.1	40.2	150.0	190.2	40.2	150.0	190.2
Cost (Millions)[1]	$48.5	$140.1	$188.6	$48.5	$330	$378.5	$48.5	$295	$343.5
Homes within 150 feet	***95***	**440**	***535***	***95***	**234**	***329***	***95***	**462**	***557***
Sensitive Areas within 1200'[2]	***8***	**28**	***36***	***8***	**21**	***29***	***8***	**32**	***40***

[1] Includes Overheads and AFUDC

[2] Per Public Act 04-246 (except "residential areas")

[3] *Information for Clearing Acres, Homes within 150 feet and Sensitive Areas within 1,200' is only for the overhead portion of the route. The 1,200' distance is used because it is the value used by The Office of the Attorney General in interrogatories dated December 19, 2003 concerning the number of statutory facilities along the proposed route. The Companies used the 1,200' value when determining the Sensitive Areas for the East Shore Route so the Proposed Route and the East Shore Route could be compared using the same criteria. This distance is not relevant for estimating exposures to transmission line magnetic fields.*

Corrected information is shown in bold red type
New information is shown in bold italic blue type