STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

THE CONNECTICUT LIGHT AND POWER COMPANY AND THE UNITED ILLUMINATING COMPANY APPLICATION FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION OF A NEW 345-KV ELECTRIC TRANSMISSION LINE AND ASSOCIATED FACILITES BETWEEN THE SCOVILLE ROCK SWITCHING STATION IN MIDDLETOWN AND THE NORWALK SUBSTATION IN NORWALK, INCLUDING THE RECONSTRUCTION OF PORTIONS OF EXISTING 115-KV AND 345 KV ELECTRIC TRANSMISSION LINES, THE CONSTRUCTION OF BESECK SWITCHING STATION IN WALLINFORD, EAST DEVON SUBSTATION IN MILFORD, AND SINGER SUBSTATION IN BRIDGEPORT, MODIFICATIONS AT SCOVILL ROCK SWITCHING STATION AND NORWALK SUBSTATION, AND THE RECONFIGURATION OF CERTAIN INTERCONNECTIONS	:	DOCKET NO. 272 MARCH 11, 2005

PROPOSED FINDINGS OF FACT OF RICHARD BLUMENTHAL, ATTORNEY GENERAL FOR THE STATE OF CONNECTICUT

Richard Blumenthal, Attorney General for the State of Connecticut ("Attorney General"), hereby submits the following proposed findings of fact in the above-captioned proceeding. The Attorney General reserves the right to alter or amend these proposed findings of fact should additional hearings be held in this case.

I. INTRODUCTION

1. The Connecticut Light and Power Company and the United Illuminating Company ("Applicants") filed their Application to construct a 69 mile 345 kV electric transmission line from Middletown to Norwalk on October 9, 2003. Applicants' Ex. 1.

2. In the Application, the Applicants initially proposed to use overhead construction for Segments 1 and 2 of the proposed line, a 45 mile stretch from Milford

east to Middletown and underground high pressure fluid filled ("HPFF") cable construction for Segments 3 and 4, a 24 mile stretch from Milford west to Norwalk ("Original Proposal"). Applicants' Ex. 1.

3. The Applicants supported their Original Proposal as sufficiently reliable. Applicants' Ex. 1; Transcript ("Tr.") April 20,2004, 22, 25.

4. On June 7, 2004, ISO New England, Inc. ("ISO-NE") stated that the Applicants' Original Proposal was not sufficiently reliable because it introduced too much capacitance to a relatively weak system, resulting in low order harmonic resonances. ISO-NE Ex. 8; Tr. June 15, 2004, 8-20, 23-24, 26.

5. According to ISO-NE, the Applicants' Original Proposal would cause the Connecticut system to operate below a harmonic level of 3, which ISO-NE viewed as unacceptable. Tr. June 15, 2004, 45.

6. ISO-NE was aware of the Applicants' Original Proposal prior to October 9, 2003, but waited eight months, until June 7, 2004, to advise the Council that the proposed design was not acceptable. Tr. June 17, 2004, 38; Tr. June 17, 2004, 42.

7. ISO-NE's testimony on March 23, 2004 only raised generation concerns. ISO-NE did not state at the time that the Applicants' Original Proposal was unacceptable. Tr. March 23, 2004, 147.

8. ISO-NE's failure to notify the Council immediately that the Applicants' Original Proposal was unacceptable caused significant delay in this proceeding.

9. Critical studies of harmonics and transient network analyses were not conducted regarding the Applicants' Original Proposal until well after ISO-NE's June 7, 2004 testimony. Tr. January 13, 2005, 168.

10. The failure to conduct these studies earlier in the design and application process also contributed to significant delays in this proceeding.

11. Although detailed harmonic and resonance studies may not typically be done until later in the design and approval process of a normal transmission line, the SWCT electrical system is not typical. Tr. January 11, 2005, 41-42. More thorough study of the proposed project earlier in the design process would have avoided significant delay in this proceeding.

