Safety Evaluation Report

NUREG-75/054

U. S. Nuclear Regulatory Commission

related to construction of

Office of Nuclear Reactor Regulation

Pilgrim Nuclear Generating Station, Unit No. 2

Docket No. 50-471

November 1975

Boston Edison Company, et al

Supplement No. 1

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NOVEMBER 3, 1975

SUPPLEMENT NO. 1
TO THE
SAFETY EVALUATION REPORT
BY THE
OFFICE OF NUCLEAR REACTOR REGULATION
U.S. NUCLEAR REGULATORY COMMISSION
IN THE MATTER OF
BOSTON EDISON COMPANY, ET AL
PILGRIM NUCLEAR GENERATING STATION, UNIT 2
DOCKET NO. 50-471

2201 275

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TABLE OF CONTENTS

		PAGE
1.0	INTRODUCTION	1-1
2.0	SITE CHARACTERISTICS	2-1
	2.1 Geography and Demography	2-1
	2.1.3 Population and Population Distribution	2-1
5.0	REACTOR COOLANT SYSTEM	5-1
	5.9 Reactor Vessel Supports	5-1
6.0	ENGINEERED SAFETY FEATURES	6-1
	6.2 Containment Systems	6-1
	6.2.2 Containment Heat Removal, Air Purification and Cleanup Systems	6-1
	6.3 Emergency Core Cooling Systems	6-1
	6.3.4 Tests and Inspections	6-1
11.0	RADIOACTIVE WASTE MANAGEMENT	11-1
	11.1 Summary Description	11-1
20.0	FINANCIAL QUALIFICATIONS	20-1
21.0	CONCLUSIONS	21-1

APPENDICES

		PAGE
APPENDIX A	Continuation of Chronology of Radiological Review of Pilgrim Nuclear Generating Station, Unit No. 2	A1
APPENDIX B	Analysis of Financial Qualifications	B1
APPENDIX C	Errata to the Safety Evaluation Report	C1

1.0 INTRODUCTION AND GENERAL DISCUSSION

1.1 Introduction

The Nuclear Regulatory Commission's (Commission) Safety Evaluation Report in the matter of the application by the Boston Edison Company and joint applicants as listed in Table 1.1 of the Safety Evaluation Report (hereinafter referred to as the applicants) to construct and operate the proposed Pilgrim Nuclear Generating Station, Unit 2 was issued on June 27, 1975. In this Safety Evaluation Report the staff identified (1) certain matters requiring additional information from the applicants, (2) certain matters where our review is not yet complete and (3) certain commitments made by the applicants for which additional documentation would be required to permit the staff to confirm that these commitments meet our requirements.

The purpose of this Supplement is to update the Safety Evaluation Report by providing the staff's evaluation of additional information submitted by the applicants since the issuance of the Safety Evaluation Report. In addition, a review of the Safety Evaluation Report has revealed areas where corrections or further explanations are in order. Each of the following sections in this Supplement is numbered the same as the section of the Safety Evaluation Report that is being updated and is supplementary to and not in lieu of the discussion in the Safety Evaluation Report.

Two new matters have been identified since issuance of the Safety Evaluation Report. These matters are discussed in the appropriate sections of this Supplement and are summarized as follows: (1) evaluation of radioactive waste systems to meet the dose design objectives of Appendix I to 10 CFR Part 50 (Section 11.0), and (2) design of the reactor pressure vessel support systems (Section 5.9). We are currently reviewing these matters and will report our conclusions in a future supplement to the Safety Evaluation Report.

Upon favorable resolution of the outstanding issues discussed herein and in the Safety Evaluation Report and summarized above, we will be able to conclude that the Pilgrim Nuclear Generating Station, Unit 2 can be constructed and operated as proposed without endangering the health and safety of the public.

Appendix A to the Supplement is a continuation of the chronology of the staff's principal actions related to the processing of the application. Our analysis of the applicants' financial qualifications is attached as Appendix B. Appendix C is a listing of errata to the Safety Evaluation Report.

2201 278

2.0 SITE CHARACTERISTICS

2.1 Geography and Demography

2.1.3 Population and Population Distribution

We concluded in our Safety Evaluation Report that a conservative evaluation of the population center, taking into account recent and potential growth in the Plymouth area, would locate the population center distance much closer than 23 miles from the site and that a reduction of the low population zone from 4.25 to 1.5 miles was indicated.

We have reviewed the information on population and population distribution submitted in Amendment 20 to the Preliminary Safety Analysis Report. The population data have been updated to include 1975 population estimates. In addition, the applicants investigated the possibility of altering the designation of the population center and the low population zone. The applicants conclude that the present population center remains Brockton, Massachusetts, located about 23 miles north-northwest of the site. However, because of projected growth, the Town of Marshfield, located 10 miles north of the site, or the continuous communities of Plymouth Center, North Plymouth, and Kingston Center located 3.5 miles west of the site, could exceed 25,000 people during the lifetime of the plant. Based on their conclusion that the population center distance is not likely to be less than 3.5 miles away from the site, the applicants have proposed reducing the low population zone distance from 4.25 miles to 2.5 miles.

