

DOCKET NO. 5

APPLICATION OF THE CONNECTICUT
LIGHT AND POWER COMPANY FOR A
CERTIFICATE OF ENVIRONMENTAL
COMPATIBILITY AND PUBLIC NEED
FOR A 345 KV TRANSMISSION LINE
AND A 115 KV TRANSMISSION LINE
BETWEEN POINTS IN THE TOWNS OF
NEW MILFORD AND BETHEL

POWER FACILITY
EVALUATION COUNCIL

FEBRUARY 24, 1975

FINDINGS

1. The Connecticut Light and Power Company, acting by its agent, Northeast Utilities Service Company, in accordance with the provisions of Section 16-501 of the General Statutes of Connecticut, Revision of 1958, revised to 1972, as amended, applied to the Power Facility Evaluation Council on February 25, 1974 for a Certificate of Environmental Compatibility and Public Need for the construction of a 345 KV overhead electric transmission line between a point on Long Mountain, in New Milford, and a point in Bethel, and for the simultaneous reconstruction of the major portion of an existing 115 KV overhead electric transmission line between the same terminals. The fee prescribed by Section 16-50v-1(b) of the Regulations of Connecticut State Agencies accompanied the application. (Record)
2. The application, which included a two volume report, was accompanied by a proof of service as required by Section 16-501(b) of said General Statutes of Connecticut. (Record)
3. Affidavits of newspaper notice as required by statute and Section 16-501-1 of the Regulations of Connecticut State Agencies were also filed with the application. (Record)
4. Pursuant to Section 16-50m of said General Statutes of Connecticut, the Power Facility Evaluation Council, after giving due notice thereof, held a public hearing at New Milford High School on July 8, 11, 12, 15, 16, 17, 23, 24, 25, 30 and 31 and

August 1, 1974 and at the Veterans of Foreign Wars Building, New Milford, on January 20, 1975. (Record)

5. The parties to the proceeding are the applicant, The Connecticut Light and Power Company, and those other persons and organizations whose names are listed in the Decision and Order which accompanies these findings. (Record)

6. Several persons made a limited appearance pursuant to Section 16-50n(d) of said General Statutes of Connecticut and Section 16-50j-15 of the Regulations of Connecticut State Agencies for the purpose of filing statements in writing, which statements were made a part of the Record.

7. Upon receipt of the application the council retained Power Technologies, Inc., consulting engineers of Schenectady, New York, who studied the consequences of the proposed line on the environment and provided the Council with technical data pertaining to the routing of the line and overhead versus underground construction, as well as other information the Council deemed necessary, pursuant to Section 16-50n(c) of said General Statutes.

8. On July 1 and December 18, 1974, the Council made a ground inspection of the proposed route of the transmission lines.

9. A grid of 345 KV transmission lines has been constructed by the applicant and other electric systems in New England and New York in order to transport large blocks of electric power from major generating stations to major load areas for transmission to 115 KV and further transmission to local substations; one 345 KV line can usually transport about five times as much power as one 115 KV line, and the efficiency of 345 KV transmission is much higher, since the energy losses and the voltage drop associated with a 345 KV line are considerably less than those associated with a 115 KV line for delivery of the same amount

of power. (T. 7/8/74 pp. 25, 26, 32, 50-53)

10. Substations and local substations are constructed near major load areas to transform the 345 KV to 115 KV and thereafter to 13.8 KV or 23 KV for ultimate distribution to users. (T. 7/8/74 p. 26)

11. The applicant has proposed the construction of a new 345 KV overhead electric transmission line from a point in the northerly part of New Milford southerly through New Milford, Brookfield, northwestern Bethel and eastern Danbury to a point in western Bethel. The proposed line would run primarily along a widened existing right of way between those points although several departures necessitating the acquisition of new rights of way to avoid areas of congestion or significant visual impact have been suggested. (T. 7/8/74 pp. 31, 64-84; Exhibit A, pages 1, 57-63; Exhibit B Routes Map)

12. The proposed 345 KV line would extend the aforementioned grid of 345 KV transmission lines into the Danbury area. (T. 7/8/74 pp. 27, 32)

13. The applicant has also proposed the simultaneous reconstruction of the major portion of an existing 115 KV overhead electric transmission line between the same terminals. Reconstruction would take place along the route of, and for a considerable distance on the same structures as, the proposed 345 KV line. (T. 7/8/74 pp. 27, 30, 31, 72-77; Exhibit A, pages 1, 3, 4, 57-63, 72-90)

14. Reconstruction of the existing 115 KV line between New Milford and Danbury would reduce a potential conflict with construction of the proposed 345 KV line, if certified, and would allow the acquisition of narrower rights of way than would otherwise be necessary. (T. 7/17/74 pp. 198, 199; T. 7/23/74 pp. 146, 147; T. 7/25/74 pp. 28, 29)

15. Regardless of the proposed 345 KV line construction, reconstruction of the 115 KV line could be necessary as soon as the 1980-1982 period. (T. 7/17/74 pp. 198, 199; T. 7/23/74 pp. 146, 147; T. 7/25/74 pp. 28, 29)

16. The northerly terminal of the proposed facilities would be at a point now known as Gale Junction, in Long Mountain, in New Milford, where the existing 115 KV right of way which runs northerly from CL&P's Rocky River hydroelectric station, in New Milford, joins the existing 345 KV right of way between Frost Bridge Substation, in Watertown, and Pleasant Valley, in New York. At the northerly terminal the applicant proposes to construct a switching station to be called Long Mountain Station. (T. 7/8/74 pp. 30, 31; Exhibit A, pages 3, 58, 59; Exhibit B, Routes Map)

17. An appropriate location along the existing Frost Bridge--Pleasant Valley, New York, 345 KV line for the northerly terminal of the proposed 345 KV line is on Long Mountain, In New Milford, where a north-south 115 KV line and right of way join the 345 KV right of way; it is a relatively remote location in the hills where the applicant owns an adequate area for a switching station which would be well shielded from surrounding roads and development. (T. 7/8/74 pp. 64, 72)

18. The southerly terminal of the proposed facilities would be at a point in Bethel now known as Danbury Junction, where existing north-south and east-west 115 KV rights of way cross. At the southerly terminal the applicant proposes to construct a new substation to be called Plumtree Substation. (T. 7/8/74 p. 31; Exhibit A, Pages 1, 3, 90)

19. At Plumtree Substation electric power at 345 KV would be transformed to 115 KV for transmission to other substations throughout the western Connecticut area for further transformation to distribution voltages. (T. 7/8/74 pp. 31, 32; Exhibit A, pages 9, 20)

20. The southwestern area of Connecticut which the proposed facility will most directly effect includes all or portions of all of the towns in Fairfield County, excepting Monroe, New Fairfield, Shelton, Sherman, and Stratford. If a 115 KV line is not constructed between Carmel Hill, in Woodbury, and Bates Rock Substation, in Southbury, it would also be necessary to include the portions of Southbury, Woodbury and Middlebury which are served by the Bates Rock Substation, which is presently supplied only by a transmission line from the southwestern area. (T. 7/8/74 p. 28)

21. No application for a certificate with respect to a proposed 115 KV transmission line between Bates Rock and Carmel Hill is presently pending before this Council although such an application was filed previously and was subsequently returned to the applicant.

