



STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

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September 12, 2013

Marianne Barbino Dubuque, Esq  
Carmody & Torrance LLP  
P.O. Box 1110  
Waterbury, CT 06721-1110

RE: **DOCKET NO. 435** - The Connecticut Light & Power Company application for a Certificate of Environmental Compatibility and Public Need for the Stamford Reliability Cable Project, which consists of construction, maintenance, and operation of a new 115-kV underground transmission circuit extending approximately 1.5 miles between Glenbrook and South End Substations, Stamford, Connecticut and related substation improvements.

Dear Attorney Dubuque:

By its Decision and Order dated September 5, 2013, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need (Certificate) for the Stamford Reliability Cable Project, which consists of construction, maintenance, and operation of a new 115-kV underground transmission circuit extending approximately 1.5 miles between Glenbrook and South End Substations, Stamford, Connecticut and related substation improvements.

Enclosed are the Council's Certificate, Findings of Fact, Opinion, and Decision and Order.

Very truly yours,

Melanie Bachman  
Acting Executive Director

MB/cm

Enclosures (4)

- c: Parties and Intervenors (without Certificate enclosure)
- State Documents Librarian (without Certificate enclosure)

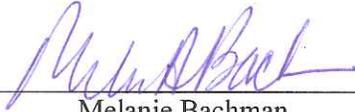
STATE OF CONNECTICUT )

ss. New Britain, Connecticut :

COUNTY OF HARTFORD )

I hereby certify that the foregoing is a true and correct copy of the Findings of Fact, Opinion, and Decision and Order issued by the Connecticut Siting Council, State of Connecticut.

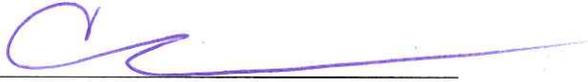
ATTEST:



Melanie Bachman  
Acting Executive Director  
Connecticut Siting Council

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Docket No. 435 has been forwarded by Certified First Class Return Receipt Requested mail on September 12, 2013, to all parties and intervenors of record as listed on the attached service list, dated March 7, 2013.

ATTEST:



Carriann Mulcahy  
Secretary II  
Connecticut Siting Council

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

Status Granted	Document Service	Status Holder (name, address & phone number)	Representative (name, address & phone number)
<b>Applicant</b>	<input checked="" type="checkbox"/> E-Mail	The Connecticut Light & Power Co. P.O. Box 270 Hartford, CT 06141-0270	<p>John Morissette Manager-Transmission Siting Northeast Utilities Service Company P.O. Box 270 Hartford, CT 06141-0270 (860) 665-2036 <a href="mailto:John.morissette@nu.com">John.morissette@nu.com</a></p> <p>Anuj Mathur Project Manager-Transmission Projects Northeast Utilities Service Company P.O. Box 270 Hartford, CT 06141-0270 (860) 665-67831 <a href="mailto:Anuj.mathur@nu.com">Anuj.mathur@nu.com</a></p> <p>Jeffery Cochran, Esq. Senior Counsel-Legal Department Northeast Utilities Service Company 107 Selden Street Berlin, CT 06037 <a href="mailto:Jeffery.cochran@nu.com">Jeffery.cochran@nu.com</a></p> <p>Marianne Barbino Dubuque, Esq Carmody &amp; Torrance LLP P.O. Box 1110 Waterbury, CT 06721-1110 (203) 573-1200 <a href="mailto:mdubuque@carmodylaw.com">mdubuque@carmodylaw.com</a></p>
<b>Party (Approved on March 7, 2013)</b>	<input checked="" type="checkbox"/> E-Mail	Office of Consumer Counsel	<p>Lauren A. Henault Staff Attorney II Office of Consumer Counsel Ten Franklin Square New Britain, CT 06051 <a href="mailto:Lauren.henault@ct.gov">Lauren.henault@ct.gov</a></p> <p>Joseph A. Rosenthal Principal Attorney Office of Consumer Counsel Ten Franklin Square New Britain, CT 06051 <a href="mailto:Joseph.rosenthal@ct.gov">Joseph.rosenthal@ct.gov</a></p>

<p><b>DOCKET NO. 435 - The Connecticut Light &amp; Power Company</b> }</p> <p>Application for a Certificate of Environmental Compatibility</p> <p>and Public Need for the Stamford Reliability Cable Project, }</p> <p>which consists of construction, maintenance, and operation of a</p> <p>new 115-kV underground transmission circuit extending }</p> <p>approximately 1.5 miles between Glenbrook and South End</p> <p>Substations, Stamford, Connecticut and related substation</p> <p>improvements.</p>	<p>Connecticut</p> <p>Siting</p> <p>Council</p> <p>September 5, 2013</p>
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**Findings of Fact**

**Introduction**

1. Pursuant to Connecticut General Statutes (CGS) §16-50g et seq., on January 18, 2013, Northeast Utilities Service Company (NUSCO), as agent for The Connecticut Light and Power Company (CL&P), applied to the Connecticut Siting Council (Council) for a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, operation and maintenance of an underground transmission circuit, extending approximately 1.5 miles between CL&P's Glenbrook and South End Substations and related substation improvements in Stamford, Connecticut and referred to as the Stamford Reliability Cable Project (SRCP). (CL&P 1, pp. ES-1, A-2)
2. NUSCO and CL&P are wholly-owned subsidiaries of Northeast Utilities (NU). (CL&P 1, p. A-2)
3. The purpose of CL&P's proposed SRCP is to strengthen the 115-kilovolt (kV) transmission system serving the Stamford-Greenwich Sub-area and eliminate reliability criteria violations by relieving power flows and ensuring compliance with mandatory national and regional reliability standards. (CL&P 1, p. ES-1)
4. The parties in this proceeding are the applicant and the Office of Consumer Counsel. (Transcript, March 28, 2013, 3:00 p.m. [Tr. 1], pp. 4-5)
5. Pursuant to CGS §16-50(b), CL&P had public notice of its application to the Council published twice in The Advocate and in The Connecticut Post, newspapers having general circulation in Stamford. CL&P's notice was published on January 7 and 14, 2013. (CL&P 1, p. A-13)
6. Pursuant to CGS §16-50(b), CL&P sent notice of the proposed SRCP to each of its customers located within the vicinity of the three alternate routes for one or more months not earlier than 60 days prior to the filing of its application with the Council. This notice was included with the customers' monthly bill. This notice was sent to all CL&P customers in the City of Stamford (City). (CL&P 1, p. A-13)
7. Pursuant to CGS §16-50(b), CL&P sent notice of the proposed SRCP to the abutting property owners of each of the two substations that would be affected by the SRCP. (CL&P 1, p. A-13)
8. Of the 23 certified mail notices sent to the substations' abutting property owners, CL&P received 16 return receipts. CL&P sent an additional notice via first class mail to the seven abutters from whom return receipts were not received. (CL&P 3, Q-CSC-001)

9. In accordance with the Council's Application Guide, CL&P provided notice to a number of community groups including: the Stamford Chamber of Commerce, the Stamford Land Conservation Trust, the Stamford Historical Society, the Historic Neighborhood Protection Program, the Mill River Collaborative, and the Aquarion Water Company. (CL&P 1, pp. A-12-13; CL&P 2)
10. Pursuant to CGS §16-50I(b), CL&P sent notice of the proposed SRCP to federal, state, regional and local officials listed therein. (CL&P 1, pp. A-11-12)
11. On March 18, 2013, CL&P installed seven four-foot by six-foot signs at various locations within the SRCP area to notify the public of its pending application to the Council and the hearing to be held on it. (CL&P 6, p. 38; Attachment 3)
12. The Council and its staff conducted an inspection of the alternate routes for the proposed underground transmission line on March 28, 2013, beginning at 1:00 p.m. The applicant provided a bus to drive the different routes. (Council Hearing Notice, Tr. 1, p. 56)
13. Pursuant to CGS § 16-50m, the Council, after giving due notice thereof, held a public hearing on March 28, 2013, beginning at 3:00 p.m. and continuing at 7:00 p.m. in the NEON Stamford gymnasium at 34 Woodland Avenue in Stamford, Connecticut. (Tr. 1, p. 3 ff.)
14. At a meeting held on April 18, 2013, the Council voted to re-open the evidentiary record for this proceeding. (Council memorandum re Docket 435, dated April 19, 2013)
15. The Council's re-opened evidentiary hearing was held on June 20, 2013, beginning at 1:00 p.m. at the Council's offices at Ten Franklin Square, New Britain. (Transcript, June 20, 2013, 1:00 p.m. [Tr. 3], pp. 2 ff.)

#### **Municipal and Community Outreach**

16. CL&P held numerous meetings, beginning in January 2010, with City officials and community organizations regarding electric service in Stamford and its desire to improve service reliability and to upgrade the transmission infrastructure between the Glenbrook and South End substations. (CL&P 1, pp. J-1-2)
17. Pursuant to CGS §16-50I(e), CL&P delivered a Municipal Consultation Filing (MCF) to the mayor of Stamford on September 7, 2012 to begin the 60-day municipal consultation process. Copies of the filing were placed in the local library and on CL&P's project website. (CL&P 1, p. J-1; Bulk Filing #2; CL&P 6, pp. 36-37)
18. As part of its community outreach efforts, CL&P distributed brochures to City residents living in the vicinity of the proposed SRCP. The brochures explained the scope and nature of the SRCP, why it is needed, what local residents could expect to see in their neighborhoods and when the construction was scheduled. (CL&P 1, p. J-3)
19. CL&P developed a project website, email address and hotline through which residents and stakeholders could communicate with project representatives. (CL&P 6, p. 37)

20. On January 8, 2013, CL&P held an open house in Stamford at the Government Center. (CL&P 6, p. 37)
21. In a letter dated December 13, 2012, Stamford Mayor Michael Pavia expressed the City's support for the Stamford Reliability Cable Project "as a means to provide our community and our region with more reliable electric power and to facilitate our continued economic growth." (CL&P 1, Appendix E.5 – Mayor's Letter)
22. On April 1, 2013, the Council received a letter from Stamford Mayor Michael Pavia commenting on CL&P's Preferred Route with Canal Street Option. In this letter, Mayor Pavia stated, "the City favors the Preferred Route with Canal Street Option." (Letter from Stamford Michael Pavia, dated March 25, 2013)

#### State Agency Comment

23. At a meeting held on February 1, 2013, the Connecticut Energy Advisory Board (CEAB), pursuant to CGS § 16a-7c, determined that a Request for Proposal to seek non-transmission alternative solutions to CL&P's proposed SRCP was unnecessary. This determination was based on information provided by CL&P that satisfactorily demonstrated the SRCP fell within CEAB's RFP exemption criteria. The information upon which CEAB made its determination included: the small scope of the SRCP; the short lead time for the SRCP; the urgent need for the SRCP; and the fact that the SRCP is energy efficient and environmentally benign. (CL&P 3, Q-CSC-002; Letter from Elin Swanson Katz, Consumer Counsel, dated March 1, 2013)
24. Pursuant to CGS § 16-50j(h), on February 22, 2013 and April 1, 2013, the Council solicited comments on CL&P's application from the following state agencies: Department of Agriculture, Department of Energy and Environmental Protection (DEEP), Public Utilities Regulatory Authority, Department of Public Health, Council on Environmental Quality, Office of Policy and Management, Department of Economic and Community Development, the Department of Transportation (ConnDOT), and the Department of Emergency Services and Public Protection. (CSC Hearing Package dated February 22, 2013; CSC Letter to State Department Heads dated April 1, 2013)
25. The Connecticut Department of Transportation (ConnDOT) responded to the Council's solicitation with comments emphasizing the requirements for CL&P to obtain permits to work within Department highway and rail right-of-ways. (ConnDOT Letter from Sohrab Afrazi, dated March 15, 2013)
26. In a letter dated April 8, 2013, ConnDOT stated that it favored the Preferred Route with Canal Street Option, the alternate route that CL&P developed in response to ConnDOT's request to pursue an option that would not traverse Atlantic Street. (ConnDOT letter dated April 8, 2013)
27. The Council did not receive comments from any of the other state agencies solicited. (Record)