2201 279

In reaching the conclusion that the minimum distance to the population center was 3.5 miles, the applicants have defined a "densely populated area" to be those areas having a population density equal to or greater than 2,000 persons per square mile. Using this definition, they concluded that Census Enumeration District (CED) 1196, with a 1970 population density of about 2,900 people per square mile, and whose nearest boundary is 3.5 miles from the site, was part of the population center; but that CED 1198, located adjacent to it, with a population density of 1,050 persons per square mile and whose nearest boundary is located 2.2 miles from the site, was not. The applicants conclude that CED 1198 is not projected to exceed a population density of 2,000 persons per square mile by the year 2020, even including transients weighted for occupancy time, in that assessment.

The applicants' conclusion appears to be based solely upon its definition of 2,000 persons per square mile constituting a "densely populated area". We believe such a definition has not been justified. We have not adopted any definition based solely upon a absolute numerical value of population density within a particular area. We will continue to perform our reviews on a case-by-case basis by considering the population distribution and potential growth patterns in the vicinity of a site.

On the basis of currently available information, portions of CED 1198 appear to have significant potential for population growth during the plant life. Portions of this area have been given the zoning designation "medium lot residential" by the Town of Plymouth. This is the same designation given to large portions of CED 1196 which both the staff and the applicants agree is within the population center. Recent surveys indicate several streets have been laid and housing development is likely to follow. We therefore conclude as stated in the Safety Evaluation Report, that, based on currently available information, CED 1198 can be conservatively considered to be within the population center.

2201 280

We understand that the applicants will provide additional information on land use and potential population development within CED 1198. We will review this information and report our conclusions in a future supplement to this report. We may, if additional information warrants, determine that the population center distance should lie somewhere within CED 1198 and that the low population zone could therefore be extended beyond 1.5 miles.

We conclude, on the basis of our review of the applicants' submittal to date (through Amendment 20), that a definition of a "densely population area" based solely upon the population density in that area being equal to or exceeding 2,000 persons per square mile has not been adequately supported. Our conclusion stated in the Safety Evaluation Report, that the low population zone outer boundary distance of 4.25 miles proposed by the applicants should be reduced to about 1.5 miles, remains unchanged.

2201 281

5.0 REACTOR COOLANT SYSTEM

5.9 Reactor Vessel Supports

On May 7, 1975 we were informed by a licensee of a pressurized water reactor, Virginia Electric and Power Company, that an asymmetric loading resulting from a postulated pipe rupture at a particular location in the reactor coolant system had not been taken into account in the original design of the reactor pressure vessel support system for the North Anna Units 1 and 2 (Docket Nos. 50-338 and 50-339). This loading results from the forces induced on the internals within the reactor vessel caused by differential pressure conditions within the vessel immediately following a postulated loss-of-coolant accident. In addition, the asymmetric loading from the transient differential pressures that would exist around the exterior of the reactor vessel from the same postulated pipe rupture was not included in the original design analysis. However, the symmetric loadings from such a postulated pipe rupture were included in the original analysis of the reactor pressure vessel supports.

It is our opinion that these factors related to the design of the reactor pressure vessel supports are generic in nature an may apply to Pilgrim Nuclear Generating Station, Unit No. 2. Accordingly, we are taking steps to review this problem on a generic basis to determine the extent of the problem.

We have informed the applicants of the nature of this problem and have requested they verify that the design procedures for the reactor pressure vessel support system will properly include the asymmetric forces described above in the final design of the supports.

Based on our review of this generic problem to date, we have determined that the methodology necessary to model the complete reactor coolant system in sufficient detail to determine analytically the magnitudes and phase relationships of the vessel support system loads from the transient pressure

2201 282

differentials is available. We will review additional information to be provided by the applicants and will report our conclusions on this issue in a future supplement to the Safety Evaluation Report.

2201 283

6.0 ENGINEERED SAFETY FEATURES

6.2 Containment Systems

6.2.2 Containment Heat Removal, Air Purification and Cleanup Systems

We stated in the Safety Evaluation Report that we require that the design of the containment spray actuation logic be modified to provide for automatic actuation down to cold reactor coolant system conditions.

The proposed design of the containment spray actuation logic was such that automatic actuation of the system would be blocked when the reactor coolant system pressure is brought below 1700 pounds per square inch. This design was unacceptable.

In Amendment 20 to the Preliminary Safety Analysis Report the applicants revised the containment spray actuation logic to provide for automatic actuation down to cold reactor coolant system conditions. We have reviewed the modifications to the proposed design and conclude that it is acceptable. With our acceptance of this modification, we conclude that the containment spray system will be designed in conformance with the requirements of Criteria 38, 39, 40, 41, 42 and 43, of the General Design Criteria and is acceptable.

6.3 Emergency Core Cooling Systems

6.3.4 Tests and Inspections

We stated in the Safety Evaluation Report that we had not completed our review of the applicants' proposals regarding design provisions to allow testing of the emergency core cooling system in accordance with the recommendations of Regulatory Guide 1.79.

The applicants provided additional information in Amendment 18 on the proposed methods of preoperational testing of the emergency core cooling system. The applicants proposed that a limited short duration test to verify system alignment and pump flow from the recirculation sump will provide sufficient data to determine the ability of the system to function properly in the recirculation mode.