12. The Applicants' failure to propose a design for the Phase II line without appropriate studies caused six month's delay in the resolution of this proceeding.

II. NEED

12. The electrical system that now serves SWCT fails to meet basic planning criteria, tr. January 11, 2005, 23, and is in need of improvement. Tr. June 17, 2004, 55.

13. Connecticut must improve the transmission infrastructure in SWCT in order to have a reliable system. Tr. March 23, 2004, 33, 35-36.

14. Demand for electricity in SWCT continues to grow. Tr. January 11, 2005, 23.

15. Upgrading the SWCT electrical system requires a balanced approach, including upgrading generation facilities, including distributed generation, and conservation and load management. Alternative means of addressing our energy needs are especially critical.

III. UNDERGROUND TRANSMISSION LINES

16. In June of 2004, the Council formed the Reliability and Operability Committee ("ROC"), which was made up of the Applicants, ISO-NE and their experts. The ROC was charged with the task of proposing a Phase II design and configuration that maximizes underground cable and that is sufficiently reliable and operable such that both the Applicants and ISO-NE would support it.

17. The ROC filed its Report on December 20, 2004. The ROC's preferred design included 24 miles of underground XLPE cable between East Devon and Norwalk as well as a number of mitigation measures, such as upgrades to certain substation equipment. The ROC also proposed two alternate routes, one containing thirteen miles of underground cable and the other containing four miles of underground cable. Applicants' Ex. 176.

18. The 24 miles of underground cable in the ROC preferred route represents the maximum amount undergrounding that the Applicants or ISO-NE support as being adequately reliable. Tr. January 13, 2005, 33-34. ISO-NE testified that it would not allow a line that included more than 24 miles of underground cable to be connected to the New England grid. Tr. January 11, 2005, 43-44; January 13, 2005, 61.

19. The Council hired its own independent expert, KEMA, to advise it on the issue of maximizing the use of underground cable in this proceeding.

20. KEMA disagreed with ROC's conclusion regarding the maximum amount of undergrounding possible, stating that the studies included in the ROC report did not support the ROC's conclusion that ten to twenty additional miles of underground cable were not feasible. Council Ex. 24, KEMA Whitepaper, January 19, 2005; Tr. February 17, 2005, 13-14.

21. After the February 14, 2005 technical session, however, KEMA stated that it agreed with the conclusions stated in the ROC Report that additional undergrounding beyond 24 miles was not feasible or advisable. Tr. February 17, 2005, 14; Council Ex. 25, KEMA Engineering Summary. KEMA's change in position must be closely examined by the Council to determine whether additional study is appropriate.

22. By law, the Council must approve the maximum amount of underground cable that is technologically feasible and will not harm the reliable operation of Connecticut's electric transmission system. Conn. Gen. Stat. § 16-50p(i).

23. It is technologically feasible to place at least 24 miles of the proposed transmission line underground. Applicants' Ex. 176. Despite the ROC Report and KEMA's February 14, 2005 testimony, the Council must evaluate all of the evidence in this case and make an independent determination, pursuant to Conn. Gen. Stat. 16-50p(i), whether additional undergrounding is possible.

24. Burying the Phase II, 345 kV electric transmission line under streets and roadways would minimize environmental impacts because those areas have already been disturbed.

25. The use of underground cables eliminates many issues associated with overhead construction, such as constructing tall and unsightly towers in a right-of-way that already holds 115 kV lines and passes near homes, schools and other statutorily protected facilities.

26. The use of 345 kV underground cables is not unusual. Such power lines have been buried and worked reliably in a number of cities in the United States for many years. Boston has 36 miles of underground 345 kV cable. Tr. April 20, 2004, 95; Tr., April 20, 2004, 26. Chicago has six miles of underground 345 kV cable and New York City has considerable lengths of 345 kV cable. Tr. April 21, 2004, 108.

