DOCKET NO. 27

AN APPLICATION OF THE UNITED ILLUMINATING COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE MODIFICATION OF BRIDGEPORT HARBOR UNIT NO. 3 TO CAPABILITY TO BURN EITHER LOW-SULFUR COAL OR OIL.	:	CONNECTICUT SITING COUNCIL
	:	January 11, 1983

O P I N I O N

The United Illuminating Company (UI) applied to the Connecticut Siting Council for a certificate of environmental compatibility and public need to modify the existing electric generating unit number 3 (BH-3) at its Bridgeport Harbor Station by converting it to capability to burn either coal or oil. The proposal involves several alterations to and refurbishment of existing equipment and the addition of some equipment including a new support facilities building attached to the existing building.

The Council held public hearings in Bridgeport on August 17 and September 17, 1982, at which the applicant presented testimony and exhibits to support its contention that the potential adverse environmental effects were not sufficient to outweigh the proposal's expected public benefits. Evidence and testimony were also presented by parties to the proceeding.

The primary public need asserted in this application is for generation of electricity at reasonable cost. Compared to the applicant's other generating facilities, BH-3 burning coal will produce less expensive electricity. The cumulative net savings from the conversion at 250 MW over the ten year amortization period 1984-1993, depending on actual load growth, would be from $55 million to $136.6 million. If a five year amortization were used, savings at the planning forecast growth rate would be approximately $160 million over the first ten years. For each

additional 10 MW of capacity above 250 MW, incremental savings at the planning forecast growth rate would be approximately $12 million. Net cumulative savings of $455 million at the planning forecast growth rate could be achieved between 1994-2001.

Another consideration with respect to the long term economics of the conversion is the dual-firing capability that is proposed. Should the unexpected occur, and coal becomes more expensive than oil, a simple adjustment will allow reversion to oil generation. This fact has favorable reliability and environmental implications, also.

Reducing oil consumption is another significant public need pertinent to this decision. Although oil supply has stabilized along with oil prices, such stability has in the past been ephemeral. New England as a region is more dependent on imported oil than any other region in this country, and UI relies on oil for more than 92% of its generation. In addition to a national interest in reducing oil imports, the state and region have clear, economic self-interest in reducing oil consumption: the incremental reliability inherent in a diversified supply system. However, it should be noted that the public need claimed for this modification does not include that of meeting a capacity deficiency on the UI system which would jeopardize the state's adequate and reliable electric utility service.

The Council examined the probable adverse environmental effects of the project to determine whether they outweigh these public needs and concludes that they are not inconsequential. Furthermore, they are not even completely understood. The nature of the probable environmental impacts, detailed in the findings, may be summarized as follows: air pollution and combustion by-product disposal pose substantial, but not

insurmountable, problems; water pollution, noise, visual intrusions, and increased truck traffic are lesser concerns that would not, in sum, justify denial of a certificate.

However, the Council will not ignore the latter set of environmental concerns in granting a certificate. In its orders, the Council will require that the controlling and mitigating actions proposed in the application and subsequent filings be carried out. These include covering the reserve coal pile to minimize fugitive emissions, leachate generation, and visual impact; performing all necessary upgradings of the water pollution control system; limiting off-site noise levels; and restricting trucking, coal off-loading, and yard activities to normal working hours to the fullest extent possible.

The proposal seeks a modification certificate which does not restrict the final generation capacity. UI will assure compliance with applicable air quality standards by initiating generation at 250 MW, testing emissions, and then increasing capacity at 25 MW increments, with testing at each step, until a maximum pollutant level or the plant's maximum capacity is reached. However, on this matter the record is less than illuminating: at one point the applicant calls "around 300 MW" a reasonable economic operating level, yet the data provided show a potential capacity, within air quality emission limits, of approximately 380 MW. Furthermore, the data on this subject appear to be presented in a worst case setting, so that the proposed guarantee on total suspended particulate (TSP) control, for instance, might actually result in much better overall performance of pollution control equipment than that postulated, and thereby allow generation at a higher level. Thus, the state has no definitive knowledge of the quantities of air pollutants

and ash that will be produced annually.