### **Mandatory Reliability Standards**

28. The Federal Energy Policy Act of 2005 required the Federal Energy Regulatory Commission (FERC) to designate an entity to provide for a system of mandatory, enforceable reliability standards. This requirement was part of a transition from a voluntary to a mandatory system of reliability standards for the bulk-power system. (CL&P 1, p. B-8)
29. In July 2006, FERC designated the North American Electric Reliability Council (NERC) to be the nation's Electric Reliability Organization (ERO). The ERO is charged with improving the reliability of the bulk-power system by proactively preventing situations that can lead to blackouts. NERC establishes a general set of rules and criteria applicable to all geographic areas. Electric utilities must adhere to the reliability standards and criteria established by NERC. (CL&P 1, p. B-8)
30. The Northeast Power Coordinating Council (NPCC) is a regional reliability council that, under NERC's supervision, establishes criteria for the design and operation of the bulk power system in New York, New England, and eastern Canada. (CL&P 1, p. B-8)
31. New England's Independent System Operator (ISO-NE) is responsible for planning and operating the various transmission systems owned by electric utilities in New England as a single transmission system. It has adopted planning criteria consistent with the standards and criteria established by NERC and NPCC, which are designed to ensure that New England's electric system will provide adequate and reliable electric power. (CL&P 1, pp. B-8-9)
32. CL&P must comply with the standards and criteria adopted by NERC, NPCC, and ISO-NE. These standards and criteria establish a set of performance tests or contingencies under which CL&P's 69-kV, 115-kV, 138-kV, and 345-kV transmission elements must perform without experiencing overloads or voltage problems. (CL&P 1, p. B-9; Tr. 1, p. 16)

### **Project Need**

33. The transmission needs addressed by the SRCP were identified by an ISO-NE led working group formed to study the Southwestern Connecticut (SWCT) area and included in the annual ISO-NE Regional System Plan, beginning in 2011. The working group identified SRCP as the proposed solution to ISO-NE. The working group included representatives from ISO-NE, NU, and United Illuminating (UI). (CL&P 1, pp. B-6-7; CL&P 6, p. 16)
34. Results of CL&P's contingency event analyses indicated that the transmission line capacity between Stamford's two main substations—the Glenbrook Substation toward the east of Stamford and the South End Substation in the center—is insufficient to reliably serve customer demands in the Stamford-Greenwich Sub-area (see Figure 1) under contingency events. The analyses further indicated that the transmission capacity from the South End Substation to a smaller substation farther west in Stamford—the Waterside Substation—and beyond that to the major substation presently serving Greenwich—the Cos Cob Substation—is insufficient to reliably serve customer demands during contingency events. (CL&P 1, p. B-13)

35. Load levels in the Stamford-Greenwich Sub-area of approximately 360 MW would cause a reliability criteria violation if certain contingency events occurred. The 360 MW load level is the equivalent of peak load levels that have already occurred. In 2015, the Stamford-Greenwich Sub-area load is forecast to be approximately 128% greater than the level at which transmission planning violations occur. (CL&P 3, Q-CSC-008)
36. The SRCP is designed to strengthen the 115-kV transmission system that serves the Stamford-Greenwich Sub-area (See Figure 1) and to eliminate reliability criteria violations, thus ensuring compliance with mandatory national and regional reliability standards. (CL&P 1, p. B-13, p. ES-1)
37. Without the SRCP, thermal overloads on transmission lines in the Stamford-Greenwich Sub-area could exceed emergency ratings. Also, system voltages at substations could fall below acceptable limits, causing the transmission system to experience voltage collapse. With the SRCP in service, these conditions would be prevented for at least twenty years. (CL&P 1, p. B-4; CL&P 3, Q-CSC-003)
38. The SRCP would provide the Stamford-Greenwich Sub-area with a strong electric supply source arising from its connection at the Glenbrook Substation to the new 345- kV transmission lines installed in Southwest Connecticut since 2006—including the Bethel-Norwalk transmission line, Long Island Cables, the Middletown-to-Norwalk transmission line, and Glenbrook Cables. (CL&P 1, p. ES-1; p. A-1)
39. In the City of Stamford, a number of economic development and urban redevelopment projects are being planned or under construction that have the potential to significantly affect load levels in the Stamford-Greenwich Sub-area. These projects include: Harbor Point development, which would include 6 million square feet of office, retail, and residential uses; Metro Center II, which would include 250,000 square feet of office space near the Stamford Transportation Center; the redevelopment of the 32-acre former Clairol site; an expansion of Stamford Hospital; Park Square West Phase I and II, which would comprise four separate buildings with a total of 419 apartments and the Mill River Corridor/Park/Skating Rink, which would include additional housing units. (CL&P 1, p. B-11-12)
40. The proposed SRCP would implement an important component of long-range plans for the expansion of Connecticut's electric power grid in the Stamford-Greenwich area, which will include a new substation in Greenwich and additional transmission connections to this substation. (CL&P 1, p. A-1)
41. The New England Power Pool (NEPOOL) Reliability Committee voted to recommend approval of CL&P's proposed SRCP to New England's Independent System Operator (ISO-NE) on June 20, 2012. (CL&P 1, p. B-7)
42. The SRCP was listed in CL&P's *2012 Forecast of Loads and Resources for the Period 2012-2021*, dated March 1, 2012 and in CL&P's *2013 Forecast of Loads and Resources for the Period 2013-2022*, dated March 1, 2013. (CL&P 1, p. B-4; CL&P Admin. Notice 1)

### Non-Transmission Alternatives

43. CL&P considered and rejected a “no action” alternate to the SRCP because doing nothing to eliminate violations of national and regional reliability standards and criteria would be inconsistent with its obligation to provide reliable electric service. (CL&P 6, p. 16)
44. CL&P considered central generation, energy efficiency and contracted load curtailment as non-transmission alternatives for the proposed SRCP. However, none of these alternatives are currently available at levels necessary to resolve the existing reliability criteria violations that would be resolved with the completion of the proposed SRCP. (CL&P 1, p. ES-1)

### Overhead Solution

45. During the planning for the SRCP, CL&P investigated the possibility of utilizing the existing, double-circuit 1440/1450 transmission line as an overhead solution for increasing its transmission capability in the Stamford-Greenwich Sub-area. Re-building this double-circuit line as two separate lines would have required widening the CL&P’s existing right-of-way, which, in turn, would have required purchasing additional easements over approximately 29 properties. CL&P estimates the cost of this overhead solution would have been approximately \$107 million. Another overhead alternative to the underground SRCP would be to add a second, 115-kV circuit—that would be designated as the 1151 Line—to an existing CL&P transmission line that runs between the Glenbrook and South End substations and is designated as the 1977 Line. (CL&P 13, pp. 1- 2; Tr. 1, pp. 82-83; Tr. 3, pp. 9-11, 13, 25)
46. In order to add a second circuit to the 1977 Line, all 23 of the existing transmission line structures between the two substations would have to be replaced, as they do not have the structural capacity to accommodate a second circuit. In its detailed analysis, CL&P found structure failures due to one or more element failures including base plate, anchor bolt embedment length or pole section. (CL&P 13, pp. 2-4)
47. The structures for CL&P’s 1977 line between Glenbrook and South End Substations are located in an easement within the Metro North Railroad (MNRR) right-of-way. CL&P’s easement agreement with MNRR would require it to remove the 1977 line structures at its own expense should the railroad expand in this area. (Tr. 1, p. 45)
48. CL&P asked its engineers to examine the possibility of designing the SRCP to accommodate a possible future relocation of the 1977 line. Upon examination, however, it was determined that there are three locations—the Canal Street crossing, the Metro North Railroad, and Lincoln Avenue—where the available area is too confined to adequately dissipate the heat generated by the two lines in order to maintain the line ratings. (Tr. 3, pp. 14-15)
49. Because many of the structures carrying the existing 1977 Line are located within the MNRR right-of-way, much of the work to replace the existing structures and add a second circuit would have to comply with conditions stipulated by MNRR and would have to satisfy engineering and safety criteria established by the Federal Railroad Administration. (CL&P 13, pp. 2-6)

50. Constraints that CL&P would encounter in reconstructing the 1977 Line to add a second circuit would include:
- A limited construction window of 2.75 hours per day, between 2:00 a.m. and 4:45 a.m. to allow MNRR to take a track out of service for construction of the SRCP.
  - Because CL&P's construction would be limited to night-time hours, the work areas would have to be brightly illuminated, even in the proximity of residential areas.
  - The space available for construction activities would be tightly constrained, which would reduce the amount of work that could be accomplished during each day's construction window.
  - Because of the limited space available for construction, the existing line structures would have to be replaced in essentially the same locations. This type of replacement construction would proceed more slowly than if the replacement structures could be installed adjacent to the existing structures.
  - MNRR could have CL&P suspend work if it is operating a train on or testing any other track.
  - MNRR may cancel the scheduled track outages on short notice due to their own overriding priorities.
  - CL&P's construction procedures would have to be approved by MNRR, which could be a time-consuming process.
  - CL&P would have to pay for MNRR safety personnel, which would be an added cost.
  - Twenty-four drill rig platforms would be required primarily along South State Street and the railroad corridor. For the platforms in South State Street, two lanes would need to be closed. For the platforms in the railroad corridor, the drill rigs must be elevated to the same ground level as the finished foundation.
  - A high stone wall supports the railroad on South State Street near Atlantic Street, requiring a very high drill rig platform to be erected.
  - Access to structures would be difficult from the rear yards of homes along Culloden Road. All of these properties have very small lots.
- (CL&P 13, pp. 4-7)
51. CL&P consulted with ConnDOT about the possibility of replacing its 1977 line structures with new structures that would carry both the 1977 and 1151 lines. (CL&P 13, p. 9)
52. ConnDOT's Office of Rails does not support the installation of CL&P's dual line structures to carry the 1977 and the 1151 transmission lines within the railroad corridor, because this installation would impede ConnDOT's ability to achieve long range plans for increasing ridership and reliability of its rail system in this highly congested area. (CL&P 13, p. 9)
53. An outage of the 1977 line during construction of new structures accompanied by a single contingency event involving the 1440 and 1450 lines located on double-circuit towers could cause a blackout for approximately 47,500 customers serviced by the Cos Cob, Waterside, Tomac and South End Substations. (CL&P 13, p. 11)

54. CL&P estimates the cost of reconstructing the 1977 Line as a double circuit line at \$69,881,506, excluding costs for related substation modifications. This cost is broken down as follows:

<u>Item</u>	<u>Cost</u>
Material	\$ 2,506,705
Labor	\$ 40,490,000
Engineering/Permitting	\$ 14,690,178
Escalation	\$ 2,003,798
AFUDC*	\$ 2,884,344
Contingency	\$ 7,306,481
<b>Total Cost</b>	<b>\$ 69,881,506</b>

\*Allowance for Funds Used During Construction  
(CL&P 11, Q-CSC-004-SP01)

#### Underground Route Analysis

55. To identify the best routes for its needed transmission system improvements, CL&P initially defined a geographic study area that would encompass the shortest potential routes with the least environmental and social impacts, as well as costs. The study area defined by CL&P is shown in Figure 4. (CL&P 1, p. C-1)
56. In identifying potential routes, CL&P applied a set of route selection objectives based upon its experience in siting and constructing utility facilities. These objectives included:
- Comply with all statutory requirements, regulations and state and federal siting agency policies;
  - Achieve a reliable, operable, constructible and cost-effective solution;
  - Maximize the reasonable, practical and feasible use of existing linear corridors;
  - Avoid potential conflicts with schools and licensed day-care centers;
  - Avoid disruptions of local public facilities and utility projects;
  - Minimize the need to acquire property by eminent domain;
  - Minimize adverse effects to environmental resources;
  - Minimize adverse effects to significant cultural resources;
  - Minimize adverse effects on designated scenic resources;
  - Minimize conflicts with local, state and federal land use plans and resource policies; and
  - Maintain public health and safety.
- (CL&P 1, pp. C-3-5)
57. CL&P focused its analysis of route options on the use of existing Rights-of-Way (ROWs), including public roads, existing transmission lines, railroads, and limited access highways (I-95). (CL&P 1, pp. C-6)
58. At the City of Stamford's request, in choosing its route, CL&P sought to avoid impacting either Phase I or Phase II of the City of Stamford's roadway improvement project known as the Stamford Urban Transitway (SUT). (CL&P 1, p. C-6)

**Project Description**

59. The SRCP area is highly urbanized. The predominant land uses in the area are commercial/ industrial, retail, and residential. (CL&P 1, pp. F-8, F-9)
60. CL&P focused on developing an underground rather than an overhead transmission solution due to the urban infrastructure in the area, the elevated MNRR corridor, and the elevated I-95 corridor. (CL&P 1, p. D-1)
61. At the conclusion of its route selection process, CL&P identified three potential routes and designated them as: Preferred Route, Preferred Route with Variation, and Alternate Route. These three routes are shown in Figure 2. (CL&P 1, p. C-7)
62. On March 15, 2013, CL&P submitted a supplemental filing to the Council to present an alternative potential route option, which it referred to as the “Preferred Route with Canal Street Option.” (CL&P 4 cover letter, dated March 15, 2013)
63. On May 23, 2013, CL&P submitted a second supplemental filing that presented a more detailed engineering analysis of its Canal Street Option route referred to as the “Preferred Route with Canal Street Option (Updated).” This route would avoid Manhattan Street by installing a portion of the SRCP underneath the South End Substation. (CL&P 10 , Supplemental Filing II, Cover Letter)
64. Of the five possible routes presented by CL&P, one route—the Preferred Route with Variation—would not require an underground crossing of the MNRR right-of-way between Scott Place and Culloden Road. (CL&P 1, pp. D-3-4)
65. The following table presents an analysis of each of CL&P’s five possible routes in comparison to several key factors.

