2-26-74

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	:	
NIAGARA MOHAWK POWER CORPORATION (Nine Mile Point Unit 2)	:	DOCKET NO. 50-410

PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW OF THE NEW YORK STATE ATOMIC ENERGY COUNCIL

J. Bruce MacDonald
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DATED: February 26, 1974

In the original joint petition for intervention in this proceeding, there were fourteen issues raised by Intervenors, Ecology Action and Susan Weber. At the time of the commencement of the hearing, the issues in controversy were reduced to five in number and subsequently increased to six as a result of the Commission memorandum and order of November 6, 1973. We deal here with proposed findings of fact and conclusions of law on two of these issues.

NEED FOR POWER

1. The Applicant and the seven (7) other members of the New York Power Pool must maintain an installed Federal Power Commission and New York State Public Service Commission approved reserve margin requirement of at least 18 percent of annual peak load for maintenance, forced outages and partial deratings. (Staff Exhibit 2, p. 1.2-2 and Appendix m)

2. The Intervenors' Affidavit in Support of Petition to Intervene alleges that the need for Nine Mile Point Unit No. 2 is based, in part, on improper calculations of the 18 percent reserve margin, but no evidence was presented to question its validity. The Board therefore accepts, and finds, that the 18 percent reserve margin is a factor in determining the year of need for Nine Mile Point Unit 2.

3. Additionally, Intervenors allege that applicant has improperly estimated his demand for electrical energy for the years 1978-79-80. The Applicant's projection method and assumptions for peak load forecasting consists of an adjusted extrapolation of historical residential, commercial and industrial demand data derived from the period 1960-1971. Historical demand data are projected

individually, combined and converted to total system demand which is then compared with a projected historical system demand. Adjustment in projections are made on the basis of correlation factors affecting demand and on the basis of Applicant's service area surveys. Applicant to some extent premises his demand projection upon a continuation of that level of business activity which existed throughout the 1960's and early 1970's. (Tr. 1168-69, 1493-4, 1488-9, 2113) Applicant does not take into account the impact of current fuel shortages on electrical demand (Tr. 1487, 1538), and is unable to estimate the long-range effect of fuel shortages on demand in the years 1978-79. Applicant asserts through his witnesses that it is unable to determine the extent to which existing or potential oil and gas customers will convert to or substitute electricity, nor can it estimate the extent to which energy conservation measures will reduce net long term demand (Tr. 2105-8; Applicant's Ex. 2, p. 1.2-1). Applicant concludes that one could not reliably identify and quantify all those individual factors which have an effect on projected demand and that for these significant; and other reasons a historical extrapolation of past usage is the most acceptable technique in planning future capacity at this time.

4. The Staff's projected demand analysis indicated that the results of Applicant's demand analysis were reasonable (Tr. 854-5, 916), and that the scheduled date for commencement of construction of Unit 2 was prudent. (Staff Ex. 2, p. 8-10)

5. The Intervenor's witness used extrapolation methods and a demand analysis technique based on an econometric model to conclude that the first year of need for

Nine Mile Point Unit 2 could be no earlier than 1981; and, using various combinations of assumptions in the econometric analysis the first year of need would not occur until 1992 and may in fact not occur until after the year 2000. (Intervenor's Exhibit 9, Chapman Testimony). The witness concluded by analysis that the first year of need for Unit No. 2 was not 1979 or 1980, but more likely the mid-1980's (Intervenor's Ex. 9, p. 11, Tab. 106).

6. In his prepared written testimony Intervenor's witness described traditional demand projection techniques and the econometric demand peak load forecasting methods. (Intervenor's Ex. 9, Chapman Testimony). In addition, the Intervenor's witness provided three supporting economic studies and a separate mathematical description of his econometric model. The Intervenors' witness listed four major factors that would affect future electrical demand, and ranked them in order of importance as follows: price of electricity, population levels, impact of economic growth, and costs of competing forms of energy (Tr. 1591-92). The price of natural gas was used by the Intervenors' witness as the measure of cost of competing forms of energy (Intervenor's Ex. 9).