Potential impacts of air pollution emissions from the converted BH-3 are, like the pollutants themselves, up in the air. However, the application does recognize and, in some instances, reduce potential difficulties. Most notable in this regard is the proposal's method of compliance with the state's sulfur emission standard. Taking advantage of the coal marketplace, UI's planned use of low-sulfur, low-ash coal allows the conversion without the prohibitive expense of stack controls for sulfur emissions under the present state sulfur standards. This method will allow coal generation without increasing SO_2 emissions rates above those from the plant burning oil.

One of the unresolved, and apparently unstudied, air pollution issues is the role of NO_x in acid precipitation and ozone formation; the latter is a serious health threat in Connecticut and the former is not completely understood, according to testimony. The very small relative contribution of NO_x from this plant was noted in the record, as was the area's compliance with ambient NO_x standards, and it may not be cause for concern. It is clear from the record that existing NO_x emissions rates cannot be retained during coal combustion, but it is also clear that a NO_x emission rate of 0.6 pounds per 10^6 Btu could be attained and would not limit the plant's capacity when burning coal. The applicant intends to comply with the state standard of 0.9 pounds per 10^6 Btu.

The other air quality issue, particulate emissions, is more troublesome, particularly since the proposed site is in a Federal Air Quality Control Region that is classified as non-attainment for ambient TSP standards. Although the utility intends to remain within the

established state standards for TSP emission rates, the record indicates total emissions from this plant may increase at generating capacities above approximately 300 MW. Potential effects of significant concern to the Council, and which remain ill-defined, are the changed distribution of particle sizes and the degree of adverse health impacts from the increased emission of fine particulates that would be expected from coal firing.

The data submitted by the applicant regarding expected TSP emissions near or at the expected economic apogee, which assume that the proposed manufacturer's guarantee for the electrostatic precipitator is in effect, indicate that TSP emission rates from coal generation at approximately 300 MW could be kept at or below the level produced by the plant when burning oil. The record shows clearly that better performance is possible, even expected, and additional investments, although expensive, might allow increased generation within this limit with incremental savings that would offset the costs. Therefore, it is apparent that the proposal has some latitude in this respect, of which the Council will take advantage to balance need and environmental effect. The compatibility of this particular site with a coal fired electric generator will be assured by a stipulation to the Council's certificate that the maximum TSP emission rate shall not exceed that from the plant prior to conversion to dual fuel capability, which according to testimony is 0.06 pounds per million Btu. While this limitation will not resolve the concerns for incremental environmental effect from fine particulates, it will serve as a buffering action until these mechanisms and effects are more completely understood.

The remaining substantial environmental concern, ash disposal, is

in many ways the most bothersome of all the environmental issues presented in the record. The proposal only outlines plans for ash disposal, although the quantities expected represent a significant increment to Connecticut's solid waste generation. Additionally, although not regulated as a hazardous waste, coal ash contains heavy metals and toxic substances, which could complicate disposal.

The record offers discouragement, encouragement, and temporizations on ash disposal. The discouragement is that many landfills are due to close soon in Connecticut and very few sites will be available for solid waste disposal in the future. The encouragement is that fly ash may be used in large quantities as a final cover on the many landfills due to close soon in Connecticut. The temporizations are plans to store ash on company property and indefinite marketing plans. The Council does not find in this situation a rationale for denying a certificate, and is satisfied that the required DEP solid waste permit will address the environmental issues at the proper time. Additionally, it is apparent that if off-site disposal or marketing solutions are not found for the ash, the plant must cease coal combustion. However, the Council will require a detailed environmental and engineering analysis of the proposed on-site ash storage area, equivalent to that developed in the proceeding regarding the coal storage pile, as part of its Development and Management Plan. Additionally, the Council will follow the success of UI's Ash Management Plan by requiring annual reports on the subject.

Based on the foregoing, the Council concludes that a certificate of environmental compatibility and public need is warranted for the conversion of BH-3 to dual-fuel capability and hereby directs that such certificate be issued subject to the terms, limitations, and conditions of the Decision and Order that accompanies this Opinion.