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

### 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.