7. Underlying Intervenor's econometric analysis is the premise that there is high elasticity between the price of and the demand for electricity and that this elasticity is by economic analysis reliably predictable. The applicant and New York State disputed this premise. Based on historical data from 1948-1971, the Intervenor' witness testified that an inverse relationship generally exists between price and demand in all three sectors. (Intervenor's Ex. 9, Chapman's Testimony, Table 5)

During the period 1948-1971 the average deflated price of electricity generally declined and consumption increased (Intervenor's Ex. 9, p. 2), but presently (1971-1973) electricity prices have increased and presumably will continue to increase in the future. By extrapolating historical demand, the Applicant determined that demand in the residential, commercial and industrial sectors is basically insensitive to price (Tr. 1487, 1502-8, 1515, 1549, 1563-9). A statistician from New York State Department of Commerce testifying on behalf of the New York State Atomic Energy Council testified that if electricity costs double, the overall cost to industry would be less than one (1) percent of the value of goods purchased or produced, and that in his opinion such an increase would not cause industry to respond by significantly reducing its use of electricity (New York State Ex. 1, Tr. 2022).

8. We conclude from the record before us that any analysis which directly applies the historically derived price elasticities in light of the more current reversed price and demand trends, is questionable. Additionally, the unresolved conflicting views among experts on the impact of price elasticity on projected demand, leads us to feel that the effects of price elasticity of electricity, as a practical matter, do not provide a reliable basis for predicting load growth at this time. Further, and that fact notwithstanding, in view of the considerable disagreement among economists concerning the choice of and weight to be given variables used in econometric models, we feel that econometric models of the Intervenor's type are not yet sufficiently developed to permit their use as the sole basis for scheduling new generating capacity. The Board finds that because of uncertainties

in projecting load growth there does not appear on the record any basis for preferring intervenors extrapolation or econometric projections over those extrapolated projections presented by Applicant.

9. Applicant's projections show an adequate capacity to meet New York State Power Pool imposed reserve margins in 1978 with or without the plant, and that 1979 rather than 1978 is the first year of need for the plant. While 1978 reserve requirements according to projections will likely be met without this unit, the pertinent consideration is the 1979 requirements, since 1979 would be the earliest possible full year of operation. The possibility that the plant start-up date may be delayed, that demonstrated delays of one year or more in scheduled commercial operations are not uncommon (Staff Ex. 2, p. 8-10; Tr. 882-7) and that new plants are subject to break in periods of three to four years (U.S. AEC's Directorate of Regulatory Operation's Report on Nuclear Power Plant Operation for 1972) during which time they do not provide continuous generation (Applicant's Ex. 2, p. 1.2-3; Tr. 882-7) makes 1978 not an unreasonable target date for completion of the facility.

ENERGY CONSERVATION

(Generally)

1. Regarding Intervenor's contentions concerning energy conservation, Applicant's witness in the area of energy conservation testified that Applicant had:

A. made recommendations to all customers to set thermostats at a maximum of 68 degrees and in addition that commercial and industrial customers exercise night setback and that they "control" ventilation air (Tr. 3285);

B. sent people into the field to test and adjust combustion efficiency of gas burning equipment in large commercial and industrial establishments (Tr. 3286) and promote certain other energy conservation programs with large consumers (Tr. 3300-3302, 3557, 3558);

C. distributed booklets and pamphlets concerning methods of conserving energy to employees and to residential customers through mailings (Tr. 3301);

D. conducted seminars for architects and engineers in the field of energy conservation and provided speakers to residential groups on conservation and efficiency of energy in residential uses (Tr. 3301, 3488, 3557);

E. recently begun to use advertising media to promote energy conservation (Tr. 3476);

F. implemented certain energy conservation measures within their own properties to both conserve electric energy and set a proper example for the public (Tr. 3286, 3555, 3556);

G. terminated sales promotional advertising to both conserve electric energy and set a proper example for the public (Tr. 3475-6; additionally, it may be noted that New York State Public Service Commission has by order required all New York State utilities to show cause why they should not be ordered to cease all promotional advertising, See New York State Public Service Commission Case 25362, dated December 4, 1973).

