DOCKET NO. 146 - An application of Eastern Connecticut Cable Television, Inc., for a Certificate of Environmental Compatibility and Public Need to establish a community antenna television tower and head-end facility, located off Bailey Hill Road in the Town of Killingly, Connecticut.

Connecticut Siting Council

May 20, 1992

# FINDINGS OF FACT

## INTRODUCTION

1. The Eastern Connecticut Cable Television, Inc. (ECC), in accordance with provisions of section 16-50g to 16-50z of the Connecticut General Statutes (CGS), applied to the Connecticut Siting Council (Council) on November 12, 1991, for a Certificate of Environmental Compatibility and Public Need to establish a community antenna television (CATV) tower and head-end facility located off 426 Bailey Hill Road in the Town of Killingly, Connecticut. (ECC 1, pp. 1, 3; ECC 1, Exhibit G; ECC 1, Exhibit H)

2. Public notice of the application, pursuant to section 16-50l(b) of the CGS, was published in the Norwich Bulletin on November 7 and 11, 1991. (ECC 1, Exhibit W)

3. The Council and its staff made an inspection of the proposed Killingly site on January 21, 1992. During the field inspection, ECC flew a balloon at the proposed site in order to simulate the height of the proposed tower. (Council Hearing Notice, December 13, 1991)

4. Pursuant to section 16-50m of the CGS, the Council, after giving due notice thereof, held a public hearing for the proposed application on January 21, 1992, beginning at 3:00 P.M., and reconvening at 7:00 P.M., in the Court Room, Killingly Town Hall, Killingly, Connecticut. The Council reopened this proceeding and held an additional hearing on March 25, 1992, beginning at 1:30 P.M., at the Council's meeting room, 136 Main Street, Suite 401, New Britain, Connecticut, to receive new information regarding the required height of the proposed telecommunications tower. (Council Hearing Notice, December 13, 1991; Council Hearing Notice, March 6, 1992; Transcript (Tr.) 1, p. 1; Tr. 2, p. 1; Tr. 3, p. 2)

## Project Description

5. The proposed facility would consist of a 180-foot, steel, three faced guyed tower at elevation 765 feet above mean

sea level (AMSL); a masonry 20-foot by 40-foot equipment building; and associated equipment. The facility would be enclosed by a 75-foot long by 75-foot wide by 8-foot high fence topped by angled barb wire. A 12kW emergency generator fueled by propane would be installed on the site. (ECC 1, pp. 3-7; ECC 1, Exhibit K, p. 2; ECC 1, Exhibit S, p. 13; ECC 2, Q-10, Q-12, Q-13, Q-27, Q-15, Additional Responses to Pre-Hearing Question 15, February 4, 1992; Tr. 1, pp. 58-60)

6. The proposed 180-foot tower would be designed to withstand a 100-mile per hour (MPH) wind loading with one-half inch of radial ice accumulation in accordance with the Electronic Industries Association (EIA) Standard, EIA-222-1, "Structural Standards for Steel Antenna Towers and Antenna Support Structures." (ECC 1, Exhibit H-1; ECC 2, Q-15, Additional Response to Pre-Hearing Question 15, February 4, 1992; ECC 3, Q-4)

7. The proposed tower would support two whip-type receive antennas, one parabolic receive antenna, three quadrate channeler log periodic receive antennas, and one transmitting radio whip-type antenna for company vehicle communications. (ECC 3, Q-4, ECC 9; Tr. 1, pp. 31-37)

8. Antenna designations and mounting heights above ground level (AGL) on the proposed 180-foot tower would be as follows:

| Type | Purpose | Function | Mounting Height (Feet AGL) |
|---|---|---|---|
| QMNI Whip | FM Radio | Receiver | 40 |
| QCA-Quad | FM Radio | Receiver | 60 |
| QCA-Quad | FM Radio | Receiver | 100 |
| QCS-2-6 Quad | TV Channels 2, 5 | Receiver | 125 |
| UCA-8 Dish | TV Channels 38, 56 | Receiver | 175 |
| VHF-Whip | Vehicle Radio | Transmitter | 165 |
| VHF/UHF Whip | Search TV & FM | Receiver | 180 |