Key Factors	Preferred Route	Preferred Route with Variation	Alternate Route	Preferred Route w/ Canal St Option	Pref. Route w/ Canal St Option (Updated)
Route Length	8,000 feet	8,080 feet	8,800 feet	7,565 feet	7,410 feet
Impact to ConnDOT property	275 feet	1,150 feet	395 feet	175 feet	175 feet
— Route 1	175 feet	1,050 feet	45 feet	175 feet	175 feet
— Atlantic Street	100 feet	100 feet	350 feet	0 feet	0 feet
ConnDOT Encroachment Agreement Needed	No	Yes	No	No	No
Railroad Crossing Agreement Needed	Yes	No	Yes	Yes	Yes
Impact to SUT	0 feet	700 feet	0 feet	130 feet	130 feet
Underground Utilities Congestion	Least	Greatest	Moderate	Least	Least
Property Easement Needed	2	0	3	4	4
Schools/Day-cares within 600 feet	0	0	2 (day-cares)	0	0

(CL&P 1, p. C-9; CL&P 4, March 15 Supplemental Filing; CL&P 10, Supplemental Filing II, Table SC-1-Updated)

66. The physical security of the SRCP's proposed facilities would comply with the Council's *White Paper on the Security of Siting Energy Facilities*, as amended, that was adopted in the Council's Docket 346 proceeding. (CL&P 1, p. H-2)

#### Preferred Route

67. CL&P's Preferred Route is the shortest of the originally proposed three routes and would be located primarily along city streets. It would consist of seven segments, which would be:
- **Segment 1** - would originate at the Glenbrook Substation and would extend southerly along Lincoln Avenue a distance of 735 feet to a location past Sheridan Street, where it would turn westerly onto private property.
  - **Segment 2** - would continue westerly across the MNRR corridor, via a 140-foot jack and bore crossing, to connect with Scott Place and then extend westerly 480 feet to the intersection with Culloden Road.
  - **Segment 3** - would continue southerly a distance of 1,230 feet down Culloden Road, which becomes Crystal Street, to the intersection of East Main Street (Route 1).
  - **Segment 4** - would cross East Main Street and continue 175 feet southwest to connect with North State Street.
  - **Segment 5** - would continue for a distance of 975 feet southwest along North State Street and then take a left onto South Street, crossing under the elevated I-95.
  - **Segment 6** - would continue for a distance of 4,055 feet southwest on South State Street to Atlantic Street, where it would turn southeasterly, crossing through the MNRR underpass on Manhattan Street.
  - **Segment 7** - would extend 350 feet easterly along Manhattan Street to terminate at the South End Substation.

(CL&P 1, pp. D-1-2)

#### Preferred Route with Variation

68. CL&P's Preferred Route with Variation is marginally longer than the Preferred Route (by 80 feet). It would not require a jack and bore crossing of the MNRR corridor or the two additional property easements that the Preferred Route would require. It would, however, require an encroachment agreement with ConnDOT for the longer segment on East Main Street/Route 1. Unlike the other two routes, this route would affect the City's SUT II Project. (CL&P 1, p. D-3)
69. The Preferred Route with Variation would consist of five underground segments, which would be:
- **Segment 1** - would originate at the Glenbrook Substation and extend southerly along Lincoln Avenue a distance of 1,650 feet to the intersection with East Main Street.
  - **Segment 2** - would turn westerly on East Main Street/Route 1 (part of the SUT II Project) and extend for a distance of 1,050 feet through the MNRR underpass to North State Street.
  - **Segment 3** - would continue for a distance of 975 feet southwest along North State Street and then along South State Street to cross under the elevated I-95 roadway.
  - **Segment 4** - would continue a distance of 4,055 feet southwest on South State Street to Atlantic Street where it would turn southeasterly onto Atlantic Street to cross through the MNRR corridor underpass to Manhattan Street.

- **Segment 5** - would extend easterly for a distance of 350 feet to terminate at the South End Substation.

(CL&P 1, pp. D-3-4)

#### Alternate Route

70. CL&P's alternate route would be 8,800 feet in length, would require a jack and bore crossing of the MNRR corridor, and would require easements on two private properties, one from the City. It would consist of seven underground segments, which are described below.

- **Segment 1** - would originate at the Glenbrook Substation and extend southerly along Lincoln Avenue a distance of 735 feet and then turn westerly onto private property.
- **Segment 2** - would continue westerly across the MNRR corridor, via a 140-foot jack and bore crossing, to connect to Scott Place and then extend westerly to the Clovelly Road intersection. This segment would be 830 feet in length.
- **Segment 3** - would continue westerly down Clovelly Road a distance of 670 feet to the intersection with Lafayette Street.
- **Segment 4** - would travel southerly down Lafayette, cross over East Main Street/Route 1 and connect to North State Street. The distance of this segment would be 1,880 feet.
- **Segment 5** - would extend southwesterly along North State Street to the Clarks Hill Avenue intersection. From here, it would enter the rear access road of the Financial Centre. This segment would pass along the private access road to Elm Street and then emerge back onto North State Street. It would then extend southwesterly along North State Street to Atlantic Street. This segment would be 4,030 feet in length.
- **Segment 6** - would extend southeasterly for 350 feet along Atlantic Street, pass through the I-95 underpass and the MNRR corridor underpass to Manhattan Street.
- **Segment 7** - would extend easterly 350 feet along Manhattan Street to terminate at the South End Substation.

(CL&P 1, pp. D-4-5)

#### Preferred Route with Canal Street Option

71. CL&P's Preferred Route with Canal Street Option resulted from discussions with ConnDOT, which has plans to lower the Atlantic Street roadway, leaving the street surface very close to bedrock, as part of its MNRR Bridge Replacement project and for an access ramp to I-95 from South State Street at Atlantic Street. Because of these plans, ConnDOT asked CL&P to consider alternate routes that would avoid the Atlantic Street underpass. After reviewing alternate route options, CL&P identified a potential route option that is feasible and avoids Atlantic Street. (CL&P 4 cover letter, dated March 15, 2013)
72. CL&P presented its Preferred Route with Canal Street Option to city officials and to ConnDOT officials. City and ConnDOT officials both expressed a preference for this route. (CL&P 4, p. 2)

73. The length of the Preferred Route with Canal Street Option would be 7,565 feet. Its first five segments would be the same as those of CL&P's Preferred Route. As with the Preferred Route, the sixth segment would travel southwesterly on South State Street, except that it would only travel a distance of 2,750 feet to Canal Street whereas the Preferred Route would travel a distance 4,055 feet to Atlantic Street. The last three segments would be as follows:
- **Segment 7** – would turn south onto Canal Street and continue south a distance of 250 feet before turning west and entering MNRR property.
  - **Segment 8** – would extend westerly through the corner of MNRR property, across two private properties and then continuing into the dead end of Pacific Street. The total distance of this segment would be 440 feet.
  - **Segment 9** – would extend southerly along Pacific Street to Manhattan Street where it would turn northwesterly along Manhattan Street and then turn slightly to the north to terminate at the South End Substation. The distance of this segment would be 530 feet.  
(CL&P 4, pp. 5-6)
74. The Preferred Route with Canal Street Option would have several advantages over CL&P's other proposed routes. These advantages would include:
- **Length** – This route would be shorter than any of the three alternate routes identified in CL&P's original application. As such, it would typically result in a shorter construction period due to less excavation and trenching.
  - **Fewer Construction Complexities** – CL&P would have to excavate deeper trenches through bedrock along Atlantic Street than along Canal Street, which does not have bedrock present and would require shallower excavation.
  - **Coordination with ConnDOT** – the complex nature of ConnDOT's planned activities in the vicinity of Atlantic Street would require more coordination and design changes to CL&P's SRCP.
  - **Traffic** – avoiding Atlantic Street, a busy city street, would result in less traffic disruption as would reducing the SRCP's distance along South State Street.
  - **Cost** – a shorter route would result in lower construction and material costs.
  - **Environmental** – the shorter distance of this route would mean less soil disturbance and a shorter construction period.  
(CL&P 4, pp. 6-7)
75. The Preferred Route with Canal Street Option would have the following disadvantages:
- **Disruption of Recently Paved Areas** – The section of Canal Street and the parking lot that this route would cross were recently paved during Stamford's SUT Phase I Project. However, the City prefers this route, as does ConnDOT, and is willing to allow the disruption.
  - **Coordination with Property Owners** – This route would affect two additional private property owners, and additional rights from MNRR would have to be acquired.  
(CL&P 4, p. 7)

Preferred Route with Canal Street Option (Updated)

76. CL&P's Preferred Route with Canal Street Option (Updated) is a refinement of CL&P's Preferred Route with Canal Street Option based on more detailed engineering analyses. It would avoid Manhattan Street completely and substantially decrease the length of Pacific Street that would be traversed by installing the underground circuit on CL&P-owned land directly beneath the South End Substation, along its northwest property line. It would be the shortest of all the routes proposed by CL&P. (CL&P 10, p. 1)
77. The Preferred Route with Canal Street Option (Updated) would consist of nine underground segments, of which only Segment 9 would differ from the Preferred Route with Canal Street Option. Segment 9 of this alternate route would run straight across Pacific Street to the entrance point at CL&P's South End Substation property and extend 375 feet along this property. (CL&P 10, p. 2)
78. The advantages of the Preferred Route with Canal Street Option (Updated) are
- Length – At 7,410 feet, this would be the shortest of all the routes CL&P presented and would typically result in a shorter construction period due to less excavation and trenching.
  - Fewer Construction Complexities – CL&P would avoid all underground utilities in Manhattan Street and avoid the underground utilities in Pacific Street, except for those located within a very short segment of Pacific Street extending to the entrance to the South End Substation property.
  - Cost – a shorter route would result in lower construction and material costs.
  - Environmental – the shorter distance of this route would mean less soil disturbance and a shorter construction period.
- (CL&P 10, p. 3)
79. CL&P presented this route refinement to the City of Stamford, which prefers because it substantially reduces the construction on two local streets. (CL&P 10, p. 1)

Underground Transmission System Design

80. The proposed SRCP would be designed, constructed, and maintained in compliance with the standards of the National Electrical Safety Code and other applicable electrical safety codes and designed in accordance with sound engineering practices using established design codes and guides published by, among others, the Institute of Electrical and Electronic Engineers, the American Society of Civil Engineers, the American Corporate Institute, and the American National Standards Institute. (CL&P 1, pp. E-1, G-13)
81. The SRCP would have approximate summer thermal ratings of Normal = 250 MVA (megavolt ampere), Long-Term Emergency (LTE) = 450 MVA and Short-Term Emergency (STE) = 475 MVA. These ratings would comply with the SRCP's thermal rating requirements. (CL&P 1, p. B-13; CL&P 5, Q-CSC-001)