H. supported the imposition of minimum insulation standards in proceedings before the New York State Public Service Commission (Tr. 3484-6; 3489-90);

I. been successful in promoting the use of insulation in new residential construction (Tr. 3492);

J. adopted a policy of recommending various energy conservation ventilation expedients to architects and engineers (Tr. 3498-99);

K. abolished their marketing department and created in its place a new consumer relations department to deal with problems of energy supply, including conservation and elimination of waste of energy (Testimony of Flynn, p. 1, Tr. 3297-3302);

The same witness testified Applicant had not:

L. attempted or requested permission of the New York State Public Service Commission for a program wherein they would

improve the quality of insulation in residences through financing the insulation of existing homes (Tr. 3286-88);

M. attempted as a method of reducing peak demand to ascertain the feasibility of selling billboard lighting and other such non-essential power on an interruptible basis (Tr. 3296, 3297);

N. sponsored any research and development programs in the area of energy conservation other than in those areas relating to increasing generation efficiency (Tr. 3495)

2. The record further indicates that New York State authorities, particularly the New York State Public Service Commission, the agency responsible for regulating utilities within the State, are proceeding on a continuing and expanding basis to develop and implement a comprehensive regulatory program to put into effect various energy conservation measures and programs (See New York State Public Service Law §5(2) which mandates to the New York State Public Service Commission responsibilities with respect to conservation of natural resources) For example:

A. The New York State Public Service Commission, as well as the New York State Interdepartmental Fuel and Energy Committee have been investigating and have implemented or are proceeding to implement various energy conservation programs. Further, the New York State Public Service Commission has taken steps for encouraging, investigating, developing, mandating and monitoring reasonable and/or necessary energy conservation measures. (Intervenors Exhibit 13, pages 1 to 6; Intervenors Exhibit 14, pages i to xix; Tr. 2937-40, New York State

Public Service Commission Case 26292, entitled "Proceeding on Motion of the Commission as to Energy Conservation Measures in the Service Territory of Consolidated Edison Company of New York, Inc." and Commissioner Jones' Decision, in this case, dated January 31, 1974; New York State Public Service Commission Case 26286, entitled "Proceeding on Motion of the Commission as to Standards of Building Insulation Used in Conjunction with Gas Space Heating Equipment" and the Examiner's Decision in this case, dated December 19, 1973; Opinion No. 74-5 of New York State Public Service Commission, entitled "Niagara Mohawk Power Corporation - Electric Rates", pages 23 to 29; Requirement for Annual Report to New York State Public Service Commission under section 149-b of the New York State Public Service Law and New York State Public Service Opinion 74-1 on information which must be included in that report, see p. 11; "New York State's 15-day Report on Utility Energy Efficiency Programs" required by New York State Public Service Commission, referred to as Tr. 3302, 3556, 3557).

B. As a further example, the New York State Public Service Commissioner who conducted the hearings in the Consolidated Edison energy conservation case has recommended to the full Commission that with respect to Consolidated Edison's franchise territory:

(a) The use of electricity for space conditioning by means of electric resistance heaters be prohibited, in new construction and in buildings to be converted to electric space heating, unless resistance heaters are employed:

1. as a supplement to space conditioning relying primarily on heat pumps;
2. as a supplement to space conditioning relying primarily on solar energy; or
3. under circumstances where other modes of space conditioning are impracticable or unavailable.

