



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

June 29, 2015

Bruce L. McDermott, Esq.  
Managing Counsel-Operations  
UIL Holdings Corporation  
157 Church Street  
P.O. Box 1564  
New Haven, CT 06506-0901

RE: **PETITION NO. 1120** – The United Illuminating Company petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed modifications to the Hawthorne Substation located at 180 Hawthorne Drive, Fairfield, Connecticut.

Dear Attorney McDermott:

By its Decision and Order dated June 25, 2015, the Connecticut Siting Council (Council) ruled that this petition would not have a substantial adverse environmental effect, and pursuant to General Statutes § 16-50k would not require a Certificate of Environmental Compatibility and Public Need.

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

Very truly yours,

Robert Stein  
Chairman

RS/RM/lm

Enclosures

c: Parties & Intervenors

<b>PETITION NO. 1120</b> – The United Illuminating Company petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed modifications to the Hawthorne Substation located at 180 Hawthorne Drive, Fairfield, Connecticut.	} Connecticut } Siting } Council } June 25, 2015
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**Findings of Fact**

**Introduction**

1. The United Illuminating Company (UI), in accordance with provisions of Connecticut General Statutes (C.G.S.) §16-50k and §4-176(a), submitted a petition (Petition) to the Connecticut Siting Council (Council) on November 5, 2014 for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the proposed modifications to the existing Hawthorne Substation at 180 Hawthorne Drive, Fairfield, Connecticut (refer to Figure 1). (UI 1, p. 1)
2. UI is an electric transmission and distribution company based in Orange, Connecticut that services portions of Fairfield and New Haven Counties. (UI 6)
3. The parties to the proceeding are UI and the Town of Fairfield (Town). The grouped intervenors are Arthur Tournas and Vincent Giandurco. (Tr. 1, p. 5)
4. A study of electric reliability in southwest Connecticut performed by the regional Independent System Operator for New England (ISO-NE) has shown that under certain planning contingencies the electric transmission system in the vicinity of the Hawthorne Substation could experience low voltages and identified the need for two 20 megavolt ampere reactive (MVAR) 115-kV transmission capacitor banks to be installed at Hawthorne Substation. The purpose of the project is to meet North American Electric Reliability Corporation (NERC) reliability compliance requirements and improve the reliability of the electric transmission system in the Fairfield-Bridgeport area. (Council Administrative Notice Item No. 11; UI 1, pp. 1-2)
5. Pursuant to C.G.S. § 16-50j-40(a), on November 5, 2014, UI provided notice to the Council that the petition was provided to the Town of Fairfield First Selectman, Michael Tetreau, and five property owners abutting the site. (UI 1, 1b)
6. On November 6, 2014, the Council deemed the petition incomplete and identified deficiencies in notice. The Council requested proof of service notification to all required parties, pursuant to C.G.S. § 16-50j-40(a). (Record)
7. A field review of the petition was conducted on December 1, 2014. Council Chairman Robert Stein and Council staff member Robert Mercier met UI representatives and a local resident at the site to discuss the project. Notice of the field review was posted to the Council's website, provided to the Secretary of the State, the Town and residents who expressed interest in the project prior to December 1, 2014. (Council Petition 1120 Field Review Notice dated November 25, 2014)
8. Pursuant to C.G.S. § 16-50j-40(a), on December 4, 2014 UI provided proof of service of notice to the Council that the petition was provided to the Town of Fairfield and property abutters. (UI 1b; UI 2)
9. On January 8, 2015, the Council voted to hold a public hearing on this project. (Council meeting minutes of January 8, 2015)

10. Pursuant to C.G.S. §16-50m, the Council published a legal notice in the Fairfield Citizen on January 30, 2015 indicating the date and time of the March 31, 2015 public hearing and field review. (Record)
11. In compliance with RCSA §16-50j-21, on March 12, 2015, UI installed a sign at the entrance to the substation access drive that contained a brief description of the project, public hearing information, and Council contact information. (UI 7)
12. The Council and its staff conducted a public field inspection of the proposed project on March 31, 2015, beginning at 2:00 p.m. (Council Petition 1120 Field Review Notice dated March 23, 2015; Tr. 2, pp. 140-141)
13. Pursuant to C.G.S. §16-50m, the Council, after giving due notice thereof, held a public hearing on March 31, 2015, beginning with the evidentiary portion of the hearing at 3:00 p.m. and continuing with the public comment session at 7:00 p.m. at The Education Center, 501 Kings Highway East, Fairfield, Connecticut. (Transcript 1 – March 31, 2015 at 3:00 p.m. [Tr. 1], p. 1; Transcript 2 – March 31, 2015, at 7:00 p.m. [Tr. 2], p. 1)
14. The public evidentiary hearing was continued on April 23, 2015 beginning at 1:00 p.m. at the Council's office in New Britain, Connecticut. A portion of the written transcript containing the opening statement of the Council, verification of additional UI exhibits and swearing in of additional UI witnesses was not received by the Council due to the abrupt dissolution of the transcription vendor. All parties and intervenors in this case have provided written confirmation of witnessing of the Council's opening statement, verification of additional UI exhibits and swearing in of additional UI witnesses, as well as a waiver of any claim of procedural error regarding the transcript. The written transcript that was received by the Council begins with cross examination of UI by the Town. (Record; Transcript 3 – April 23, 2015 at 1:00 p.m. [Tr. 3], pp. 1-3; Council's May 14, 2015 memorandum; UI response to Council's memorandum, May 15, 2015; Town of Fairfield response to Council's memorandum, May 19, 2015; Giandurco response to Council's memorandum, May 19, 2015; Tournas response to Council's memorandum, May 15, 2015)

#### State Agency Comment

15. Pursuant to C.G.S. § 16-50j(g), on January 23, and April 24, 2015, the following State agencies were solicited by the Council to submit written comments regarding the proposed facility: Department of Energy and Environmental Protection (DEEP); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Agriculture (DOAg); Department of Transportation (DOT); Connecticut Airport Authority (CAA); State Historic Preservation Office (SHPO); and Department of Emergency Services and Public Protection (DESPP). (Council Correspondence dated January 23, 2015, and April 24, 2015)
16. No State agencies commented on the proposal. (Record)

#### Municipal Consultation

17. UI sent a copy of the petition to the Town of Fairfield on November 5, 2014. (UI 1, UI 2)
18. The Town of Fairfield (Town) requested party status on January 13, 2015. The Council approved the Town's request on January 22, 2015. (Town 1; Council meeting minutes of January 22, 2015)

19. In response to the Council's request of January 8, 2015, UI notified the Town of Easton of the project on January 22, 2015 as Easton is within 2,500 feet of the facility. (UI 5)
20. UI held an information meeting with Town officials and area residents on February 4, 2015. Presentation boards as well as information sheets were made available to meeting attendees. (UI 6)
21. UI met with area residents and Town representatives on April 21, 2015 to discuss project landscaping, lighting, placement of lightning masts, fence arrangement and electromagnetic field levels. (Tr. 3, pp. 48-51, 58-60).
22. The proposed project was modified after its initial filing date with the Council in response to comments from the Town, area residents and the Council. Modifications include the alteration of the height of lightning masts, addition of landscaping, changes in the fence alignment, reduction in night-time security lighting, additional protection for wetland resources, and the removal of paved surfaces to reduce storm water flow. These modifications are described in detail in the *Proposed Modification* and *Environmental Considerations* sections of this document. (Record; Tr. 3, pp. 14-16)