82. CL&P considered two standard design technologies for underground transmission lines: high pressure fluid filled (HPFF) pipe type cable and XLPE (Cross-linked polyethylene) cable. (CL&P 1, p. D-6)
83. CL&P determined that a single circuit XLPE cable design with a 3500 kcmil<sup>1</sup> copper conductor would satisfy the SRCP's thermal rating requirements. (CL&P 1, p. D-6)
84. XLPE has become the standard for 115-kV installations in both the U.S. and worldwide and is considered as reliable as HPFF. (Council Administrative Notice No. 28 – Docket 217 Findings of Fact, FOF No. 140)
85. The maximum HPFF conductor size is 2750 kcmil copper. A single 2750 kcmil copper cable system would not meet the SRCP's thermal rating requirements. In order to meet these requirements, CL&P would need to install a double circuit HPFF cable system. (CL&P 1, p. D-6)
86. A double-circuit HPFF cable system would not be feasible due to the limited space within the fenced-in area at the South End Substation for the termination of two new transmission lines. In order to accommodate a double-circuit HPFF cable system, the South End Substation would need to be expanded. (CL&P 1, p. D-6)
87. HPFF cable systems pose limited environmental concerns associated with the potential for spills or leaks of the dielectric fluid (typically alkylbenzene) used to insulate the conductors and to transfer heat away from the cable to the pipe in which it is contained. (Council Administrative Notice No. 28 – Docket 217 Findings of Fact, FOF No. 132)
88. A typical XLPE underground 115-kV transmission system would be comprised of cables, splice vaults, duct bank, cable splices, terminations, grounding, communications, termination structures and foundations. (CL&P 1, p. D-6)
89. In a XLPE underground system, electric cables would be installed in a duct bank encased in concrete. Smaller conduits would also be included for the relaying, communications, temperature monitoring, and ground continuity cables. Cables would be installed one per duct. Splice vaults would be spaced at intervals of approximately 2,000 feet. (CL&P 1, p. D-6)
90. The expected service life of XLPE transmission cable is approximately 40 years. (CL&P 3, Q-CSC-010)
91. The XLPE cables CL&P would use in the SRCP are designed to withstand water penetration and have a lead sheath that functions as a moisture barrier. These cables, and splices, are capable of continuous long-term operation under a 30-foot head of water with no water ingress. These cables are tested against water infiltration in accordance with International Electrotechnical Commission standard IEC 60840. (CL&P 1, p. D-6)

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<sup>1</sup> cmil is an abbreviation for circular mil, which is a measurement unit of area, equivalent to .7854 millionths of a square inch. The 3500 kcmil XLPE cable, with its sheaths, insulation, and jacket would be approximately 4.5 inches in diameter (see CL&P 1, p. D-8).

92. If a flooding event were to cause sand and/or salt water to enter the underground splice vaults, thermal problems would be unlikely because water, seabed, and sand have lower thermal resistivity than air. If the splice vaults were to fill with sand and/or water, vacuum trucks would be used to remove the sand and dewater the vaults. The vaults would then be washed to remove any salt. The clamps and racking system used to support the cables in the vaults would be non-magnetic and non-corrosive to minimize the risk of corrosion. (CL&P 1, pp. D-6-7)
93. CL&P's proposed single circuit underground 115-kV transmission system would consist of three cables, or phases. Each phase would consist of a 3500 kcmil copper conductor cable insulated to 115-kV with 690 mils of XLPE insulation. Each cable would be approximately 4.5 inches in diameter. (CL&P 1, p. D-7)
94. Splice vaults would be installed along the route of CL&P's proposed underground transmission SRCP whenever the maximum installable length of cable is reached. Factors limiting possible cable length include maximum allowed pulling tension, maximum allowed side wall pressure, and the maximum length of cable that could be transported on a cable reel. Reinforced splice vaults would be installed approximately every 2,000 feet along the route. (CL&P 1, p. D-8)
95. CL&P anticipates that the SRCP would require three splice vaults. (Tr. 1, p. 56)
96. The size and layout of splice vaults would be determined by the space required for cable pulling, cable splicing, and cable support. Typical outside dimensions of splice vaults would be approximately 24 feet long by 9 feet wide by 9 feet high. The top of the splice vault would be installed a minimum of three feet below grade and would have two access holes—manhole covers—which would be approximately 36 inches in diameter. (CL&P 1, p. D-8)
97. The area needed for the installation of a splice vault typically requires an excavation area approximately 13 feet wide by 13 feet deep by 30 feet long. (CL&P 1, p. E-2)
98. CL&P's underground transmission line would be installed in a concrete-encased duct bank for the entire length of the SRCP, except for any trenchless installation sections. The duct bank would consist of four six-inch, two four-inch, and two two-inch Schedule 40 polyvinyl chloride (PVC) conduits. The conductor cables would occupy three of the six-inch conduits, with the remaining one reserved as a spare. Fiber optic cables for communications, relaying, temperature monitoring, and the ground continuity conductor would be installed in the smaller conduits. (CL&P 1, p. D-10)
99. At the City's request, CL&P would install a four-inch duct parallel to and within the same trench excavation as the main duct bank installation for the City's future use for traffic signaling cable installation, consistent with the practice of other utilities conducting work in City streets. (CL&P 6, p. 40)
100. CL&P would use terminations, which are rubber stress cones, to transition the underground cables to overhead lines, substation buswork, or other above ground equipment. Terminations are typically mounted on a substation termination structure or on an underground-to-overhead transition structure, often called a riser pole. (CL&P 1, p. D-14)
101. Riser poles and termination structures for the transition of the 115-kV circuit from underground cables to the overhead substation bus would be installed within both substations, Glenbrook and South End. (CL&P 1, p. D-15)

102. The estimated capital cost of the SRCP is \$46.9 million. This cost estimate includes:

Transmission line costs	\$43,900,000
Substation modifications costs	<u>\$ 3,000,000</u>
Total	\$46,900,000

(CL&P 1, p. D-19)

103. The life-cycle cost for the transmission line for the Project would be \$60.97 million. This total would include annual carrying charges of the capital cost, annual operation and maintenance costs, cost of energy losses, and cost of capacity. (CL&P 1, p. D-19; CL&P 6, p. 39)

### Construction Procedures

104. Construction of the proposed SRCP would be expected to be completed in 12 months. (CL&P 1, p. E-4)

105. During construction, CL&P would require support areas for temporarily storing and staging construction materials and equipment in the vicinity of the transmission route. These areas would include one or more primary construction yards and several, smaller staging areas. (CL&P 1, p. E-3)

106. To the extent possible, storing and staging areas would be located on CL&P property, previously developed sites (such as paved parking lots), vacant land or properties previously used for construction support, depending on the parcel size requirements and location in relation to the SRCP route. (CL&P 6, p. 18)

107. Once storage and staging areas are no longer needed, they would be restored substantially to their previous conditions. (CL&P 1, p. E-3)

108. Prior to the commencement of construction, CL&P would conduct studies and surveys to develop procedures aimed at minimizing adverse impacts on the environment and the public. Pre-construction planning activities would include: surveys to identify underground and overhead infrastructure that would be affected by the SRCP; studies of soil and groundwater conditions along the transmission line route; and identifying potential locations for construction support areas. (CL&P 1, pp. E-4-5)

109. The typical method used to install an underground duct bank is open cut trenching. Once a trench has been excavated to the desired depth and shoring installed, the PVC conduit is lowered into the trench and the area around the conduit is filled with high strength thermal concrete. After the concrete has set, the trench is backfilled. (CL&P 1, p. D-10)

110. Work zones around active trench areas range from approximately 600 to 800 feet. (CL&P 1, pp. E-5-6)

111. After conduits have been installed, they would be tested with a mandrelling procedure, in which a "pig" (a cylindrical object slightly smaller in diameter than the conduit) is pulled through the conduit to verify that the conduit has not been crushed, damaged, or installed improperly. (CL&P 1, p. E-6)
112. When conduits have been successfully installed and tested, cable would be pulled through them using truck-mounted winches and cable handling equipment. (CL&P 1, pp. E-6-7)
113. CL&P's Preferred Route and its Alternate Route would both require a trenchless installation to cross the MNRR corridor. (CL&P 1, p. D-11)
114. A trenchless installation would require CL&P to jack and bore under the railroad. This would consist of an auguring operation that simultaneously jacks (or pushes) a casing pipe into the cavity being excavated. Casing segments are added as the excavation progresses forward. To avoid de-rating of the circuit, CL&P would utilize a centrifugally cast, fiberglass-reinforced polymer-mortar pipe (trade name: HOBAS) instead of the standard steel casing. (CL&P 1, p. D-11)
115. When the casing installation is complete, CL&P would position the duct system inside the casing pipe using specially designed spacers. The entire casing would then be backfilled with thermally designed grout, which solidifies the installation to prevent movement and also helps to dissipate heat away from the cable system. (CL&P 1, p. D-11)
116. Cable segments would be spliced using pre-fabricated or pre-molded compressions splices. Splicing cables requires a clean working environment. For this reason, the splicing would be performed inside the splice vaults within a controlled, "clean room" atmosphere. (CL&P 1, pp. D-13; E-7)
117. CL&P does not anticipate that blasting would be required for excavation of the trenches. Should bedrock be encountered, mechanical methods would be the preferred method of removal. If blasting would be necessary, CL&P would adhere to established controlled blasting techniques. (CL&P 1, p. G-3)
118. CL&P would consult with City and ConnDOT officials to develop a Traffic Management Plan to minimize traffic congestion and access restrictions during the construction period. (CL&P 1, p. G-14)

#### **Substation Modifications**

119. The SRCP would require that modifications be made to the Glenbrook and South End Substations. (CL&P 1, p. D-17)
120. Modifications to the South End Substation would include electrical and physical work and substation protection and control work. The electrical and physical work would consist of: the installation of a riser pole for cable termination bushings; the installation of a motor operated disconnect (MOD) switch; the installation of lightning arresters on the riser pole structure; and the installation of control cables for the MOD in the existing conduits. The substation protection and control work would consist of: reconfiguring the primary and back up relays as line protection relay

for the cable line; calculating and establishing new line relay setting using the cable line impedance; using the fiber optic cables installed with the underground cable line as communication path for cable line protection schemes; installing line metering; and updating the System Control and Data Acquisition (SCADA) system. (CL&P 1, pp. D-17-18)

121. The tallest proposed structure to be installed within the South End Substation, a riser pole with lightning arresters, would be approximately 37 feet in height. This structure would be substantially lower than the height of the existing tallest structure, which has a total height of approximately 100 feet (CL&P 6, p. 10)
122. Modifications to the Glenbrook Substation would include the same categories of work as at the South End Substation. At the Glenbrook Substation, electrical and physical work would consist of: the installation of a 115-kV circuit breaker; the installation of a cable termination; the installation of a MOD switch; the installation of lightning arresters on the termination structure; the installation of three potential transformers for relaying; and the installation of the control cables for the breaker, transformers, and MOD. The substation protection and control work would consist of: the installation of primary and back up relays; calculating and establishing new line relay setting using the line impedance; the installation of breaker failure relays and breaker control; using the fiber optic cables installed as communication path for line protection schemes and for direct transfer trip; using the fiber optic cables installed to monitor cable temperature; the installation of line metering; and updating SCADA. (CL&P 1, pp. D-18-19)
123. The tallest proposed structure to be installed within the Glenbrook Substation, a termination structure with lightning arresters, would be approximately 22 feet in height. This structure would be substantially lower than the height of the existing tallest structure, which has a total height of approximately 65 feet (CL&P 6, pp. 11-12)
124. Substation modifications would be completed within the existing fence lines of the two affected substations. (CL&P 1, p. E-7)
125. All new substation equipment would be tested before the final connection to the transmission grid. (CL&P 1, p. E-9)
126. Landscaping for the South End Substation would be coordinated with City officials as part of the Council's decision in Petition No. 999. At the Glenbrook Substation, CL&P would replace any vegetation removed as part of the SRCP. (CL&P 1, E-9; CL&P 6, p. 10)

#### Environmental Considerations

127. The SRCP is consistent with the *Conservation and Development Policies Plan for Connecticut 2005-2010* and serves a public need for a reliable source of electricity, which such plan recognizes as necessary for development in Connecticut's Regional Centers. (CL&P 1, pp. G-8-9)
128. The SRCP is consistent with the future land use and planning objectives of the Southwestern Regional Planning Agency's *2006-20015 Regional Plan of Conservation and Development*. (CL&P 1, p. G-9)