(b) The use of electricity (for heating) in newly constructed buildings be prohibited unless:

1. in the case of private residences, apartment buildings and small commercial buildings (not over two stories), the structures contain insulation conforming to minimum standards prescribed by the Commission for such buildings;
2. in the case of apartment buildings, each room has an individual thermostat;
3. in the case of large commercial buildings (more than two floors in height but with a maximum electric demand of less than 10 MW), approval of a local government body is obtained

of a program for energy conservation in the design of the building prepared in accordance with standards set forth by the Commission;

4. in the case of large projects (with a maximum demand exceeding 10 MW), approval of the Commission is obtained of the most appropriate means of serving the energy requirements of the project, including consideration of total energy systems and selective total energy systems.

(c) The use of additional simple cycle gas turbines on the Consolidated Edison system be prohibited, unless associated with means of heat recovery through waste heat boilers or other energy conserving processes.

(d) The expenditure of funds by Consolidated Edison for research and development in the field of solar energy be encouraged, and further developments in this area be monitored by Staff. (Commissioner Jones' Opinion in New York State Public Service Commission Case 26292, dated January 21, 1974, pp. 284-285.)

C. Lastly, the New York State Public Service Commission staff has presented energy conservation related legislation to the New York State Legislature, specifically legislation relating to a ban on the sale of "instant on" TV.

3. In addition to the activities of the New York State Public Service Commission, the New York State Department of Environmental Conservation has undertaken the development and implementation of statewide energy conservation programs affecting the total demand for electricity and other forms of energy including: (a) the consideration of energy conservation as an environmental factor in all permits issued by the Department; (b) continuing and expanded participation,

including in some cases the presentation of technical testimony, before the New York State Public Service Commission, the Atomic Energy Commission, the Federal Power Commission and other regulatory and legislative bodies, with the goal of promoting reasonable energy conservation measures; and (c) programs of research, development and testing regarding energy conservation effects of various measures.

ENVIRONMENTAL DEFENSE FUND

(Rate Restructuring Proposal)

4. On November 30, 1973, the Environmental Defense Fund (EDF) sought to intervene in this proceeding on one aspect of the energy conservation issue. A stipulation permitting EDF's admission without opposition was agreed to and filed with this Board on December 19, 1973. In our fourth prehearing conference order issued on December 28, 1973, we approved this stipulation and admitted EDF as a party.

5. EDF contends that the Applicant's existing rate structure is promotional in character and is therefore responsible for accelerating the need for future capacity additions. The long-term and optimum goal of EDF is peak-load pricing which distinguishes between on and off peak consumption. Specifically, EDF favors cost-based rates which consider time of consumption, full recoupment of customer related costs in the minimum charge and rate sensitivity to price elasticity (Tr. 2812-3043).

6. We have considered evidence presented by all EDF witnesses including testimony of several economists concerning general economic theory of price sensitivity of demand as well as an econometric analysis of price responsiveness in the Niagara Mohawk service area (Tr. 2669). The prepared testimony was identical in all but one respect to that presented to the New York State Public Service Commission and indicated that the proposed rate restructuring could be considered as a method for conserving energy. No EDF witness was able to quantify or estimate the reduction in demand for electricity or the reduction in capacity expected from implementing peak load pricing. No EDF witness testified that the proposed changes in the rate structure would obviate the need for the proposed unit.

7. Each EDF witness was asked by Counsel for the New York State Atomic Energy Council if they thought their proposals had had a fair hearing in front of the New York State Public Service Commission and each replied affirmatively (Tr. pp. 2623-25, 2701-2, 2818-19, 2937-40, 2949, 2975). The New York State Public Service Commission has issued an opinion in the Niagara Mohawk rate case in which they determined that the EDF proposals for a commitment to time of day metering and peak load pricing were unwarranted by the evidence presented. (New York State Public Service Commission Opinion No. 74-5, Issued: February 5, 1974)

8. The Board finds on the basis of the record before us:

A. That the impact of energy conservation measures or future capacity requirements of the Niagara Mohawk system is not

predictable with any degree of confidence. Further, and this fact notwithstanding, the Applicant and New York State at this time are taking and/or exploring a wide variety of reasonable measures to conserve electrical energy.

