DOCKET NO. 8

AN APPLICATION SUBMITTED BY NORTHEAST UTILITIES SERVICE COMPANY, AS AGENT FOR THE CONNECTICUT LIGHT AND POWER COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED WITH RESPECT TO A NEW 115 KV OVERHEAD ELECTRIC TRANSMISSION LINE BETWEEN SHEPAUG AND BATES ROCK SUBSTATIONS IN THE TOWN OF SOUTHBURY	:	POWER FACILITY EVALUATION COUNCIL OCTOBER 25, 1976

O P I N I O N

I. GENERAL

This application is for a certificate of environmental compatibility and public need for the construction of a second 115 kV overhead electric transmission line along the existing right-of-way between Applicant's Shepaug Substation and Bates Rock Substation in Southbury, Connecticut. The line will supply electricity to Southbury, much of Woodbury, and the Uniroyal complex in the western part of Middlebury.

Public hearings were held in the Pomperaug High School, Southbury, on April 12 and 13, 1976 and the Southbury Fire House April 15, 19, 26, 28, May 3 and 5, 1976. Members of the Council made several inspections of the proposed and alternate routes for the proposed line. In addition to advertised notice, notice was mailed, in accordance with law.

The Applicant presented testimony and exhibits to support its claims that the transmission line is needed, that the construction of the line as proposed would not adversely affect the environment to a degree justifying the much higher cost of undergrounding, and that the proposed route from Shepaug to Bates Rock is environmentally preferable to the alternative route from Carmel Hill to Bates Rock.

The case in opposition to the proposed route from Shepaug to Bates Rock was presented principally by residents in Heritage Village, Southbury and residents in the Meadow Brook subdivision area of Southbury.

The case in opposition to the alternative route from Carmel Hill to Bates Rock was presented by residents and officials of the Town of Woodbury and supported the claim that the proposed route from Shepaug to Bates Rock would be preferable.

II. NEED

The Council is of the opinion that there is a public need for the redundancy in the supply system to Bates Rock Substation. Such need was documented and not seriously disputed. A second line will provide the needed redundancy and improve the reliability with service.

The proposed line will constitute a second 115 kV transmission supply to the Bates Rock Substation. The substation is presently supplied only by a single circuit 115 kV transmission line which runs from Shepaug Substation at the Shepaug hydroelectric generating station on the Housatonic River in Southbury.

On many electrical systems all bulk supply stations, such as the Bates Rock Substation, are initially constructed with two sources of supply regardless of the level of the load on the substation. Thirty MVA is the largest load normally allowed by New England area electric utilities to be supplied by one line, and such utilities plan a second supply in service when a substation load reaches approximately 30 MVA. A load of that magnitude represents about 7,000 to 9,000 average use customers which would be subjected to the risk of losing all service because of the loss of a single transmission line.

In January, 1976, the peak load on the Bates Rock Substation, was 44.9 MVA, the largest load on any substation which is dependent upon a single transmission circuit in the Northeast Utilities system, and probably in New England. Projections of peak loads indicate that the Bates Rock load will increase to approximately 51 MVA by 1979, which is the earliest date by which a second 115 kV supply to Bates Rock could be in service. In addition, further growth of population, electrical usage and peak loads in the Southbury-Woodbury area appear likely.

Construction of a second 115 kV supply to Bates Rock will give the substation a capability of carrying loads up to approximately 63 MVA in the summer and 72 MVA in the winter for a 24 hour period despite the outage of one of the transfromers or one of the transmission lines supplying the substation. The Bates Rock Substation service area is too extensive, its loads are too large and the distances involved are too great for other substations to provide significant back-up capacity at distribution voltages.

An alternative to the proposed line from Shepaug is the construction of a line to supply Bates Rock from the north, which would start at Carmel Hill Junction, in northern Woodbury, and then run generally southerly on a new right-of-way to Bates Rock. So far as the Bates Rock Substation service area is concerned, a line from either Carmel Hill or from Shepaug would constitute a satisfactory second transmission supply. A supply to the substation from two directions, viz., the existing line from Shepaug and Carmel Hill would be more reliable than a dual supply from one direction, viz. a new second line from Shepaug because the likelihood of a simultaneous outages on both lines is reduced the further they are separated. However, the increase in reliability of the Carmel Hill line is marginal and insufficient to out balance the environment and financial considerations favoring the Shepaug line.

From the viewpoint of reliability of the transmission system in Western Connecticut, either construction of the Bates Rock line from Shepaug, coupled with the installation of a second autotransformer at Plumtree, or construction of the Bates Rock line from Carmel Hill, coupled with the extension of the line to Frost Bridge, would serve the system needs.