22. The southwestern area of Connecticut is presently supplied with electric power from generating stations located within the area at Norwalk Harbor, Cos Cob substation in Greenwich and the Shepaug Hydroelectric station in Southbury. Additionally, power is transmitted into the area over the 115 KV transmission system which is connected to the 345 KV transmission grid at Frost Bridge in Watertown and at Southington. (T. 7/8/74 pp. 28-30; Exhibit B, F.2-2, 2-3)

23. The southwestern area of Connecticut is also served by a 138 KV submarine cable under Long Island Sound which connects the Long Island Lighting Company system with the Northeast Utilities System. This cable can be used for controlled exchanges of power during emergencies and also for purchases and sales of excess power. (T. 7/8/74 pp. 30, 41; T. 7/12/74 pp. 169-171; T. 7/16/74 pp. 11-14, 143, 144; T. 7/17/74 pp. 138-144)

24. At the present time the 345 KV transmission grid does not extend into the southwestern area. (T. 7/8/74 pp. 26, 27, 29, 30)
25. The use of 345 KV lines to transmit large blocks of power requires a lesser number of circuits, and therefore lesser land areas for rights of way, than with the use of 115 KV lines to transmit the same amounts of power. (T. 7/8/74 p.26)
26. The southwestern area has been deficient in generating capacity since 1970, with the result that electric power necessary to meet demands in the area must be transmitted into the area from power sources outside the area. (T. 7/8/74 pp. 27, 28, 33; T. 7/17/74 p. 147; Table 3-3)
27. The existing 115 KV transmission system can be expected to become inadequate to maintain a reliable supply of power when the area peak load reaches about 890 megawatts. (T. 7/8/74 pp. 39-42; T. 7/15/74 pp. 152,153; T. 7/17/74 pp. 111, 116, 117, 130-137, 149, 156, 157; T. 7/23/74 pp. 25, 26; Exhibit L)
28. If line ratings are exceeded, possible damage to conductors and equipment and possible safety hazards will result; in addition, electrical service to a large area may be jeopardized. (T. 7/17/74 pp. 105-107, 151, 152)
29. As the area peak loads increase over 890 megawatts the chances that a contingency will result in a curtailment of service will increase. (T. 7/17/74 pp. 122, 156, 157; T. 7/23/74 pp. 25, 26, 163-175)
30. If no additional transmission facilities were constructed, there would be no effect upon the public for a period of time so long as all transmission lines and all generating units were in service when needed. (T. 7/8/74 p. 97)

31. By the time the southwestern area peak load reaches 963 megawatts the electric supply to the area must be considered to have little or no reliability. (T. 7/15/74 p. 153; T. 7/23/74 pp. 25, 26)
32. Forecasts of growth in peak loads for the southwestern area were made by and on behalf of the applicant in July and September of 1973, prior to the fuel crisis and the resulting conservation measures exercised by electric consumers. (T. 7/8/74 pp. 34-37; Exhibit A p. 13-15, T. 3-2, 3-4; Exhibit L; Exhibit M)
33. The projected average annual compound growth rates for peak loads contained in these forecasts, for the period 1972 to 1980, were 9.4 % and 7.4% respectively. (T. 7/8/74 p. 36; Exhibit A, T.3-2; Exhibit L; Exhibit M)
34. A one-year delay in reaching forecasted load levels would have resulted in an area peak load in excess of 890 megawatts in 1976 if the average annual compound growth rate for peak loads were 9.4%. This load level would be exceeded in 1977 if the growth rate were 7.4%. (T. 7/8/74 pp. 39-41, 58; Exhibit A, T.3-4; Exhibit L)
35. The southwestern area of Connecticut experienced a summer peak of 726.3 megawatts on August 31, 1973. The Bates Rock load accounted for 21.2 megawatts resulting in an area net load of 705.2 megawatts. (T. 7/17/74 p. 11; T. 7/31/74 p. 48)
36. The 1973 summer peak in the southwestern area exceeded the 1972 summer peak. The 1973-1974 winter peak was lower than the 1972-1973 winter peak as a result of the fuel crisis and resulting conservation measures. (T. 7/8/74 pp. 37, 38; T. 7/15/74 p. 139; T. 7/17/74 pp. 114, 115; Exhibit A, T. 3-4)

37. The energy crisis has caused users of electricity to re-examine their uses and to eliminate or curtail those uses deemed less essential. As such, the future rate of growth of summer and winter peaks is difficult to accurately forecast at this time. (T. 7/8/74 p. 38; T. 7/15/74 p. 182; T. 7/30/74 p.195)
38. Peak load curtailment associated with conservation measures created a reserve generating capacity of 50% last year on the Northeast Utilities system as a whole. (T. 7/12/74 pp. 35, 126, 127)
39. Predicted increases in kilowatt hour sales failed to materialize as a result of the fuel crisis and there was approximately a 4% drop during the first five months of 1974. (T. 7/12/74 pp. 38-40)
40. Consolidated Edison in New York experienced a reduction in both winter and summer peak loads as a result of conservation measures associated with the energy crisis. (T. 7/12/74 p. 153)
41. All utilities in the Northeast region have experienced a reduction in loads as a result of public conservation measures associated with the fuel shortage. (T. 7/15/74 p. 92)
42. There have been significant rate increases for customers on the Northeast Utilities system as a result of the Arab oil embargo. (T. 7/12/74 p. 149)
43. The conservation ethic, the decline in real income and the increase in price has resulted in a slowing rate of increase in demand for electricity. (T. 7/16/74 pp. 69-71; T. 7/12/74 p. 157; T. 1/20/75 p. 33)
44. Recent experience has demonstrated that there is a degree of elasticity in electrical usage with respect to price. (T. 7/12/74 pp. 168, 169; T. 7/16/74 pp. 59, 60; T. 7/25/74 pp. 138-145)

45. Growth of consumption of electricity will be influenced by the cost of electricity with relation to other sources of energy and also the availability of other sources of energy. (T. 1/20/75 pp. 39, 46-48)
46. The future rate of growth in demand for electricity could conceivably be reduced by the initiation or expansion of programs such as Save-A-Watt, voltage reduction, rate differentials, or interruptible service. (T. 7/12/74 pp. 161-168)
47. The applicant has initiated a program, similar to the Consolidated Edison Save-A-Watt program, which has resulted in a substantial reduction in sales of electricity. (T. 7/25/74 pp. 182, 183)
48. Although some lowered projections of population growth and of business activity have been made with respect to portions of the southwestern area, all Connecticut public planning agencies forecast continued growth in the area, particularly the area which would be directly supplied by the proposed 345 KV line. (T. 7/11/74 p. 167; T. 7/15/74 pp. 214-218; T. 7/25/74 pp. 165, 166; T. 7/31/74 pp. 4-18)
49. Any decline in fertility rates that may currently occur would not be expected to effect the formation of new family units, or have a significant effect on the demand for electricity during the time period under consideration. (T. 7/12/74 pp. 189-191; T. 7/25/74 p. 137)
50. The Danbury area is a rapidly growing area of the State at the present time and is expected to continue to be at least for the near future; much of that growth is due to in-migration. (T. 7/23/74 pp. 41, 151, 152; T. 7/31/74 pp. 8, 9, 13, 18)