129. The Master Plan for the City of Stamford recommends that distribution lines be buried, particularly in areas such as downtown, neighborhood business districts, and on major corridors. (CL&P 1, p. F-9)
130. The proposed SRCP would not impact any extant populations of federal or state endangered, threatened or special concern species. (CL&P 1, p. F-7; Appendix B.2)
131. The proposed SRCP would not be expected to impact any fisheries. (CL&P 1, p. F-7)
132. Based upon its review of research into the SRCP's potential for affecting significant archaeological resources, the State Historic Preservation Office concluded that there is a low potential for intact and significant archaeological resources to be extant within the SRCP area. (CL&P 1, Appendix B.1)
133. There are no statutory facilities—as defined under CGS § 16-50p(a)(3)(D) to include residential areas, private or public schools, licensed child day care facilities, licensed youth camps or public playgrounds—located within 600 feet of CL&P's Preferred Route. (CL&P 1, p. F-11-12)
134. There are no areas of municipal land, scenic areas, open space, recreational areas or parks immediately adjacent to the SRCP. The nearest open space is Dasham Park, located approximately 1,000 feet away. (CL&P 1, p. F-9)
135. There are no aquifer protection areas in the vicinity of the SRCP. (CL&P 1, p. F-4)
136. For construction of the SRCP, CL&P would adhere to *Northeast Utilities Transmission Group Best Management Practices Manual for the State of Connecticut, Construction & Maintenance Environmental Requirements* – December 2011. (CL&P 1 p. G-1)
137. CL&P would deploy erosion and sedimentation controls in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* at locations where pavement or soils would be disturbed. (CL&P 1, pp. E-5, G-2)
138. If dewatering should be necessary, it would be performed in accordance with applicable permit conditions. (CL&P 1, p. E-5)
139. No potential surface water resource areas (wetlands, vernal pools or watercourses) were identified in the vicinity of the Preferred Route, the Preferred Route with Canal Street Option and the Preferred Route with Canal Street Option (Updated). (CL&P 1, p. F-4; CL&P 4; CL&P 10)
140. The Preferred Route, the Preferred Route with Canal Street Option and the Preferred Route with Canal Street Option (Updated) would cross over the East Branch of the Rippowam River, which is underground and contained within a culvert at the crossing location. (CL&P 1, p. F-4; CL&P 4; CL&P 10)
141. The Preferred Route, the Preferred Route with Canal Street Option, and Preferred Route with Canal Street Option (Updated) would not cross any areas within the 100-year as designated by FEMA. (CL&P 1, p. F-5; Tr. 1, p. 30; CL&P 4; CL&P 10)

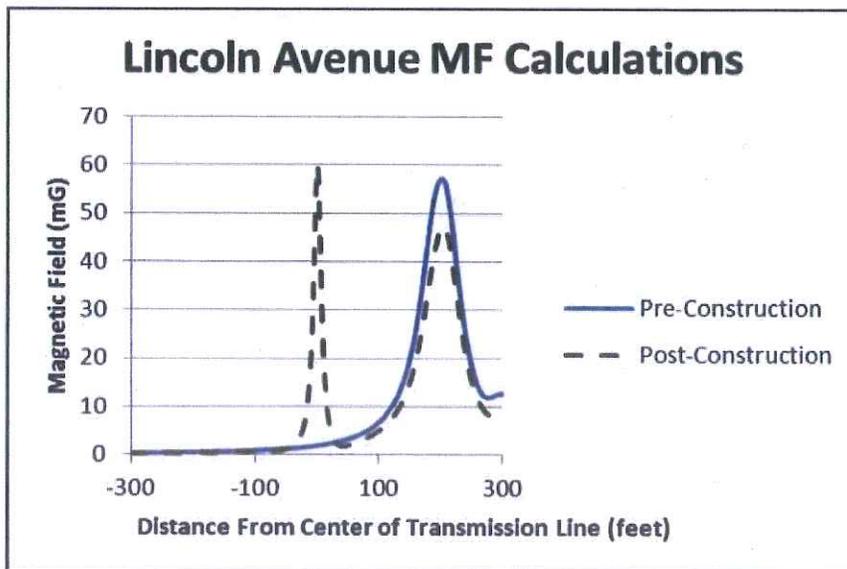
142. Groundwater quality in the vicinity of the SRCP is classified as “GB” (not suitable for human consumption without treatment) by the Connecticut DEEP. (CL&P 1, p. F-4)
143. The southwestern portion of the SRCP area is located within a coastal boundary as defined by the Connecticut Coastal Management Act (CCMA). However, none of the coastal resources identified by the CCMA would be adversely affected by the SRCP. (CL&P 1, pp. F-5-6)
144. The portion of the Preferred Route with Canal Street Option (Updated) located within the coastal boundary would be about 400 to 450 feet less than the portion of the Preferred Route located within the coastal boundary. (Tr. 1, p. 17; CL&P 10, p. 8)
145. CL&P expects only short-term and highly localized construction-related noise effects from the Project. CL&P would employ procedures to minimize construction-related noise levels including: ensuring that construction equipment is properly muffled and maintained and adjusting work schedules to minimize noise and vibration disturbances. (CL&P 1, pp. G-10-11)
146. Sound pressure levels along the property lines of the two substations that are part of the SRCP would meet applicable state regulations. (CL&P 1, p. G-11)
147. Any impacts the proposed SRCP would have on air quality would be short-term, highly localized effects resulting from construction activities and would be limited to fugitive dust and vehicular emissions. In order to minimize dust, CL&P would limit the extent of exposed/disturbed areas, would install stone construction pads at ingress/egress points, would sweep areas to remove excess accumulations of dirt, and would use water to wet down disturbed soils. (CL&P 1, pp. G-11-12)

#### **Electric and Magnetic Fields**

148. Electric fields (EF) and magnetic fields (MF) are two forms of energy that surround an electrical device. Transmission lines are a source of both EF and MF. (CL&P 1, Appendix D, p. 1 of 11)
149. Electric fields result from voltages applied to electrical conductors and equipment. They are expressed in measurement units of volts per meter (V/m) or kilovolts per meter (kV/m). Appliances within homes and the workplace are the major sources of electric fields indoors, and power lines are the major sources of electric fields outdoors. (CL&P 1, p. I-2)
150. Magnetic fields are produced by the flow of electric currents. The level of a magnetic field is commonly expressed as magnetic flux density in units called gauss (G), or in milliGauss (mG). The magnetic field level at any point depends on characteristics of the source, which can include the arrangement of conductors, the amount of current flow through the source, and its distance from the point of measurement. (CL&P 1, p. I-2)
151. In the United States, no state or federal exposure standards for 60-Hz MF based on demonstrated health effects have been established. Nor are there any such standards established world-wide. However, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) has established a level of 2,000 mG, based on extrapolation from scientific experimentation, and the International Committee on Electromagnetic Safety (ICES) has calculated a guideline of 9,040 mG for exposure to workers and the general public. (CL&P 1, Appendix D, p. 3 of 11; CL&P 1, Appendix D.4, pp. 7-8; Council Administrative Notice No. 17)

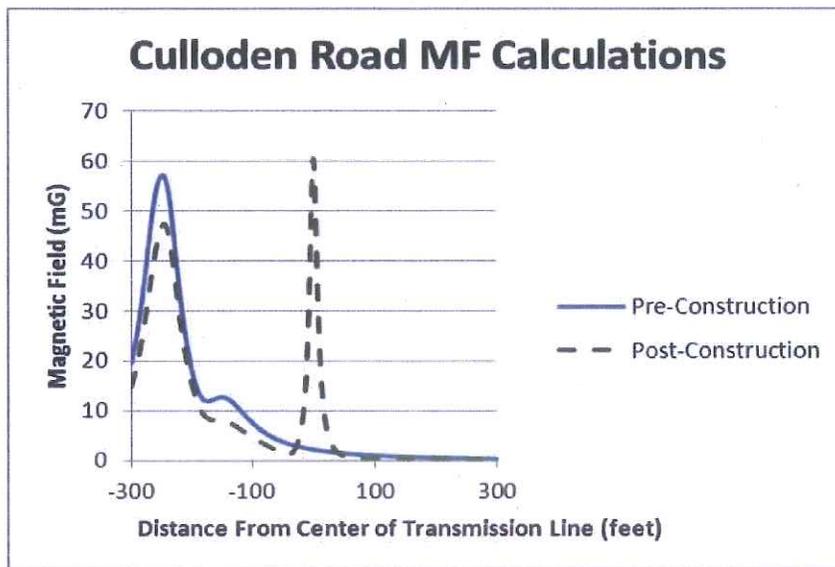
152. In December 2007, the Council adopted a complete revision of its EMF Best Management Practices (BMP). This revision was adopted after a two-year proceeding and was based on policies previously implemented by the State of California. The Council's EMF BMP provides precautionary guidelines for the reduction of magnetic field levels associated with new electric transmission lines at the edges of electric transmission right-of-ways and beyond. (CL&P 1, p. I-5)
153. The major sources of Electric and Magnetic Fields (EMF) associated with CL&P's proposed SRCP are the proposed underground line and existing overhead transmission lines on an existing right-of-way nearby. (CL&P 1, p. I-7)
154. Transformers and other equipment within the South End and Glenbrook Substations are other potential EMF sources. These sources, however, would be expected to cause little or no exposure to the general public because the strength of fields from typical substation equipment decreases rapidly with distance and reaches very low levels at relatively short distances beyond substation perimeter fences. (CL&P 1, p. I-7)
155. The exception to the normally low levels of EMF associated with substations is where transmission and distribution lines enter the substation. (CL&P 1, p. I-8)
156. No available "low cost" magnetic field management mitigation measures provide significant reduction at or outside the edges of the roadway. (CL&P 6, p. 34)
157. Other methods for mitigating magnetic fields that CL&P considered were high-pressure fluid filled cable systems, "shielding" plates, increased cable depths and cancellation loops, but CL&P dismissed these measures due to high costs, technical difficulty or limited effectiveness. (CL&P 6, p. 34)
158. CL&P incorporated two "no-cost" magnetic field measures into the base design of its proposed SRCP. These two measures are: 1) minimizing the spacing between the cables to be installed underground and 2) arranging the phases of the underground line to achieve better cancellation with the field from the existing overhead transmission lines. (CL&P 1, Appendix D: Field Management Design Plan, p. 4)
159. CL&P's Field Management Design Plan (FMDP) for the SRCP transmission line improvements is based on calculations of EMF levels included in the Council's EMF BMP and was formulated to best fit the Council's EMF BMP guidelines. (CL&P 1, p. I-7)
160. CL&P calculated pre- and post-construction EMF levels using methods described in the Electric Power Research Institute's *AC Transmission Line Reference Book – 200-kV and Above, Third Edition* and *Underground Transmission Systems Reference Book*. (CL&P 1, p. I-14)
161. In its EMF calculations, CL&P accounted for the interactions between its proposed underground transmission line and existing overhead transmission lines. (CL&P 1, p. I-14)

- 162. CL&P calculated magnetic fields for existing lines under pre-SRCP conditions for 2014 and for the proposed and existing lines under post-SRCP conditions in 2019 for three system load conditions: Annual Peak Load (APL), Peak-Day Average Load (PDAL), and Annual Average Load (AAL). Conservative assumptions were made for each load condition in order for the results to be higher than the actual magnetic fields that might be expected under the calculated load conditions. (CL&P 1, p. I-14)
- 163. CL&P took measurements of existing EMF levels at selected locations along its Preferred Route. For the purpose of taking these measurements, CL&P divided its Preferred Route into two paths. Path 1 was along Lincoln Avenue on the east side of the MNRR. Path 2 was along the streets the Preferred Route would take after crossing under the MNRR. The electric field was measured in units of kV/m, and the magnetic field was measured in units of mG. (CL&P 1, p. I-11)
- 164. The highest measurement of existing Magnetic Fields along Path 1 was 7.03 mG. The average measurement was 5.95 mG, and the median measurement was 5.97 mG. (CL&P 1, p. I-12)
- 165. The highest measurement of existing Magnetic Fields along Path 2 was 15.9 mG. The average measurement on this path was 5.2 mG, and the median measurement was 4.97 mG. (CL&P 1, p. I-13)
- 166. MF levels directly over the cable and for a distance of 25 feet will be higher than existing fields. At distances of more than 50 feet from the trench, the MR levels on the SRCP will be lower than existing fields after accounting for interactions between the proposed underground cable and the existing overhead lines. (CL&P 1, pp. I-14-19; Appendix D.3, Table 1; Tr. 1, pp. 74-75)
- 167. The changes in the MF levels away from the underground cable at residences are small compared with the guidelines from ICNIRP and ICES. (Tr. 1, p. 75)
- 168. The calculated magnetic fields on Lincoln Avenue (facing west) are shown in the table below.