### **Project Need**

23. NERC, which has federal authority to set and enforce electric system reliability standards, requires that electric utilities perform a contingency analysis on an annual basis. A contingency analysis involves modeling an electric systems' performance under extreme stress, such as a line loss at peak load, and determining the effects of such a condition on key electric system components, such as substations. The analysis identifies weaknesses in the electric system, often referred to as contingency issues, allowing for engineered solutions to these contingencies to improve electric system reliability. (UI 6)
24. UI identified low-voltage contingency issues associated with the Hawthorne Substation in 2012. (UI 6)
25. UI determined that installing two 20 MVAR capacitor banks at the Hawthorne Substation would be the most cost-effective solution to resolve the low-voltage contingency issues. (UI 1, p. 4; UI 6)
26. The project was listed in the ISO-NE 2014 Regional System Plan as ISO-NE's preferred solution for meeting contingency needs. (Council Administrative Notice Item 11, pp. i, 108-110; UI 6)
27. The modification to the Hawthorne Substation to install two 115-kV capacitor banks was projected in the Council's 2102-2013 Forecast of Loads and Resources. (Council Administrative Notice Item No. 14)
28. The existing Hawthorne Substation has a capacity rating of 77 MVA. The addition of the capacitor banks would increase the substation capacity rating to 88 MVA, serving to correct potential low voltages within the surrounding electric system. (UI 6, FAQ sheet; Tr. 3, pp. 11-12; Tr. 4, p. 4)
29. The substation has operated at an average of 90 percent of its rated capacity under peak summer loading conditions during the last seven years. It reached full capacity once in the last seven years during peak summer load. The proposed modifications would ensure the substation does not exceed its rated capacity during peak summer conditions. (UI 13, R. 38, R. 40; Tr. 3, p. 12)
30. The addition of the two capacitor banks is necessary to eliminate low voltage conditions if the 115-kV transmission line between the Old Town Substation (Bridgeport) and the Hawthorne Substation (Fairfield) were to fail. The project would also provide additional capacity during peak summer load conditions. If the transmission line failed or the capacity of the substation was exceeded, low voltage (brownout) conditions would occur in the surrounding area, crippling electrical equipment. (UI 6; UI 13, R. 47; Tr. 2, pp. 145-146)

31. Other methods of remedying the low-voltage contingency issues at the substation include transformer upgrades or the addition of transmission lines in the existing right-of-way, but these options are not cost-effective. (UI 6; Tr. 3, p. 13)
32. Although the low-voltage contingency issues could be also resolved by upgrading the Old Town Substation in Bridgeport, located east of the Hawthorne Substation, this solution is not cost-effective or timely, as the entire substation would need to be reconstructed. (UI 6; Tr. 3, p. 11)
33. Once the project is completed, UI does not expect to perform additional upgrades at the Hawthorne Substation or to construct a new substation in Fairfield in the next 10 years. (UI 8, R. 7; UI 12; UI 14, R. 18)
34. The estimated project cost is \$8,900,000. (UI 1, p. 7)
35. UI would begin construction in July 2015, with completion in April 2016. Construction work hours would typically be 7:00 a.m. to 5:00 p.m. Monday through Friday. Work outside of these hours and days may occur for the installation of critical equipment. (UI 1, p. 7; Tr. 2, p. 148)

#### **Existing Substation**

36. The existing Hawthorne Substation is a 115-kV to 13.8-kV distribution substation constructed in the early 1970's. (UI 1, p. 7)
37. The substation is located on a 2.8-acre parcel owned by UI, including a 0.72-acre parcel west of the existing substation that was recently purchased from General Electric (GE). (UI 1, p. 7; Tr. 1)
38. The existing substation is accessed by a paved driveway extending west from Hawthorne Drive. The lower portion of the driveway extends through the property at 160 Hawthorne Drive. UI holds an easement across the 160 Hawthorne Drive property for access to UI's landlocked substation property. (UI 1, p. 7; UI 8, R. 1)
39. The existing substation yard is approximately 30,800 square feet and is surfaced with crushed stone. The existing southern substation fence line is approximately 55 feet from the southern property line. (UI 4, Site Plan)
40. Surrounding properties include the GE office complex to the north, woodland owned by GE to the west, and residential development to the south and east. (UI 8, R. 1)
41. An Eversource transmission line right-of-way is located immediately south of the substation and contains two separate transmission lines. The existing substation is interconnected to one of the Eversource 115-kV transmission lines. (UI 4, Site Plan)

#### **Proposed Modifications**

42. The existing substation yard would be expanded by approximately 20,700 square feet, primarily to the south and west, to accommodate the new capacitor banks. The expanded substation yard would have a crushed stone surface to match the existing yard. (UI 4, Site Plan)

43. The proposed capacitor banks and associated equipment would be approximately 205 feet long and 26 feet high at their highest point. They are of similar height to existing substation equipment: for example, the existing substation buswork is at a height of 26 feet and the dead-end structures at the south end of the substation are 35 feet in height. (UI 1a, Site Plan; Tr. 1, pp. 100-101)
44. The substation would feature protection systems and remote monitoring systems that disconnect malfunctioning equipment immediately upon detection of an operational issue, minimizing any effect on the system reliability, public safety, and the environment. (UI 9, R. 1)
45. A new 14-foot high chain link fence with a two-inch mesh would be installed around the perimeter of the entire substation. The fence would feature an anti-climb slat design woven throughout the mesh. (UI 1a, Site Plan; Tr. 1, pp. 63-65)
46. The western expansion area consists of a north-sloping wooded hillside with a depressed seep area at the north end. The southern expansion area also has a northward slope and is dominated by shrubby vegetation. UI would re-grade the south and west expansion area to create a level yard. (UI 4, Site Plan).
47. The proposed grading limits on the south edge of the substation would be at the edge of UI's property line. Grading would cut into the existing slopes, creating an approximate six to seven-foot side slope above the expansion area on the west and south sides. (UI 4, Site Plan)
48. The proposed fence line along the south side of the substation would be approximately 17 feet from the property lines at 172 and 186 Schiller Road, and at 274 Hawthorne Drive. (UI 13, R. 11)
49. The nearest residential dwelling to the proposed fence line is 173 feet to the south at 172 Schiller Road. (UI 8, R. 4)
50. Although UI submitted Site Plans that depict square corners on the southeast and southwest sides of the substation and a small expansion on the east side of the substation that creates an irregular fence line, UI would examine the feasibility of creating angled corners and a straight fence line to reduce the overall expansion area. Additionally, UI would examine a reduction of the expansion area to the south, increasing the distance from the new fence to abutting property lines. (UI 19; Tr. 3 p. 15)
51. To facilitate site construction and the potential for the delivery of a mobile transformer in the event of an emergency, UI is proposing to add 8,500 square feet of crushed stone surfaces outside of the substation yard, extending to the northeast corner of the property. (UI 4, R. 1; UI 19; Tr. 1, p. 100)
52. Approximately 1,385 square feet of pavement would be removed west of the existing substation control building to accommodate the expansion. A narrow 650 square foot strip of pavement would be added to existing pavement on the north side of the control building to create an access drive for an additional proposed substation access gate on the northwest side. (UI 19)
53. A third access gate would be installed along the west side of the substation to provide maintenance access to exterior areas of the substation yard. No access drive would serve this gate. (UI 4, R. 7)
54. UI proposes to install seven 70-foot lightning masts in addition to three existing 70-foot masts to ensure proper lightning protection. The number of masts necessary to offer proper lightning protection of critical electric infrastructure was determined using recommended electric industry standards. (UI 1, p. 4; UI 11, R. 3; UI 13, R. 1; Tr. 1, p. 25)

