ORIGINAL

DOCKET NO. 171 - An application of the Connecticut Light and Power Company for a Certificate of Environmental Compatibility and Public need for a 200 kW landfill gas fuel cell facility at the Groton Landfill, in the Town of Groton, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		January 23, 1996

OPINION

On October 2, 1995, the Connecticut Light and Power Company (CL&P) applied to the Connecticut Siting Council (Council) for a Certificate of Environmental Compatibility and Public Need (Certificate) for the installation of a 200 kW fuel cell within the Groton landfill in the Town of Groton, Connecticut. The proposed project would be constructed jointly between CL&P and the Town of Groton to research the development of an efficient fuel cell and landfill gas clean-up system. The objective of the project is to demonstrate the benefits of the sustained operation of a fuel cell using landfill gas. This project, a continuation of the Environmental Protection Agency (EPA) project begun at the Penrose landfill in Los Angeles, California, would establish a history of operating experience and develop data to evaluate the operation of a fuel cell, and evaluate the design of the landfill gas clean-up system to remove hydrocarbons, sulfur, and halogen compounds. The project would also help determine if the equipment used in the project is portable and capable of operating after being moved between different climates, as in this case, between California and Connecticut. At the end of twelve months of operation, CL&P and the Town would evaluate the project's status and determine whether or not to extend the project beyond the minimum 18 month duration period.

The facility has been designed and would be tested and operated by International Fuel Cells of South Windsor, Connecticut. This company is one of two companies in the country that research and manufacture fuel cells. The other company, Energy Research Corporation, is located in Danbury, Connecticut. While the development of this facility is intended primarily to demonstrate the benefits of a fuel cell, the undertaking of this project will have additional benefits to the State of Connecticut and to the company that manufacturers these fuel cells by providing employment opportunities in Connecticut.

The facility would use technology that would be fueled by hydrogen from the landfill gas methane and oxygen from the atmosphere. These gases would be introduced to electrodes which cause ions to flow through an electrolyte and across the fuel cell, and produce a flow of electrons into a circuit of direct current of electricity. While this technology is new, it offers great promise for the generation of electricity that is clean with substantially lower levels of discharge and emission of pollutants; is economic; has a short construction lead time, is reliable, safe, and small in size for simplified decentralized siting. We are encouraged by this technology and find it consistent with our legislative charge to research and develop new and improved methods of generating, storing, and transmitting electricity and fuel with minimal damage to the environment in Connecticut.

The source of the fuel for the facility would be from methane generated by the decomposition of organic waste at the Groton Landfill. Methane gases from the decomposition of organic matter at landfills in the State are a primary energy resource and the use of this gas as a fuel to generate electricity would reduce dependency on the use of foreign energy resources, add diversity and

stability to the State's energy mix, and provide needed economic opportunities by using a technology being developed and manufactured by companies in Connecticut. Without capturing and using the methane emissions, these gases would otherwise escape into the atmosphere as odoriferous greenhouse gases, are harmful to the public and the environment, and may be dangerous due to the possibility of their ignition and explosion.

Currently, these gases are burned with a flare at the Groton landfill, but this practice is wasteful of energy, does not contribute to employment opportunities, and does not benefit the economy of the State. It is therefore in the State's interest to test and develop this facility to limit these harmful gas emissions with a Connecticut-based technology which will convert the gas to a useful form of energy which at the same time has insignificant harmful environmental effects. It is our expectation that the testing of this fuel cell will prove the reliability and benefits of a fuel cell, and also provide employment opportunities in the State. With this encouragement, we hope that this technology will achieve economic and technical proficiency, become an item for export to other states and countries, and establish Connecticut as the research and development capital for fuel cells in the world.

This facility will be located on a 145-acre site within a closed landfill approximately 800 feet north of Interstate 95. The nearest residence is approximately 1000 feet to the south. Preparation of the proposed site would not require clearing of vegetation, grading or site disturbance. The proposed 45-foot by 90-foot site would be enclosed by a six-foot high chain link fence. A wetland 900 feet to the north of the proposed site would be unaffected by the project. Consequently, there would not be any significant adverse environmental effects from this facility.

This facility would not have a significant effect on the air quality of the State and the region. The emission levels of nitrogen oxide, sulfur dioxide, carbon dioxide, and carbon monoxide from the facility would be minimal and much less than the emissions from an internal combustion engine generating electricity. Solid waste resulting from the clean-up system would be in the form of non-hazardous carbon pellets, which would then be disposed as special waste at a solid waste disposal site.

Operation of the proposed fuel cell would result in sound levels well below federal, State, or local sound level standards. The proposed project would have no effect on historic, architectural, or archaeological sites listed on or eligible for the National Registration of Historic Places. There are no listings of rare, endangered or threatened species occurring on the proposed site.

Based on the record in this proceeding we find the effects associated with the construction, operation, and maintenance of the proposed fuel cell facility within the Groton landfill, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with policies of the State concerning such effects, and are not sufficient reason to deny the application. Therefore, we will issue a Certificate for the construction, maintenance, and operation of a fuel cell facility at the proposed site within the Groton landfill off of Flanders Road in Groton, Connecticut.