

FEDERAL POWER COMMISSION

Bureau of Power

Report on the Indian Point Unit No. 2  
Supplement Environmental Statements

In his letter dated December 7, 1971, the Assistant Director for Boiling Water Reactors, Division of Reactor Licensing, U. S. Atomic Energy Commission, requested comments of the Federal Power Commission on the need for power of the Indian Point Unit No. 2. The Consolidated Edison Company in their letter of September 24, 1971, requested interim authorization to operate the Indian Point Unit No. 2 at partial rated power. The AEC is considering an interim authorization for operation at 50 percent of full power. We understand that the environmental aspects of this plant are currently undergoing supplemental analysis in which the AEC wishes to consider such factors as: the effect of delay in facility operation upon the public interest, particularly "the power needs to be served by the facility; the availability of alternative resources, if any, to meet those needs on a timely basis; and the delay costs to the licensee and the consumers." Thus our comments are directed to these points in a review of the need for the facilities as concerns the adequacy and reliability of the applicant's electric system and the New York Power Pool which is a sub-regional planning and coordinating organization and includes the applicant. This is in accordance with the National Environmental Policy Act of 1969, and the Guidelines of the President's Council on Environmental Quality dated April 23, 1971.

The Indian Point Nuclear Plant has three electric generating units. The 265-megawatt Unit No. 1 has been operating since 1962. In October 1971, the 873-megawatt Unit No. 2 was essentially completed. A fire on November 4, 1971, extensively damaged the Primary Auxiliary Building area but the Company hopes to have the damage repaired and preliminary testing completed by the end of February 1972. This schedule would permit power testing with a view towards availability of the unit to help in meeting 1972 summer loads. The 965-megawatt Unit No. 3 is currently under construction and is scheduled for commercial operation in 1973. On September 24, 1970, the Federal Power Commission submitted comments on Unit No. 2 in response to a request from AEC. The following report will update the comments previously submitted and will consider the needs for Unit No. 2 to meet the 1972 summer peak demand. Since interim authorization for Unit No. 2 at 50 percent of full power is under consideration, the electrical output of this unit at 50 percent of full power is considered to be 436 megawatts.

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In preparing this report, the Bureau of Power staff has analyzed the testimony of the applicant in support of its Motion for Issuance of a License Authorizing Limited Operation; the Supplementary Environmental Report - Operating License State for Unit No. 2; the Monthly Power Statements submitted to this Commission by the applicant; and related reports made in response to the Commission's April 1970 Statement of Policy on Adequacy and Reliability of Electric Service (Order No. 383-2).

The following tabulation shows the loads to be served by the applicant and the New York Power Pool and the relationship of Indian Point Unit 2 to their available reserve capacities during the 1972 summer peak load period. The detailed analysis covers only the period indicated since it is of primary importance in relation to the initial operation of the Indian Point Unit No. 2. The life of this facility is expected to be some 35 years, however, and it will be depended upon as a part of the system's dependable generating capacity to serve projected growing loads throughout that period.

Forecasted 1972 Summer Peak Situation

	<u>Consolidated Edison Company</u>	<u>New York Power Pool</u>
<u>Conditions without</u>		
<u>Indian Point Unit No. 2</u>		
Net Dependable Capability - Megawatts	9,448 <sup>1/</sup>	24,026
Net Peak Load - Megawatts	8,550	20,040
Reserve Margin - Megawatts	898	3,986
Reserve Margin - Percent of Peak Load	10.5	19.6
Reserve Deficiency - Megawatts	812	22
<u>Conditions with</u>		
<u>Indian Point Unit No. 2 (436 MW)</u>		
Net Dependable Capability - Megawatts	9,884 <sup>1/</sup>	24,462
Net Peak Load - Megawatts	8,550	20,040
Reserve Margin - Megawatts	1,334	4,422
Reserve Margin - Percent of Peak Load	15.6	22.1
Needed Reserve Margin Based on Criteria of 20 Percent of Peak Load - Megawatts	1,710	4,008
Indian Point Unit No. 2 (436 MW) Capacity as Percent of Needed Reserves	25.5	10.9
Reserve Deficiency - Megawatts	376	-

1/ Includes 325 MW of firm power purchases.

The applicant used a criterion for reserve margin of 20 percent of peak load, which includes allowances for scheduled maintenance, forced outages, errors in load forecasting, and spinning reserve requirements. The largest units now in service in the New York Power Pool are the applicant's 1,000 megawatt Ravenswood Unit No. 3, followed in size by Niagara Mohawk Power Company's 625 megawatt Nine Mile Point Nuclear Unit No. 1. Loss of large increments of generating capacity by forced outages of large units require similar large amounts of comparable capacity in system reserves to maintain system reliability. Recent experience with new large generating units indicate frequent forced outages of such units may be expected during the initial months of their operation.

Although the reserves on the applicant's system under more normal circumstances would appear to be ample to meet the reserve margin needs, Con Ed has suffered so many extensive outages of major equipment and delays in new facilities during recent years that major maintenance has necessarily been deferred. This has created an extensive backlog of needed maintenance to return much of the existing equipment to a normal state of dependability. A heavy maintenance program is planned by the Company during the coming winter months in an effort to provide greater equipment reliability for the peak load season of the 1972 summer.