The applicants have provided information to show how the recirculation sump has been conservatively designed regarding vortex formation and that the location of the emergency core cooling system pumps will provide very large net positive suction head margins.

In addition, the applicants have agreed to amend the Preliminary Safety Analysis Report to include the following requirements:

1. The valve alignment and pump flow from the sump will be verified for the low head emergency core cooling system pumps (the residual heat removal pumps).

2. The sump will first be filled. The valve(s) between the sump and the pump will be opened and the pump will be started up in the same sequence that would be used following a postulated loss-of-coolant accident. The short duration test will be performed at design flow rate conditions.

2201 285

3. The surface of the water in the sump will be observed during the test to assure that there is no indication of vortex formation in the sump. If vortex formation is observed, more complete testing may be required.

4. The actual residual heat removal low head emergency core cooling system pumps installed in Pilgrim Unit 2 will be tested in the shop to confirm minimum net positive suction head requirements.

We have reviewed the information and the commitment provided by the applicants and conclude that the proposed test will provide the necessary information to determine the operability of the emergency core cooling system in the recirculation mode and, therefore, is acceptable.

2201 286

11.0 RADIOACTIVE WASTE MANAGEMENT

11.1 Summary Description

Our evaluation of the radioactive waste management systems, as presented in the Safety Evaluation Report was performed to determine conformance with the design objectives of the proposed Appendix I presented in our report "Concluding Statement of Position of the Regulatory Staff", Docket No. RM-50-2, dated February 20, 1974. However, we have not completed our review of these systems to establish conformance with the dose design objectives of the new Appendix I to 10 CFR Part 50 (effective June 4, 1975).

With regard to Appendix I, on September 4, 1975 the Commission announced an optional method for complying with the guidelines on nuclear power plant effluents, which is applicable to the Pilgrim Unit 2 plant. This option allows for compliance with the "as low as practicable" regulation without making a cost-benefit analysis if the radioactive waste management systems meet the guidelines of the proposed Appendix I used by the staff before the new Appendix I became effective. In addition, we have recently revised the parameters and mathmatical models used in calculating releases of radioactive materials in effluents. As a result, we have requested the applicants to provide additional information, which we will use to evaluate their systems with the new models, and have requested that they advise us of which option they will use to comply with Appendix I. After we complete our review of the radioactive waste management systems to determine conformance with the design objectives of Appendix I to 10 CFR Part 50, we will report the results in a future supplement to the Safety Evaluation Report.

2201 287

20.0 Financial Qualifications

The Commission's regulations relating to the determination of the applicants' financial qualifications appear in Section 50.33(f) and Appendix C to 10 CFR Part 50.

Boston Edison Company, the lead applicant with a 60% ownership share, along with eleven other utilities, has applied for a construction permit for Pilgrim Station, Unit 2. About half the remaining 40% ownership share will be assumed by New England Power Company (11.16%) and the Connecticut Light and Power Company (8.61%), and the balance will be handled by the remaining nine utilities.

According to Amendment 3 to the license application, the twelve utilities assuming the responsibility for the construction of Pilgrim Station, Unit 2, will participate as follows:

	Percent	Estimated Cost
Boston Edison Company	60.00%	$778,000,000
Burlington Electric Department	0.33	3,800,000
Central Maine Power Co.	2.85	34,030,000
Central Vermont Public Service Corp.	1.78	22,150,000
The Connecticut Light and Power Co.	8.61	107,070,000
Fitchburg Gas and Electric Light Co.	0.19	2,420,000
Montaup Electric Co.	2.15	26,010,000
New Bedford Gas and Edison Light Co.	1.53	18,780,000
New England Power Co.	11.16	135,070,000
Public Service Company of New Hampshire	3.47	43,720,000
The United Illuminating Co.	3.30	39,920,000
Western Massachusetts Electric Co.	4.63	57,570,000
	100.00%	$1,268,540,000

2201 288

The most recent estimate of the total cost of Pilgrim 2, which includes escalation and allowance for funds used during construction, was provided in Amendment 3 to the license application, dated April 29, 1975, and can be summarized as follows:

Total Nuclear Plant Costs	$1,207,000,000
Transmission and Distribution	22,000,000
Nuclear Fuel - Initial Load	40,000,000
	$1,269,000,000

The estimated cost of the nuclear plant has been reviewed by comparing it to the cost projected by the Energy Research and Development Administration's CONCEPT costing model. The model currently uses construction inflation or escalation rates of 8% per year for site labor, materials, and purchased equipment. The CONCEPT model estimated the cost of the nuclear plant to be $763,000,000, compared with the applicant's estimate of $1,207,000,000, or a difference of about 37%. It should be noted that Oak Ridge National Laboratory, which does the computer work for the NRC staff, states in their letter to the staff dated June 30, 1975 that the "estimates produced by the CONCEPT code are not intended as substitutes for detailed engineering cost estimates, but were prepared as a rough check on the applicant's estimate." In addition, the applicants have pointed out areas which, if considered in the CONCEPT code, would add significantly to the estimated cost using the code. However, for the purpose of our review of the applicants' financial qualifications, we conclude that the use of the applicants' more conservative estimate is appropriate.