55. Based on comments from abutting residents, UI could alter the proposed lightning protection system by reducing the height of the proposed lightning masts to 55 feet. This reduction in height would require one additional mast on the west side of the substation and the installation of five-foot poles on the existing dead-end structures in the substation to achieve the same level of required lightning protection as the original proposal. (Tr. 3, pp. 16, 33, 81)
56. UI could also relocate the eastern lightning mast from the southeast corner of the substation, close the property line at 274 Hawthorne Drive, to a more interior location. (Tr. 3, pp. 16, 33, 81)
57. UI proposes to install new security lighting to be used on an as-needed basis except for one light mounted on a 30-foot wood pole that would be kept on at night, illuminating the access gate area of the substation. When operational, all lighting is designed to illuminate the substation yard and perimeter fence area and would not extend beyond the property boundaries. (UI 10, R. 1; UI 13, R. 7; Tr. 1, pp. 17-18; Tr. 3, pp. 14, 30-31)

### Environmental Considerations

58. UI performed a Phase I and Phase II Environmental Assessment of the newly-acquired GE parcel. The assessments determined the parcel was used as a gravel quarry prior to GE acquiring the land in 1974. The quarry reverted to the present day woodland. Soil samples taken in the former quarry area found no evidence of environmental contamination from past disturbance and site use. (UI 9, Response 3; UI 18, R. 9)
59. A seep area is located along the north end of the parcel and within the substation expansion area. According to the petitioner, the seep area was surveyed in September 2014 and again in April 2015 for the presence of hydric soils using guidelines established by the U.S. Army Corp of Engineers, United States Department of Agriculture Central-Northeast, and the State of Connecticut. The seep area did not meet wetland criteria. (UI 4, R. 4; UI 1, 18; Tr. 3, pp. 34-35, 86-87)
60. The seep area appears to contribute to the hydrology of a wetland identified on GE's property, 19 feet from UI's north property line. Although the seep area would be filled to expand the substation, development of the project would not affect the hydrology of the wetland as post development run-off characteristics would not be significantly altered. (UI 4, R. 4, Site Plan; UI 18, R. 4, R. 6; Tr. 3, pp. 80-81)
61. The identified wetland on the abutting GE property is described as an isolated non-vegetated concave depression wetland. It has a discharge flow channel that leads to a roadside drainage swale on GE property. (UI 4, R. 4, Site Plan; UI 18, R. 7)
62. UI assessed the identified wetland for vernal pool characteristics in April 2015. The assessment determined the wetland does not support vernal pool obligate amphibian species and, therefore, does not have the characteristics to be classified as a vernal pool. (UI 18, R. 7)
63. Erosion and sedimentation controls would surround the construction areas. If requested, UI would deploy an additional row of erosion and sedimentation control along the north property boundary to provide additional protection of the adjacent off-site wetland. (UI 4, R. 4, Site Plan; UI 18, R. 4, R. 6; Tr. 3, pp. 80-81)
64. The substation property is not within a Federal Emergency Management Agency designated 100-year or 500-year flood zone. (UI 4, R. 4)
65. The expansion area to the west would occur in a wooded area and would require the removal of 40 trees of one-foot diameter at breast height. Expansion of the substation fence line to the south would require the

removal of mostly shrub vegetation. One tree would be removed to accommodate the gravel turnaround area in the northeast corner of the substation property. (UI 1, p. 6; UI 13, R. 14)

66. The substation expansion area is in proximity to a known record of the eastern box turtle, a State species of special concern. The record, entered into the DEEP Natural Diversity Database, was for a turtle found approximately 200 yards from the proposed construction area. The substation expansion area could be in a turtle's home-range, but the expansion area itself is suboptimal habitat for box turtle nesting and hibernating, as it contains a seep area and is located adjacent to a woodland edge, rather than interior forest habitat that box turtles prefer. (UI 4, R. 3; Tr. 1, pp. 82-86; Tr. 3, pp. 23-25)
67. UI would implement an Eastern Box Turtle Protection Program as part of their construction practices that includes DEEP-recommended construction practices to reduce impact to turtle populations. (UI 4, R. 8; Tr. 1, p. 86; Tr. 3, p. 7)
68. After its initial petition filing for this project, UI reduced the amount of substation impervious surfaces by proposing to install crushed stone access ways in lieu of pavement, and removing some existing paved areas near the control house. These changes result in a net decrease of 785 square feet of impervious paved surfaces (new and existing), thus reducing stormwater runoff. (UI 9, Sec. 5.3; UI 19; Tr. 3, pp. 75-77)
69. Once the site is constructed, stormwater flow from the site generally moves from impervious surfaces onto adjacent pervious surfaces. Stormwater flow from the paved access drive and parking area would flow down the driveway to a catch basin located in the driveway and to catch basins along Hawthorne Drive at the base of the driveway. Stormwater flow from the existing access drive and associated parking area would flow southward, down the access drive, away from the identified wetland on the GE property. (UI 9, Sect 5.3; Tr. 1, pp. 27-29)
70. UI would evaluate the existing catch basin in the driveway to determine if it is effective in collecting storm water flows. (Tr. 1, p. 29)
71. Prior to the site plan revision, the Town Conservation Department requested that UI construct stormwater mitigation to prevent accelerated stormwater flows from impacting the adjacent wetland to the north. A revised stormwater analysis based on the revised site plan was not prepared, and thus the Town did not have an opportunity to review proposed stormwater flow characteristics in order to provide further comment. (Town 5; Tr. 3, pp. 73-74)
72. Noise levels from normal operation of either existing or proposed substation equipment would not exceed Town or State regulatory criteria at the property boundaries. Existing background noise measurements taken during the early morning hours before traffic, birds, and other background noise became more prominent, determined that the noise from existing substation operations as well as noise from other sources ranged 36-38 dBA at the south property boundary, below the Town of Fairfield residential limit of 45 dBA and the State residential limit of 51 dBA. Noise modeling indicates operation of the new capacitor equipment would add minimal amounts of noise, and, collectively, subsequent substation operations would not exceed regulatory criteria. (UI 15)
73. Construction activities would require the cutting of aluminum. All cutting would be performed using non-ferrous saw blades with appropriate worker protection. Cutting activities would not create fugitive dust but rather metal shavings that would be contained within the work area. (Tr. 3, pp. 37-38, 40-42)
74. The project would have no impact on archeological or historic resources. (UI 17)