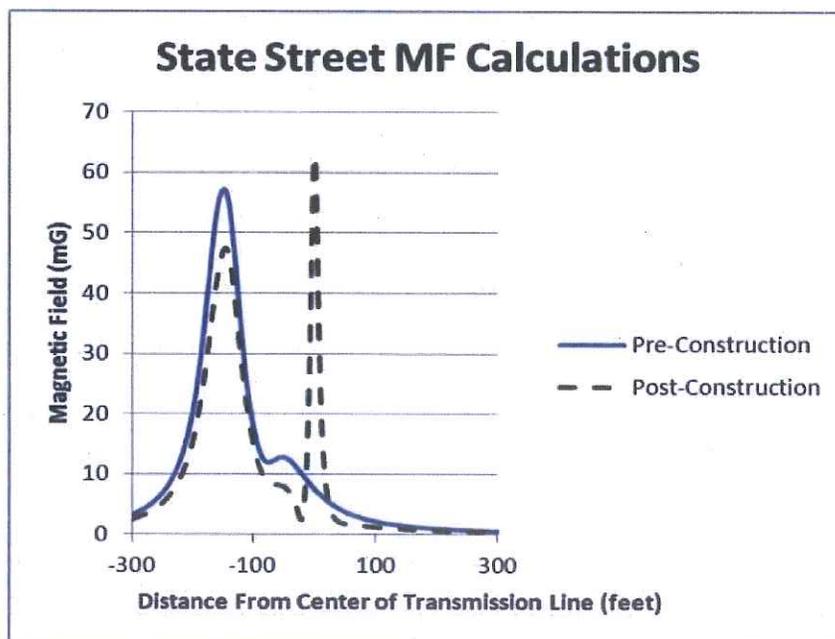
(CL&P 1, p. I-17)

169. The calculated magnetic fields on Culloden Road (facing west) are shown in the table below.



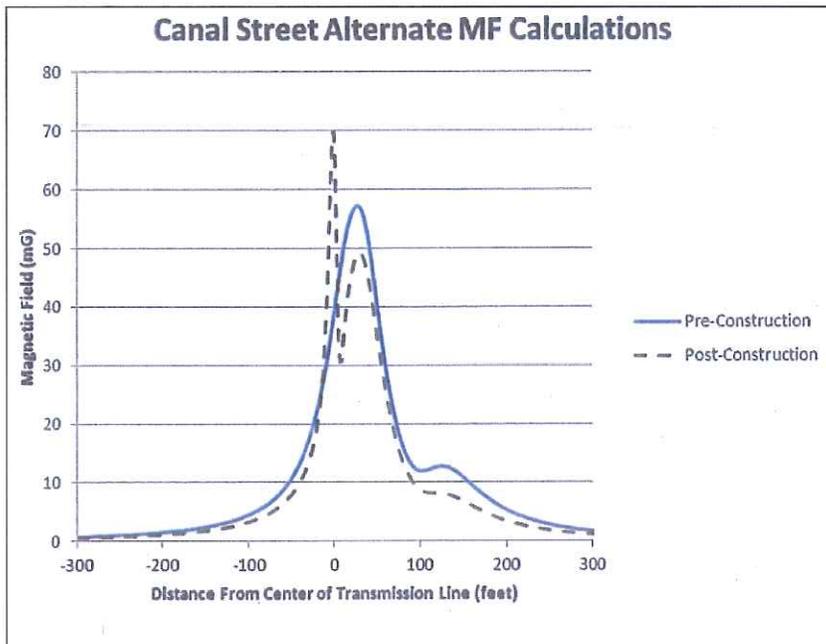
(CL&P 1, p. I-18)

170. The calculated magnetic fields for State Street (facing west) are shown in the table below.



(CL&P 1, p. I-19)

171. The calculated magnetic fields along Canal Street are shown in the table below.



(CL&P 4, p. 9)

#### Cost Allocation

172. CL&P would expect the costs of the SRCP, with the underground route, to be regionalized throughout the ISO-NE's region and amortized over a 40-year period. (Tr. 1, pp. 19-21)
173. CL&P expects that if certain costs are incurred solely to satisfy local requirements, those costs would likely be localized, that is, allocated to Connecticut customers only. (CL&P 6, p. 9)
174. If the SCRP's costs are regionalized, Connecticut's electricity customers would pay approximately 25 percent of the costs, since Connecticut uses approximately a quarter of the New England load. (CL&P 6, p. 9)
175. The SRCP would have an incremental retail rate impact of five cents per month, or 60 cents per year for a typical 700 kilowatt-hour CL&P residential customer bill. (Tr. 1, p. 20)



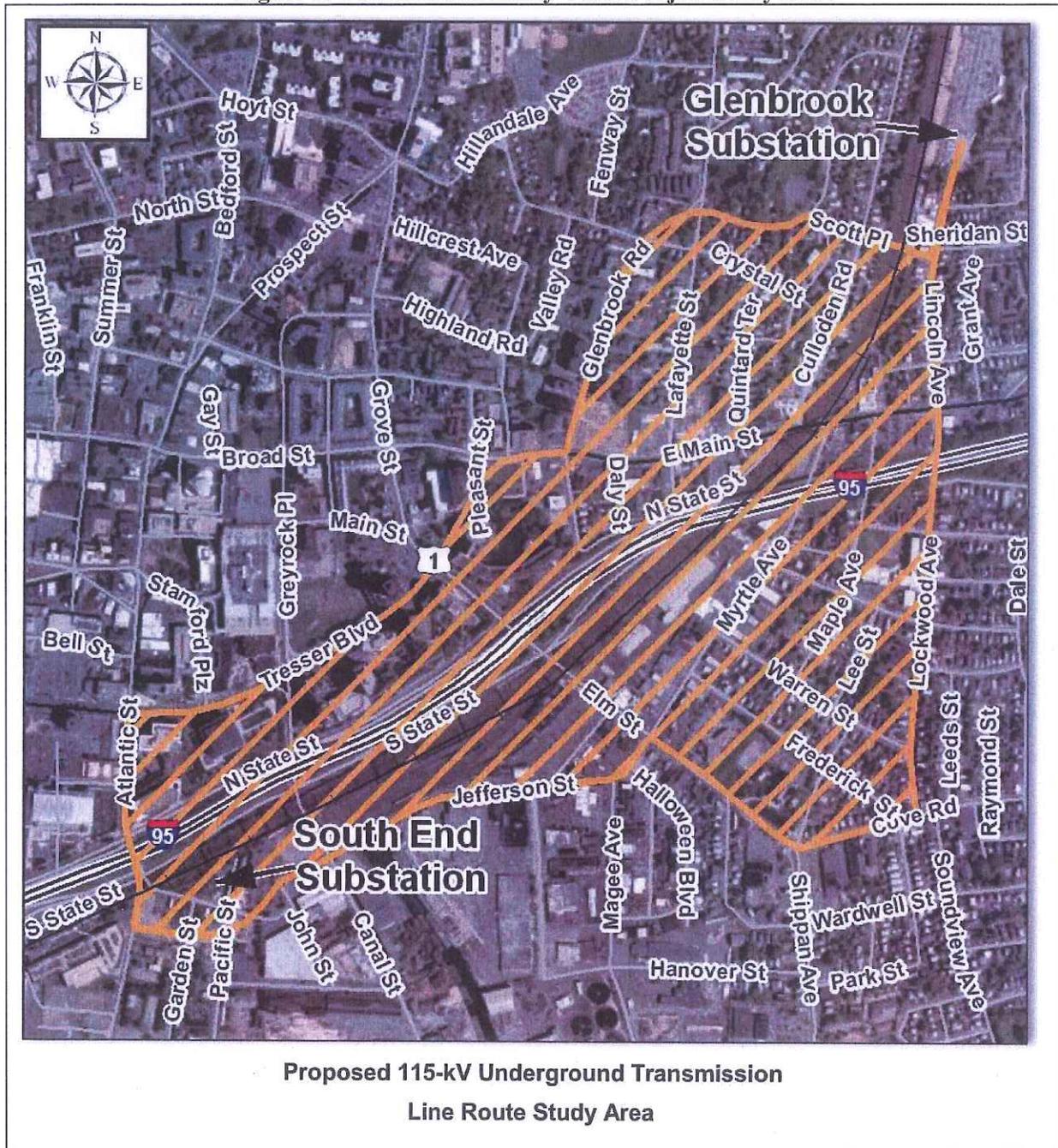
Figure 2: Aerial Photograph Showing the Three Routes Originally Proposed





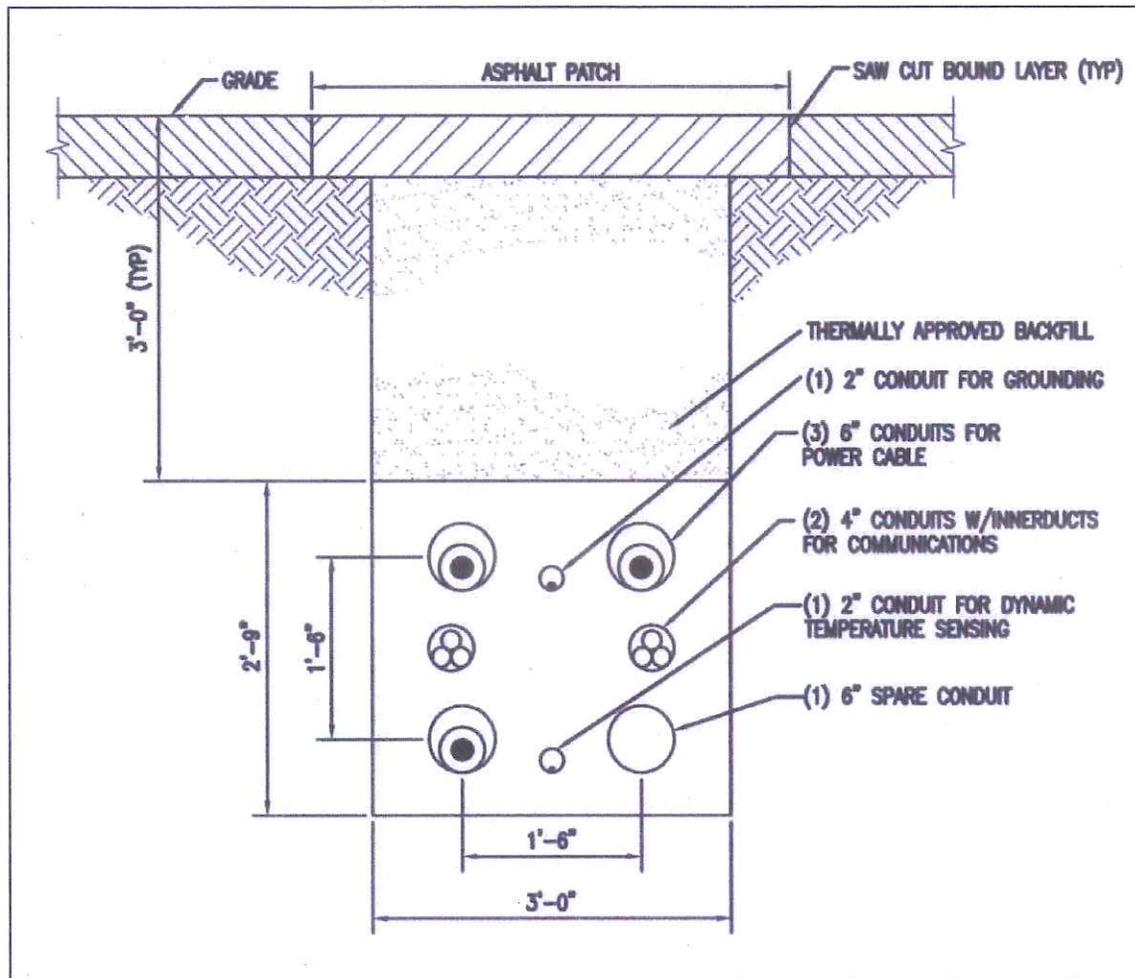


Figure 5: Stamford Reliability Cable Project Study Area



(CL&P 1, p. C-2)

Figure 6: Typical Underground Duct Bank Cross Section



Typical Underground Duct Bank Cross Section

(CL&P 1, p. D-7)

<b>DOCKET NO. 435 - The Connecticut Light &amp; Power Company</b> Application for a Certificate of Environmental Compatibility and Public Need for the Stamford Reliability Cable Project, which consists of construction, maintenance, and operation of a new 115-kV underground transmission circuit extending approximately 1.5 miles between Glenbrook and South End Substations, Stamford, Connecticut and related substation improvements.	} } }	Connecticut  Siting  Council  September 5, 2013
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**Concurring Opinion, In Part Dissenting**

This Docket proposes the construction of a 115-kV underground cable 1.4 miles between Glenbrook Substation and South End Substation, both located in the City of Stamford. It is required to serve the growing loads in the Stamford - Greenwich area and to respond to the reliability criteria promulgated by NERC (National Electric Reliability Council). It has been approved by the Independent System Operator of New England (ISO-NE), and is estimated to cost \$46.9 million, of which \$3 million is for facilities at the terminating substations. By action this day, the project has been approved by the Connecticut Siting Council.