51. Whether there is enough remaining usage of electrical power that can be conserved by existing customers to offset increased usage by reasonably anticipated new customers remains to be seen. (T. 7/25/74 pp. 158, 159; T. 1/20/75 pp. 22, 33, 43)
52. The energy crisis has had the effect of making specific load forecasts extremely difficult to formulate and, for planning purposes, has resulted in at least a one-year delay for expected realization of forecasted load levels. (T. 7/8/74 p. 39; T. 7/12/74 p. 47; T. 7/15/74 p. 88, 181)
53. Studies made in June of 1974 by the applicant's load research department forecast growth in peak loads in the area ranging from 6.2% per year to 8.8% per year depending upon the assumptions which were made. (T. 7/25/74 pp. 121, 130-136)
54. The Council was provided with additional testimony from economics experts who forecasted a rate of growth in peak loads in the area which would range from less than 0% to around 4%. (T. 7/15/74 pp. 190, 220-226; T. 7/12/74 pp. 160, 161, 173)
55. If the 1973 summer peak load should grow at an average rate of 4% per year, the area peak loads would reach the 890 megawatt level in the winter of 1978-1979. (T. 7/12/74 pp. 173, 182; T. 7/16/74 pp. 158, 159, 161, 171, 172)
56. Had there been a dead growth year between 1973-1974 and a rate of growth of 6% per year compounded thereafter, peak loads in the southwestern area for the years 1978, 1979 and 1980 would have been 890.3 megawatts, 943.7 megawatts and 1000.3 megawatts respectively. (T. 7/31/74 pp. 48-50)

57. Summer peaks experienced in 1974, corrected for weather conditions, were about 4.1% less than comparable summer peaks experienced in 1973. Summer peaks not corrected for weather conditions were about 8.5% less. (Exhibits W and X)
58. If the actual 1974 summer peak load were projected to increase at 6% per year, the area peak load would exceed 890 megawatts in 1980. (T. 1/20/75 p. 50)
59. The future use of electricity is necessarily dependent on the cost of electrical energy relative to the cost of other commodities, particularly fuel. (T. 7/30/74 pp. 171-174; T. 1/20/75 pp. 39, 40, 46-48)
60. The Bates Rock Substation in Southbury is currently supplied from within the southwestern area. (T. 7/8/74 pp. 41, 42)
61. No application for a certificate with respect to a proposed 115 KV transmission line between Bates Rock and Carmel Hill is presently pending before this Council, although such an application was filed previously and was subsequently returned to the applicant.
62. The proposed 345 KV line* could probably not be placed in service before the summer of 1978 since it can reasonably be expected to take approximately 42 months subsequent to certification. The actual construction phase would take about 24 months. (T. 7/17/74 pp. 206-211; Ex. V.; T. 7/31/74 pp. 140-147)
63. To the extent that fossil-fuel generation within the area is replaced by more economical nuclear generation which must be transmitted from outside the area, the amounts of power which must be transmitted into the area with the existing 115 KV system will be greater and the time by which new or additional

transmission facilities should be in service will be advanced. (T. 7/8/74 pp. 28, 34, 41, 42; T. 7/17/74 pp. 120, 121, 134, 135, 137; T. 7/23/74 pp. 35, 36, 106, 108, 109; T. 7/25/74 p. 27)

64. It is not prudent to assume that at any given time all generating units in the area will, in fact, be available for service or that at times of peak load substantial power would be available from Long Island. (T. 7/17/74 pp. 109, 110, 117, 118, 123, 139-146; T. 7/23/74 pp. 172, 173, 176, 177, 179)

65. The increasing electrical demands in the southwestern area could be met by providing additional generation in the area and adding transmission lines to support that generation; however, that does not appear to be desirable or necessary within the time period under consideration. (T. 7/8/74 pp. 43-53; Exhibit A p. 28-37; Exhibit L; Exhibit B, F.4-1 through 4-9; T. 7/17/74 pp. 191, 192)

66. Increased electrical demands in the southwestern area can best be overcome through the construction of additional transmission lines which would enable the deficit to be made up from outside the area. (T. 7/8/74 pp. 43-53; Exhibit A, p. 28-37; Exhibit L; Exhibit B, F.4-1 through 4-9)

67. Danbury Junction and the Norwalk Substation are located at the hub of the southwestern areas 115 KV system and large blocks of power transmitted to its locations at high voltage could be readily stepped down for transmission to substations throughout the area. (T. 7/8/74 pp. 32, 46, 47, 64)

68. Expansion of the existing 115 KV transmission system supplying the southwestern area would require a greater number of new circuits and greater amounts of new rights of way than would extension of the 345 KV transmission system into the area; it is not a satisfactory long range plan for the supply of the area. (T. 7/8/74 pp. 44, 50-53)
69. The proposed New Milford to Danbury line would be the first section of a planned expansion of the 345 KV system into the southwestern area of Connecticut. (T. 7/8/74 p. 27; T. 7/31/74 p. 56)
70. The proposed New Milford to Danbury line would serve as the first segment of a proposed 345 KV loop to be completed over a period of several years. (T. 7/8/74 p. 32; Exhibit B, F.4-1; T. 7/17/74 p. 166; T. 7/31/74 pp. 55-57)
71. From Danbury Junction the proposed 345 KV loop would extend southerly to Norwalk Substation and then northeasterly to Beseck Substation in Wallingford, where it would be connected to the 345 KV system to the north and east. (T. 7/8/74 pp. 31, 32, 47)
72. Applications for certification of the remaining portions of the 345 KV loop would be made at a later date if additional peak load experience is found to justify their need. (T. 7/12/74 pp. 105, 106, 119; T. 7/17/74 pp. 167-169; T. 7/30/74 p. 200; T. 7/31/74 pp. 55, 56)
73. The ultimate construction of a 345 KV loop conforms to the applicant's long range plan for expansion of the transmission system in southwestern Connecticut whether or not new generating capacity is added within the area. (T. 7/8/74 p. 56)

74. Plans calling for ultimate construction of a 345 KV loop into the southwestern area are supported by studies of the present worth of annual costs of each of the alternative plans. (T. 7/8/74 pp. 53-56; T. 7/23/74 pp. 161, 162; Exhibit A, Table 4-1)

75. Completion of the 345 KV loop would provide transmission at 345 KV to the proposed major substations at the Danbury and Norwalk load centers and also would provide those substations with the reliability of a dual supply. (T. 7/8/74 pp. 46, 47)

76. The proposed line will constitute a first step in carrying out that long range plan; however, whether or not the remainder of the loop is constructed, the proposed line is necessary in order to supply the electrical load in the Danbury area and to relieve the Norwalk area by eliminating the need to supply the Danbury area from the Norwalk area. (T. 7/8/74 pp. 27, 56, 57; T. 7/11/74 pp. 20, 21, 28; T. 7/31/74 pp. 55, 56, 61)

77. The proposed 345 KV line will reinforce the supply of power to the southwestern Connecticut area by creating a power source at Plumtree Substation in the Danbury area; this will eliminate the need to supply the Danbury area partly from Norwalk by means of an existing 115 KV line between Norwalk and Danbury, thus making power generated at Norwalk available to the Norwalk-Stamford area. (T. 7/8/74 pp. 27, 31, 32, 57; T. 7/11/74 pp. 20, 23, 166, 168; T. 7/23/74 pp. 26, 105, 106, 145, 151, 152; T. 8/1/74 pp. 26, 27)

78. Approval and construction of the 345 KV line between Long Mountain and Plumtree will not limit other options for serving the southwestern area. (T. 7/31/74 pp. 56-61)

