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October 12, 2004

Pamela B. Katz
Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Docket 272** - 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 Facilities Between Scovill Rock Switching Station in Middletown and Norwalk Substation in Norwalk, Connecticut Including the Reconstruction of Portions of Existing 115-kV and 345-kV Electric Transmission Lines, the Construction of the Beseck Switching Station in Wallingford, 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

Dear Chairman Katz:

The enclosed chart is in response to a request from the Siting Council that The Connecticut Light and Power Company and The United Illuminating Company (the "Companies") provide information to the Council demonstrating how high transmission structures would need to be in order to attain 0.6 mg for the 15 GW and 27.7 GW cases. In addition to studying the transmission structure heights for cross section 8S, the Companies undertook a similar study for cross section 5.

The Companies have not yet evaluated the constructability of transmission structure heights above 200'. Note, structure heights shown are typical only. If you have any questions concerning this filing, please call me.

Sincerely,

The Connecticut Light and Power Company
Company

By: Anne Bartosewicz
Project Director

The United Illuminating

By: John J. Prete
Project Director

cc: Service List

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"Homework Assignment"
Reductions in Magnetic Fields from Increasing Transmission Structure Heights

Cross Section 8 (15GW Case) South Segment

Typical Segment – Pease Road Junction to East Devon S/S in the Municipalities of Woodbridge, Orange, West Haven & Milford

	Transmission ROW																									
Site Condition	**150'**	**135'**	**120'**	**105'**	**90'**	**75'**	**60'**	**45'**	**30'**	**15'**	**S/E Edge**	**50'**	**25'**	**Center**	**25'**	**50'**	**N/W Edge**	**15'**	**30'**	**45'**	**60'**	**75'**	**90'**	**105'**	**120'**	**135'**	**150'**
Existing Lines **(For Reference)**	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.9	1.4	2.2	3.9	11.1	12.7	11.3	7.0	3.2	1.6	1.1	0.7	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1
OPTIONS																											
345 kV Split Phase (105' Pole) 115 kV Double Circuit (80' Pole)	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.7	1.0	1.7	5.7	11.7	19.7	21.6	14.1	5.9	4.0	2.9	2.1	1.6	1.2	1.0	0.8	0.6	0.5	0.4
345 kV Split Phase +30' (135' Pole) 115 kV Double Circuit +30' (110' Pole)	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6	1.4	2.7	4.3	5.0	4.5	2.9	2.3	1.8	1.5	1.2	0.9	0.8	0.6	0.5	0.5	0.4
345 kV Split Phase +45' (150' Pole) 115 kV Double Circuit +45' (125' Pole)	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.9	1.6	2.5	2.9	2.8	2.1	1.7	1.4	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.4
345 kV Split Phase +70' (175' Pole) 115 kV Double Circuit +70' (150' Pole)	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.6	0.9	1.2	1.4	1.5	1.3	1.1	1.0	0.9	0.7	0.6	0.6	0.5	0.4	0.4	0.3
345 kV Split Phase +94' (199' Pole) 115 kV Double Circuit +94' (174' Pole)	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.6	0.7	0.8	0.9	0.8	0.8	0.7	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.3
Height Required to reach 3.0 mG at the edge of the existing ROW (345kV - 135' , 115kV - 110')																											
345 kV Split Phase +30' (135' Pole) 115 kV Double Circuit +30' (110' Pole)	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6	1.4	2.7	4.3	5.0	4.5	2.9	2.3	1.8	1.5	1.2	0.9	0.8	0.6	0.5	0.5	0.4
Height Required to reach 0.6 mG at the edge of the existing ROW (345kV - 219' , 115kV - 194')																											
345 kV Split Phase +114' (219' Pole) 115 kV Double Circuit +114' (194' Pole)	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.2

Cross Section 8 (27GW Case) South Segment

Typical Segment – Pease Road Junction to East Devon S/S in the Municipalities of Woodbridge, Orange, West Haven & Milford