2201 289

We have reviewed the financial information presented in the application, and amendments thereto, and conclude that there is reasonable assurance that these twelve applicants can raise the necessary funds to design and construct Pilgrim Station, Unit 2. Accordingly, we find them financially qualified to carry out the activities for which this permit is sought. Our conclusion is based upon the following discussion and the analyses contained in Appendix B to this supplement and the basic assumptions of rational regulatory policies and relatively stable capital market conditions. These assumptions are necessary because of the lengthy future period involved and the expected heavy dependence on external financing.

2201 290

21.0 CONCLUSIONS

We stated in the Safety Evaluation Report that our conclusions were contingent upon favorable resolution of the outstanding matters identified in that report. These items, and the present status of our review regarding these items is summarized below:

(1) We have not completed our review of the applicants' interpretation of the tectonics of the site region and the proposed seismic design basis (Section 2.5).

(2) We have required and the applicants have agreed to provide additional data on the foundation materials for Category I structures (Section 2.5.1).

(3) Our review of the impact of turbine missiles is being conducted on a generic basis. Upon completion of our review, we will report any changes necessary on this facility in a future supplement (Section 3.5).

(4) The applicants have provided an analysis of emergency core cooling system performance in accordance with Section 50.46 and Appendix K of 10 CFR Part 50. We will report the status of our review of this information in a future supplement (Section 6.3.3).

(5) The applicants' proposals regarding design provisions to allow testing of emergency core cooling systems in accordance with the recommendations of Regulatory Guide 1.79 has been favorably resolved (Section 6.3.4).

(6) We have not completed our review of the applicants' proposals regarding conformance with the recommendations of Regulatory Guide 1.75 (Section 8.4).

2201 291

(7) We have not completed our review of the applicants' proposals regarding solid radwaste storage capacity (Section 11.4).

(8) We have satisfactorily completed our review of the applicants' financial qualifications (Section 20.0).

(9) We require that the applicants either provide missile impact velocities based on a tornado having a maximum wind speed of 360 miles per hour or use the impact velocities given in Section 3.5 of the Safety Evaluation Report (Section 3.5).

(10) The design modification to provide for automatic actuation of the containment spray system down to cold reactor coolant system conditions has been satisfactorily completed (Section 6.2.2).

(11) We require that the loss of load trips and bypass be designed to satisfy the requirements of IEEE Standard 279-1971 (Section 7.2).

(12) We require that the enclosure complex be served by a filtration system designed to engineered safety features criteria (Section 15.6).

(13) Our review of anticipated transients without scram is being conducted on a generic basis and will be reported in a future supplement (Section 7.2).

2201 292

In addition to the items discussed above, and as a result of our review of new information and new developments subsequent to the issuance of the Safety Evaluation Report, we have made conclusions with regard to the following items which are discussed in this supplement:

(1) We have requested the applicants to provide additional information to demonstrate that the radioactive waste systems will meet the dose design objectives of Appendix I to 10 CFR Part 50. Our review of this information will be reported in a future supplement (Section 11.0).

(2) Our review of the reactor pressure vessel support systems will be reported in a future supplement (Section 5.9).

Subject to favorable resolution of the outstanding items stated above, we reaffirm our conclusions as stated in the Safety Evaluation Report.

2201 293

APPENDIX A

CONTINUATION OF CHRONOLOGY

OF RADIOLOGICAL REVIEW OF

PILGRIM NUCLEAR GENERATING STATION, UNIT NO. 2

June 27, 1975	Issuance of Safety Evaluation Report.
July 16, 1975	Meeting with applicants to discuss geological and seismological characteristics of the New England region as they relate to the determination of the maximum ground acceleration for the seismic design of Pilgrim 2.
July 28, 1975	Letter to applicants concerning testing low pressure safety injection systems.
August 4, 1975	Letter to applicants requesting additional financial information.
August 15, 1975	Letter to applicants transmitting staff correspondence with USGS concerning geology and seismology of region in which Pilgrim 2 is located.
August 21, 1975	Submittal of Amendment No. 20, consisting of information regarding Regulatory Guides 1.75 and 1.79, ECCS, and site information.
August 21, 1975	Submittal of Amendment No. 4 to License Application, consisting of revised correspondence distribution list.
August 29, 1975	Letter from applicants requesting a meeting with USGS concerning seismology/geology as soon as possible.
August 29, 1975	Letter to applicants transmitting copies of additional correspondence between staff and USGS.
September 23, 1975	Meeting with applicants to review onsite storage capability for solid radwaste and the methods for transporting secondary resins to onsite storage; to discuss applicants' proposed method of meeting Regulatory Guide 1.79 and our requirements for preoperational testing of the ECCS.

September 29, 1975	Letter to applicants in response to letter of August 29, 1975.
October 2, 1975	Letter to applicants requesting additional information concerning ECCS.
October 15, 1975	Meeting with applicants to discuss the boundary of the low population zone.

APPENDIX B

Analysis of Financial Qualifications

The following information provides the details of the financial analysis for the applicants for the Pilgrim Nuclear Generating Station, Unit No. 2.

