DOCKET NO. 364 - The Connecticut Light and Power Company application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a new bulk-power 115-kV to 23-kV substation located at 325 Waterford Parkway North, Waterford, Connecticut.	}	Connecticut
	}	Siting
	}	Council
	}	November 20, 2008

Opinion

On June 6, 2008, 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 a new 115 kilovolt (kV) to 23-kV bulk power substation at 325 Waterford Turnpike North, Waterford, Connecticut. The purpose of the proposed facility is to add distribution capacity to serve the Town of Waterford, as well as adjacent towns.

The proposed substation would meet electric needs by connecting to the 115-kV transmission system to serve the local distribution system. Currently, the electric load in Waterford is served primarily from Flanders Substation in East Lyme and Williams Street Substation in New London.

Existing CL&P substations Flanders Substation and Williams Street Substation that serve the Waterford area have maximum permissible load ratings of 75 MVA and 69 MVA, respectively. Flanders Substation exceeded its rating in 2006, reaching 76.6 MVA. While 2008 had cooler weather, both substations are expected to exceed their respective ratings beyond year 2008. To address this issue in the interim, CL&P has developed a forced load transfer scheme (FLT scheme). This FLT scheme uses one 23-kV feeder to transfer approximately 9 MVA of load off of Flanders Substation to Judd Brook Substation in Colchester and Bokum Substation in Old Saybrook. Having this scheme available during periods of heavy load would provide the necessary time window to construct Waterford Substation for operation by 2010. No such FLT scheme is possible for Williams Street Substation due to the limited capacity of the existing distribution lines.

CL&P also considered upgrades to the Flanders and Williams Street substations as alternatives. The installation of a third transformer at Flanders Substation is not possible due to limited space. There is no room to expand the fenced area without the purchase of additional land. The Niantic River also creates a bottleneck because three overhead distribution feeders crossing the river are at their capacity limit under peak load, and CL&P standards do not permit adding more feeders to the existing structures. Williams Street Substation in New London is located outside of the relevant load pocket, its feeders are at their capacity limits under peak load, its duct bank system will not allow the installation of new feeders, and additional land for expansion is not available. Thus, neither substation is a viable candidate for an upgrade.

CL&P investigated other alternatives to a new substation including distributed generation (DG) and demand response (DR). Approximately 3,075 kilowatts (kW) or 3.075 megawatts (MW) of DG has been approved in the Waterford area, and two projects totaling 875 kW (0.875 MW) have been completed to date. CL&P's DR Program (including emergency generation) totals 2,350 kW (2.35 MW). The Council notes that these load reductions are small relative to the proposed 60 MVA, or approximately 60 MW of capacity, provided by the proposed substation. Futhermore, a significant level of future DG and/or DR is not expected.

Uncasville Substation is six miles away from the load areas, new feeders would have to traverse residential areas, and long feeders could result in low voltage issues and greater line losses. In addition,

Uncasville Substation is projected to overload in 2013, which makes it a poor candidate to provide meaningful near-term load relief to another area. Therefore, the Council finds no feasible solution within CL&P's existing substations and distribution systems.

CL&P reviewed and evaluated a total of six sites for a new substation: the proposed substation site at 325 Waterford Parkway North (Site 1); the site at 994 Hartford Turnpike (Site 2); the site southeast of 969 Hartford Turnpike (Site 3); the site north of 813 Vauxhall Street (Site 4); the site northwest of 130 Old Colchester Road (Site 5); and the site north of Bloomingdale Road (Site 6).

The five alternate sites were rejected by CL&P for various reasons relating to environmental impacts and difficulties connecting to the 23-kV distribution system from the various sites. However, during the public comment session of the hearing, some elected officials expressed an interest in Site 2.