	Transmission ROW																									
Site Condition	**150'**	**135'**	**120'**	**105'**	**90'**	**75'**	**60'**	**45'**	**30'**	**15'**	**S/E Edge**	**50'**	**25'**	**Center**	**25'**	**50'**	**N/W Edge**	**15'**	**30'**	**45'**	**60'**	**75'**	**90'**	**105'**	**120'**	**135'**	**150'**
Existing Lines **(For Reference)**	0.9	1.0	1.2	1.4	1.7	2.1	2.8	3.8	5.6	9.0	15.8	47.7	61.4	66.9	51.0	38.9	27.7	19.3	13.3	9.5	7.0	5.3	4.2	3.3	2.7	2.3	1.9
OPTIONS																											
345 kV Split Phase (105' Pole) 115 kV Double Circuit (80' Pole)	0.8	1.0	1.2	1.4	1.7	2.2	2.7	3.5	4.7	6.4	9.0	23.3	43.3	75.8	83.4	52.0	20.3	13.4	9.2	6.5	4.7	3.5	2.7	2.1	1.6	1.3	1.1
345 kV Split Phase +30' (135' Pole) 115 kV Double Circuit +30' (110' Pole)	0.7	0.9	1.0	1.2	1.5	1.8	2.3	2.8	3.6	4.6	6.0	11.0	16.4	21.3	21.9	17.5	10.4	7.9	5.9	4.5	3.5	2.7	2.2	1.7	1.4	1.1	0.9
345 kV Split Phase +45' (150' Pole) 115 kV Double Circuit +45' (125' Pole)	0.7	0.8	1.0	1.1	1.4	1.7	2.0	2.5	3.1	3.8	4.8	7.9	10.8	13.1	13.3	11.3	7.5	6.0	4.7	3.7	3.0	2.4	1.9	1.5	1.3	1.0	0.9
345 kV Split Phase +70' (175' Pole) 115 kV Double Circuit +70' (150' Pole)	0.6	0.7	0.8	1.0	1.2	1.4	1.6	1.9	2.3	2.8	3.3	4.8	5.9	6.7	6.8	6.0	4.5	3.8	3.2	2.7	2.2	1.8	1.5	1.3	1.1	0.9	0.8
345 kV Split Phase +94' (199' Pole) 115 kV Double Circuit +94' (174' Pole)	0.6	0.6	0.7	0.8	1.0	1.1	1.3	1.5	1.8	2.0	2.3	3.1	3.6	3.9	4.0	3.6	3.0	2.6	2.3	1.9	1.7	1.4	1.2	1.0	0.9	0.8	0.7
Height Required to reach 3.0 mG at the edge of the existing ROW (345kV - 199' , 115kV - 174')																											
345 kV Split Phase +94' (199' Pole) 115 kV Double Circuit +94' (174' Pole)	0.6	0.6	0.7	0.8	1.0	1.1	1.3	1.5	1.8	2.0	2.3	3.1	3.6	3.9	4.0	3.6	3.0	2.6	2.3	1.9	1.7	1.4	1.2	1.0	0.9	0.8	0.7
Height Required to reach 0.6 mG at the edge of the existing ROW (345kV - 319' , 115kV - 294')																											
345 kV Split Phase + 214' (319' Pole) 115 kV Double Circuit + 214' (294' Pole)	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3

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"Homework Assignment"
Reductions in Magnetic Fields from Increasing Transmission Structure Heights

Cross Section 5 (15GW Case)

Typical Segment – Beseck S/S to East Wallingford Junction in the Town of Wallingford

