Witness: **CL&P Panel**
Request from: **Connecticut Siting Council**

Question:
Page G-8 of the Application describes the rejected opinion of upgrading the Windsor Locks Substation. Why would relocation of the existing yard be necessary? Describe the difficulties of installing new circuits to the relocated yard.

Response:
Windsor Locks Substation is bounded by South Street to the north, Webb Street to the south, Route 159 and the Connecticut River to the east, and houses to the west. The fenced area of the substation cannot be expanded.

The substation property is not level and is divided into a upper yard and lower yard. The lower yard contains two 33-MVA, 115- to 27.6-kV, bulk power transformers, associated bus work, circuit breakers, switches, distribution circuit getaways, etc., along with a control enclosure. The upper yard contains two 47-MVA, 115- to 23-kV, bulk power transformers, metalclad and outdoor 23-kV switchgear, associated bus work, switches, distribution circuit getaways, etc. The existing 23-kV ""upper" yard was established as a temporary 23-kV yard with one 115- to 23-kV transformer in order to establish a 23-kV source at the Windsor Locks substation while the long term plan was to convert and expand the 27.6-kV facilities into a permanent 23-kV yard. As the need for 23-kV capacity increased a second 115- to 23-kV transformer was installed in the temporary yard leaving no room for expansion. If a third 115- to 23-kV transformer is to be installed at Windsor Locks Substation it will require a second 23-kV yard. Preferably such a yard would be large enough so that the existing 23-kV facilities could be moved and incorporated into one common 23-kV yard. However, due to the relatively long and narrow shape of the Windsor Locks substation property, poor topography, the fact that the 27.6-kV feeder source is still needed, lack of unused feeder get-a-way routes and close residential neighbors, an expansion of the Windsor Locks substation is not a viable option.

Two 27.6-kV overhead circuits presently exit the lower yard to the west and run northwest up to South Street where they continue to the west on a double-circuit pole line. Three 23-kV circuits exit the substation to the north and northeast. One of these three circuits exits the substation via underground cables to the northeast where it rises up to an overhead line and runs south down Route 159. The second of these circuits exits the substation via underground cables to the northeast where it rises up to an overhead line and runs north on Route 159. The third circuit exits the substation via underground cables to the north where it rises up to an overhead line and runs west on South Street. The third 23-kV circuit is on the same pole line as the two 27.6-kV circuits.

Because there are already multiple circuits on South Street, the only means of egress for any new 23-kV circuits is south to Webb Street and then east to Route 159 or west to Center Street. Both Route 159 and Center Street already have 23-kV overhead lines, so installing new circuits in these areas will mean having to construct double-circuit and triple-circuit pole lines which are not desirable. From a nearby relocated 23-kV yard, new feeder interconnections to each of these three existing 23-kV circuits in the vicinity of the Windsor Locks Substation must be made, and the existing multi-circuit congestion would make that difficult.