B. That jurisdictional questions notwithstanding, involvement by this Board at this time with responsible State action in the area of energy conservation is not warranted.

C. That the evidence with regard to energy conservation presented at the hearings does not support a conclusion that present energy conservation measures as such will reduce present and projected demand to a degree where it is reasonable to conclude that the proposed facility is not needed.

CONCLUSIONS OF LAW

The Board having reviewed the record concludes that the record indicates the following:

(1) That there is reasonable assurance that:

(a) The Applicant has described the proposed design of the facilities including, but not limited to, the principal architectural and engineering criteria for the design, and has identified the major features or components incorporated therein for the protection of the health and safety of the public;

(b) Such further technical or design information as may be required to complete the safety analysis, and which can reasonably be left for later consideration, will be supplied in the final safety analysis report;

(c) Safety features or components, if any, which require research and development have been described by the Applicant and the Applicant has identified, and there will be conducted, a research and development program reasonably designed to resolve any safety questions associated with such features or components; and

(d) On the basis of the foregoing, there is reasonable assurance that:

(i) such safety questions will be satisfactorily resolved at or before the latest date stated in the application for completion of construction of the proposed facilities, and

(ii) taking into consideration the site criteria contained in 10 CFR Part 100, the proposed facilities can be constructed and operated at the proposed location without undue risk to the health and safety of the public;

(iii) taking into consideration the design objectives required by 10 CFR 50.34(a) the proposed facility can be constructed and operated to keep release levels of radioactive liquid and gaseous effluents "as low as practical".

(2) The Applicant is technically qualified to design and construct the proposed facilities;

(3) The Applicant is financially qualified to design and construct the proposed facilities; and

(4) The issuance of permits for construction of the facilities will not be inimical to the common defense and security or to the health and safety of the public.

In accordance with Appendix D to 10 CFR Part 50 of the Commission's regulations, it appears that:

(5) There is no occasion to consider the scope of the Licensing Board's jurisdiction to attach conditions concerning a utility rate structure to a construction permit for a nuclear power plant, since it would be inappropriate to impose conditions in accordance with EDF proposals essentially in conflict with the policies and findings of the New York State Public Service Commission. The New York State Commission has recently determined that the EDF proposals for a commitment to

time of day metering and peak load pricing were unwarranted by the evidence presented, this evidence being virtually identical to that introduced before the Board. The New York Commission also concluded that the effects of price elasticity, because of their difficulty of determination, did not provide an appropriate basis for designing rates at this time. Nor did the Commission accept the proposition that capacity costs should be borne exclusively by on-peak users. At the same time, it directed Niagara Mohawk to investigate the feasibility of time of day metering on its system. In these circumstances and in view of the New York State Public Service Commission's commitment to exploring and developing thoroughly the goal of electric energy conservation, there is no need for the Atomic Safety and Licensing Board to substitute its judgment for the judgment of the body charged, under New York State law, with the duty and endowed with the necessary expertise to regulate all facets of rates and rate structures.

(6) The environmental review required by section 102(2)(C) and (D) of the National Environmental Policy Act of 1969 and Appendix D of 10 CFR 50, as embodied in the FES and modified by this Board is satisfactory.

Upon independently considering the final balance among the factors contained in the record of the proceeding, the Board directs the issuance of a construction permit for the Nine Mile Point Nuclear Generating Station, Unit 2.

Respectfully submitted,

C J Clemente

Carmine J. Clemente

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

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NIAGARA MOHAWK POWER CORPORATION	)	DOCKET NO. 50-410
(Nine Mile Point, Unit 2)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "Findings of Fact and Conclusions of Law of the New York State Atomic Energy Council" have been served on the following by deposit in the United States mail, first class, on the 26th day of February, 1974:

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