Based upon the evidence presented in this Docket, these Members also voted to approve this Docket. Need is clearly evident; even the most casual observer can understand that the huge amount of commercial growth in the area translates into greater electric loads. Similarly, construction of an underground electric line involves no “significant adverse environmental effect” (using the language of the pertinent statute). But this vote is made with some material reservations as discussed below:

1. The cost of the proposed project is extremely high - approximately \$5,800 per foot. Because ISO-NE is likely to give final approval to the project, its cost will be allocated across all of New England. Only about 25% will be borne by Connecticut ratepayers. This allocation of costs could easily be argued to create a “small” burden upon the State. We find this logic specious. While Connecticut’s utility transmission plant may well be regionalized, 25% of the transmission plant costs of the other New England states is borne by Connecticut. This is a rational procedure to smooth and share in costs which have benefit to the region even though located on only one system. But what it means, practically, is that there is less incentive in any one project to be extremely creative and keep project costs as low as possible. In the long term, however, “what goes around, comes around” and high project costs will hurt the ratepayer.

To our mind, \$5,800 per foot is extremely disturbing. Although it can pass judgment on project need and environmental effect, the Siting Council has negligible authority to evaluate and regulate project costs. The applicant made a case under inquiry that this is a realistic cost figure. That may be, but we are concerned that what is needed is a thorough and intense review by this applicant (and any other in a comparable position) as how to drive down these costs. For example, we are uneasy that heavy reliance on consultants is as efficient and effective as in-house professional staff. From personal experience, in-house staff develops a healthy storehouse of wisdom on specific local facilities which can lead to imaginative physical solutions. Could that be beneficial in this case? Out-of-the-box thinking is critical for cost management. Subsequent projects MUST pay greater attention to capital and operating costs if electrical energy costs are to be held in check. In short, do a better job for less.

2. NERC is a major factor in defining the level of transmission reliability and how it should be best achieved. We have no quarrel with this approach to system planning, and, in the specific circumstances at hand, the call for another circuit between the proposed terminals. It is our observation that Connecticut utilities have made a strong effort to comply with NERC guidelines. But our observation also is that this effort is not taken as seriously as in other jurisdictions (and differs considerably in other countries). An important NERC guideline requires "critical" transmission circuits to be completely separate, and not share a common structure (which would otherwise reduce costs.) Yet, recent construction of a new 500-kV double circuit line on a single structure in New Jersey is completely contrary to what ISO-NE would allow in Connecticut. Similarly, New York City is now served over 345-kV lines from up-state on double circuit towers. Because of their extremely critical nature, we believe NERC guidelines would require that these lines be placed on single circuit support structures. We are completely unaware of any plans to accomplish such a change. There can be no objection to efforts to improve reliability in Connecticut. But if other jurisdictions are ignoring these efforts, it puts Connecticut ratepayers at a material disadvantage by forcing higher energy costs. While not fully applicable in this project, such significant requirements should be made consistent across the board. The Council and the applicant must place greater consideration on reliability consistency in facility design and planning. Accordingly, we recommend that ISO-NE be required to participate in future dockets regarding transmission reliability since, in previous matters, it has been acknowledged to have the dominant role.

Nonetheless, these admonitions notwithstanding, we vote to APPROVE this Docket.

Philip T. Ashton, Member  
Daniel P. Lynch, Jr., Member  
Connecticut Siting Council

<p><b>DOCKET NO. 435</b> - The Connecticut Light &amp; Power Company }          Application for a Certificate of Environmental Compatibility }          and Public Need for the Stamford Reliability Cable Project, }          which consists of construction, maintenance, and operation of a }          new 115-kV underground transmission circuit extending }          approximately 1.5 miles between Glenbrook and South End }          Substations, Stamford, Connecticut and related substation }          improvements.</p>	<p>Connecticut  Siting  Council  September 5, 2013</p>
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**Opinion**

On January 18, 2013, The Connecticut Light and Power Company (CL&P) applied to the Connecticut Siting Council (Council) for a Certificate of Environmental Compatibility and Public Need (Certificate) for the Stamford Reliability Cable Project (SRCP), which consists of the construction, maintenance, and operation of a new 115-kV underground transmission circuit extending approximately 1.5 miles between Glenbrook and South End Substations in Stamford, Connecticut and related substation improvements. The primary purpose of the SRCP is to strengthen the 115-kilovolt (kV) transmission system serving the Stamford-Greenwich Sub-area by relieving power flows, thus eliminating existing and potential reliability criteria violations and bringing the system into compliance with mandatory national and regional reliability standards. The Connecticut Office of Consumer Counsel participated as a party in this proceeding.

As part of a Working Group formed by New England’s Independent System Operator (ISO-NE) to study grid reliability in the Southwestern Connecticut area, CL&P conducted analyses of transmission load capability between the Glenbrook Substation and the South End Substation under contingency events. Their analysis indicated that the existing system is insufficient to serve projected customer demands reliably in the Stamford-Greenwich Sub-area under such events. The existing transmission system in this area could potentially experience voltage collapse with thermal overloads exceeding emergency ratings and system voltages at substations falling below acceptable limits.

The SRCP was the Working Group’s recommended solution to the identified transmission needs. With the SRCP in service, further Stamford-Greenwich Sub-area insufficiencies would likely be prevented for at least twenty years. The New England Power Pool (NEPOOL) Reliability Committee voted to recommend approval of SRCP to ISO-NE on June 20, 2012.

In addition to correcting existing insufficiencies, the SRCP would provide the Stamford-Greenwich Sub-area with a strong electric supply source arising from its connection at the Glenbrook Substation to the system of new 345- kV transmission lines installed in Southwest Connecticut since 2006—including the Bethel-Norwalk transmission line, Long Island Cables, the Middletown-to-Norwalk transmission line, and Glenbrook Cables. Further, the SRCP anticipates economic development and urban redevelopment projects planned or under construction at Stamford that have the potential to significantly affect load levels throughout the Stamford-Greenwich Sub-area. Finally, SRCP would also implement an important component of long-range plans for the expansion of Connecticut’s electric power grid in the Stamford-Greenwich area, which include a new substation in Greenwich and additional transmission connections to this substation.

During the Working Group's planning for a solution to the Stamford-Greenwich insufficiencies, CL&P considered and rejected a "no action" alternate on the grounds that doing nothing to eliminate existing and potential violations of national and regional reliability standards would be inconsistent with its obligation to provide reliable electric service. CL&P also considered several non-transmission alternatives to the proposed SRCP, namely: central generation, energy efficiency and contracted load curtailment. However, none of the non-transmission alternatives were considered to be available at levels necessary to resolve the existing reliability criteria violations.

CL&P also considered the possibility of bringing the needed additional transmission capacity from the Glenbrook to the South End Substation on an overhead circuit. One possible route for the new overhead transmission circuit would have been its existing double-circuit 1440/1450 transmission line. Utilizing this line, however, would have required CL&P to widen its existing right-of-way, which, in turn, would have required purchasing additional easements over approximately 29 properties. CL&P estimated the cost of this particular overhead solution at approximately \$107 million. Another overhead alternative would have been to add a second 115-kV circuit to an existing CL&P transmission line, designated as the 1977 Line, that runs between the Glenbrook and South End substations. In order to do this, however, all 23 of the existing transmission line structures between the two substations would have to be replaced, as they do not have the structural capacity to accommodate a second circuit. In addition, any construction on this line would be severely constrained due to restrictions imposed by Metro North to satisfy engineering and safety criteria established by the Federal Railroad Administration. CL&P estimated the cost of this overhead alternative at \$69 million. Having reviewed these overhead alternatives, the Council finds neither one feasible. The construction constraints in this highly urbanized section of Stamford would make any overhead solution more expensive than the proposed underground route.

In planning the specific route of its proposed underground transmission circuit, CL&P wanted to find the shortest feasible route with the fewest potential environmental and social impacts. A number of other important factors also needed consideration, however. To get from one substation to the other, a new circuit would have to cross the Metro North rail line, as well as Interstate Highway I-95, which is elevated in this area of Stamford. As a result of consultations with the City of Stamford, CL&P also sought to avoid impacting a city roadway improvement project known as the Stamford Urban Transitway (SUT).

CL&P identified three possible routes that it included in its initial application to the Council. These three routes were designated as: the Preferred Route, the Preferred Route with Variation, and the Alternate Route. Two of these routes—the Preferred Route and the Alternate Route—would require a jack and bore crossing of the Metro North rail line. All three routes would reach the South End Substation via Atlantic Street, which crosses under the elevated Metro North line and I-95.

In subsequent discussions with the Connecticut Department of Transportation (ConnDOT), CL&P learned that ConnDOT had plans to lower Atlantic Street as part of a Metro North bridge replacement project. The surface of Atlantic Street would be brought much closer to bedrock, making it difficult for CL&P to fit its cable under the new roadway. Therefore, CL&P reviewed other route options and presented the Council with a fourth possible route, the Preferred Route with Canal Street Option, which would cross the railroad and the highway via Canal Street instead of Atlantic Street.

After doing more detailed engineering analysis of the Canal Street Option route, CL&P realized that a portion of the route could be installed underneath the South End Substation instead of within the right-of-way of Manhattan Street, as originally planned. With this information, CL&P submitted to the Council its fifth alternate route, the Preferred Route with Canal Street Option (Updated). This route would be the shortest of all the routes presented, which would translate into lower construction costs, fewer potential conflicts with existing underground utilities, and a shorter time of construction. For these reasons, the Council favors the updated Canal Street route.

As it would be installed in a densely urbanized area, the SRCP would not cross any watercourses or wetland areas, although it would cross over the East Branch of the Rippowam River, which is underground and contained within a culvert at the crossing location.

The Preferred Route with Canal Street Option (Updated) would not cross any area within a 100-year floodplain. A short portion of the route, however, would cross a 500-year flood area in the vicinity of Canal Street just south of I-95 and the Metro North Railroad. Underground electric cables are not susceptible to flood damage because they are contained within sealed conduits. Floodwaters can infiltrate into the splice vaults used as access points for system maintenance, however, and CL&P uses standard dewatering procedures in those cases. Flooding at substations is a different matter. In the case of the substations relevant to Docket 435, the Glenbrook Substation at elevation 30 feet amsl, is not within the 500-year flood zone and is not particularly vulnerable to flooding. While the South End Substation is not within the 500-year flood zone either, its elevation at 12 feet amsl is relatively low, and it did come close to flooding in 2012 due to the high surge of Superstorm Sandy. The Council urges that the applicant consider current and future modifications at the South End Substation to ensure it is protected not only against a 500-year flood but also against a storm surge that might go beyond that.