27. In urban and urbanized settings including much of SWCT, the use of underground 345 kV cable can be cost-effective. From East Devon substation west to Norwalk Substation in SWCT, the overhead right-of-way in that area is narrow and would have to be widened to accommodate an overhead 345 kV line. Tr. April 20, 2004, 20, 32-33. Given the density of development and the extremely high real estate costs in that part of the state, placing the proposed 345 kV lines overhead would require significant costs.

28. Tens of millions of dollars in re-development in the City of Bridgeport could be jeopardized by the construction of overhead lines in that City. Tr. June 3, 2004, 109-110.

IV. ENVIRONMENTAL CONSIDERATIONS

29. The Council must consider electric and magnetic fields ("EMF") when evaluating the environmental impact of the proposed 345 kV transmission line. Conn. Gen. Stat. § 15-50p(a)(3)(B).

30. Any portions of the proposed 345 kV transmission line that must be overhead must be consistent with the Public Utility Environmental Standards Act, codified at Conn. Gen. Stat. § 16-50g et seq., as amended by P.A. 04-246.

31. Any portions of the proposed 345 kV transmission line that must be overhead must be contained in a buffer zone that protects public health and safety. Conn. Gen. Stat. § 15-50p(a)(3)(D).

32. The 345 kV transmission line must not pose an undue hazard to persons or property along the area traversed by the line. Conn. Gen. Stat. § 15-50p(a)(3)(E).

33. EMFs associated with 345 kV electric transmission lines present a public health risk to the children of our State. Prominent scientific studies in the field show a small but significant link between EMFs and childhood leukemia. Although this association is not fully understood, it cannot be dismissed as coincidence or due to chance. Tr. March 25, 2004, 168; June 16, 2004, 146.

34. The NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields, NIH Publication No. 99-4493, dated May 4, 1999 ("NIEHS Study") concludes that "[w]hile support from individual studies is weak, the epidemiological studies demonstrate, for some methods of measuring exposure, a fairly consistent pattern of a small, increased risk with increasing exposure that is somewhat weaker for chronic lymphocytic leukemia than for childhood leukemia." The NIEHS went on to conclude "that ELF-EMF exposure cannot be recognized as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard." NIEHS Study, ii-iii. Council Administrative Notice item 4.

35. Each of the three prominent meta-analyses in the field, Wartenburg,[1] Greenland[2] and Ahlbom,[3] have identified a statistically significant increase in childhood leukemia in children that are exposed to 2 mG, 3 mG and 4 mG respectively. Woodbridge Educational Institutions Ex. 11, Pre-filed Testimony of Dr. Bell, Dr. Rabinowitz and Dr. Gerber, 1.

36. EMF has been classified as a class 2B carcinogen, or a possible human carcinogen, by the International Agency for Research on Cancer ("IARC"), the cancer research arm of the World Health Organization. Tr. March 25, 2004, 148, 167. Other

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[1] Wartenberg D. et al., Bioelectromagnetics. 2001, Supplement 5:S86-S01.
[2] Greenland S. et al., Epidemiology. 2000, 11: 624-634.
[3] Ahlbom A. et al., British Journal of Cancer. 2000, 83:692-698.

Class 2B substances, such as dioxin, have moved from class 2B to class 1, which are known human carcinogens, after further study. Tr. March 25, 2004, 167.

37. The Connecticut Department of Public Health ("DPH") has concluded that there is a definite association between EMF and childhood leukemia. Tr., October 14, 2004, 96. This association, while weak, is not random and presents a definite risk factor. Tr. October 14, 2004, 123-124.

38. According to DPH there is a statistical association above 4 mG, and at 5.8 mG the evidence supports a doubling of the risk of childhood leukemia. Tr. October 14, 2004, 125-126.

39. EMFs associated with 345 kV electric transmission lines impede the functioning of implantable defibrillators, known as ICD's. Woodbridge Educational Institution Ex. 2, Pre-Filed Testimony of Dr. Grubman, 1-3.