79. The concept of a 345 KV loop was the subject of an application made to the Public Utilities Commission in 1970, which application was subsequently withdrawn. (T. 7/12/74 pp. 101-104, 106; T. 7/30/74 p. 200)

80. The proposed facilities and right of way can be considered in four sections: the first section runs about 2.7 miles from Long Mountain to the applicant's Rocky River hydro station in New Milford; the second section runs about 3.2 miles from the Rocky River station to a point just northerly of the community of Lanesville, also in New Milford; the third section runs about 8.1 miles from northerly of Lanesville to a point in Brookfield known as Brookfield Junction, where the applicant's existing north-south right of way is joined from the east by a right of way from the applicant's Shepaug generating station; and the fourth section runs about 3.5 miles from Brookfield Junction to the Plumtree Substation site in Bethel. (T. 7/8/74 pp. 72-77)

81. The proposed route is 17.5 miles long and would utilize most of the existing 115 KV right-of-way from New Milford to Danbury. (T. 7/8/74 pp. 67, 68, 71-78; Exhibit B Routes Map)

82. The proposed route would run from New Milford to Danbury in the Route 7 corridor, along the Still River valley which can be expected to continue to grow as a major industrial and commercial corridor for the region. (T. 7/8/74 pp. 66, 68, 71-78; 7/11/74 pp. 29-45; Exhibit B Routes Map; Exhibit D, E, F, G)

83. Between Long Mountain and Rocky River the existing right of way varies from 50 to 150 feet in width and accommodates a 115 KV transmission line supported by wood H-frame structures. (T. 7/8/74 p. 72; Exhibit B, Sheet 1 of 4)

84. Widening the existing right of way to 275 feet would enable the applicant to retain the existing 115 KV line, to construct the proposed 345 KV line on wood H-frame structures and to accommodate a possible second 345 KV circuit in the future. (T. 7/8/74 pp. 72, 73, 89; Exhibit A, page 75; Exhibit B Sheet 1 of 4)

85. At environmentally sensitive locations such as Altermatts Pond the 115 KV line should be constructed on single steel poles and steel H-frame structures should be used for the 345 KV line in order to permit long spans with a minimum number of structures; at the Housatonic River steel instead of wood crossing structures should also be used. (T. 7/8/74 pp. 72, 73, 89)

86. At the Housatonic River crossing there are presently a lattice steel tower carrying the 115 KV circuit which runs northerly to Long Mountain and a 13.8 KV distribution circuit; a second lattice tower carrying two 69 KV circuits, which the applicant proposes to remove; and a steel pole which carries one 115 KV circuit toward Sullivan Junction. (T. 7/23/74 p. 19)

87. Except for the reconstruction at Altermatts Pond and at the Housatonic River crossing, the existing 115 KV line between Long Mountain and Rocky River should basically be left on its present wood H-frame structures. (T. 7/8/74 p. 73)

88. Between Rocky River station and Lanesville the existing right of way is 125 feet wide and is occupied by a 115 KV circuit on wood H-frame structures and by two 13.8 KV distribution circuits also on wood H-frame structures. (T. 7/8/74 pp. 74, 75; Exhibit A, page 75; Exhibit B, Sheet 2 of 4)

89. There are important residential areas in the Route 7 corridor in Lanesville and near the New Milford and Brookfield town centers. (T. 7/8/74 pp. 66, 68)

90. Widening the existing right of way to 275 feet, except at the existing angle near Town Park Road on Guarding Mountain, in New Milford, and in the Hilltop View Road Extension area, just northerly of Lanesville, would enable the applicant to reconstruct the existing 13.8 KV circuits on single pole structures on the easterly side of the right of way; to reconstruct the existing 115 KV circuit on wood H-frame structures with a capability of being operated at 345 KV; and to construct the proposed 345 KV circuit on wood H-frame structures. (T. 7/8/74 pp. 74, 75, 89, 90; Exhibit A, pages 75, 81-84; Exhibit B, Sheet 2 of 4)

91. At the angle on Guarding Mountain the applicant, as proposed, should carry the right of way southerly and then easterly in order to place the angle and angle structures farther from houses on Town Park Road. (T. 7/8/74 p. 74; Exhibit A, pages 81, 82; Exhibit B, Routes Map; T. 7/24/74 pp. 52-55; T. 7/31/74 pp. 127, 128)

92. The proposed 345 KV route warrants a further departure from the existing 115 KV line right of way in the Hilltop View Road extension area, north of Lanesville, in order to minimize its visibility. (T. 7/8/74 p. 74; T. 7/24/74 pp. 52-55; Exhibit A, page 81; Exhibit B Routes Map)

93. Between Lanesville and Brookfield Junction the existing right of way is 125 feet wide and accommodates a 115 KV line supported by wood H-frames structures. Widening the existing right of way to 150 feet in this section, except in four locations, would enable the applicant to construct

the proposed 345 KV line and reconstruct the existing 115 KV line on double circuit steel pole structures, the 115 KV line being capable of operation at 345 KV. (T. 7/8/74 pp.

75, 76, 89; Exhibit A, pages 84-88; Exhibit B, Sheet 3 of 4)

94. A 150 foot right of way is the minimum width conforming to good engineering practice for the construction of two 345 KV circuits on double circuit steel poles. (T. 7/17/74 pp. 51, 52; Exhibit A, page 76)

95. Between Lanesville and Brookfield Junction the proposed 345 KV and 115 KV lines warrant being relocated from the existing right of way in four locations: two which have been approved by the Council in connection with the construction of proposed new Route 7; one just south of the Brookfield--New Milford town line, where for about 1.4 miles the right of way should be moved westerly from the houses on Baldwin Hill Road and Prospect Drive to a location near the railroad and the Still River; and one just north of Silvermine Road, in Brookfield, where the right of way should be shifted westward and closer to the Still River in order to be farther from existing housing. (T. 7/8/74 pp. 75, 76)

96. Between Brookfield Junction and Danbury Junction the existing right of way varies from 125 to 150 feet in width and accommodates a 115 KV transmission line supported by wood H-frame structures. Widening this portion of the right of way to 175 feet would enable the applicant to construct double circuit 345 KV steel pole structures supporting two circuits capable of operation at 345 KV, one of which could be operated initially at 115 KV in replacement of the existing 115 KV circuit; widening to 175 feet would permit the

construction of an additional 115 KV line between Plumtree Substation and Brookfield Junction, which can presently be anticipated to be necessary not later than 1982. (T. 7/8/74 pp. 76, 77, 90; T. 7/11/74 pp. 102, 103; T. 7/17/74 pp. 55-57, 60-66; T. 7/25/74 pp. 25, 26; T. 7/31/74 p. 62; Exhibit A, pages 88-90; Exhibit B, Sheet 4 of 4)

97. A 175 foot right of way is the minimum width conforming to good engineering practice for the construction of a double circuit 345 KV line and a double circuit 115 KV line on single pole structures. (T. 7/17/74 p. 51)

98. Acquisition of a 175 foot right of way in the fourth section is in conformance with a long range plan for the development of the applicant's electric system. (T. 7/17/74 p.58)

99. From a point about one-half mile south of Routes 6 and I-84, in the Chimney Heights development, the proposed route should depart westerly from the existing right of way, cross Payne Road into Danbury, turn southerly through the Limekiln Brook area, re-enter Bethel westerly of Meckauer Park, and then run easterly to Plumtree along the existing right of way between Danbury Junction and Triangle Substation in Danbury. (T. 7/8/74 pp. 76, 77)

