DOCKET NO. 60A

Request for an amendment to the Certificate of Environmental Compatibility and Public Need issued by the Connecticut Siting Council in Docket No. 60 to Flagg Energy Development Corporation on May 7, 1986.

Connecticut Siting Council

October 22, 1987

FINDINGS OF FACT

1. Flagg Energy Development Corporation (FEDCO) of Meriden, Connecticut, in accordance with provisions of section 16-50k and 15-50l of the Connecticut General Statutes (CGS), applied to the Connecticut Siting Council (Council) on March 3, 1986, for a Certificate of Environmental Compatibility and Public Need (Certificate) to construct a 10 MW cogeneration facility at Hartford Hospital, Jefferson Street, Hartford, Connecticut. The project is known as the Hartford Hospital Cogeneration Facility. (Docket 60, Finding 1)
2. On May 7, 1986, the Council issued a Certificate to FEDCO for the Hartford Hospital Cogeneration Facility, Council Docket No. 60. (Record)
3. On August 10, 1987, FEDCO submitted a request for an amendment to the Certificate it received in Docket 60. (Record)
4. Subsequent to the issuance of the Council's Certificate, FEDCO negotiated certain changes in the electricity purchase agreement between FEDCO and Northeast Utilities

(NU). These changes included substantial reductions in the price to be paid by NU for electricity purchased from FEDCO, and a requirement that the turbines installed in the Hartford Hospital Cogeneration Facility be dual-fuel turbines, making the facility capable of operating entirely on either natural gas or No. 2 fuel oil. (FEDCO 1, p. 3)

5. The Council took administrative notice of the record in Docket 60 in its entirety. (FEDCO 2, Q. 3)
6. The dual-fuel requirement requires FEDCO's air modeling for the Department of Environmental Protection (DEP) to be calculated on a worst case basis. Therefore, the modeling assumed the facility would operate entirely on No. 2 fuel oil, even though it would actually operate with natural gas as its primary fuel. (FEDCO 1, p. 3)
7. Modeling on a worst case basis led FEDCO to redesign its exhaust stacks and enhance its nitrogen oxide (NO_x) controls. (FEDCO 1, pp. 3-4)
8. FEDCO's stack redesign has resulted in changing the proposed stacks from two 70-foot stacks to one 121-foot stack. There are currently two existing 150-foot stacks at the Hartford Hospital. (FEDCO 1, pp. 4, 17)
9. FEDCO has determined that increased efficiencies in plant operation would be achieved through the selection of newly developed turbines. FEDCO, therefore, now proposes to

change its primary turbines from the General Electric LM 500 turbine to the Allison Gas Turbine Model A-571-K. (FEDCO 1, p. 4)

10. The proposed changes in the turbines to be installed would result in an increase in the total electrical output of the plant from the 9.25 MW originally projected by FEDCO in Docket 60 to 11.158 MW. (FEDCO 1, pp. 4-5)

11. Gas turbine generator output capability would increase from the originally proposed 4,054 kW each to 6,274 kW each. The two steam turbines would be connected to one generator with a kW rating of 4,200 instead of the originally proposed two generators, at 1,950 kW and 1,369 kW respectively. (FEDCO 1, p. 16)

12. The Hartford Hospital facility would use 3,000 kW of electricity as opposed to the originally proposed 2,000 kW. Final Design plant load is estimated at 680 kW. (FEDCO 1, p. 16)

13. The total electrical output annually available to NU would be 11,158 kW. The original estimate was 9,250 kW. Additionally, 89 million kilowatt hours (kWh) would be available to NU, versus 78 million kWhs. (FEDCO 1, p. 16)

14. On-peak production of electricity would average 12,499 kW and off-peak production would average 9,191 kW. This compares to 10,516 kW on-peak and 7,710 kW off-peak in Docket 60. (FEDCO 1, p. 16)

15. Natural gas usage would be 1,018,520,000 cubic feet per year, as opposed to 976,000,000 cubic feet as originally proposed. Number two fuel oil usage would be 1,102,460 gallons per year. The original No. 2 fuel oil usage estimate was 1,089,700 gallons per year. FEDCO would operate this facility primarily with natural gas as its fuel. (FEDCO 1, pp. 3, 16; FEDCO 2, Q. 4; Docket 60, Finding 35)

16. The two proposed underground oil tanks would have a capacity of 48,000 gallons each, as opposed to 35,000 gallons originally. (FEDCO 1, p. 17)

17. Commercial operation for the Hartford Hospital Cogeneration Facility is now projected to start on April 1, 1988. (FEDCO 1, p. 17)

18. The quantity of carbon monoxide (CO) and hydrocarbon emissions would increase as a result of the changes proposed in this amendment. These air pollutant increases would occur as a result of NO_x emissions controls required by the DEP. (FEDCO 2, Q. 1)

19. Carbon monoxide (CO) emissions were modeled to determine if the increased quantity would be significant. The modeling indicated that the larger amount of CO emissions was still insignificant according to significance levels as set forth by the United States Environmental Protection Agency (EPA) and enforced by the Connecticut DEP.

Modeling was performed on a worst case basis, with the plant operating on No. 2 fuel oil, even though the primary fuel would actually be natural gas. (FEDCO 1, p. 3; FEDCO 2, Q. 1, Q. 2)

20. Modeling performed by FEDCO indicates that the maximum predicted carbon monoxide and particulate matter impacts would be at or below their respective levels of significance, and therefore would not significantly impact air quality in the Hartford area. The significance levels represent minimal impact levels below which maximum source impacts are considered to be insignificant, or of small enough magnitude that no significant degradation of air quality is expected. (FEDCO 2, Q. 1, Q. 2)

21. The significance level for carbon monoxide (CO) as defined by the EPA would be 500 ug/m^3 for an eight-hour period. The modeled impact for this period would be 484 ug/m^3. The EPA significance level for particulate matter would be 5 ug/m^3 for a 24-hour period. The modeled impact would also be 5 ug/m^3 for this period. (FEDCO 2, Q. 2, Table 2)

22. The revised cogeneration facility's permitted emissions with natural gas firing for each pollutant as expressed in tons per year are as follows: NO_x, 106.9; Sulfur dioxide (SO_2), 0.5; Total Suspended Particulates (TSP), 10.2; CO, 530.8; and Hydrocarbons (HC), 49.8. (FEDCO 2, Table 1)

23. The revised cogeneration facility's expected emissions with natural gas firing for each pollutant as expressed in tons per year would be as follows: NO_x, 79.7; SO_2, 0.4; TSP, 8.6; CO, 486.9; and HC, 36.6. (FEDCO 2, Table 1)

24. No changes in the size of the building containing the cogeneration facility, ownership, location, or ambient air or noise quality are proposed. (FEDCO 1, p.5)