B.1 Boston Edison Company (BECo)

Boston Edison supplies electricity at retail and wholesale in eastern Massachusetts. Operating revenues increased from $318.7 million in 1973 to $460.7 million in 1974. Most of this increase was attributable to the fuel and purchased power adjustment. Retail rate increases over the last few years have included one on April 19, 1973 for $18 million, another on May 6, 1974 for $13.5 million, and one other on August 9, 1974 for $27.4 million. In addition, on November 12, 1974, BE filed a request with the Massachusetts Department of Public Utilities to raise retail rates to produce additional revenues of approximately $70 million. Invested capital at December 3, 1974 amounted to almost $1.1 billion and consisted of 64.5% long-term debt, 7.6% preferred stock, and 27.9% common equity. If this capital structure is proformed for the issuance of preference stock in March, 1975, it becomes 57.35% long-term debt, 8.16% preferred stock, 4.57% preference stock, and 29.92% common equity.

The return on common equity for 1974 was 8.20%, down from 8.78% in 1973. Results in 1973 broke a string of 15 consecutive years of increases in earnings per share, declining from $3.55 per share to $2.88 per share. The decline continued in 1974 as earnings per share fell to $2.60 per share. Pretax coverages of long-term interest and total interest charges in 1974 were 2.40 times and 1.81 times, respectively, versus 2.70 times and 1.99 times in 1973. An improving trend, however, has been evident in 1975, bringing earnings per share for the twelve months ended June 30, 1975 up to $2.90, or about in line with 1973 results. Boston Edison's first mortgage bonds are rated Baa by Moody's and BBB by Standard and Poor's.

Boston Edison plans to finance its 60% share of Pilgrim 2 by the use of internally generated funds, notes payable, and the issuance of debt and equity securities. Available funds from these sources in 1974 totaled $138.7 million and were derived from $37.7 million of internally generated funds, $60 million of first mortgage bonds, and a $41 million increase in notes payable. Internally generated cash in 1974 represented 36.4% of 1974 construction expenditures (including nuclear fuel expense).

At our request, Boston Edison supplied a projected sources of funds statement for the 1975-82 period, with underlying assumptions, demonstrating how the requisite funds might be raised. Its internally generated cash over this period is projected to be 55.2% of total construction expenditures and 118.9% of its expected outlays for the Pilgrim 2 nuclear plant. We have reviewed Boston Edison's projections, and underlying assumptions, and find them within the zone of reasonableness.

Applicant: Boston Edison Company Nuclear Plant: Pilgrim Unit 2

Sources of Funds for System-Wide Construction Expenditures During Period of Construction of Subject Nuclear Power Plant
(millions of dollars)

Security issues and other funds	Construction Years of Subject Nuclear Power Plant							
	1975	1976	1977	1978	1979	1980	1981	1982
Common stock	$ 0	$ 0	$ 50.0	$ 50.0	$ 50.0	$ 50.0	$ 0	$ 0
Preferred stock	50.0	0	0	0	0	0	25.0	0
Long-term debt	40.0	0	50.0	50.0	50.0	35.4	50.0	65.0
Notes payable	(21.5)	20.5	(38.0)	22.0	4.0	5.5	(31.0)	(68.0)
Contributions from parent-net	-	-	-	-	-	-	-	-
Other funds	(3.3)	7.3	3.7	(1.0)	4.9	1.1	9.0	(18.5)
Total	65.2	27.8	65.7	121.0	108.9	92.0	53.0	(21.5)
Internal Funds								
Net income	31.2	40.8	53.3	64.0	72.6	79.5	96.6	105.0
Less:								
preferred dividends	9.9	11.4	11.4	11.4	11.4	11.4	12.2	13.9
common dividends	23.2	23.3	28.1	33.0	37.9	43.1	47.7	59.1
Retained earnings	(1.9)	6.1	13.8	19.6	23.3	25.0	36.7	32.0
Deferred taxes	22.8	33.6	25.3	29.0	34.1	31.5	35.0	35.3
Investment tax credit	(0.3)	(0.3)	9.5	12.1	0.7	2.5	0.6	22.4
Depreciation and amort.	39.6	44.1	46.7	47.7	50.1	51.8	54.0	60.7
Less: AFDC	9.7	6.7	12.1	21.0	32.2	41.5	48.7	40.0
Total	50.5	76.8	83.2	87.4	76.0	69.3	77.6	110.4
TOTAL FUNDS	$115.7	$104.6	$148.9	$208.4	$184.9	$161.3	$130.6	$ 88.9
Construction expenditures*								
Nuclear power plants	$ 13.5	$ 27.7	$ 66.4	$141.1	$103.2	$ 89.1	$ 59.0	$ 30.8
Other	102.2	76.9	82.5	67.3	81.7	72.2	71.6	58.1
Total const. exp's.	$115.7	$104.6	$148.9	$208.4	$184.9	$161.3	$130.6	$ 88.9
Subject nuclear plant	$ 13.5	$ 27.7	$ 66.4	$141.1	$103.2	$ 89.1	$ 59.0	$ 30.8

*Exclusive of AFDC (allowance for funds used during construction)

2201 298

BOSTON EDISON COMPANY

PILGRIM STATION UNIT NO. 2

ASSUMPTIONS REGARDING SOURCES OF FUNDS SCHEDULE

Major assumptions used for determining sources of funds:

1.	Average return on common equity:	8% - 11%
2.	New L/T Debt interest rate:	10%
3.	Preferred Stock interest rate:	10% - 11.75%
4.	Common Stock selling price:	$25.00/share
5.	Payout Ratio:	70% - 95%

6. Construction expenditures for 1975 - 1982 are taken from the 5 year forecast through 1979 and are based on best current estimates for the years 1980 to 1982.

