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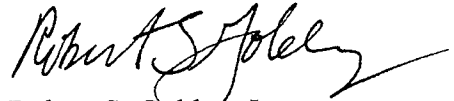
Daniel F. Caruso, Chairman  
Connecticut Siting Council  
10 Franklin Square  
New Britain CT 06051

RE: DOCKET 317: The United Illuminating Company application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a proposed 115-kV/13.8-kV electric substation and associated facilities located at 3-7 Wildflower Lane, Trumbull, Connecticut.  
Proposed Findings of Fact of The Connecticut Light and Power Company

Dear Chairman Caruso:

Enclosed please find an original and 20 copies of The Connecticut Light and Power Company's proposed Findings of Fact in the Connecticut Siting Council' Docket 317.

Very truly yours,



Robert S. Golden, Jr.

Copies to the service list  
PDF copy filed electronically

**LIST OF PARTIES AND INTERVENORS**  
**SERVICE LIST**

<b>Status Granted</b>	<b>Status Holder (name, address &amp; phone number)</b>	<b>Representative (name, address &amp; phone number)</b>
<b>Applicant</b>	The United Illuminating Company 157 Church Street P.O. Box 154 New Haven, CT 06506	<p>Richard J. Reed Vice President – Electric System The United Illuminating Company 801 Bridgeport Avenue Shelton, CT 06484 P: 203-926-4500 F: 203-926-4457 <a href="mailto:Rich.Reed@uinet.com">Rich.Reed@uinet.com</a></p> <p>Eugene Kallaur Program Manager Transmission &amp; Substation Projects The United Illuminating Company 801 Bridgeport Avenue Shelton, CT 06484 P: 203-926-4605 F: 203-926-4664 <a href="mailto:Gene.Kallaur@uinet.com">Gene.Kallaur@uinet.com</a></p> <p>Kathleen Shanley Director of Environmental Safety &amp; Real Estate The United Illuminating Company 801 Bridgeport Avenue Shelton, CT 06484 P: 203-926-4695 F: 203-926-4696 <a href="mailto:Kathleen.Shanley@uinet.com">Kathleen.Shanley@uinet.com</a></p> <p>Linda L. Randell, Esq. Bruce L. McDermott, Esq. Wiggin and Dana LLP One Century Tower New Haven, CT 06508-1832 P: 203-498-4400 F: 203-782-2889 <a href="mailto:Lrandell@wiggin.com">Lrandell@wiggin.com</a> <a href="mailto:bmcdermott@wiggin.com">bmcdermott@wiggin.com</a></p>
<b>Party</b> <i>(Approved on 8/31/06)</i>	The Wildflower Coalition Petitioners	<p>Julie D. Kohler, Esq. Cohen and Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604 P: 203-368-0211</p>

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**SERVICE LIST**

<b>Status Granted</b>	<b>Status Holder (name, address &amp; phone number)</b>	<b>Representative (name, address &amp; phone number)</b>
<b>Party</b> (Approved on 10/10/06)	The Town of Trumbull	Daniel F. Schopick, Esq. Town Attorney 572 White Plains Road Trumbull, CT 06611 P: 203-261-6565 F: 203-261-8420
<b>Intervenor</b> (Approved on 10/24/06)	The Connecticut Light and Power Company	Anthony M. Fitzgerald, Esq. Carmody & Torrance LLP 195 Church Street, 18 <sup>th</sup> Floor P.O. Box 1950 New Haven, CT 06509-1950 P: (203) 777-5501 F: (203) 784-3199 <a href="mailto:afitzgerald@carmodylaw.com">afitzgerald@carmodylaw.com</a>  Robert E. Carberry Manager – Transmission Siting and Permitting Northeast Utilities Service Company P.O. Box 270 Hartford, CT 06141-0270 P: (860) 665-6885  Kathleen A. Shea Associate Counsel Northeast Utilities Services Company P.O. Box 270 Hartford, CT 06141-0270 P: (860) 665-3395 F: (860) 665-5504
<b>Intervenor</b> (Approved on 10/24/06)	Mark Waggner 65 Oakridge Road Trumbull, CT 06611 P: (203) 365-0573 <a href="mailto:Mark_waggner@conair.com">Mark_waggner@conair.com</a>	