The total height of the structure including the search antenna and lightning rod would be 188 feet. (ECC 2, Q-18; ECC 9; Tr. 1, pp. 32-33; Tr. 3, p. 36)

9. ECC designed the 180-foot tower to allow 40 feet from ground level to the lowest mounted antenna for future tree growth clearances and an additional 36 feet of tower space to accommodate future antennas, including additional whips, microwave, or cellular telephone antennas of other persons wishing to share the tower. (ECC 1, Exhibit J, p. 12; ECC 2, Q-16, Q-18; Tr. 1, pp. 26-28; Tr. 2, pp. 20-24)

10. ECC would install a large grounding base under the base of the tower to ground the tower from lightning and protect nearby residential well pumps. (ECC 1, Exhibit S, p. 13)

11. No earth station antennas for reception of satellite transmissions would be erected on the proposed site. Future earth station antennas would be installed at ECC's Waterford facility. (ECC 2, Q-17; Tr. 2, pp. 18, 19)

12. ECC negotiated an accessway easement for a new driveway with the landowners (Smith) of the abutting property to the west of the proposed site. As proposed, the access road would be 17 feet wide, approximately 650 feet long, and would be surfaced with crushed stone. A minimum surfaced width of 12 feet would be used for vehicle transport. An additional five-foot width would be needed for drainage swales and construction of a trench for underground utilities. (ECC 1, p. 4; ECC 1, Exhibit T; ECC 1, Exhibit U; ECC 2, Q-10, Q-13; Tr. 1, pp. 48, 49, 56, 57, 58; Tr. 2, pp. 13-16)

13. Utility lines would be installed underground in a 48-inch deep trench from Bailey Hill Road to the proposed site. (ECC 2, Q. 13; Tr. 1, pp. 48, 49)

14. The area of the proposed driveway would be revegetated and landscaped in accordance with the neighbors (Turner) and landowner's (Smith) requests. (ECC 1, Exhibit U, p. 2; Tr. 1, pp. 53, 54; Tr. 2, pp. 13-15)

15. Estimated construction time to build the proposed project would be about five months. (ECC 1, p. 8)

Need

16. ECC currently receives some Boston, Massachusetts area off-air TV signals at its Montville facility which are used in ECC's system. Signal reception indicates the presence of co-channel interference and AC electrical interference from nearby high voltage electric transmission lines on some TV channels. Similar electrical interference is experienced at the Plainfield facility. Such interference results in less than acceptable TV picture quality on some channels about which customers have complained. (ECC 1, p. 4; ECC 1, Exhibit C; ECC 1, Exhibit D; ECC 1, Exhibit P; ECC 2, Q-26, Q-27, Q-28, Q-29; Tr. 1, pp. 43, 44, 71, 72; Tr. 2, p. 29)

17. The determining factors in the establishment of the tower include sufficient signal strength and picture quality for channels 38 and 56, the weakest received TV channels from Boston. (Tr. 3, p. 14)

18. Off-air TV signal testing conducted by ECC's telecommunications consultant, Biro Engineering, on November 6 and November 7, 1990, at the existing Plainfield facility site, and on December 19 and December 20, 1990, at the proposed Killingly site, indicated the Boston area TV channels' picture qualities and FM stereo stations would be improved and become acceptable with the elimination of co-channel and AC interference, increased field strength conditions, and reduced fade of TV and radio signals caused by rain, at the Killingly location due to the remoteness and elevation of the site. (ECC 1, pp. 4, 5; ECC 1, Exhibit E; ECC 1, Exhibit F; ECC 1, Exhibit K; ECC 2, Q-27; Tr. 1, pp. 39, 43, 44, 71, 72)

19. A 20 db gain, eight-foot parabolic antenna would be installed at the top of the proposed 180-foot tower centered at 175 feet, the minimum height needed to provide an acceptable signal from channels 38 and 56 for system use. (ECC Late File Exhibit 4, p. 4; ECC Exhibit 9; Tr. 3, pp. 17-25, 29, 32, 51-54)