7. Data and results are based upon estimates and are subject to change because of capital market, regulatory, and other external forces which cannot be predicted with complete certainty at this time.

2201 299

B.2 Burlington Electric Department (BED)

BED is a municipally owned electric system supplying electricity to the City of Burlington, Vermont. Burlington is the largest and most important manufacturing center in the state. BED's operating revenues for the fiscal year ended June 30, 1974 were approximately \$8 million and its net utility plant was about \$11.7 million.

BED plans to finance its .33% ownership share by the sale of municipal general obligation bonds with interest and principal paid out of the operating revenues of the electric department. The City of Burlington has authorized \$6 million of Electric Bonds for its .33% share of Pilgrim 2 and .365% share of Millstone 3. In May 1975, \$2 million of these bonds were issued to pay a portion of the City's share of the cost of these nuclear power facilities. Moody's Investors Service assigned an Aa rating to the bonds. Such a rating is defined by Moody's as follows: "Bonds which are rated Aa are judged to be of high quality by all standards. Together with the Aaa group, they comprise what are generally known as high grade bonds."

We have reviewed BED's financial circumstances and believe that there is reasonable assurance that it can raise the funds necessary to cover its share of the costs to design and construct Pilgrim 2.

B.3 Central Maine Power Company (CMP)

CMP supplies electricity to parts of Southern and Central Maine. Operating revenues increased from $107.4 million in 1973 to $141.2 million in 1974, although net income decreased from $13.3 million to $11.6 million. Invested capital at December 31, 1974 amounted to $327.1 million and consisted of 51.8% long-term debt, 14.2% preferred stock, and 34.0% common equity.

The return on common equity for 1974 was 9.1% compared with 10.9% for 1973. Pretax coverages of long-term interest and total interest charges for 1974, were 2.9 times and 2.4 times, respectively, versus coverages of 3.0 times and 2.9 times for 1973. CMP's first mortgage bonds are rated "A" by Moody's and "BBB" by Standard and Poor's.

CMP plans to finance its 2.85% share in the Pilgrim Unit 2 facility by the use of internally-generated cash and by bank loans which will be refunded with debt and equity securities. Available sources of funds for 1974 totaled $54.1 million and were derived from $13.9 million of internally generated cash and $40.2 million of external financing. Internally generated cash in 1974 represented 44.7% of capital expenditures.

At our request, CMP supplied a projected sources of funds statement for the 1975-82 period, with underlying assumptions, demonstrating how the requisite funds might be raised. CMP's internally generated cash over this period is projected to be 14.6% of total capital expenditures and 440% of its expected outlays for Pilgrim 2. We have reviewed CMP's projections and find them within the zone of reasonableness.

Applicant: CENTRAL MAINE POWER COMPANY Nuclear Plant: PILGRIM #2

Sources of Funds for System-Wide Construction Expenditures During Period of Construction of Subject Nuclear Power Plant*
(Millions of Dollars)

Security Issues and Other Funds	Construction Years of Subject Nuclear Power Plant							
	1975	1976	1977	1978	1979	1980	1981	1982
Common Stock	$ 8.4	$ 13.6	$ 16.0	$ 20.0	$ 26.0	$ 25.0	$ 40.0	$ 20.0
Preferred Stock	5.0	12.0	10.0	15.0	17.0	23.0	10.0	10.0
Long-Term Det	25.0	28.9	37.6	45.7	55.4	85.0	70.0	40.0
Notes Payable	(9.2)	(4.2)	10.2	(5.7)	17.8	2.8	.7	(7.4)
Total	29.2	50.3	73.8	75.0	116.2	145.8	120.7	62.6
Internal Funds								
Net Income	13.3	16.5	20.5	25.3	31.8	39.7	48.9	57.3
Less:								
Preferred Dividends	2.7	3.2	4.1	5.2	6.6	8.4	9.8	10.6
Common Dividends	9.6	10.9	12.6	14.7	17.7	21.9	27.2	32.7
Retained Earnings	1.0	2.4	3.8	5.4	7.5	9.4	11.9	14.0
Deferred Taxes	2.0	2.3	2.5	4.2	5.9	6.2	6.6	7.3
Investment Tax Credit	.6	.6	.5	4.7	.8	1.4	.7	2.7
Depreciation and Amort.	12.2	13.5	15.6	18.1	21.4	22.8	23.6	24.5
Less: AFUDC	1.5	4.4	8.8	11.1	13.3	21.9	29.6	34.2
Sinking Funds	1.2	1.3	1.5	1.7	1.9	2.3	2.7	3.0
Total	13.1	13.0	12.1	19.6	20.4	15.6	10.5	11.3
TOTAL FUNDS	$ 42.3	$ 63.3	$ 85.9	$ 94.6	$ 136.6	$ 161.4	$ 131.2	$ 73.9
Construction Expenditures								
Nuclear Power Plants**	$ 6.0	$ 10.3	$ 22.8	$ 57.7	$ 110.8	$ 133.8	$ 101.2	$ 34.0
Other**	36.3	53.0	63.1	36.9	25.8	27.6	30.0	39.9
TOTAL CONSTRUCTION EXPENDITURES**	$ 42.3	$ 63.3	$ 85.9	$ 94.6	$ 136.6	$ 161.4	$ 131.2	$ 73.9
Subject Nuclear Plants**	$ .7	$ 1.3	$ 3.2	$ 6.8	$ 5.3	$ 4.3	$ 3.1	$ 1.6