100. The relocation would avoid the necessity of taking a number of houses in the heavily developed residential area south of the point of relocation. (T. 7/8/74 pp. 76, 78; T. 7/11/74 pp. 107, 108)

101. The relocation westward from Chimney Heights would cross an area designated as open space but the area is being used for land fill and a proposed industrial subdivision has been laid out; some of the route also would cross an industrial area. (T. 7/25/74 pp. 82, 83, 85)

102. The exact location of the route through the Danbury land fill area in the Limekiln Brook area will depend upon the City's plans for further filling. (T. 7/25/74 pp. 80, 83, 84)

103. Widening the existing right-of-way to accommodate the proposed 345 KV facility would necessitate the relocation of about two houses. (T. 7/8/74 p. 78)

104. Construction of the proposed facilities would require temporary reconstruction of some of the existing facilities in order to maintain electrical service. (T. 7/23/74 pp. 135, 136; Exhibit A, page 90)

105. The estimated cost of right of way acquisition for the proposed facilities is \$3,700,000 and the estimated cost of construction and reconstruction is \$8,100,000. (T. 7/8/74 p. 90; Exhibit A, pages 4, 63, 90) .

106. The cost of constructing the Long Mountain Switching Station and the Plumtree Substation is an additional estimated \$9,200,000, of which \$1,000,000 represents the cost of a 345/115 KV autotransformer at Plumtree. (T. 7/8/74 pp. 90, 91; Exhibit A, pages 4, 90)

107. The existing right of way and the proposed route run generally parallel to existing Route 7 and the Still River Valley. From Long Mountain to Lanesville the area is wooded and rural in nature and has little development except in the vicinity of the applicant's Rocky River hydro station. From Lanesville to Plumtree the area is becoming extensively developed for commercial and industrial uses and can be expected to grow as a major industrial and commercial corridor. Reconstruction of Route 7 is presently under way adjacent to

the southerly portions of the route, and completion of the highway can be expected to result in further industrial and commercial development in the area. (T. 7/8/74 pp. 66, 67, 71; T. 7/11/74 p. 40)

108. The proposed route connects two urban agglomerations in a corridor of rapidly urbanizing and suburbanizing character. It passes through a considerable diversity of mixed land uses which very often do not reflect orderly planning controls long in evidence. A considerable portion passes through land committed to industrial and commercial purposes. Most of the land which is still open is under active or imminent development. (PTI, Page C-6)

109. Municipal zoning regulations, the land use plan proposed by the regional planning authority and the state plan of conservation and development all anticipate the continued development of the area in the manner presently taking place. (T. 7/11/74 pp. 30-46, 49-53; T. 7/24/74 p. 51)

110. There are no identifiable historic values which would be effected by the proposed facility. (T. 7/8/74 p. 80)

111. The proposed facility will cause minimal adverse effect on air and water purity or fish and wildlife. Proper right-of-way maintenance should benefit wildlife in the area. (T. 7/8/74 pp. 80, 81)

112. Sunny Valley Farm, in New Milford, Meckauer Park, in Bethel and the golf course in Lanesville constitute the principal recreational and open space areas crossed by the existing route; the proposed relocation westward from Chimney Heights would result in the proposed route avoiding Meckauer Park. (T. 7/12/74 pp. 59, 60; T. 7/25/74 p. 38)

113. The proposed route would not conflict with the proposed linear park along Route 7. (T. 7/25/74 pp. 38, 39)
114. The most significant impact of the proposed facility upon the environment would result from the visibility of the lines and the visual effects of the transmission structures and conductors and the clearing necessary to accommodate them. (T. 7/8/74 pp. 80, 82; T. 7/24/74 p. 42)
115. The first section of the proposed route, from Long Mountain to the Rocky River station, runs generally along the east base of Long Mountain and the western side of the West Aspetuck River Valley to the Rocky River station. This area is wooded and rural in nature and is generally undeveloped except in the immediate vicinity of the crossing of the Housatonic River, which is industrial in character and already occupied by transmission and distribution lines. (T. 7/8/74 pp. 71, 72; T. 7/31/74 p. 77; Exhibit A, pages 58, 59, 75)
116. In the Long Mountain--Rocky River Station section, which is primarily wooded, 345 KV wood H-frame structures would average about 85 feet in height and should be visually compatible with most of the area through which they would pass and with the existing 115 KV line. (T. 7/8/74 pp. 73, 79; T. 7/24/74 pp. 56, 57; T. 7/31/74 p. 120)
117. In this section structures would be necessary at approximately 24 locations. (T. 7/31/74 p. 97)
118. Double circuit steel poles in this section would average about 45 feet higher than the wood H-frames although a narrower right-of-way would be needed. (T. 7/25/74 p. 45; T. 7/31/74 p. 120)
119. Although H-frame construction at this time would require further clearing of the right of way in the event a

second 345 KV line is constructed on the right of way in the future, such construction does not appear to be necessary for at least another decade after the proposed line is placed in service. (T. 7/25/74 pp. 45-49; T. 7/31/74 pp. 120, 121)

120. The use of steel poles, exclusively, between Long Mountain and Lanesville, would add about \$1,700,000 to the cost of construction. (T. 7/24/74 pp. 45, 54; T. 7/31/74 pp. 123, 125, 126)

121. Use of steel poles in the West Aspetuck River area would also result in considerably greater relocation costs if the suggested water supply reservoir in that area should be constructed. (T. 7/31/74 p. 126)

122. About 1,000 linear feet of the existing right of way in the first section pass through designated wetland areas: about 500 feet at Altermatts Pond and about 500 feet in an area south of Altermatts Pond; however, widening of the existing right of way to the west would not occur in wetland areas. (T. 7/31/74 pp. 76-80, 98)

123. In the Altermatts Pond area roughly two-thirds of the right of way is covered by the water surface of the pond. (T. 7/31/74 pp. 71-73)

124. It appears that none of the approximately 24 structure locations which would be required between Long Mountain and Rocky River would be in a designated wetland area. (T. 7/31/74 pp. 97-99)

125. At the Housatonic River there would be no reconstruction of the existing 115 KV line from Long Mountain or the existing 115 KV line from Sullivan Junction, both of which cross the river to the Rocky River Substation; the

proposed 345 KV line would bypass the substation and would be a very high span over the river and existing Route 7 on the southerly side of the river. (T. 7/31/74 pp. 112-114)

126. The existing 13.8 KV distribution line crossing the Housatonic River at Rocky River Substation has limited visibility and visual impact, since the river at that point is dominated by the substation and generating station, there is business and industry on both sides of the river and there is little visibility of the line from Route 7 or other areas; the proposed 345 KV line would be high in the air and the limited visual effect of the river crossings would be lessened when the applicant completes its proposed removal of two existing 69 KV circuits. (T. 7/24/74 pp. 55, 56; T. 7/31/74 p. 115)

127. The second section of the proposed route, from Rocky River Station to Lanesville, runs southwesterly on land of the applicant from Rocky River Station parallel to the applicant's penstocks and the canal from Lake Candlewood, and then runs to the proposed new angle on Guarding Mountain; from that point the route runs southeasterly to the valley and then turns again southerly towards Lanesville. From Rocky River Station to the base of Guarding Mountain the area is generally wooded. The proposed relocation of the angle on Guarding Mountain would carry reconstruction farther away from the houses which have been constructed there. From the base of Guarding Mountain to Lanesville the route runs through a developing and sometimes quite open valley and a part of the area is utilized for a major landfill operation. (T. 7/8/74 pp. 74, 79; T. 7/24/74 pp. 53, 54)