Other than the route from Carmel Hill, there are no alternative routes for a second supply to Bates Rock which can be favorably compared with the proposed route on an environmental, technical or economic basis.

III. ENVIRONMENTAL IMPACT

The Council has carefully considered the proposed and alternate routes suggested by the parties and discussed during the hearings, and it is our opinion that the proposed route from Shepaug to Bates Rock has substantially less adverse environmental impact than the alternate route from Carmel Hill.

The proposed route follows an existing right-of-way for the entire distance of 5.4 miles from Shepaug to Bates Rock, and requires a widening of thirty to fifty feet for that distance, except for a short stretch through Heritage Village where no widening is possible. In sharp contrast, the entire route from Carmel Hill to Bates Rock of 7.6 miles consists of a new right-of-way.

It is sound planning to use an existing right-of-way because generally, not only is less land involved and therefore less chance for adverse environmental impact, but the land use and visual impact of a new right-of-way is usually significantly greater than expanding an existing right-of-way.

Such is the case here. The proposed route is superior to the alternate route from the viewpoint of land use effects, visual effects, and natural systems effects. This is not to say that there are no adverse environmental impacts from the proposed route. The Council is mindful of the impact of expanding this route, particularly on the property owners and residents in the Meadowbrook subdivision and Heritage Village. The Council believes that the modifications to the application that it recommends will lessen these impacts. Nevertheless, unavoidable adverse environmental effects will exist. On balance, however, the alternate route through Woodbury would cause substantially more environmental damage than the proposed route. These relative impacts are more fully set forth in the findings and need not be recited here.

The Council recommends that the following modifications be made to the application as filed, in order to lessen the environmental impacts of the proposed route:

(1) The construction of a single-pole rather than a three-pole, angle structure for the new line immediately easterly of Purchase Road (structure no. 5285), in order to minimize construction effects upon the topography. Such a pole would be about twenty feet higher than the proposed and existing angle structure. Such a pole would not significantly change the cost of the line.

(2) The replacement of the existing and proposed three-pole angle structures at the east and west of Route 172, (structure nos. 5300 and 5303), with single-pole wood angle structures, with the result that there would be two rather than six poles at each angle. The two-pole structures would be taller than the three-pole structures since the conductors would be suspended in a vertical configuration. This construction would add approximately $20,000 to the cost of the proposed line.

(3) The replacement of the existing two-pole wood "H" frame structures running through Heritage Village (structures nos. 5310 and 5311) with four (4) rather than the proposed three (3) double circuit steel pole structures.

The additional structure would shorten the spans between the structures and thereby lower the height of such structures by an average of ten feet and possibly up to nineteen feet in some cases. While the addition of a fourth pole will increase slightly the visual impact on residents near that pole, the lowering of the entire section crossing Heritage Village will significantly decrease the visual impact of the line for the great majority of the residents in Heritage Village. This additional pole would add approximately $12,000 to the cost of the proposed line.

(4) The replacement of the existing two-pole wooden "H" frame single circuit structures with three-pole wooden "H" frame structures on that portion of line running northerly from Heritage Village to Bates Rock Substation (structure nos. 5313 to and including 5319), rather than constructing a second line of two-pole wooden "H" frame structures as proposed by the Applicant. Such a modification would reduce the necessary widening of the right-of-way from fifty feet to thirty feet, which would: (a) widen the protective buffer zone for the residents of Heritage Village among that portion of the line, and (b) reduce construction effects on the fragile ecology on the westerly side of this section. Once the temporary line used during construction is removed, further reduction of the right-of-way by about ten feet is possible because the recommended three-pole structures require less right-of-way space than the proposed double set of two-pole structures. While there may be some maintenance problems associated with such structures, the Council believes these are far outweighed by the environmental benefits. The Council recommends this, despite the fact that there may be increased maintenance problems with three-pole structures instead of two-pole structues. This construction would add approximately $109,000 to the cost of the proposed line.

IV. COSTS

The estimated cost of the proposed line from Shepaug to Bates Rock is $1,224,000 in 1979 dollars. Of that amount, $1,050,000 are construction costs and $174,000 are right-of-way acquisition costs. The estimated cost of the alternate line from Carmel Hill to Bates Rock is $2,204,000 in 1979 dollars. Of this, $1,189,000 is the cost of construction and $1,015,000 is the cost of buying the right-of-way.

Standing alone, these figures clearly indicate that the alternate route is almost one million dollars more expensive than the proposed route. The extent of this difference, particularly the difference in the costs of land acquisition of $841,000, is another indication of the greater environmental impact of the alternate route.