Site 2, located at 994 Hartford Turnpike, is 10.5 acres and is large enough to accommodate a substation. However, this site contains a very steep grade, would require an access road between two homes, would require significant vegetation clearing, and has an inland wetland occupying the level portion of the site. Also, an additional right-of-way would have to be purchased to reach the transmission corridor 500 feet to the south, and at least six structures, 85 feet tall, would be required to connect the substation to the grid. Finally, the incremental cost of Site 2 versus Site 1 would be approximately $9.5 million due to additional transmission, distribution, right-of-way, and land purchase costs. This would be in addition to the approximately $17.2 million in costs associated with Site 1. The Council believes that Site 2 would not be a viable option due to the significant incremental costs that would be borne by rate payers and potential impacts to the environment. Thus, the Council prefers Site 1.

The Council notes that CL&P's acquisition of the property for Site 1 was not subject to the procedure described in Connecticut General Statutes (Conn. Gen. Stat.) § 16-50z. That statute applies to the acquisition of "real property in contemplation of a possible future transmission facility." In Petiton No. 237, decided on July 25, 1989, the Council deemed an electric substation to not be a "transmission facility" and thus not subject to Conn. Gen. Stat. § 16-50z. In Docket No. 304, decided on June 28, 2005, the Council did approve the acquisition of property pursuant to Conn. Gen. Stat. § 16-50z where CL&P contemplated building a substation, but the applicant brought the matter to the Council under Conn. Gen. Stat. § 16-50z because the property was also needed for transmission lines. The requirement of filing a statement of intent to acquire real property applies to an application in which an electric transmission line and an electric substation are incorporated. This requirement does not apply to an application for an electric substation alone, is not limited by Conn. Gen. Stat. § 16-50z, and thus the Council's decisions in both Petition No. 237 and Docket No. 304 remain valid.

Site 1, the site proposed, is a 5-acre undeveloped property owned by CL&P. It is located to the northeast of the intersection of Oil Mill Road and Waterford Parkway North. This site is sufficient in size to accommodate the proposed substation, and an existing 115-kV transmission line is immediately north of the site.

The site is zoned Rural Residential District (RU-120). Surrounding land uses include a residential property with a tree farm to the north, Waterford Parkway North and Interstate 95 to the south, Oil Mill Road and a wooded property with Oil Mill Brook to the west, and an undeveloped wooden property to the east. Under the Town of Waterford Zoning Regulations, substations are allowed in the RU-120 zone with a Special Permit.

The proposed substation would be surrounded by a seven-foot tall chain link security fence. The dimensions of the substation at the fenceline would be 200 feet by 245 feet. Buildings proposed within

the substation compound include two metal-clad switchgear enclosures, a protective relay and control enclosure, and a battery enclosure. The fenced area would be covered by traprock. Access to the site would be via a new gravel driveway directly from Waterford Parkway North.

Inside the fenced substation, there would be two line-terminal structures approximately 63 feet in height: this height includes a 10-foot lightning mast on top of each structure. The substation would also include a circuit breaker, two 60 MVA power transformers, associated disconnects, and circuit switchers. The substation would be supplied by one of two existing overhead 115-kV transmission lines (#1605). The connection would be established by separating the circuit and installing two new 85-foot steel transmission structures.

A total of four distribution feeders would exit the substation via underground conduits, and rise above ground on wood pole risers. Two risers would come up on Waterford Parkway North directly outside the substation fence. The feeders would cross Waterford Parkway North and head eastward. Two substation ducts would follow Oil Mill Road underground and the risers would come up on the south side of Interstate 95.

No state or federally endangered, threatened, or state special concern species have been identified at the proposed site. In addition, Phase I and Phase II cultural resources surveys were performed at the site. Based on the results, the State Historic Preservation Officer concluded that no further archaeological investigations appear warranted. Furthermore, the proposed facility would have no effect upon historic, architectural, or archaeological resources listed on or eligible for the National Register of Historic Places or upon properties of traditional importance to Connecticut's Native American community.