20. Testimony received from sworn witnesses at public hearings conducted by the Department of Public Utility Control (DPUC), in Docket No. 88-11-11, regarding ECC's Application for Franchise Renewal, included more than 20 customers expressing dissatisfaction with TV or radio station reception, signal quality, or lack of channels in the ECC system. (ECC 2, Q-3, DPUC Transcripts, Docket No. 88-11-11: June 20, 1990, 1:00 P.M., pp. 8-13; June 20, 1990, pp. 11, 12, 32, 34, 35, 48, 53, 55-57, 59, 66, 67, 70-74, 85-87, 89; July 11, 1990, pp. 84, 92, 95; August 14, 1991, 7:00 P.M., pp. 31-33, 39-41, 45-49, 51-55, 74-79; August 28, 1991, 7:00 P.M., pp. 9-11, 20-26, 27-32, 44-46; ECC 2, Q-8)

21. ECC has received requests from customers to provide classical music from Boston area FM stations. (Tr. 2, pp. 42, 43)

System Description

22. ECC currently operates three CATV facilities in its nine town franchise area; Waterford (earth station and fiber optic hub site), Montville (head-end over the air receive and fiber optic hub site), and Plainfield (fiber optic hub site). The proposed Killingly site would be ECC's fourth facility in Connecticut and would be used to receive off-air TV signals from four Boston area stations and FM stereo signals. (ECC 1, pp. 3, 4; ECC 1, Exhibit A; ECC 1, Exhibit B; ECC 2, Q-20, Q-21)

23. TV and radio signals are transmitted over ECC's existing system by fiber optic trunk cable. The existing cable's northern terminus ends in Killingly Center. (ECC 1, p. 3; ECC 1, Exhibit B; ECC 2, Q-20, Q-21; Tr. 1, pp. 21-24)

24. ECC presently provides 35 TV channels to its customers, 14 over the air and 21 from satellites or public access. ECC would improve its system by expanding service to include 80 TV and FM stereo radio channels. New antennas for any future channels added to the ECC system would be installed at the proposed Killingly site and ECC's Waterford facility. (ECC 2, Q-24; Tr. 1, pp. 46-48; Tr. 2, pp. 16-19)

25. The proposed Killingly facility would be connected to ECC's existing Plainfield fiber optic hub facility by 9.62 miles of overhead, fiber optic trunk cable. Signals would be transmitted to the Montville head-end facility on 43 miles of fiber optic trunk cable. The only portions of the fiber optic cable that would be undergrounded would be installed along the accessways to the proposed Killingly facility and at the connection to the Plainfield facility. (ECC 1, Exhibit B; ECC 1, Exhibit K, p. 2; ECC 1, Exhibit M, p. 3; ECC 2, Q-20, Q-26)

26. The proposed Killingly facility would be constructed to receive and improve the reception of off-air signals from four Boston area TV stations and eight FM-Stereo radio stations. The channels are as follows:

| TV Channel & Station | FM Stereo Station |
|---|---|
| 2 WGBH | WFCR |
| 5 WCVP | WGBH |
| 38 WSBK | WHYN |
| 56 WLVI | WCOZ |
| | WSRS |
| | WHUS |
| | WJIB |
| | WCRB |

(ECC 1, pp. 4, 11; ECC 1, Exhibit K)

27. The four Boston area TV stations to be received are located near Needham, Massachusetts, at a distance of approximately 45 miles from the proposed tower site. (ECC 1, pp. 11; ECC 1, Exhibit A; ECC 1, Exhibit C; ECC 1, Exhibit K; Tr. 1, pp. 24, 25)

## Costs

28. Costs to construct the proposed project are estimated as follows:

| | |
|---|---|
| Site | $ 18,300 |
| Tower | 65,000 |
| Building and Fence | 15,000 |
| Clearing, Driveway, and Utilities | 15,000 |
| Fiber Optic Cable Connection | 35,000 |
| Electronic Equipment | 25,000 |
| | $173,300 |

(ECC 1, p. 7; ECC 2, Q-21, Q-35)

29. The incremental cost to reinforce the proposed tower to withstand a wind loading of 125 m.p.h. with two inches of radial ice would be $20,155. (ECC 2, Q-15, Additional Responses to Q-15, February 4, 1992)