### Visibility

75. The existing substation, including the substation fence, substation dead-end structures, buswork, lightning masts and electric lines connecting the substation to the Eversource transmission lines, as well as Eversource transmission towers, are visible from the backyards of the abutting properties at 274 Hawthorne Drive, 172 Schiller Road, and 186 Schiller Road. All three properties have mature evergreen and deciduous trees in rear yard areas. The westward expansion area would occur primarily behind 186 Schiller Road. (UI 6d; UI 8, R. 1; Tournas 4, Tournas 5)
76. UI would be willing to install plantings on abutting properties along the south edge of the substation, contingent upon approval from both the underlying landowner and Eversource, which requires that vegetation not exceed 15 feet in height to maintain adequate clearance for the overhead transmission lines in the adjacent right-of-way. UI could not install plantings along the south edge of its property because construction would create a steep side slope along the property line and visual clearance is required for substation security. (UI 1a, Site Plan; UI 4, R. 6; Tr. 1, p. 26, Tr. 3, p. 15)
77. The substation would also be screened by privacy slats installed on the perimeter chain link fence. The slats would feature a wing clip design that prevents slats from sliding down through the fence links. The wing slats can only be applied to two-inch mesh. (UI 14, R. 17; Tr. 1, p. 25; Tr. 3, pp. 82-83)

### Magnetic Field Levels

78. International health and safety entities, including the World Health Organization, the International Agency for Research on Cancer (IARC), and the International Commission on Non-Ionizing Radiation Protection (ICNIRP), have studied the scientific evidence regarding possible health effects from magnetic fields (MF) produced by non-ionizing, low-frequency 60-Hertz alternating currents in transmission lines. Two of these entities attempted to advise on quantitative guidelines for milligauss (mG) limits protective of health, but were able to do so only by extrapolation from research not directly related to health: by this method, the maximum exposure advised by the International Committee on Electromagnetic Safety (part of IARC) is 9,040 mG, and the maximum exposure advised by the ICNIRP is 2,000 mG. Otherwise, no quantitative exposure standards based on demonstrated health effects have been set world-wide for 60-Hertz MF, nor are there any health-related state or federal standards in the U.S. (Council Administrative Notice Item 13; UI 18, R. 10, pp. 13-14)
79. Existing MF sources in the project area come from the existing 115-kV transmission lines, existing substation and underground distribution lines leading from the substation. (UI 18, R. 10, Executive Summary)
80. UI conducted modeling of existing and future MF levels around the perimeter of the substation. MF modeling indicates no significant change in MF levels at the substation fence line or property lines as a result of the project. The transmission lines contribute the greatest share, with levels under the transmission lines ranging from 35 mG to 40 mG depending on line loading. (UI 18, R. 10, Executive Summary; Tr. 1, pp. 43-49)
81. Once the project is completed, the largest increase in MF levels would occur under peak load conditions when both capacitors are operating. This increase would occur on the west side of the substation, where levels would increase by 2 mG to 7 mG at the fence line. Along the south side of the substation, the largest increase in MF levels would be 4.6 mG under the existing transmission lines, due to increased electrical loads that the lines would carry. (UI 18, R. 10, pp. 21-22; Tr. 1, pp. 43-46)

82. The existing and calculated MF levels for this project are less than 3.5 percent of the ICNIRP exposure limit advised for the general public. (UI 18, R. 10, p. 23)
83. MF levels decrease sharply with distance from the source. For instance, MF levels 150 feet from the substation would only increase 0.5 mG and 1 mG under average and peak conditions, respectively. (Tr. 1, pp. 43-46)
84. Although substations are not the subject of the Council's *EMF Best Management Practices for the Construction of Electric Transmission Lines in Connecticut*, UI studied the projected MF levels of the proposed project at the Council's request. Not only do the projected MF levels comply with recognized exposure standards, UI applied certain design elements that comport with the Council's document as follows:
- a) the new capacitor banks are proposed for the west side of the substation, a location that is farthest away from adjacent residences as possible, thus reducing MF from this source; and
  - b) an approximate 17-foot buffer zone would be maintained between the UI property line and the proposed fence line.
- (Council Administrative Notice Item 13; UI 18, R. 10, p. 13; Tr. 1, pp. 72-73)