## SITING COUNCIL

**PROPOSED FINDING OF FACTS OF INTERVENOR,  
THE CONNECTICUT LIGHT AND POWER COMPANY**

4. CL&P supports the construction of the new Trumbull Substation at Site 1. (CL&P 1, p. 2)

5. The CL&P right-of-way easement crosses over one side of the Site 1 property. CL&P's Trumbull Junction tap structure No. 833A is located on the Site 1 property within CL&P's right-of-way. (UI 1, Vol. II, Exhibit L and J )

6. UI's 115-kV circuit segments extend in a generally south to north direction from UI's Pequonnock Substation in Bridgeport to Trumbull Junction (forming the stem of the "T"); and CL&P's 115-kV circuit segments extend east and west from the junction (along the top of the "T.") The CL&P transmission line consists of two 115-kV circuits on common support structures, including the Trumbull Junction tap tower No. 833A located on Site 1. (UI 1, Vol. I, Figure 6, p. 17)

7. To increase transmission system reliability UI proposes to break up the existing three-terminal 1730 circuit into three circuits: Trumbull-Pequonnock, Trumbull-Devon and Trumbull-Weston. (UI 1, Vol. I, p. 17)

8. UI has proposed a new transmission dead-end pole structure within CL&P's right-of-way (proposed number 833B) to make a new conductor connection from the first CL&P-owned span of the 1730 circuit on the west side of the Trumbull Junction tap structure No. 833A to a new line takeoff structure within the proposed substation on Site 1. (CL&P 1, p. 1)

9. The conductors of an existing UI-owned span of the 1730 circuit which are supported by one end by CL&P's Trumbull Junction tap structure No. 833A will need to be modified for their reconnection away from UI's existing switch structure No. NB 31 to a new line takeoff structure within the proposed substation. (UI 1, Vol. I p. 18)

10. The 1730 circuit could not be broken into three circuits at the proposed substation if the substation were located away from the Trumbull Junction unless another 115-kV line segment is constructed between the new substation location and Trumbull Junction. (CL&P 1, p. 3)

11. Transfer capacity at the “Norwalk – Stamford interface,” is presently limited by CL&P’s segments of the 1710 and 1730 circuits heading west from Trumbull Junction. (CL&P 1, pp. 4-5)

12. Alternates sites connecting with the CL&P segment of the 1730 circuit at locations west of Trumbull Junction pose a concern because such a substation connection could reduce the transfer capacity at the Norwalk – Stamford interface. (CL&P 1, p. 4-5)

13. Load transfers from other UI substations to a new Trumbull Substation that is located along the 1730 circuit path west of Trumbull Junction would increase the pre-contingency loading of the 1730 circuit segment west of Trumbull Junction, which in turn will lower the transfer capacity across the Norwalk – Stamford interface. (CL&P 1, p. 4-5)

14. The completion of the Middletown to Norwalk project will eliminate the Norwalk – Stamford interface sometime around December, 2009. (CL&P 1, p. 5)

15. The new substation is expected to be in service two years before the Middletown to Norwalk project is planned to be in service. (CL&P 1, p. 5)

## **Reverse Circuit Phasing and Magnetic Fields**

16. Transmission lines and distribution lines at or near substation sites are typically the largest contributors to magnetic field (“MF”) levels at outdoor points near the substation. (UI 1, Vol. II, Exhibit F)

17. Substations themselves contribute little or no MF beyond the substation itself. (UI 1, Vol. II, Exhibit F)

18. The existing UI and CL&P 115-kV transmission lines contribute most of the MF at the property boundaries of Site 1, with or without the proposed substation. (UI 1, Vol. II, Exhibit F)

19. CL&P will reverse the phasing of its transmission circuits that cross Site 1. Modifications to the 1730 circuit will be required to accommodate the proposed construction and interconnection, and reverse phasing can be accomplished coincidentally. CL&P’s 1710 and 1730 circuit sections currently have the same phasing of conductors, top to bottom, so only the 1730 circuit sections require a change to accomplish a reverse phasing of these two parallel circuits. (Tr. Dec. 5, 2006, p. 190) (CL&P 1, pp. 4-5)

20. Reverse phasing of two parallel transmission line circuits in close proximity is a method of reducing MF levels near to the circuits; however, reverse phasing does not accomplish this result in all cases and must be examined on a case-by-case basis. (Tr. Dec. 5, 2006, p. 201)