128. The view from Route 7 up the existing right of way is very limited, extending for only a few hundred feet, and the proposed 345 KV line would not be in this view. (T. 7/31/74 pp. 118, 119)

129. After completion of new Route 7 the applicant would remove the 13.8 KV circuits running from Rocky River to Lanesville. Initially they would be reconstructed on the easterly side of the right of way to allow for construction of the proposed 345 KV line. (T. 7/31/74 p. 118)

130. The proposed relocation of the right of way on Guarding Mountain would avoid the construction of two sets of angle structures adjacent to existing houses on Town Park Road, would allow a road crossing which conforms to Federal Power Commission guidelines and would reduce both the visibility and the visual effect of the proposed lines. (T. 7/24/74 p. 54; T. 7/31/74 pp. 127, 128)

131. The proposed relocation of the route to the east, northerly of Lanesville, would reduce the visibility of the line from adjacent residential development and from the Housatonic River Valley. (T. 7/8/74 p. 74; T. 7/24/74 pp. 52, 53; Exhibit B, Routes Map)

132. In the second section about 3500 linear feet of the existing right of way cross several designated wetlands in the vicinity of Sunny Valley Farm and the McNulty's land fill area, which has been proposed as a major regional land fill facility. It appears that of the approximately 28 proposed 345 KV structure locations necessary in this section about four would be in designated wetlands. (T. 7/24/74 p. 53; T. 7/31/74 pp. 79, 80, 82, 83, 84, 99)

133. The third section, from northerly of Lanesville to Brookfield Junction, runs through a generally developed area, including some open land for which industrial and commercial uses are anticipated. (T. 7/8/74 pp. 75, 78, 79)

134. The single pole structures proposed for this section would be taller than the existing wood H-frame structures but this visual effect will be minimized because the existing structures will be removed and because of the extent of present and proposed development. (T. 7/8/74 pp. 76, 78, 79)

135. Several small wetland areas, the Still River and areas which will be reshaped by the construction of new Route 7 are crossed by this section for a total linear distance of approximately 6400 feet; approximately seven proposed 345 KV structure locations would be in wetlands. (T. 7/31/74 pp. 85-90, 93, 94, 99, 100)

136. The fourth section, from Brookfield Junction to Plumtree, runs through an even more heavily developed area, including Berkshire Industrial Park, northerly of Route I-84; a portion of the Chimney Heights development, southerly of Route I-84; a proposed industrial area in eastern Danbury; and a land fill area in the vicinity of Limekiln Brook. (T. 7/8/74 pp. 76, 77)

137. The applicant proposes to remove the existing 115 KV transmission line from so much of the existing right of way as runs between the point of relocation to the west in the Chimney Heights development and Plumtree, including the portion in Meckauer Park. (T. 7/8/74 pp. 77, 78, 79; T. 7/31/74 pp. 62, 63)

138. In the fourth section approximately 6,000 linear feet of the proposed route, in the Danbury land fill area and along the existing right of way between Plumtree and the City

of Danbury, cross designated wetlands and would require approximately eight structures locations in wetlands. (T. 7/31/74 p. 100)

139. In the third and fourth sections approximately 15 of approximately 102 structures locations would be in wetlands. (T. 7/31/74 pp. 99, 100)

140. About one-fifth of the 17.5 mile length of the proposed route, about 17,700 linear feet would cross designated inland wetlands, and of approximately 154 required structures locations, about 19 would be in wetlands. (T. 7/24/74 p. 68; T. 7/31/74 pp. 76-80, 82-90, 93-96)

141. Wetlands areas would be effected to the extent that it becomes necessary to locate towers in them or across them to gain access to construction sites. (T. 7/30/74 pp. 97, 98; T. 7/31/74 pp. 97-107)

142. In the first section of the proposed route little or no access ways in wetlands are anticipated; in the second section about 1300 feet of access ways are anticipated; in the third section about 2900 feet of access ways are anticipated; and in the fourth section about 5,000 feet of access ways, primarily in the Danbury landfill area, are anticipated. (T. 7/30/74 pp. 97, 98; T. 7/31/74 pp. 97-107)

143. The wetlands impacts of a transmission line along the proposed route can be minimized since there are existing access ways at many points and public roads are nearby or crossed at frequent points. (T. 7/24/74 p. 72)

144. Careful construction techniques and right-of-way management practices must be exercised to limit the extent of adverse environmental impact on any wetlands through which

the proposed facility would pass. (T. 7/8/74 p. 80)

145. Until a certificate has been granted and the necessary right-of-way has been acquired a detailed management plan cannot be prepared. (T. 7/12/74 pp. 91-96)

146. Upon the granting of a certificate and acquisition of the necessary right-of-way the applicant would make a detailed environmental inventory and prepare a right-of-way development and management plan for review with the Department of Environmental Protection. (T. 7/8/74 p. 117; T. 7/11/74 p. 184, 185; T. 7/25/74 p. 65)

147. Additional access ways need not be roads; very limited construction or improvement of the existing right-of-way may be satisfactory. (T. 7/24/74 pp. 118, 119)

148. Where access ways are required, no preparation will be necessary if the ground is sufficiently firm; otherwise gravel sufficient to support the equipment in question would be laid along the way; in wet areas wood slabs or logs would be laid and gravel placed on top; such slabs and logs should be removed when no longer needed; of the approximately 9200 feet of access ways anticipated in wetlands, about 2,000 feet would be created by using wood slabs or planks. (T. 7/31/74 p. 101, 104-106)

149. The total of approximately 9200 feet of access ways which would be required in wetlands would cover a little more than three acres of the approximately 580 acres of the proposed right-of-way. (T. 7/11/74 p. 77; T. 8/1/74 p. 32)

150. Existing access roads along the proposed route would reduce the need for additional footage to approximately one-thousand feet. (T. 7/24/74 pp. 115, 116)

151. Construction of the proposed facility would require the use of riprap on approximately 10% of the access roads. (T. 7/24/74 pp. 119-122)

152. The existing transmission structures in wetland areas are capable of being replaced by the proposed new structures with no significant adverse environmental effects. (T. 7/11/74 p. 188)

153. In many areas there would be no activities in wetlands other than the clearing of whatever high trees may exist. (T. 7/24/74 p. 75)

154. To the extent that construction is necessary in wetlands, the environmental impacts should be shortlived. (T. 7/30/74 p. 133)

155. The construction and maintenance of the proposed facilities, including the creation of access ways, need not have a significant adverse effect upon the wetlands or upon any flooding which might take place. (T. 7/25/74 pp. 32-35; T. 7/31/74 pp. 96-107)

156. Construction of the proposed facilities should not damage any aquifer. (T. 7/25/74 p. 35)

157. It is not likely that any significant erosion problems would occur as a result of the construction of the proposed facility. (T. 7/24/74 pp. 80-88; 106-111)

158. There is the potential for some erosion in the area southerly of Route I-84 and westerly of Chimney Heights, where the ground slopes to the west, and the northerly approximately one-sixth of the proposed route, particularly in the area of Altermatts Pond. (T. 7/24/74 pp. 80, 81)