	Transmission ROW																									
Site Condition	**150'**	**135'**	**120'**	**105**	**90'**	**75'**	**60'**	**45'**	**30'**	**15'**	**S/E Edge**	**50'**	**25'**	**Center**	**25'**	**50'**	**N/W Edge**	**15'**	**30'**	**45'**	**60'**	**75'**	**90'**	**105'**	**120'**	**135'**	**150'**
Existing Lines **(For Reference)**	1.6	1.8	2.0	2.2	2.4	2.7	3.0	3.4	3.9	4.5	5.2	17.5	29.5	56.1	102.0	123.7	24.7	18.2	13.9	10.9	8.8	7.3	6.1	5.2	4.5	3.9	3.4
OPTIONS																											
Vertical Reconstructed ROW (130' Pole)	0.9	1.0	1.1	1.2	1.4	1.7	2.0	2.3	2.8	3.5	4.3	25.5	47.8	65.6	52.7	26.4	1.9	1.3	0.9	0.7	0.5	0.4	0.4	0.3	0.3	0.3	0.3
Vertical Reconstructed ROW + 20' (150' Pole)	0.8	0.9	1.0	1.2	1.4	1.6	1.8	2.2	2.6	3.1	3.8	15.5	22.6	26.4	22.3	14.0	1.7	1.2	0.9	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3
Vertical Reconstructed ROW + 45' (175' Pole)	0.8	0.9	1.0	1.1	1.2	1.4	1.6	1.9	2.2	2.6	3.1	8.8	10.8	11.5	10.0	7.4	1.5	1.1	0.9	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3
Vertical Reconstructed ROW + 69' (199' Pole)	0.7	0.8	0.9	1.0	1.1	1.3	1.4	1.6	1.9	2.1	2.5	5.4	6.1	6.3	5.6	4.5	1.3	1.0	0.8	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3
Height required to reach 3.0 mG at the edge of the existing ROW (345kV - 178')																											
Vertical Reconstructed ROW + 48' (178' Pole)	0.8	0.9	1.0	1.1	1.2	1.4	1.6	1.9	2.2	2.5	3.0	8.2	10.0	10.5	9.3	6.9	1.5	1.1	0.9	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3
Height required to reach 0.6 mG at the edge of the existing ROW (345kV - 242')																											
Vertical Reconstructed ROW + 242' (372' Pole)	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2

Cross Section 5 (27GW Case)

Typical Segment – Beseck S/S to East Wallingford Junction in the Town of Wallingford

	Transmission ROW																									
Site Condition	**150'**	**135'**	**120'**	**105**	**90'**	**75'**	**60'**	**45'**	**30'**	**15'**	**S/E Edge**	**50'**	**25'**	**Center**	**25'**	**50'**	**N/W Edge**	**15'**	**30'**	**45'**	**60'**	**75'**	**90'**	**105'**	**120'**	**135'**	**150'**
Existing Lines **(For Reference)**	4.0	4.3	4.8	5.3	5.8	6.5	7.3	8.3	9.4	10.8	12.6	42.6	71.9	136.6	248.5	301.1	60.1	44.2	33.8	26.6	21.5	17.7	14.8	12.6	10.8	9.4	8.3
OPTIONS																											
Vertical Reconstructed ROW (130' Pole)	0.4	0.4	0.5	0.6	0.8	1.0	1.3	1.7	2.2	3.0	4.1	41.3	90.7	153.5	159.3	98.7	12.9	10.0	7.9	6.3	5.2	4.3	3.6	3.1	2.6	2.3	2.0
Vertical Reconstructed ROW + 20' (150' Pole)	0.4	0.4	0.5	0.6	0.8	1.0	1.2	1.6	2.1	2.7	3.6	25.4	43.6	61.7	64.3	49.5	10.8	8.6	6.9	5.7	4.7	4.0	3.4	2.9	2.5	2.2	1.9
Vertical Reconstructed ROW + 45' (175' Pole)	0.4	0.4	0.5	0.6	0.8	0.9	1.2	1.5	1.8	2.4	3.0	14.5	20.9	26.4	27.7	24.2	8.3	6.9	5.7	4.8	4.1	3.5	3.0	2.6	2.3	2.0	1.8
Vertical Reconstructed ROW + 69' (199' Pole)	0.4	0.4	0.5	0.6	0.7	0.9	1.1	1.3	1.6	2.0	2.5	9.0	11.8	14.0	14.8	13.7	6.4	5.5	4.7	4.0	3.5	3.0	2.6	2.3	2.1	1.8	1.6
Height required to reach 3.0 mG at the edge of the existing ROW (345kV - 269')																											
Vertical Reconstructed ROW + 139' (269' Pole)	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.1	1.3	1.4	3.1	3.6	3.9	4.1	4.1	3.0	2.7	2.5	2.3	2.1	1.9	1.7	1.6	1.4	1.3	1.2
Height required to reach 0.6 mG at the edge of the existing ROW (345kV - 477')																											
Vertical Reconstructed ROW + 347' (477' Pole)	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5