21. With the proposed substation on Site 1, CL&P’s reverse phasing of its 1710 and 1730 circuit segments would lower MF levels produced by these circuits by approximately 50 percent or more at CL&P’s right-of-way boundaries (for approximately

15 miles between CL&P's Weston Substation and a location nearer to Devon Station), and at the boundaries of UI's Site 1 property which are in close proximity to CL&P's circuits. (Tr. Dec 5 2006, pp. 190-202, UI 1, Exhibit F (revised), and Exhibit 16, (Silva's Report Table 4))

22. At point C-6 on the south edge of CL&P's right-of-way opposite the line span just west of Trumbull Junction, the Case #4 magnetic fields with normal and peak loads are 18.1 mG and 28.6 mG respectively with the existing CL&P circuit phasing, and these calculated magnetic field levels will be reduced to 9.4 mG and 13.5 mG respectively with reverse circuit phasing. At point D-2 on the north edge of CL&P's right-of-way opposite the line span just west of Trumbull Junction, the Case #4 magnetic fields with normal and peak loads are 15.3 mG and 25.1 mG respectively with the existing CL&P circuit phasing, and these calculated magnetic field levels will be reduced to 3.8 mG and 6.5 mG respectively with reverse circuit phasing. These reductions are representative of expected similar reductions in other CL&P line spans west of Trumbull Junction where reverse phasing will be accomplished. (Tr. Dec 5 2006, pp. 190 - 202, UI 1, Exhibit F(revised), and Exhibit 16, (Silva's Report Table 4)

23. MF levels at the proposed driveway entrance from Wildflower Lane (point D-1) benefit more by CL&P's reversing the phasing of its 1710 and 1730 circuits than from the nearly no reduction produced if the substation is moved 20 feet to the north. The reduction in MF levels at point D-1 will decrease from 1.0 mG to 0.7 mG for the Case #4 normal loads and from 1.7 mG to 1.1 mG for the Case #4 peak loads. (Tr. Dec 5, 2006, p. 202; UI 1, Vol. II, Exhibit F (revised) and Exhibit 16, Silva's Report Table 4)

24. Moving the location of proposed substation 20 feet to the north at Site 1 makes no difference to magnetic field levels, under normal load conditions, after the Middletown-Norwalk Project is in operation (Case 4), at five of the seven locations along the Site 1 property boundary. At one point, D-3, the MF level increases by 0.1 mG, and at point D-1 the MF level decreases by 0.1 mG. (UI Exhibit 15, slide 12)

25. CL&P's policy is to take advantage of practical opportunities to reduce MF levels near to transmission lines during the course of a transmission construction project when that reduction can be accomplished for very little cost or even no cost. (Tr. Dec. 5, 2006, pp. 202-203)

#### **Encroachment Onto CL&P's Right-Of-Way**

26. The nearest leg and foundation of CL&P's Trumbull Junction tap structure No. 833A is approximately 66 feet from the fence line of the proposed substation at Site 1 as proposed in the Application. (UI 1, Vol. II, Exhibit L)

27. Movement of a portion of the site into the CL&P right-of-way limits the available access and lift-vehicle working space between CL&P's tap structure No. 833A and the proposed substation. (UI 1, Exhibit 15, Slide 11)

28. UI will have to develop with CL&P an agreement for the construction on CL&P's right-of-way of a new transmission dead-end pole structure and new line conductors. The scope of this agreement must be expanded if any portion of UI's substation were to extend onto CL&P's right-of-way. Any relocation of fenced substation area into CL&P's right-of-way is limited by line clearances, physical construction limitations, and operational and maintenance limitations. (CL&P 1, p. 3, Tr. October 26, 2006, pp. 121- 123; Tr. Dec. 5, 2006, p. 152)

29. Any alternative relocation on Site 1 to the north on to the CL&P easement cannot exceed 20 feet. (UI Exhibit 15, Slide 11)

**Criteria For Substation Locations**

30. Considerations for the location of a substation include:

- Proximity to a transmission line to avoid building new lengths of transmission line and obtaining new right-of-ways.
- Center of the load of the distribution network for serving the distribution load, to maximize reliability and to minimize distribution costs.
- Physical factors including effects on natural resources, the site topography and geology.
- Enough size to accommodate the footprint of the substation with some buffer.
- Surrounding land uses.
- Property ownership/availability.

(Tr. Dec. 5, 2006, pp. 196-197 and 199)