Construction of the substation would not result in substantial effects on wetland or watercourses. However, limited work is anticipated within the 100-foot upland review area of a perennial watercourse and its bordering wetlands on the subject property. Approximately 1,241 square feet of the fenced substation's area would be in the upland review area. The Waterford Conservation Commission (WCC) reviewed the location proposed for the substation. In its review, the WCC recommended that perimeter erosion and sedimentation controls be installed and indentified in the Development and Management Plan (D&M Plan), and the following be provided in the D&M Plan: a narrative describing permanent treatment and stabilization of exposed soils; a landscape plan identifying areas of loam, seeding and mulch; and details about design and soil suitability for the well and septic system. Accordingly, the Council will order erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, May 2002, as amended, to protect wetland resources.

The Council also recommends that CL&P consider re-locating its construction lay down area from the east side of the substation to the Connecticut Department of Transmission property on the opposite side of Waterford Parkway North to minimize disturbance outside of the substation footprint.

The subject property is not located within an Aquifer Protection Area. While the southeast corner of the substation would encroach into Flood Zone X, which includes areas of 500-year / 100-year flood zone, the Council notes that no substation equipment would be located in this area.

No residences are expected to have a year-round view of the proposed substation. Limited seasonal views of the substation are expected from 71 Oil Mill Road. This property contains an evergreen tree farm that offers a visual buffer. However, construction activities could result in the removal of some of the deciduous trees along CL&P's northern property boundary. Consequently, the Council will recommend plantings along the northern boundary in the D&M Plan.

Construction of the access road and southeast corner of the compound would remove vegetation that may provide a buffer. Thus, the Council recommends shifting the substation 10 to 15 feet to the east and moving the southeast corner to allow for additional landscaping. The Council also recommends that the southwest corner of the substation be moved to accommodate additional landscaping, improve sight lines, and provide additional screening in the vicinity of the intersection of Oil Mill Road and Waterford Parkway North. These details can be reviewed in the D&M Plan.

The Council notes that the transformers would have secondary containment, consisting of an underlying polyvinyl-lined sump designed to hold 110 percent of the transformers' capacities and using the Imbiber Beads Drain Protection System ®. Such containment system is consistent with federal and state regulations.

Substation lighting would be manually controlled and generally directed downward. Lighting would be off except for nighttime inspections and in response to emergencies. Temporary lighting could also be used where necessary to illuminate specific task areas.

The increase in noise levels at the property line due to the proposed substation is expected to be negligible: ranging from 0 dBA to 0.2 dBA. Overall noise levels are expected to be below the limits specified in Connecticut Department of Environmental Protection (DEP) limits, due to the elevated ambient noise levels. Temporary impulse noise levels are also not expected to exceed the levels permitted at the property line by DEP's noise control regulations. If noise levels become an issue, the Council will order the applicant to undergo a noise survey to determine compliance with state standards.

Magnetic fields (MF) and their possible effects are a concern both to the Council and to citizens living in the vicinity of substations and electric transmission lines. Although the predominant source of the MF is the existing transmission line, both the measured and predicted values of MF show that the fields weaken considerably with increasing distance. The Council finds no evidence to conclude that the proposed substation and transmission line connection would be hazardous to persons or property near the proposed facility. The proposed substation has been designed in accordance with the Council's Electric and Magnetic Field Best Management Practices. One of the required practices is to perform electric and magnetic field measurements before and after construction and provide the results to the Council. The Council will order that the proposed facility be brought into compliance with any future state or federal standards for MF, should such a standard be adopted.

The substation would be constructed in compliance with the standards of National Electrical Safety Code, the Department of Public Utility Control, and good utility practice. In the event an energized line or substation equipment fails, protective relaying equipment would immediately remove the equipment from service, thereby protecting the public and the remaining equipment at the substation. The substation control enclosure would be equipped with fire extinguishers and smoke detectors that are remotely monitored at the Connecticut Valley Electric Exchange and the independent system operator ISO New England Inc.

Based on the record in this proceeding, the Council finds that the effects associated with the construction, operation, and maintenance of the substation facility at 325 Waterford Parkway North, Waterford, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the state concerning such effects, and not sufficient reason to deny this application. Therefore, the Council will issue a Certificate for the construction, operation, and maintenance of a substation at 325 Waterford Parkway North, Waterford.