*See Assumptions on Following Page
**Exclusive of AFUDC

4/7/75

Central Maine Power Company

ASSUMPTIONS REGARDING SOURCES OF FUNDS SCHEDULE

PILGRIM NO. 2 NUCLEAR STATION

The key assumptions used in this analysis are as follows:

1) Earned return on average equity: 8.3% - 14.25%

2) Payout ratio 70% - 80%

3) Common stock sold at 80% - 100% of book value per share

4) A.F.U.D.C. Net and not deferred

5) Rate relief requested and granted sufficient to cover cost of service including assumed returns on equity

6) General: Data shown on previous schedule is the result of assumptions stated above. Actual results will vary from those projected as regulatory and financial market conditions change.

2201 303

4/7/75

B.4 Central Vermont Public Service Corporation (CVPSC)

CVPSC is the largest electric utility in the State of Vermont. Its operating revenues increased from $41.7 in 1973 to $50.0 million in 1974, while net income increased from $2.0 million to $3.4 million. These earnings figures include certain revenues allowed by the Vermont Public Service Board under a purchased power and fuel adjustment clause applicable to the periods July 1, 1973 to June 30, 1974. Invested capital at December 31, 1974 amounted to $117.1 million and consisted of 49.9% long-term debt, 14.7% preferred stock, and 35.4% common equity.

The return on common equity for 1974 was 7.2%. The return on common equity for 1973 was 3.7%, restated to reflect the above-mentioned rate increases. Pretax coverage of total interest charges for 1974 was 1.7 times, versus coverage of 1.5 times for 1973, also restated. CVPSC's first mortgage bonds are rated 'Baa' by Moody's and 'BBB' by Standard and Poor's.

CVPSC plans to finance its 1.78% share of Pilgrim 2 with internally generated cash and through short-term borrowing to be subsequently refinanced by the issuance of debt and equity securities. Available sources of funds in 1974 totaled $13.4 million and were derived from $11.3 million of security issues and other funds and internally generated cash of $2.1 million. Internally generated cash in 1974 represented 33.3% of 1974 construction expenditures (net of allowance for funds used during construction).

At our request, CVPSC supplied a projected sources of funds statement for the 1975-1982 period, with underlying assumptions, demonstrating how the requisite funds might be raised. CVPSC's internally generated cash over this period is projected to be 23.6% of total construction expenditures and 223% of its expected outlays for Pilgrim 2. We have reviewed CVPSC's projections and find them within the zone of reasonableness.

Applicant: Central Vermont Public Service Corporation Nuclear Plant: Pilgrim Station Unit No. 2

Sources of Funds for System-Wide Construction Expenditures During Period of Construction of Subject Nuclear Power Plant
(millions of dollars: 000.0)

Security issues and other funds*	Construction Years of Subject Nuclear Power Plant							
	1975	1976	1977	1978	1979	1980	1981	1982
Common stock	$ 7.0	$ 8.0	$ --	$15.0	$10.0	$10.0	$ 5.0	$20.0
Preferred stock	1.2	--	10.0	--	5.0	5.0	5.0	5.0
Long-term debt	8.0	14.0	15.0	10.0	15.0	17.0	20.0	10.0
Notes payable	1.1	(3.5)	(.9)	1.9	--	5.3	8.4	3.5
Total	17.3	18.5	24.1	26.9	30.0	37.3	38.4	38.5
Internal funds								
Retained earnings								
Net income	5.0	6.5	8.4	10.2	10.5	10.9	12.7	14.5
Less: preferred dividends	1.7	1.7	1.7	2.9	2.9	3.5	4.1	4.7
common dividends	3.1	3.7	4.5	5.2	5.8	6.7	7.7	8.7
Retained earnings	0.2	1.1	2.2	2.1	1.8	0.7	0.9	1.1
Depreciation and amortization	2.5	2.7	2.8	3.0	3.5	3.7	3.9	4.3
Total	2.7	3.8	5.0	5.1	5.3	4.4	4.8	5.4
Total Funds	$20.0	$22.3	$29.1	$32.0	$35.3	$41.7	$43.2	$43.9
Construction expenditures								
Nuclear power plants (Incl. fuel)	$ 3.7	$ 5.5	$ 7.7	$12.4	$11.5	$ 9.0	$ 6.9	$ 5.8
Other	7.6	9.0	10.0	12.4	14.0	13.3	12.6	12.9
Total	$11.3	$14.5	$17.7	$24.8	$25.5	$22.3	$19.5	$18.7
Subject nuclear plant (Incl. fuel)	$ 0.4	$ 0.8	$ 2.0	$ 4.3	$ 3.5	$ 2.7	$ 1.8	$ 0.9

*Note: The amount shown for security issues and other funds is provided as a general guide to the Company's financial planning. The types, amounts and timings of any financings cannot now be determined and will be dependent upon market conditions and other factors at the time, including the effect of limitations in the Company's First Mortgage and Debenture indentures on the incurring of additional funded debt and the limitations in its Articles of Association on the issuance of preferred stock and unsecured debt.