159. The erosion potential at Altermatts Pond could be reduced by constructing the proposed facility within the present right-of-way and utilizing single structure steel towers. (T. 7/16/74 pp. 193, 201-203; T. 7/31/74 pp. 70-73)
160. The use of existing access ways will minimize or eliminate possibilities of erosion. (T. 7/24/74 pp. 88, 106-109)
161. No problem with respect to siltation of brooks and streams is anticipated. (T. 7/24/74 p. 111)
162. No structures will be placed close to stream banks, except possibly in the Limekiln Brook area in Danbury. (T. 7/24/74 pp. 114, 115)
163. No erosion measures should be needed on the banks of the Still River since no structures will be located there and there will be no vehicular crossings of the river other than on public roads. (T. 7/25/74 p. 76)
164. Erosion along access ways can be controlled by construction along contours rather than on steeper slopes, by using water bars and by using wood chips or baled hay to provide a stabilizing surface. (T. 7/31/74 pp. 106, 107)
165. Widening of the existing right-of-way and the acquisition of new right-of-way as proposed by the applicant would require the taking of only two houses. (T. 7/8/74 p. 78)
166. The acquisition of the proposed route relocation westerly from Chimney Heights would not involve a conflict with any existing houses. (T. 7/17/74 p. 20)
167. The lots at Chimney Heights which would be crossed by the proposed route relocation are owned by Steiner, Inc. (T. 7/17/74 p. 18)
168. Berkshire Industrial Corporation is the owner of a 200 acre development north of Route I-84 known as

Berkshire Industrial Park. (T. 7/11/74 p. 101; T. 7/16/74 pp. 214, 215)

169. The existing right-of-way, which the applicant proposes to widen to 175 feet, is 150 feet wide in part and 125 feet wide in part as it passes through Berkshire Industrial Park. (T. 7/11/74 p. 104; T. 7/16/74 p. 215)

170. Two industrial buildings are owned by Berkshire Industrial Park, one on the west side of the existing right-of-way being leased to Computer Optics, and one on the east side of the right-of-way and southerly of the first building being leased to Mallory Battery Company. (T. 7/16/74 pp. 216, 223)

171. If the existing right-of-way were uniformly widened to the east and west as it passes through Berkshire Industrial Park it would be necessary to take portions of one or both of the existing buildings. (Cole Exhibit 2; T. 7/16/74 p. 250)

172. The introduction of two angles in the right-of-way would enable it to be widened to 175 feet without conflict with the existing buildings. (T. 7/15/74 p. 130; T. 7/16/74 pp. 251, 252, 253; T. 7/17/74 pp. 53, 55, 70, 71)

173. The widening could take place partially on each of the two parcels subject to the Mallory option with little effect on either parcel. (T. 7/17/74 p. 6)

174. The use of single column steel structures at the existing and proposed Route 7 and Route 84 crossings would reduce the visual impact since existing double column wood H-frames would be replaced. (T. 7/24/74 pp. 46-50)

175. The applicant would use a herbicide known as Tordon 155 for vegetation control on its rights-of-way; formerly it used 2, 4, 5-T for that purpose; Tordon 155 is a mixture of 2, 4, 5-T and Picloram. (T. 7/15/74 pp. 7, 8, 19)
176. The approximately three acres of access road which would be associated with the proposed facility would be treated with a dosage of Tordon herbicide in the order of three quarts per acre. (T. 8/1/74 pp. 32, 33)
177. The Federal Environmental Protection Agency has restricted the use of 2, 4, 5-T in areas where water contamination might occur. (T. 7/15/74 pp. 24, 25)
178. Amate, which is not a 2, 4, 5-T herbicide, is used by the applicant for vegetation control in watershed areas and has been approved for such use by appropriate agencies of the State of Connecticut. (T. 7/15/74 pp. 29, 30)
179. The herbicides used by the applicant are selective in that they do not affect grasses; in fact, 2, 4, 5-T is used in rice fields. (T. 7/15/74 pp. 13, 39)
180. Herbicides are not normally used in wetlands, since hardwood species do not normally grow there. (T. 7/30/74 p.134)
181. No herbicides are used in agricultural areas on the applicant's system. (T. 7/15/74 p. 9)
182. Herbicides would be selectively sprayed by oil vehicle on brush along the right-of-way which impinges on the operation of the line. (T. 7/15/74 pp. 7-12)
183. Herbicide application would be performed by contractors licensed by the Department of Environmental Protection. (T. 7/15/74 pp. 32, 41, 42)

184. The use of herbicides would depend upon the existing conditions, including the presence of wetlands. (T. 8/1/74 pp. 34, 35)
185. Right-of-way maintenance with the use of herbicides is typically one-seventh as expensive as using hand maintenance techniques. (T. 7/31/74 p. 140)
186. The right-of-way management plan for the proposed facility would designate the areas in which particular types of herbicides would be used. (T. 7/25/74 pp. 72, 74)
187. The proposed construction will conform in all respects to the applicable requirements of the Connecticut Public Utilities Commission and the National Electrical Safety Code. (T. 7/8/74 p. 91; T. 7/15/74 p. 129; T. 7/24/74 pp. 130-133)
188. The clearance of the proposed lines above ground will not cause electrical hazards to persons or vehicles beneath the lines. (T. 7/24/74 pp. 130-137)
189. Metal fences within the applicant's rights-of-way are grounded to prevent any build-up of an electrostatic charge. (T. 7/24/74 pp. 131, 132)
190. No buildings are allowed by the applicant on its rights-of-way. (T. 7/24/74 p. 133)
191. It is not expected that there will be any long term psychological or physiological effects on humans, such as line-men, who are exposed to the proposed 345 KV line. (T. 7/24/74 pp. 149-153; T. 7/31/74 pp. 64-68; PTI D-4)
192. Ozone produced by electric transmission lines is relatively insignificant and poses no hazard to persons or property along the area traversed by the lines. (T. 7/24/74 pp. 173, 174)

193. A properly designed 345 KV transmission line should not result in radio and TV interference, audible noise emission, generation of ozone and oxide of nitrogen or electrostatic-electromagnetic effects. (T. 7/31/74 pp. 164-168)
194. The applicant will make a survey of radio station signal strength along the route and select a conductor size which gives radio noise generation sufficiently below the level which would cause interference to radio reception adjacent to the line. (T. 7/24/74 p. 133; T. 7/31/74 pp. 64-68)
195. The proposed 345 KV transmission lines would not cause television or FM interference unless hardware were loose; such hardware can be readily fixed. (T. 7/24/74 p. 134)
196. The proposed storage of dynamite adjacent to the lines in New Milford would not constitute a hazard to the lines. (T. 7/31/74 pp. 107, 108)
197. The electromagnetic field associated with the proposed line should have no effect on pacemakers. (T. 7/24/74 pp. 142-149, 153-156; PTI D-3)
198. The use of single pole structures and the removal of existing H-frame structures in the urban and open portion of the proposed route would minimize the visual impact of the proposed line. (T. 7/8/74 p. 79)
199. The proposed route conforms to the Federal Power Commission "Guidelines for the Protection of Natural Historic, Scenic and Recreational Values in the design and Location of Rights-of-Way and Transmission Facilities", especially where relocations from the existing right-of-way are concerned. (T. 7/8/74 pp. 70-80; T. 7/11/74 p. 70; T. 7/12/74 pp. 64-66, 76-84; T. 7/31/74 pp. 110, 111)