## Site Description

30. The proposed Killingly site is a 0.13 acre site included within a 7.16 acre parcel purchased by ECC in 1972 at the top of Bailey Hill. The proposed tower site is a wooded, overgrown pasture with trails now used for recreational purposes. The elevation of the proposed facility site is 760 to 770 feet above mean sea level (AMSL). (ECC 1, p. 6; ECC 1, Exhibit H; ECC 1, Exhibit O; ECC 2, Q-10; Tr. 1, pp. 18, 54, 55)

31. ECC's selection of the site for a future facility was based on land elevation, remote location, utility line availability, compatibility with adjacent land development, and an ability to improve cable service. (ECC 1, p. 7)

32. There are no wetlands located on the proposed facility site. The proposed site is located uphill and approximately 120 feet from the nearest wetland area. (ECC 1, Exhibit H; ECC 1, Exhibit P, pp. 6, 7, 9; ECC 1, Exhibit R; ECC 2, Q-10)

33. There are no known existing populations of Connecticut Species of Special Concern or Federal Endangered and Threatened Species occurring on the proposed tower site. (ECC 1, Exhibit J, p. 6, Department of Environmental Protection (DEP) Letter, dated August 8, 1991).

34. The fall zone of the proposed tower would lie entirely within the boundaries of the ECC's property. Placement of sedimentation and erosion controls would be used during construction. (ECC 1, Exhibit H-1; ECC 2, Q-10, Attachment)

35. Forty three residences would be situated within a 2000-foot radius of the proposed tower site. The nearest residence is located on Ledge Road at a distance of about 490 feet in a northeast direction from the proposed tower base. (ECC 2, Q-4, Q-10, Q-11)

36. The surrounding land area is used for existing single family dwellings in an area characterized by woods and pastures. (ECC 1, p. 6)

37. The proposed site and surrounding area is zoned Rural Development (RD). (ECC 1, p. 6)

38. Environmental effects resulting from construction of the proposed facility would include site clearing, visibility of the tower from some homes on Ledge Road and approximately ten homes on Bailey Hill Road, and clearing of trees for the access road. No wetlands or watercourses located on ECC's property surrounding the proposed tower site would be affected by the proposed project, and no property under DEP management would be affected by the proposed facility. (DEP Letter, January 15, 1992).

39. The Federal Aviation Administration (FAA) has determined the proposed tower would not be a hazard to air navigation. The FAA would not require the proposed tower to be obstruction marked and lighted. The nearest airport to the proposed site is Danielson Airport, located about 4.2 miles west of Bailey Hill. (ECC 1, Exhibit I; ECC 2, Q-3)

40. The electromagnetic radiation power density of the only transmitting antenna that would be installed on the tower, at 180 feet above ground level with a transmitting power of 110 watts at 463.400 MHz, as measured at the base of the tower, would be 0.0010940 $mW/cm^2$ or 0.0708 percent of the ANSI guidelines for limits of safe exposure which have been adopted by the DEP as the State standard for electromagnetic radiation exposures. (ECC 1, Exhibit H-1; ECC 3, Q-4; ECC Late File 5, pp. 3-5)

41. There would be no noise associated with the operation of the proposed facility except for an emergency generator, which would be exercised weekly for 30 minutes. (ECC 1, Exhibit J, p. 12; Tr. pp. 58-60)

Public Agencies

42. The Town of Killingly Inland Wetlands and Watercourses Commission reviewed the proposed project and concluded construction activity would have no adverse impact on the surrounding area and nearby wetlands provided that

standard erosion and sediment controls are installed and properly maintained. (ECC 1, Exhibit J, pp. 7, 8; ECC 1, Exhibit R)

43. The Town of Killingly Planning and Zoning Commission did not foresee any public health or safety hazards associated with the proposed project. (ECC 1, Exhibit J, Memorandum, August 13, 1991)

44. Pursuant to CGS Section 16-50l(e), the Killingly Town Council recommended the following items for ECC's consideration:

- o Tower sharing of available space for future antennas;
- o A limitation of site clearing to reduce risk of erosion and preserve habitats;
- o Placement of a conservation easement to preserve an area of huckleberry-shrub forest vegetation located on the top of Bailey Hill; and
- o Installation and proper maintenance of erosion and sedimentation controls.