40. The Applicants did not fully or accurately describe the conclusions of the NIEHS Report in their Application and in so doing minimized the NIEHS's findings regarding the health effects of EMF. Application, Vol. 6, 95.

41. The Applicants' scientific testimony regarding EMF was irrelevant to this proceeding in that it focused on the question of whether there is scientific proof that EMFs cause malignancies in humans. Tr. March 25, 2004, 24, 147. In light of the public health risk found by the DPH, that there is an association between EMF and childhood leukemia that is not random, this question need not be resolved in this case. Rather, the Council must, by statute, act to protect the public health and safety from this risk.

42. Positions taken by other states regarding EMF are irrelevant to this proceeding. Other states are not bound by the requirements of P.A. 04-246.

43. The Connecticut DPH endorsed the use of a "prudent avoidance" approach to eliminate or mitigate the public health risk presented by EMF. Tr. May 12, 2004, 163-164. Tr. October 14, 2004, 90-92.

44. Prudent avoidance means focusing upon the effectiveness of the various actions taken relative to the risks presented. Tr. October 14, 2004, 91-92. The goal of these prudent measures is to reduce the EMFs associated with the proposed Phase II line to levels that do not present a public health risk.

45. DPH specifically rejected the narrow definition of prudent avoidance advanced by the Applicants that measures should only be adopted if their cost of implementation is minimal. Tr. October 14, 2004, 91-92.

46. With respect to common household appliances that emit EMFs, prudent avoidance can mean increasing one's distance from the source or turning off the

appliance. These methods, however, are not available when addressing EMF's associated with 345 kV electric transmission lines. Tr. June 16, 2004, 177-179.

47. Unlike many other health risks facing children, parents and caretakers have no control over the location and manner of operation of 345 kV lines. Unlike appliances in the home or school, they cannot be turned off or moved as desired. Tr. May 13, 2004, 221.

48. Prudent avoidance concerning 345 kV transmission lines requires that the lines be designed and configured in a manner that reasonably minimizes EMF exposures, particularly in areas where children may be exposed.

49. The "no net increase" standard is inconsistent with Connecticut law, which requires that buffer zones be created around any overhead portions of the proposed 345 kV transmission line that protect public health and safety. Conn. Gen. Stat. § 15-50p(a)(3)(D).

50. In light of the serious health risks to children associated with EMF, DPH recommended in this case that the Council should seek to avoid the risks associated with EMF when possible. Tr. October 14, 2004, 149.

51. Protecting public health and safety, as required by P.A. 04-246, requires reducing EMFs to levels for children that are not associated with increased risk of childhood leukemia. According to DPH, EMF levels between 3 mG and 6 mG is a "grey area" that is slightly above background levels which is not ideal but is not an identifiable health risk. Above 6 mG, however, there is a larger public health risk that should be protected against. Tr. October 14, 2004, 139.

52. Residential area, as applied in Conn. Gen. Stat. § 16-50p(a)(3)(D), means existing residences (houses, apartments, etc.) in areas that are zoned residential.

53. For any portion of the line that must be overhead, a buffer zone shall be designed to protect the public health and safety based upon the specific needs and circumstances of every point of the Phase II route.

54. A buffer zone that extends 300 feet from each side of the 345 kV transmission line would reduce EMFs to less than 2 mG, or levels for which there is no proof of an increased risk of childhood leukemia. Tr., January 20, 2005, 170. Tr., May 12, 2004, 173; May 13, 2004, 71-72. Such a buffer zone would eliminate any uncertainty regarding EMF measurements and the effectiveness of various mitigation measures.

55. If a 300 foot buffer zone is not practical, in order to protect public health and safety the buffer zone must reduce EMF levels to at least 3 mG near all schools, day care facilities, youth camps, playgrounds and other locations where children congregate along any portion of the route that must be overhead. Elsewhere along any overhead

route, EMF levels must be reduced to at least 3 mG where possible, but absolutely no higher than 6 mG.