No state-listed endangered, threatened and special concern species occur in the vicinity of the SRCP. According to the State Historic Preservation Office, the potential that any intact and significant archaeological resources exist within the SRCP area is low.

Included in the review of SRCP's environmental impacts was a review of electromagnetic fields. The SCRCP route traverses a corridor already occupied by other sources of electromagnetic fields, not only other CL&P transmission lines, but the catenaries supplying electricity to the railroad. Considered in this context, and also considering the EMF mitigation generally achieved by putting transmission lines underground in urban areas, due to shielding either from the ground itself or from the cable design, SCRCP adheres to the Council's EMF Best Practices Guidelines, and the Council finds any adverse impacts from electromagnetic fields to be de minimis.

The environmental effects that are the subject of Conn. Gen. Stat. § 16-50p (a)(3)(B) can be sufficiently mitigated and do not overcome the public need for the facility approved by the Council in the Opinion, Decision and Order.

CL&P's estimated cost for its Preferred Route was \$46.9 million. A cost of this magnitude for a transmission circuit 1.5 miles in length was a serious concern to some Council members. In most circumstances, an overhead transmission circuit would be much less expensive than underground cable. However, CL&P demonstrated that, in this densely urbanized downtown area of Stamford, with an elevated railroad and highway to cross, the usual rule-of-thumb does not apply. The Council is satisfied that, in this case, the underground transmission circuit will be the more cost-effective solution.

Who is to pay the cost of the project was another concern for the Council. In its deliberations, the Council relied on CL&P's representations that the cost of the project would be regionalized throughout the New England states that come under ISO-NE's jurisdiction and that Connecticut ratepayers would be billed for approximately 25 percent of the project's cost. Should ISO-NE decide, however, that the SRCP is unwarrantedly expensive and that a greater portion of the project's cost should be borne by Connecticut ratepayers, the Council could consider such a decision to be a changed condition and, therefore, grounds to reopen this docket.

The facility approved by this Council in the Opinion, Decision and Order conforms to a long-range plan for expansion of the electric power grid of the electric systems serving the State of Connecticut and its people and interconnected utility systems and will serve the interests of electric system economy and reliability. There is a public need for the facility approved by this Council in the Opinion, Decision and Order.

The Council has examined the policies of the state concerning the natural environment, ecological balance, public health and safety, air and water purity, and fish, aquaculture and wildlife, together with all other environmental concerns, including EMF, and balanced the interests in accordance with Conn. Gen. Stat. § 16-50p(a)(3)(B) and Conn. Gen. Stat. § 16-50p(a)(3)(C). The environmental effects that are the subject of Conn. Gen. Stat. § 16-50p (a)(3)(B) can be sufficiently mitigated and do not overcome the public need for the facility approved by the Council in the Opinion, Decision and Order. Furthermore, the Council finds that the location of the line will not pose an undue hazard to persons or property along the area traversed by the line pursuant to Conn. Gen. Stat. § 16-50p (a)(3)(E).

To ensure that the proposed project is properly developed, the Council will require the applicant to submit a Development and Management (D&M) Plan that will include, among other items, provisions for public comment and review; detailed site plans identifying structure and equipment locations; an erosion and sediment control plan consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*; a Spill Prevention, Control, and Countermeasures Plan; provisions for revegetation and maintenance of the proposed ROW; provisions for inspection and monitoring of the proposed underground cable and other accessory equipment; pre-construction and post-construction measurements of electric and magnetic fields. In order to verify consistency with the Council's Decision and Order, the Council will require the Certificate holder to document compliance with environmental requirements and prepare periodic status reports.

With the conditions listed above, the Council will issue a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a new 115-kV underground transmission circuit—the Preferred Route with Canal Street Option (Updated)—extending approximately 1.5 miles between Glenbrook and South End Substations and related substation improvements in Stamford, Connecticut.

<p><b>DOCKET NO. 435</b> - The Connecticut Light &amp; Power Company }          Application for a Certificate of Environmental Compatibility }          and Public Need for the Stamford Reliability Cable Project, }          which consists of construction, maintenance, and operation of a }          new 115-kV underground transmission circuit extending }          approximately 1.5 miles between Glenbrook and South End }          Substations, Stamford, Connecticut and related substation }          improvements.</p>	<p>Connecticut  Siting  Council  September 5, 2013</p>
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**Decision and Order**

Pursuant to CT Gen. Statutes Sec. 16-50p and the foregoing Findings of Fact and Opinion for the Stamford Reliability Cable Project (SRCP), the Connecticut Siting Council (Council) finds that the effects associated with the construction of a new 115-kV underground transmission circuit and associated facilities between the Glenbrook and South End Substations in the City of Stamford, including effects on the natural environment; ecological integrity and balance; forests and parks; scenic, historic, and recreational values; air and water purity; fish and wildlife; and public health and safety are not disproportionate either alone or cumulatively with other effects compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application. Therefore, the Council directs that a Certificate of Environmental Compatibility and Public Need, as provided by Connecticut General Statutes §16-50k, be issued to The Connecticut Light and Power Company (CL&P), for the construction, operation and maintenance of said transmission circuit along the Preferred Route with Canal Street Option (Updated).

Unless otherwise approved by the Council, the facilities shall be constructed, operated, and maintained substantially as specified in the Council’s record in this matter, and as subject to the following conditions:

1. The Certificate Holder shall construct the proposed transmission circuit along the Preferred Route with Canal Street Option (Updated).
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the City of Stamford for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
  - a. A detailed site plan showing the underground route, splice boxes, provisions for underground cable protection, substation improvements, and equipment and material staging areas;
  - b. Identification of horizontal directional drill and jack and boring sites;
  - c. An erosion and sediment control plan that includes provision for any areas for the temporary storage of fill materials and is consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* as amended;
  - d. A spill prevention and countermeasures plan;
  - e. A vegetative clearing plan;
  - f. A post-construction electric and magnetic field monitoring plan;

- g. A schedule of construction hours during nights and/or weekends and mitigation of lighting and noise;
  - h. A blasting plan;
  - i. Restoration plan to include vegetation and paving;
  - j. A decommissioning plan; and
  - k. Identification of developed areas for staging and equipment lay down, field office trailers, sanitary facilities and parking before establishing a new area.
3. The Certificate Holder shall conform to the Council's Best Management Practices for Electric and Magnetic Fields.
4. The Certificate Holder shall comply with all future electric and magnetic field standards promulgated by State or federal regulatory agencies. Upon the establishment of any new standards, the facilities granted in this Decision and Order shall be brought into compliance with such standards.
5. The Certificate Holder shall obtain any necessary permits from the United States Army Corps of Engineers, the Connecticut Department of Energy and Environmental Protection, and the Connecticut Department of Transportation and/or Metro North Railroad prior to the commencement of construction.
6. The Certificate Holder shall include an update of environmental conditions encountered during the installation of the underground transmission system as part of any periodic progress reports to be provided to the Council, as determined in the Development and Management Plan.
7. The Certificate Holder shall provide to the Council an operating report within three months after the conclusion of the first year of operation of all facilities herein, and annually thereafter for a period of three years, with information relevant to the overall condition, safety, reliability, and operation of the transmission systems.
8. This Decision and Order shall be void if all construction authorized herein is not completed within four years of the effective date of the Decision and Order, or within four years after all appeals to this Decision and Order have been resolved.
9. This Certificate may be surrendered by the Certificate Holder upon written notification to the Council.
10. The Council may reopen this docket under changed conditions should the regionalized allocation of the costs of this project differ substantially from the representations made by the Certificate Holder.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of the Decision published in The Advocate and in The Connecticut Post.

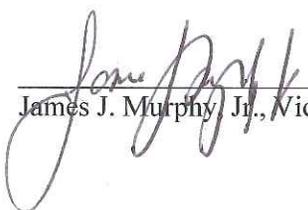
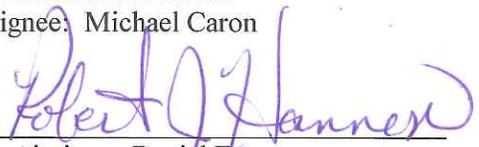
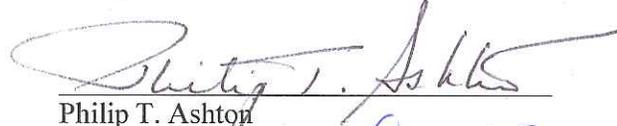
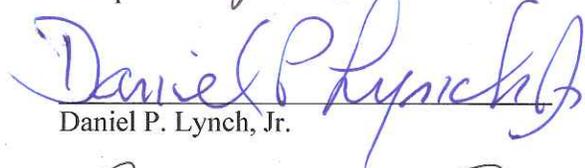
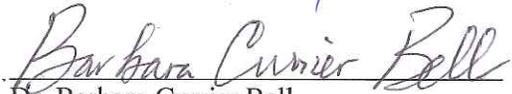
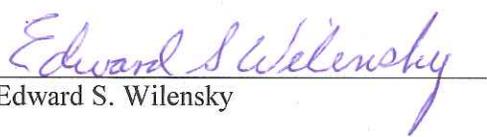
By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The Parties and Intervenors in this proceeding are:

Status Granted	Document Service	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Applicant	<input checked="" type="checkbox"/> E-Mail	The Connecticut Light & Power Co. P.O. Box 270 Hartford, CT 06141-0270	<p>John Morissette            Manager-Transmission Siting            Northeast Utilities Service Company            P.O. Box 270            Hartford, CT 06141-0270            (860) 665-2036  <a href="mailto:John.morissette@nu.com">John.morissette@nu.com</a></p> <p>Anuj Mathur            Project Manager            Transmission Projects            Northeast Utilities Service Company            P.O. Box 270            Hartford, CT 06141-0270            (860) 665-67831  <a href="mailto:Anuj.mathur@nu.com">Anuj.mathur@nu.com</a></p> <p>Jeffery Cochran, Esq.            Senior Counsel-Legal Department            Northeast Utilities Service Company            107 Selden Street            Berlin, CT 06037  <a href="mailto:Jeffery.cochran@nu.com">Jeffery.cochran@nu.com</a></p> <p>Marianne Barbino Dubuque, Esq            Carmody &amp; Torrance LLP            P.O. Box 1110            Waterbury, CT 06721-1110            (203) 573-1200  <a href="mailto:mdubuque@carmodylaw.com">mdubuque@carmodylaw.com</a></p>
Party (Approved on March 7, 2013)	<input checked="" type="checkbox"/> E-Mail	Office of Consumer Counsel	<p>Lauren A. Henault            Staff Attorney II            Office of Consumer Counsel            Ten Franklin Square            New Britain, CT 06051  <a href="mailto:Lauren.henault@ct.gov">Lauren.henault@ct.gov</a></p> <p>Joseph A. Rosenthal            Principal Attorney            Office of Consumer Counsel            Ten Franklin Square            New Britain, CT 06051  <a href="mailto:Joseph.rosenthal@ct.gov">Joseph.rosenthal@ct.gov</a></p>

**CERTIFICATION**

The undersigned members of the Connecticut Siting Council (Council) hereby certify that they have heard this case, or read the record thereof, in **DOCKET NO. 435** - The Connecticut Light & Power Company application for a Certificate of Environmental Compatibility and Public Need for the Stamford Reliability Cable Project, which consists of construction, maintenance, and operation of a new 115-kV underground transmission circuit extending approximately 1.5 miles between Glenbrook and South End Substations, Stamford, Connecticut and related substation improvements, and voted as follows to approve the proposed facility, with the Updated Canal Street Option in Stamford, Connecticut:

<u>Council Members</u>	<u>Vote Cast</u>
<hr/> Robert Stein, Chairman	Recused
 <hr/> James J. Murphy, Jr., Vice Chairman	Yes
<hr/> Chairman Arthur House Designee: Michael Caron	Absent
 <hr/> Commissioner Daniel Esty Designee: Robert Hannon	Yes
 <hr/> Philip T. Ashton	Yes
 <hr/> Daniel P. Lynch, Jr.	Yes
 <hr/> Dr. Barbara Currier Bell	Yes
 <hr/> Edward S. Wilensky	Yes

Dated at New Britain, Connecticut, September 5, 2013.