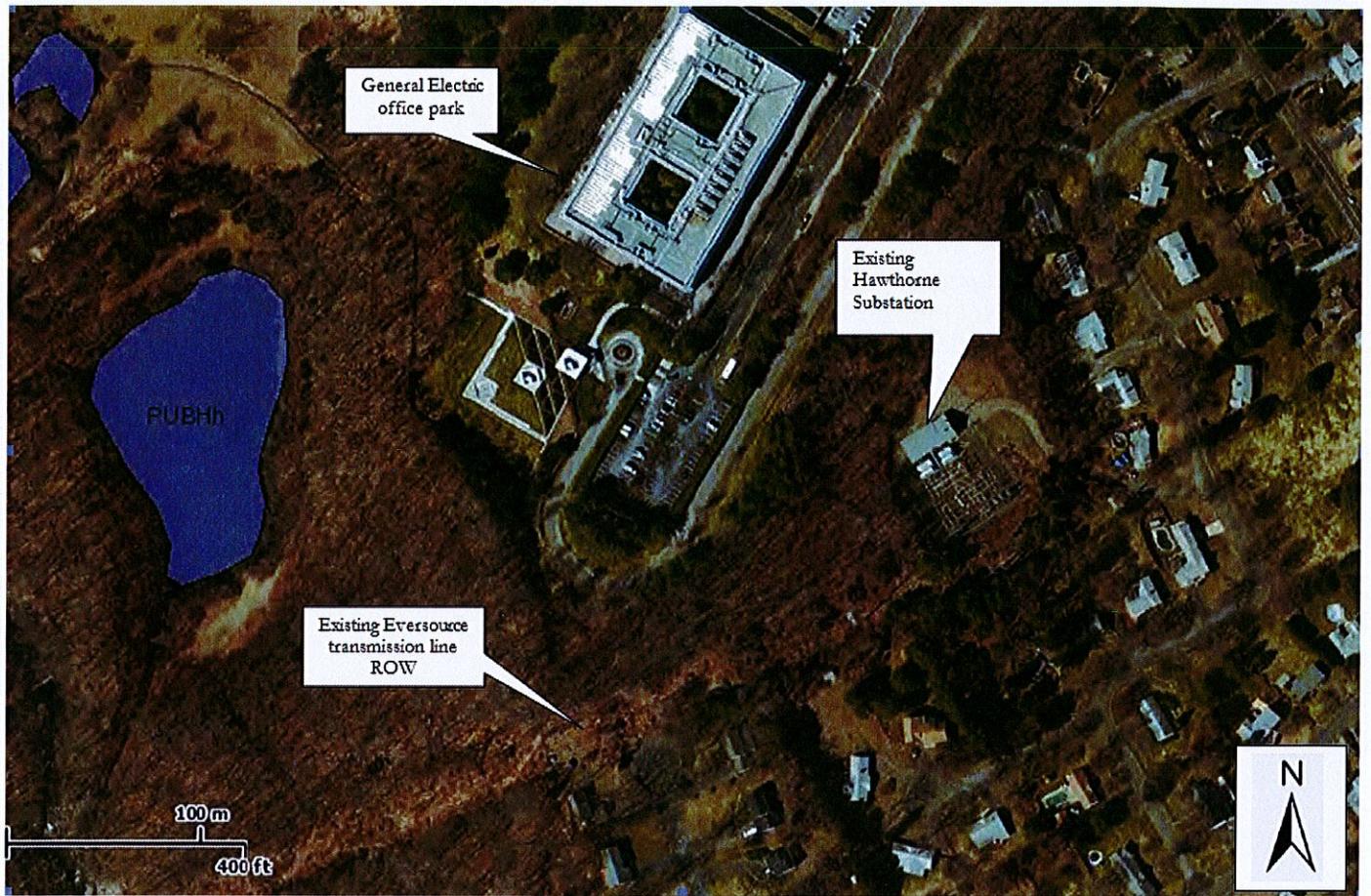


Figure 1: Location of existing Hawthorne Substation at 180 Hawthorne Drive. (UI 4, R. 4, Atch. A)

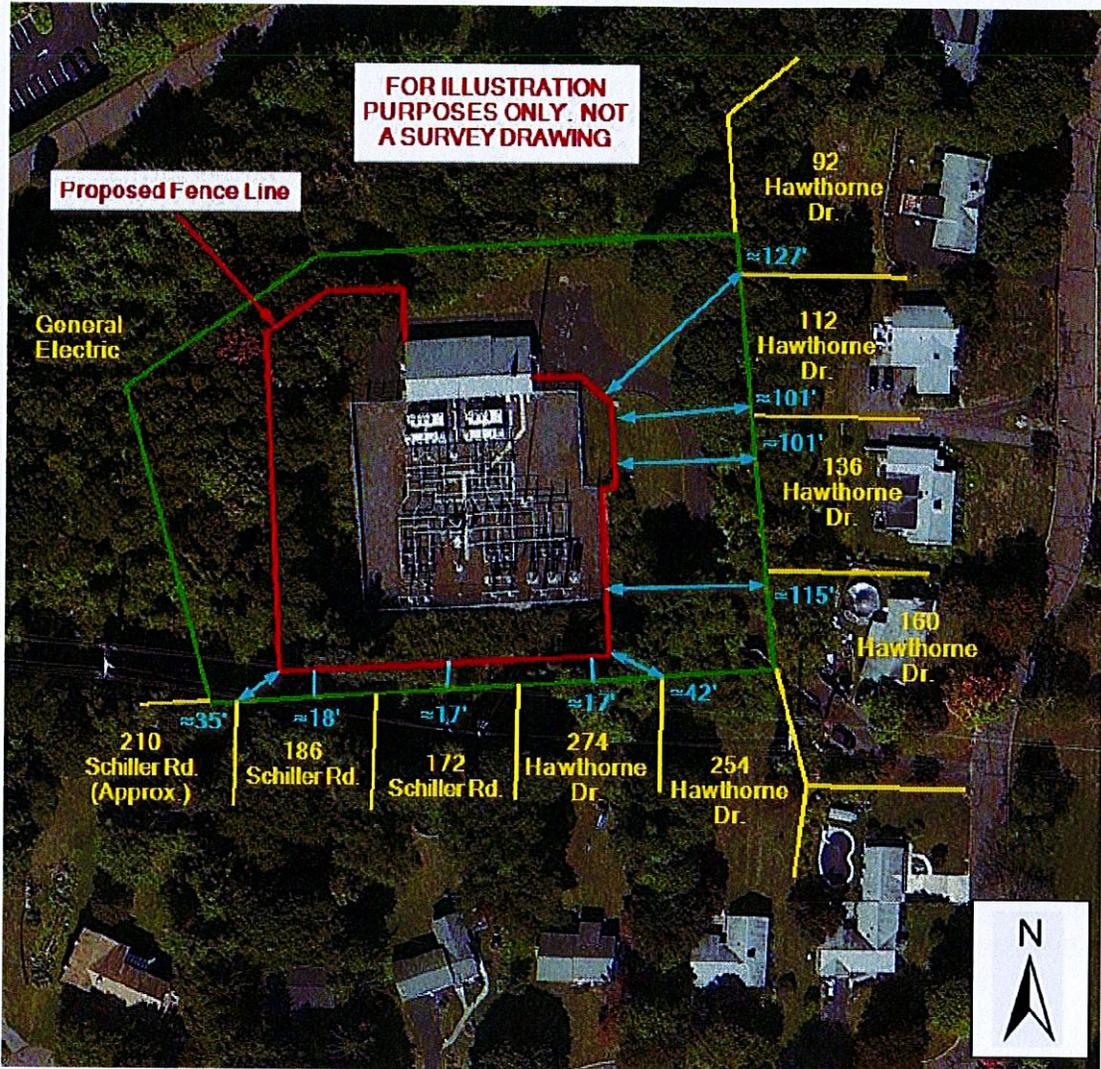


Figure 2: Proposed expansion area of Hawthorne Substation. Distances to abutting residences from initial proposed fence line shown - UI would increase the distance of the proposed fence to the south abutting properties. (UI 13, R. 11)