56. There are a number of methods that can mitigate EMF levels at specific points along any portion of the route that must be overhead to reduce EMFs to levels that protect public health and safety, and all of these measures will be considered when designing a buffer zone. They include:

-Moving the proposed transmission line within the existing overhead right-of-way to increase distance between line and the protected facilities;

-Adjusting the pole structure locations and heights, Applicants Ex. 166; Tr. July 27, 2004, 175; September 28, 2004, 142, 221-222;

-Applying low EMF designs. Applicant Ex. 96. These include optimizing the height and phasing of the electric conductors, including "split-phasing;"

-Placing the existing 115 kV line underground if doing so will reduce EMF's from the remaining 345 kV line; and

-Re-locating the overhead right-of-way to avoid certain sensitive areas.

57. Split-phasing must be proven effective before it will be relied upon to reduce EMFs given its limited track record of use for this purpose. Tr. July 27, 2004, 114, 125.

58. Line loading assumptions of 16 to 18 gigawatts ("GW") New England load case are reasonable when calculating EMFs because such loading levels likely reflect the average load that is likely to occur at the time that the Phase II line is in use. Tr. September 29, 2004, 168, 162.

59. The 15 GW load level proposed by Applicants is not appropriate because it will be obsolete by the time the proposed line is put in service. Tr. May 13, 2004, 7-8. Tr. September 29, 2004, 149-150.

60. The 27.7 GW case is more reasonable to apply than the 15 GW case because it better reflects future line loadings.

61. The 345 kV lines must be placed underground in the Royal Oak neighborhood if technologically feasible. If such undergrounding is not technologically feasible, placing the proposed 345 kV lines and the existing 115 kV lines in the Royal Oak bypass will protect the health and safety of that residential area as required by P.A. 04-246.

62. The 345 KV line must be placed underground in Woodbridge if technologically feasible. If it is not technologically feasible to underground the line in

Woodbridge, the Jewish Community Center's ("JCC") camp must be moved to a parcel of CL&P owned land that is adjacent to the JCC, presuming the JCC agrees and the property is suitable for this purpose, and the transmission lines must then be placed over the property where the camp is now located to protect public health and safety as is required by P.A. 04-246.

63. If placing the 345 kV lines underground is not technologically feasible in Woodbridge, moving the existing right-of-way and the existing115 kV lines and the proposed 345 kV lines onto undeveloped property to the north of the Ezra Academy will protect public health and safety as is required by P.A. 04-246. At a minimum, the transmission lines should be moved as far from the building as is reasonably possible to protect public health and safety.

64. The establishment of a buffer zone in this Phase II proceeding that protects public health and safety does not require the taking of any homes or other statutorily protected facilities.

65. Designing the buffer zone is very fact specific and requires the input and feedback from the individual facility owners and users along any overhead route as well as other interested parties. Thus, it is appropriate to defer to the development and management phase of this proceeding decisions regarding locally specific overhead and underground route configurations and designs, such as pole heights, tower types, line configurations as well as cable locations and the impact of construction on traffic and safety in order to allow the affected towns and interested parties the opportunity to participate in such decision-making processes.

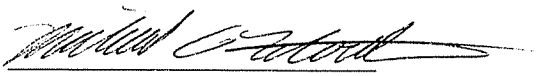
66. Such give-and-take is critical to the fair and appropriate design of a buffer zone that protects public health and safety without unnecessarily destroying the usefulness of the facilities themselves.

67. The Council will defer as much as reasonably possible to the design preferences of the affected towns and interested parties.

68. It is entirely appropriate and consistent with P.A. 04-246 to take reasonable steps to protect the public from the health effects from EMFs along the underground route. Conn. Gen. Stat. § 16-50p(a)(3)(B).

Respectfully Submitted,

RICHARD BLUMENTHAL
ATTORNEY GENERAL

By: 

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Service is hereby
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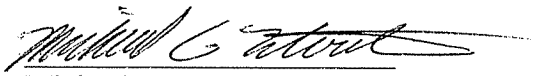

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