The analysis of the 1972 summer peak situation indicates that without the Indian Point Unit No. 2, the applicant will have a reserve margin of 898 megawatts, or 812 megawatts short of its stated 20 percent reserve criterion. The New York Power Pool, without Indian Point Unit No. 2, has reserves of 3,986 megawatts or 22 megawatts short of the 20 percent reserve criterion. With the Indian Point Unit No. 2 in service at 436 megawatts output at the time of the summer peak, the applicant's system with a 15.6 percent reserve margin is still short of its reserve criterion by 376 megawatts. The New York Pool with 22.1 percent reserve margin will meet the criterion if Indian Point No. 2 is in service.

Analysis of the New York Pool reserves for the summers of 1969, 1970, and 1971 indicates actual operating reserves were experienced of only 6.0, 4.4 and 10.9 percent respectively, after accounting for maintenance, unscheduled outages, and forced unit capacity deratings. Such a low reserve margin is not adequate, and severely threatens system reliability. Further analysis indicates a concentration of the contributing factors in the Con Ed system. No new base-load capacity has been added to this system since 1969, while load has continued to grow. Some 1,584 megawatts of gas-turbine peaking capacity has been added, however, extended operation of such units has resulted in extensive maintenance problems and reduced availability of the gas-turbine capacity. Our September 1970 comments pointed out the anticipated need for the Indian Point Unit No. 2 as of that time and 1971 summer load experiences without Indian Point No. 2 confirmed the continued need for additional generating capacity to serve the New York area.

On the Consolidated Edison system, base-load generating capacity, as contrasted with the sum of both base-load and peaking units, totals 8,258 megawatts from 66 generating units. Thirty-six units totaling 2,104 megawatts, or 25.5 percent of base-load capacity, are over thirty years old. The 74th Street Unit No. 3, built in 1915 and rebuilt in 1935, has been retained in continuous service to assist in meeting system load requirements. Continued dependence upon over-aged generating equipment, with no new base-load capacity additions, can only lead to the increased possibility of system catastrophe with attendant loss of supply to large portions of the service area and the consequent hazards which accompany such a condition. The applicant forecasts that lost capacity due to deratings and forced outages will total as much as 2,500 megawatts during the summer.

#### Transmission Facilities

A single 345 kilovolt transmission line will deliver the output of the Indian Point Unit No. 2 to the Buchanan Substation located within 200 feet of the Indian Point plant site. No added right-of-way is required, and the line will parallel an existing 138 kilovolt transmission line now in service. The 345 kilovolt circuit will be supported by three tapered steel poles. Line design and construction is reported to conform to the guidelines for protection of aesthetic and other environmental values set forth in the report of the Working Committee on Utilities of the President's Council on Recreation and Natural Beauty dated December 27, 1968, and the Federal Power Commission's Order No. 414 dated November 27, 1970.

#### Alternates to the Proposed Facilities

Within the time available, there are no known alternative additions of generating capacity which could be substituted for the Indian Point Unit No. 2. Therefore, this unit is critically needed to assist in meeting peak demands and to improve the reserve generating capacity margin. The applicant is a member of the New York Power Pool, one of the two power pools of the Northeast Power Coordination Council (NPCC). The New England Power Pool lies to the east, and the Pennsylvania-New Jersey-Maryland Interconnection (PJM) to the south.

In addition to 395 megawatts previously arranged, the Company has found about 200 megawatts of purchase power available for the summer 1972 which is not contingent upon construction and licensing of other new nuclear or fossil facilities, the actual and potential delays in the addition of new generating facilities throughout most of the Nation at present make it unrealistic in most cases to depend on other areas for substantial amounts of firm power. In the NPCC region alone there are four nuclear units with a total capacity of over 2,866 <sup>1/</sup> megawatts planned for

1/ Indian Point 2 - 873 MW  
Vermont Yankee - 513 MW

Maine Yankee - 830 MW  
Pilgrim - 650 - MW

service before the 1972 summer peak but whose operation or in-service date may be in question.

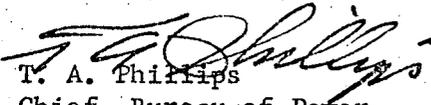
Sufficient time is not available, but if it were, additional peaking capacity is not considered to be an effective solution to the base-load capacity needed in the applicant's system or in the New York Power Pool system. Large increments of base load generating capacity are needed to meet loads and restore some flexibility to implement a comprehensive maintenance schedule.

### Conclusions

The Bureau of Power concludes that the 436 megawatts of capacity of the Indian Point Unit No. 2 is needed to meet projected loads and maintain system reserves on the applicant's and the New York Power Pool's systems during the 1972 summer peak load season, and to permit needed maintenance of generating equipment in the following off-peak period. Continued load growth is expected, and this will perpetuate the dependence upon Indian Point No. 2 to assist in meeting future load requirements.

The potential consequences of not having sufficient electric power would include inability to meet important power needs of residential, commercial and industrial customers. We conclude that, assuming the AEC can currently deal appropriately with the environmental issues involved, it would be imprudent not to timely provide the facilities discussed if the public interest in adequate and reliable electric power systems is to be served.

The applicant reports that it has an investment of \$400 million in total plant at this site. As of September 1971, the investment in Unit No. 2 was reported to be \$139 million. Interest charges during construction add about \$1 million for each month of delay. The incremental cost of operation, maintenance and out-of-pocket expenditures for replacement energy is estimated by the applicant to be about \$2.5 million per month. Sufficient detail is not available to permit an extensive cost analysis but the relative order of magnitude of investment and estimated added production costs appear to be reasonable.

  
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