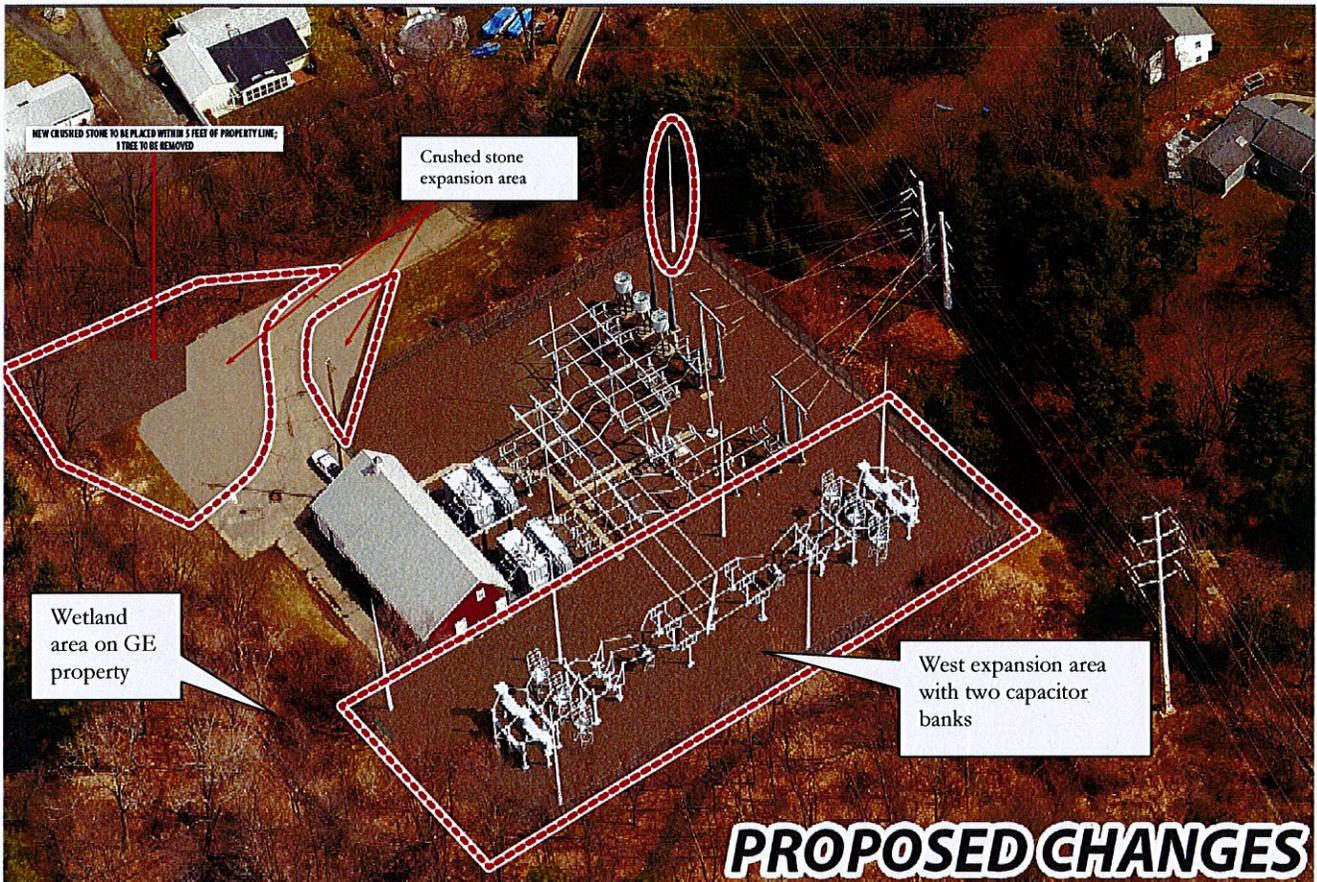


Figure 3: Photosimulation of proposed modifications. (UI 3) (alternative fence alignment and alternative lightning mast protection system not shown)

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**Opinion**

On November 5, 2014, The United Illuminating Company (UI) submitted a petition to the Connecticut Siting Council (Council) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for proposed modifications to the existing Hawthorne Substation located at 180 Hawthorne Drive, Fairfield, Connecticut. The parties to the proceeding are UI and the Town of Fairfield (Town). The grouped intervenors are Arthur Tournas and Vincent Giandurco.

The purpose of the proposed project is to provide a solution to low-voltage weaknesses under contingencies identified for UI's southwest Connecticut service area in an analysis by the regional Independent System Operator for New England (ISO-NE). A contingency analysis involves modeling an electric system's performance under extreme stress, such as a line loss at peak load, and determining the effects of such a condition on key electric system components, such as substations. The analysis identifies weaknesses in the electric system, often referred to as contingency issues, allowing for engineered solutions to these contingencies to improve electric system reliability.

UI identified low-voltage contingency issues associated with the Hawthorne Substation in 2012. To resolve them in the most cost effective way possible, UI proposes to install two 20 megavolt ampere reactive (MVAR) capacitor banks and associated equipment at the Hawthorne Substation. The addition of the two capacitor banks is necessary to eliminate low-voltage conditions if the 115-kV transmission line between the Old Town Substation (Bridgeport) and the Hawthorne Substation (Fairfield) were to fail. The project would also provide additional capacity during peak summer load conditions. If the transmission line failed or the capacity of the substation was exceeded, low-voltage (brownout) conditions would occur in the surrounding area, crippling electrical equipment used by UI's customers. The modification to the Hawthorne Substation was identified in the Council's 2012-2013 Forecast of Loads and Resources, and ISO-NE listed the proposed modification project in its 2014 Regional System Plan as the preferred solution to the low-voltage contingency issues.

The existing Hawthorne Substation is a 115-kV to 13.8-kV substation located on a 2.8-acre parcel owned by UI. It is located in a commercial and residential area of Fairfield with a large General Electric office park to the north and west and residences to the south and east. An Eversource transmission line right-of-way is located immediately south of the substation and contains two separate transmission lines, one of which is looped into the substation. Vehicular access to the substation is from a paved driveway extending from Hawthorne Drive and across a residential property at 160 Hawthorne Drive before entering UI's own property. UI holds an easement across the 160 Hawthorne Drive property for access to UI's landlocked substation property.

To accommodate the proposed capacitor banks, UI has acquired 0.7 acres from its neighbor GE to add to its existing property, allowing it to expand the existing substation yard to the south and west by 20,700 square feet. With this expansion, the proposed fence line would be 17 feet from the abutting properties to the south.

The proposed capacitor banks and associated equipment would be approximately 205 feet long and 26 feet high at their highest point, which is of similar height and design to that of existing substation equipment. To facilitate construction and the possible future delivery of a mobile transformer in the event of an emergency, UI is proposing to add 8,500 square feet of crushed stone surfaces outside of the yard, extending to the northeast corner of the property. Other improvements include the realignment of existing substation fencing to accommodate a new gate, installation of lightning masts to protect critical substation equipment, and the installation of security lighting.

During the field review held on December 1, 2014, the Council requested UI to provide notice to property owners abutting the south side of the substation. UI complied with this request on December 4, 2014. UI also held a meeting with the town and residents on February 4, 2015, which included a field review of the site, to discuss the project, answer questions and offer reasonable project design changes to resolve neighborhood concerns. While the petition was pending, several concerns were raised by state legislators, neighbors and parties and intervenors regarding whether proper notice was provided. Specifically, there was concern that one of the co-owners of 186 Schiller Road, Ms. Stacey Tournas, was not properly notified by certified mail at her residence in Trumbull; however, Mr. Jason Tournas, the other co-owner of 186 Schiller Road, was properly notified by certified mail. Under Connecticut law, notice to one co-owner of a property is notice to all co-owners of a property. The Council notes that although claims of defective notice were made and the Council did have to request notice be provided to the property owners abutting the south side of the substation, other forms of notice required for a public hearing, including publication of notice in the *Fairfield Citizen* and a posted sign in the vicinity of the site property announcing the project, date and time for the public hearing, with contact information for the Council, achieved the goal of informing the neighbors and the public of the project, as evidenced by the large attendance at the Council's public comment session held on March 31, 2015.

Based on concerns raised at a neighborhood meeting held on February 14, 2015, at the Council's subsequent public hearing, and at a second neighborhood meeting held on April 21, 2015, UI indicated it would be willing to realign the proposed fence line by eliminating jogs and increasing the distance between the south fence line and abutting residences. The Council finds that this proposed fence realignment would improve site aesthetics and thus will order UI to maximize the distance between the abutters and the substation fence line to the greatest extent possible, and to design the substation using angled corners where possible to reduce the size of the substation yard.