The Applicant has argued that a true cost comparison of the projects should include the cost of a second autotransformer at Plumtree as an added expense to the proposed route, and a corresponding deduction to the alternate route because the autotransformer could be used elsewhere at a savings to the Applicant. The Council is not convinced of the validity of this argument. It is not necessary, however, to determine whether or not such computation is proper or not because, even assuming that it is, the cost figures indicate that the alternate route is still $122,000 more expensive than the proposed route.

The estimated cost of the modifications recommended by the Council is $141,000. If these costs are added to the estimated cost of buying and constructing the proposed line, that route is still $839,000 less expensive than the alternate route.

Even if one includes the cost/savings of the second autotransformer, these modifications make the proposed route only $19,000 more than the alternate route. Assuming that the above computation of costs is correct, which the Council questions, the Council is still of the opinion this $19,000 cost differential does not warrant selection of the environmentally inferior alternate route, or the denial of the application in toto.

V. CONCLUSION

The Council has concluded, based on its consideration of the entire record, including its field inspections, that a second 115 kV transmission line supplying Bates Rock substation is needed for reliability purposes, and that the best route for this transmission line is the proposed route from Shepaug to Bates Rock, as herein modified.

The Council recognizes and the record reflects that certain adverse effects on the environment may occur as the result of the granting of a certificate in this matter. The nature of these environmental impacts are detailed more particularly in the findings, but they are not sufficient to justify selection of the alternate route, or the denial of this application.

The Council is aware of no identifiable historic values which would be affected by the proposed facility and the record does not suggest that there would be any significant adverse effect on, or conflicts with, the policy of the State concerning ecological balance, scenic and recreational values, air and water purity, forests and parks, or fish and wildlife. It would appear that proper right-of-way maintenance should benefit wildlife in the area. Constructing the proposed facility in accordance with the applicable requirements of the Connecticut Public Utilities Control Authority and the National Electrical Safety Code should adequately safeguard public health and safety.

The Council is of the opinion that the possible adverse effects or conflicts with the policies of the State referred to above do not constitute sufficient reason to deny the application. In arriving at this conclusion, the Council has carefully reviewed the evidence and recommendations presented to it and finds that there is a demonstrable need for the proposed transmission facilities, in order to insure adequate and reliable electric power supply in the area to be served, and that many of the potential adverse environmental effects of the proposed facility are of minimal significance, as detailed in the findings, or will be considerably ameliorated by the conditions and modifications contained in the Decision and Order.

In analyzing the nature of the probable environmental impact of the proposed facility, the Council has recognized that until such time as a certificate of environmental compatibility and public need has been issued to the Applicant, a detailed right-of-way development and management plan cannot be prepared. Thus, the precise route of the proposed facility and much of the detail necessary to evaluate more particularly and limit the extent of its adverse environmental

impact is presently unavailable. It is for this reason that the Council feels it has a responsibility to require the Applicant to coordinate its specifications for construction of the facility, its detailed environmental inventory and its right-of-way maintenance and use plan with the Department of Environmental Protection prior to the initiation of construction activities. Such a plan and the Department's recommendations would aid this Council in determining the most appropriate method of constructing and maintaining the proposed facility so that the least possible adverse effect on the environment will occur.

The Council is of the opinion that the entire length of the proposed facility should be located overhead. As the findings indicate, undergrounding of the proposed line could not be accomplished without unreasonable costs to consumers.

The Applicant and other electric systems in New England have established a grid of 345 kV transmission lines to transport large blocks of electric power from major generating stations to major load areas for transformation to 115 kV and further transmission to local substations. The proposed 115 kV line is a part of the proposed expansion of this system.

The plan of the Applicant is 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.

The Council is satisfied that the proposed facility conforms to a long range plan for expansion of the electric power grid of the electric systems serving the state and interconnected utility systems, that will serve the interests of electric system economy and reliability and will be consistent with the purposes of Chapter 277a of the General Statutes of the State of Connecticut.

The overhead portions of the facility conform 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".

The record, as expressed in the Council's findings, indicates that the location of the proposed transmission line will not pose an undue hazard to persons or property along the area traversed by the line.

The Council believes that the proposed line is needed to provide adequate and reliable electric service to the Bates Rock service area, and that as modified, it does so at the lowest reasonable cost to consumers consistent with the need to protect the environment and ecology of the State and to minimize damage to scenic, historic and recreational values.

Therefore, the Council concludes that a certificate of environmental compatibility and public need should be issued for the construction of the proposed transmission line from Shepaug to Bates Rock, as modifed herein.