200. No route for the proposed 345 KV line between the existing east-west 345 KV line and Plumtree which would lie westerly of Lake Candlewood or easterly of the Shepaug River Valley appears reasonable. (T. 7/8/74 pp. 64, 65)

201. A quantitatively less visible overhead 345 KV line could be constructed east of the Route 7 corridor where development has been less intense and the area is relatively rural in character. (T. 7/8/74 pp. 67, 68, 83, 84; T. 7/11/74 pp. 62-67; Exhibit B Routes Map)

202. This alternative route would run from a point near Ridge Road, in eastern New Milford, southerly through New Milford, the northeasterly corner of Bridgewater, the southwesterly corner of Roxbury, the southeasterly corner of Bridgewater, the easterly corner of Brookfield and the northwesterly corner of Newtown to an existing natural gas pipeline right-of-way and then westerly first along the natural gas pipeline and then along an old railroad right-of-way to Brookfield Junction. (T. 7/8/74 pp. 68-70; Exhibit B Routes Map)

203. From Brookfield Junction the alternative route could run southerly to Plumtree along the alignment of the proposed route, which follows the existing route to Chimney Heights and then runs westerly and southerly through the Danbury landfill area to an existing right-of-way, or, subalternatively, could run generally southwesterly parallel to the railroad line, across Route I-84 and through Commerce Park in Danbury to join the proposed route in the Limekiln Brook area. (T. 7/8/74 p. 70; Exhibit B Routes Map)

204. Construction of the proposed line along the alternate route could be accomplished within an area which is quite distant from town centers, would avoid ridge tops, and would be in close proximity to relatively few homes. (T. 7/8/74 pp. 68-71; Exhibit B Routes Map)
205. The alternate route would require a totally new right-of-way for most of its 20.2 mile length and would necessitate an overhead or underground crossing of the Lake Lillinonah part of the Housatonic River. (T. 7/8/74 pp. 68-71; T. 7/11/74 p. 55; Exhibit B Routes Map)
206. Construction of the proposed facility along the alternate route would necessitate the clearing of an approximately 170-foot wide right-of-way and the erection of 85-foot tall wood H-frame structures. (T. 7/11/74 pp. 58-60)
207. The corridor through which the alternate route would pass is generally remote, rural residential and zoned for low density residential development with some existing and proposed open space uses. (T. 7/11/74 pp. 49-55)
208. Right-of-way and overhead construction costs along the alternative route would total approximately \$10,900,000, or about \$900,000 less than the estimated comparable costs for the proposed route. (T. 7/8/74 p. 92; T. 7/11/74 p. 111)
209. Widening the existing 115 KV right-of-way along the proposed route would necessitate the acquisition of an additional 225 acres. A new right-of-way along the alternate route would require 670 acres at a cost of approximately \$4,500,000. (T. 7/11/74 pp. 77, 111; Exhibit A, pages 90, 93)

210. Undergrounding the proposed facility at Lake Lillinonah, along the alternate route, would substantially increase the cost of construction along that route. (T. 7/11/74 pp. 87, 114, 115)

211. Adverse economic, engineering and environmental factors suggest that the proposed facility should not be put under Lake Candlewood which was built and is partially owned by the applicant. (T. 7/24/74 pp. 125-128; T. 7/25/74 pp. 6, 7; T. 7/30/74 p. 49; T. 8/1/74 pp. 4-24)

212. Construction of the proposed facility along the alternate route would require a new access road to each transmission structure. (T. 7/24/74 p. 116)

213. Quantitative visual impact of the proposed facility would be greater along the proposed route whereas qualitative visual impact would be greater along the alternate route. (T. 7/8/74 pp. 83, 84; T. 7/25/74 p. 9)

214. The alternative route would introduce an entirely new feature into the landscape, would require more clearing and would have more likelihood of erosion than does the proposed route. (T. 7/30/74 pp. 45, 46)

215. Routing the proposed 345 KV line adjacent to proposed new Route 7 is an unrealistic alternative for aesthetic reasons as well as difficulties with construction timing. (T. 7/8/74 p. 81)

216. The sub-alternative route from Brookfield Junction to Plumtree, which would run westerly parallel to the railroad and then southerly through the Commerce Park area to rejoin the proposed route, appears less feasible than the proposed route inasmuch as the Commerce Park area has developed more rapidly and to a greater extent than Berkshire Industrial Park. (T. 7/11/74 p. 109)

217. If the proposed facilities were to follow the existing right-of-way southerly of the proposed point of relocation in Chimney Heights, at least ten houses which lie within ten feet of the existing right-of-way would be affected and the facilities would pass through Meckauer Park in Bethel; the proposed relocation route would not cross any lots in Chimney Heights on which homes have been constructed. (T. 7/17/74 pp. 9-15)

218. If the proposed facilities were constructed underground the most feasible route would be located within the Route 7 corridor, along the existing right-of-way, along existing roads or along a combination of both. (T. 7/8/74 pp.81, 82)

219. New Route 7 has not been designed for the construction of an underground line within its limits. (T. 7/25/74 p. 11)

220. The applicant estimated the cost of undergrounding the proposed 345 KV line and the reconstructed 115 KV line to be approximately \$47,000,000, in 1976 dollars; this cost estimate was for two natural cooled pipe cables, one for the 345 KV line and one for the 115 KV line, each installed in its own trench, and a second natural cooled 345 KV pipe cable in the early 1980's. (T. 7/8/74 pp. 93, 94; Exhibit J)

221. If the cost of a second 345 KV underground cable is excluded, the applicant's estimate of the cost of underground construction would be approximately \$31,470,000. (T. 7/15/74 p. 125; Exhibit J)

222. The Council's consultants estimated that underground construction of the facilities proposed by the applicant would cost approximately \$27,600,000. (T. 7/24/74 pp. 7-10)

223. The intense nature of the activity required for underground construction, its impact on the surrounding areas, the lengthy time which might be required for repairs in the event of a failure of an underground line, and the very high costs for underground construction all make undergrounding the proposed line impractical. (T. 7/8/74 p. 94; T. 7/23/74 pp. 188-190)

224. The Council's consultants did not recommend that the proposed facilities be undergrounded. (T. 7/30/74 p. 26; PTI, C-13-20)

225. It is the plan of the applicant to continue to support research and development of underground transmission materials and techniques which will make it economically justifiable to underground at least 115 KV lines and to continue to propose overhead transmission lines except in congested urban areas until the cost of underground transmission more nearly approaches that of overhead transmission. (T. 7/8/74 p. 95; T. 7/24/74 pp. 33, 34; Exhibit A, pages 40-43)

226. A disadvantage associated with short-stretch undergrounding is the need for terminal facilities which, to the extent they cannot be masked, have a distinct visual effect. (T. 7/24/74 pp. 59-61)

227. Installing a gas turbine in Danbury to relieve peak loads in the southwestern area would not be practical. (T. 7/23/74 pp. 154-159)

228. The only municipalities or municipal agencies which were parties and which filed statements or participated in the proceedings were the Housatonic Valley Council of Elected Officials, the Bethel Planning and Zoning Commission, the Roxbury Planning Commission and the Roxbury Inland Wetlands Commission. (Record)

229. Pursuant to Sec. 16-50j(f) of the General Statutes of Connecticut, the Council obtained the written comments of the various state agencies specified therein, or their successor agencies, which comments were made a part of the record in this proceeding and are annexed hereto as appendices A through F.