(ECC 1, Exhibit J, pp. 3-14; ECC 1, Exhibit O, pp. 2, 3; ECC 1, Exhibit S)

45. ECC is willing to grant a conservation easement to the Town of Killingly for the ridgetop huckleberry - shrub forest vegetative association area at the top of Bailey Hill. (ECC 1, Exhibit J; Tr. 1, pp. 41, 42)

46. No public utility, public agency, private company, or Town of Killingly organization has indicated a desire to acquire space on the proposed tower or site. (ECC 2, Q-16; Tr. 1, p. 28)

47. No Connecticut DOT projects are planned which would conflict with or impact on the proposed facility. (DOT Facsimile Transmission Sheet, January 6, 1992).

Alternative Sites and Technology

48. ECC considered existing tower sites within a 10-mile radius of the proposed tower site and concluded that no other tower was structurally sufficient to sustain the additional loads of ECC's proposed antennas or would have sufficient space available for these antennas. (ECC 1, pp. 10, 11; ECC 1, Exhibit J, pp. 11, 12; ECC 1, Exhibit P, p. 1; ECC 2, Q-5)

49. ECC did not discuss or pursue sharing of three existing tower sites on Chestnut Hill, off North Road in Killingly because ECC already owned the Bailey Hill site; did not consider either co-locating equipment on another site or building a tower on a site not owned by ECC; did not consider purchasing another site; judged the existing towers to be structurally insufficient; and judged the Chestnut Hill sites to be too distant from ECC's existing trunk lines, about eight miles away, and four miles from the proposed facility's location. (ECC I, Exhibit S, p. 12; ECC 2, Q-5, Q-6, Q-21, Q-22; Tr. 1, pp. 20, 21-23, 65, 66-71)

50. ECC does not expect in the near future to extend its existing fiber optic trunk cable from its present terminus in Killingly Center to the Chestnut Hill area because of the cost to install fiber optic cable and the low population density to be served. The installed cost per mile of fiber optic cable varies from $5,000 to $25,000 depending on fiber count and labor costs. (ECC 2, Q-5, Q-22; Tr. 1, pp. 22, 23, 66-68)

51. ECC investigated and rejected five potential tower sites in Plainfield because the site owners were not willing to consider sale of their properties. (ECC 1, p. 11; ECC 2, Q-6)

52. A new 180-foot structure could be constructed at the existing Plainfield facility site but would not be able to provide acceptable quality video pictures due to AC electrical interference from electric transmission lines located in the area. In addition, land and access would not be available from adjacent landowners to construct a tower and an expanded equipment building. (ECC 1, p. 11; ECC 1, Exhibit K, pp. 29-44; ECC 2, Q-26, Q-27, Q-28; Tr. 1, pp. 38, 39, 43, 44, 71, 72; Tr. 2, p. 29)

53. Electronic testing of off-air signals from Boston area TV stations confirmed the existing Montville head-end site is deficient as a site for reception of Boston area TV transmission. (ECC 1, p. 4; ECC 1, Exhibit C; ECC 1, Exhibit D; ECC 1, Exhibit E; ECC 1, Exhibit P, p. 1; ECC 2, Q-27, Q-29; Tr. 2, p. 29)

54. An alternative system could allow signals to be received at a Chestnut Hill site and microwaved to a shorter tower on Bailey Hill or to other sites used by ECC in Connecticut. Such a system would provide acceptable signal quality levels, but might not be economic in comparison to the costs of the proposed project. (Tr. 1, p. 24)

55. ECC operates a telecommunications facility in Newport, Rhode Island that is 45.2 miles from the Montville facility, 45.3 miles from the Waterford facility, and 34.8 miles from the Plainfield facility. Boston area TV signals could be received at the Newport facility, but could not be transmitted to an ECC facility in Connecticut at acceptable signal quality levels. (ECC 1, Exhibit K, pp. 2, 6; ECC 2, Q-31)

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