Additionally, UI agreed to screen substation equipment by planting shrubs along the south side of the substation, if permitted by underlying private landowners and by Eversource, which must maintain vegetation clearance under the transmission lines. Privacy slats attached to the fence using a wing clip design that prevents the slats from sliding down through the fence mesh would also be installed.

Current views of the substation, which have existed since the 1970s, when the substation was built, include chain link fencing, substation equipment, buswork, transmission towers, dead-end structures and lighting masts. Given the various aesthetic mitigations agreed to by UI, the Council finds that views of the substation after expansion would not differ significantly from current views.

Another issue raised by residents has to do with the lightning masts. Implementing the latest industry-wide method of protecting substation equipment from lightning, UI proposes seven new 70-foot tall lightning masts, matching the height of the three existing masts in the existing substation yard. UI could reduce the visibility of the proposed masts by reducing the height to 55 feet, but this change would require one additional mast on the west side of the existing substation yard to maintain the same level of

lightning protection as the original design. Abutters to the south objected to a new mast proposed for the east side of the substation. UI stated they could move this mast slightly to the north. The Council will order that UI utilize the final set of changes regarding height, number, and placement of lightning masts in its final project design.

In regards to substation lighting, UI originally proposed to install various LED lights that would be activated at night to illuminate the entire substation yard for security purposes. However, after listening to neighborhood comments, UI agreed to alter the lighting plan by keeping only one light on at night: it would illuminate the access gate alone. Other lights would be turned on as needed for particular situations, such as servicing equipment or responding to an emergency. The Council finds this to be a reasonable accommodation.

Expansion of the substation yard to the west would occur in a wooded area and would require the removal of 40 trees of one-foot diameter at breast height. The wooded area contains a seep that drains northward off UI's property to a wetland on GE's property, 19 feet from the proposed construction area. UI's consultants examined the seep in accordance with guidelines established by the U.S. Army Corp of Engineers, United States Department of Agriculture Central-Northeast, and the State of Connecticut and determined it was not a wetland. Although concerned that the consultants did not provide evidence for their determination, the Council is mindful that the substation cannot be upgraded unless the seep area is filled and made available for expansion. Thus, the Council will require that added study be undertaken (see below) and efforts be made during filling and regrading to make sure the earthen side-slope of the expanded substation yard maintains as closely as possible the existing drainage pattern from the seep northward toward the wetland off-site.

To mitigate stormwater runoff concerns for the site as a whole, UI reduced the amount of impervious surfaces proposed. A revised site plan specifies crushed stone in lieu of pavement for most areas where vehicles need to travel. This subtracts 785 square feet of pavement, resulting in significant runoff reduction.

Finally, to ensure that all stormwater drainage concerns are fully addressed, the Council will order UI to conduct an independent stormwater analysis of the site to ensure runoff is properly controlled prior to off-site discharge. This should include not only a review of the seep area filling and regrading mentioned above, but an evaluation of an existing catch basin and curbs along the access drive to ensure abutting properties are not impacted by excessive run-off.

The wooded slope proposed for the expanded part of the substation yard appears to be a possible foraging area for eastern box turtles, but not the type of habitat where they would nest and breed. Nonetheless, after discussion with DEEP, UI would implement an Eastern Box Turtle Protection Program as part of their construction plan. The program would include DEEP-recommended construction practices to reduce adverse impacts to turtle populations.

Noise levels from normal operation of either existing or proposed substation equipment would not exceed Town or State regulatory criteria at the property boundaries.

During the proceeding, concerns were raised about possible health impacts to nearby residents from cutting aluminum onsite. The Council finds that this practice, being customary in the industry, is adequately regulated by Occupational Safety and Health Administration standards requiring, among other safeguards, that any cutting be confined to the construction area.

As a matter of regular procedure on any matter regarding electric power facilities, the Council takes account of public exposure to electric and magnetic fields. Since questions about magnetic fields are often raised by the public, the Council notes there are no federal or State of Connecticut health-based standards for exposure to magnetic fields. Two organizations, the International Commission on Non-Ionizing Radiation Protection (ICNIRP), an independent health organization, and the International Agency for Research on Cancer (IARC), a cancer research group that is a part of the World Health Organization have issued magnetic field health exposure guidelines of 2,000 milliGauss (mG), and 9,040 mG, respectively, for the public. In the case of Hawthorne Substation, the existing transmission lines traversing the site are the main source of magnetic fields in the area, with levels ranging from 35 mG to 40 mG under the power lines, depending on line loading, and well below the guidelines established by ICNIRP and IARC.

In its design for expanding the Hawthorne Substation, UI has followed the Council's Best Management Practices guidelines for electric and magnetic fields. One section of the guidelines has to do with measuring electric and magnetic field levels before and after construction. Once the substation modifications are completed, MF levels are predicted to increase the most along the west perimeter fence line, under peak load conditions, with increases varying from 2 mG to 7 mG. Along the south side of the substation, the largest increase would be 4.6 mG under the existing transmission lines, due to higher electrical loads the lines would carry. Any of these increases would be small, resulting in magnetic field levels not significantly different from existing conditions. In accordance with the Council guidelines, UI will measure magnetic fields at certain intervals post-construction to make sure they are consistent with predictions.

Based on the record in this proceeding, the Council finds that there would be no substantial adverse environmental effect associated with the proposed modifications to the Hawthorne Substation at 180 Hawthorne Drive in Fairfield. Furthermore, the proposed project would increase the reliability of the electric transmission system in southwest Connecticut, offering both additional capacity and elimination of low-voltage conditions during potential transmission line outages. Therefore, the Council will grant the Petition for a Declaratory Ruling that a Certificate of Environmental Compatibility and Public Need is not required for this project with conditions as set forth in the Decision and Order for this project.

<b>PETITION NO. 1120</b> – The United Illuminating Company } petition for a declaratory ruling that no Certificate of } Environmental Compatibility and Public Need is required for the } proposed modifications to the Hawthorne Substation located at } 180 Hawthorne Drive, Fairfield, Connecticut. }	Connecticut  Siting  Council  June 25, 2015
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**Decision and Order**

Pursuant to Connecticut General Statutes § 16-50k(a) and Connecticut General Statutes §4-176 and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the proposed modification of the existing Hawthorne Substation located at 180 Hawthorne Drive in Fairfield, Connecticut would not have a substantial adverse environmental effect and would not require a Certificate of Environmental Compatibility and Public Need.

The project shall be constructed, operated, and maintained substantially as specified in the Council’s record in this matter, and is subject to the following conditions:

1. The Petitioner shall prepare a Development and Management (D&M) Plan for the project 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 Town of Fairfield 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 construction and shall include:
  - a) construction plans for site clearing, grading, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended;
  - b) a final site plan showing the placement of all substation equipment, associated structures, and lightning masts within the substation perimeter, extent of paved and crushed stone surfaces, access, and fencing detail;
  - c) installation of 55-foot tall lightning masts and the re-location of the eastern substation lightning mast to a more interior location;
  - d) a substation fence line that utilizes uniform fence runs, use of 45-degree substation yard corners where feasible, and maximization of the distance between the fence line and the abutting property owners to the greatest extent possible;
  - e) an independent professional, to be approved by the Council, to evaluate runoff from the site, including effects on adjacent wetlands and abutting properties, and assessment of the effectiveness of the existing access road catch basin;
  - f) a detailed lighting plan that includes the least amount of lighting as possible during normal substation operation;
  - g) a visibility mitigation plan that includes appropriate landscaping and “wing clip” privacy slats;
  - h) implementation of an Eastern Box Turtle Protection Program; and
  - i) construction work hours.

2. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals of this Decision and Order have been resolved. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Petitioner shall provide written notice to the Executive Director of any schedule changes as soon as is practicable
3. The Petitioner shall provide the Council with written notice of the commencement of site clearing and completion of construction.
4. The Petitioner 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 as soon as practical.
5. Any request for extension of the time period referred to in Condition 2 shall be filed with the Council not later than 60 days prior to the expiration date of said time period and shall be served on all parties and intervenors, as listed in the service list, and the Town of Fairfield. Any such request for extension shall state the reason(s) for which an extension is being sought.
6. This Declaratory Ruling may be transferred, provided both the facility owner/operator/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the facility owner/operator/transferor and the transferee shall provide the Council with a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.
7. The Petitioner shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the project under Conn. Gen. Stat. §16-50v.

By this Decision, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding, as listed in the Service List dated February 20, 2015, in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

**DECLARATORY RULING**

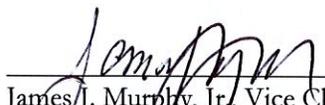
The undersigned members of the Connecticut Siting Council (Council) hereby certify that they have heard this case, or read the record thereof, in **PETITION NO. 1120** – The United Illuminating Company petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed modifications to the Hawthorne Substation located at 180 Hawthorne Drive, Fairfield, Connecticut, and voted as follows to approve this petition:

**Council Members**

**Vote Cast**

\_\_\_\_\_  
Robert Stein, Chairman

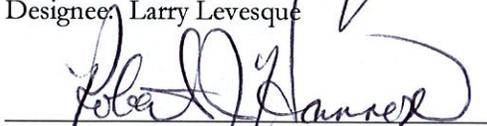
Absent

  
\_\_\_\_\_  
James J. Murphy, Jr., Vice Chairman

No

  
\_\_\_\_\_  
Chairman Arthur House  
Designee: Larry Levesque

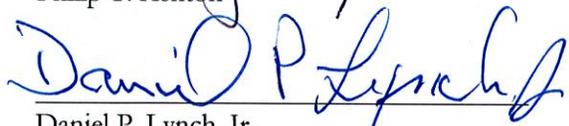
Yes

  
\_\_\_\_\_  
Commissioner Robert Klee  
Designee: Robert Hannon

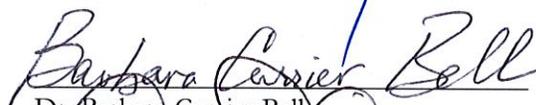
No

  
\_\_\_\_\_  
Philip T. Ashton

Yes

  
\_\_\_\_\_  
Daniel P. Lynch, Jr.

Yes

  
\_\_\_\_\_  
Dr. Barbara Currier Bell

Yes

  
\_\_\_\_\_  
Dr. Michael W. Klemens

Yes

Dated at New Britain, Connecticut, June 25, 2015.

STATE OF CONNECTICUT )

ss. New Britain, Connecticut :

June 29, 2015

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 A. Bachman  
Acting Executive Director  
Connecticut Siting Council

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Petition No. 1120 has been forwarded by Certified First Class Return Receipt Requested mail, on June 29, 2015, to all parties and intervenors of record as listed on the attached service list, dated February 20, 2015.

ATTEST:



Lisa A. Mathews  
Clerk Typist  
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)
Applicant	<input checked="" type="checkbox"/> E-mail	The United Illuminating Company	<p>Richard J. Reed, PMP Vice President-Engineering and Project Excellence The United Illuminating Company 180 Marsh Hill Road Orange, CT 06477 <a href="mailto:Rich.reed@uinet.com">Rich.reed@uinet.com</a></p> <p>Bruce L. McDermott, Esq. Managing Counsel-Operations UIL Holdings Corporation 157 Church Street P.O. Box 1564 New Haven, CT 06506-0901 Telephone: 203-499-2422 <a href="mailto:Bruce.McDermott@uinet.com">Bruce.McDermott@uinet.com</a></p>
Party (granted on 1/22/2015)	<input checked="" type="checkbox"/> E-mail	Town of Fairfield	<p>Stanton H. Lesser, Esq. Town Attorney Town of Fairfield One Eliot Place Fairfield, CT 06824 Telephone: 203-336-1811 <a href="mailto:shlfly@aol.com">shlfly@aol.com</a></p> <p>Michael C. Tetreau First Selectman <a href="mailto:MTetreau@town.fairfield.ct.us">MTetreau@town.fairfield.ct.us</a></p> <p>Thomas Dubrosky Chief of Staff <a href="mailto:TDubrosky@town.fairfield.ct.us">TDubrosky@town.fairfield.ct.us</a></p> <p>Annette Jacobson Conservation Administrator <a href="mailto:NRainville@fairfield.ct.us">NRainville@fairfield.ct.us</a></p> <p>Town of Fairfield 725 Old Post Road Fairfield, CT 06824</p>

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

<b>Status Granted</b>	<b>Document Service</b>	<b>Status Holder (name, address &amp; phone number)</b>	<b>Representative (name, address &amp; phone number)</b>
<b>Intervenor (granted 2/19/2015)</b>	<input checked="" type="checkbox"/> E-mail	Arthur Tournas 106 Woolsley Avenue Trumbull, CT 06611 Telephone: 203-470-8838 <a href="mailto:atournas@shemin.net">atournas@shemin.net</a>	
<b>Intervenor (granted 2/19/2015)</b>	<input checked="" type="checkbox"/> E-mail	Vincent Giandurco 145 Hawthorne Drive Fairfield, CT 06825 Telephone: 203-520-2666 <a href="mailto:VGCT07@gmail.com">VGCT07@gmail.com</a>	



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

June 29, 2015

TO: Classified/Legal Supervisor  
**112020150331**  
The Fairfield Citizen  
220 Carter Henry Drive  
Fairfield, CT 06430

FROM: Lisa A. Mathews, Clerk Typist

RE: **PETITION NO. 1120** – The United Illuminating Company petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed modifications to the Hawthorne Substation located at 180 Hawthorne Drive, Fairfield, Connecticut.

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Please publish the attached notice as soon as possible, but not on Saturday, Sunday, or a holiday.

Please send an affidavit of publication and invoice to my attention.

Thank you.

LM



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

### NOTICE

Pursuant to Connecticut General Statutes § 4-176(f), the Connecticut Siting Council (Council) announces that, on June 25, 2015, the Council issued Findings of Fact, an Opinion, and a Decision and Order, approving a petition from The United Illuminating Company for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed modifications to the Hawthorne Substation located at 180 Hawthorne Drive, Fairfield, Connecticut. This petition record is available for public inspection in the Council's office, Ten Franklin Square, New Britain, Connecticut.