Basic Assumptions Used:

1) Capitalization Ratios - Based generally on 50%-15%-35% goals for Long-Term Debt, Preferred Equity and Common Equity
2) Return on Common Equity - 12.5% - 13.5% used during forecast period
3) Interest on new Long-Term Debt 10-11%
4) New Preferred Stock at 12% dividend rate

Rev. 3-27-75

B.5 The Connecticut Light and Power Company (CL&P)

CL&P is a subsidiary of Northeast Utilities and the largest electric and gas utility in Connecticut. Operating revenues increased from $248.7 in 1973 to $338.3 million in 1974, while net income rose to $60.1 million from $49.6 million, excluding the cumulative effect of prior period accounting changes and after restatement for the amortization of certain unusual power costs incurred in 1973. Invested capital at December 31, 1974 amounted to $1,120.5 million and consisted of 49.7% long-term debt, 15.6% preferred stock, and 34.7% common equity. If this capital structure is proformed for the early 1975 first mortgage bond offering of $85 million and the expected capital contribution of $25 million from Northeast Utilities, the common equity ratio declines to 32.4%.

The return on common equity for 1974 was 11.6%, compared with a restated 5.7% for 1973. Pretax coverages of long-term interest and total interest charges for 1974 were 3.02 times and 2.43 times respectively, versus a restated 2.84 times and 2.35 times for 1973. CL&P's first mortgage bonds are rated "A" by both Moody's and Standard and Poor's.

CL&P plans to finance its 8.61% share of Pilgrim 2 by the use of internally generated cash, the issuance of first mortgage bonds and preferred stock, and equity capital contributions from Northeast Utilities. Available funds from these sources for 1974, excluding the cumulative effect of accounting changes and the gas operations to be sold, totaled $187.2 million and were derived from $59.0 million of internally generated cash, $114.6 million of security issuances and $13.6 million of notes payable. The internally generated cash during this period represented 53.9%

of electric construction expenditures (net of allowance of funds used during construction).

At our request, CL&P supplied a projected sources of funds statement for the 1975-80 period, with underlying assumptions, demonstrating how the requisite funds might be raised. According to CL&P, no current projections have yet been made for 1981-82. CL&P's internally generated funds over the 1975-80 period are projected to be 30.1% of total construction expenditures and 453% of its expected outlays for Pilgrim 2 (inclusive of allowance of funds used during construction).

On October 7, 1974, the Connecticut Public Utilities Commission granted CL&P a permanent rate increase of $25.3 million. The financial data considered by this Commission indicates that these rates should provide a return on common equity of approximately 14.1%. Based upon this and recent earnings trends, we believe that CL&P's projections are within the zone of reasonableness.

2201 308

Applicant: The Connecticut Light and Power Company Nuclear Plant: Pilgrim Station Unit No. 2

Sources of Funds for System-Wide Construction Expenditures During Period of Construction of Subject Nuclear Power Plant
(millions of dollars)

Security issues and other funds	Construction Years of Subject Nuclear Power Plant							
	1975	1976	1977	1978	1979	1980	1981 (1)	1982 (1)
Common stock	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Preferred stock	20.0	20.0	25.0	30.0	30.0	25.0	N/A	N/A
Long-term debt - net	125.0	90.0	90.0	115.0	115.0	100.0	N/A	N/A
Notes payable - net	(103.0)	-	-	-	-	-	-	-
Contributions from parent - net	45.0	5.0	5.0	5.0	5.0	5.0	N/A	N/A
Other funds - net	21.0	0.0	(3.0)	(3.0)	(3.0)	1.0	N/A	N/A
Total	108.0	115.0	117.0	147.0	147.0	131.0	N/A	N/A
Internal funds								
Net income	57.0							
Less:								
preferred dividends	13.0							
common dividends	37.0							
Retained earnings	7.0	14.0	15.0	28.0	17.0	2.0	N/A	N/A
Deferred taxes	-	-	-	-	-	-	-	-
Investment tax credit	-	-	-	-	-	-	-	-
Depreciation and amort.	36.0	42.0	43.0	45.0	55.0	62.0	66.0	70.0
Total	43.0	56.0	58.0	73.0	72.0	64.0	N/A	N/A
TOTAL FUNDS	$151.0	$171.0	$175.0	$220.0	$219.0	$195.0	$ N/A	$ N/A
Construction expenditures (2)								
Nuclear power plants	$ 95.0	$100.0	$ 99.0	$126.0	$128.0	$ 78.0	$ 73.0	$124.0
Other - Electric	50.0	63.0	71.0	90.0	87.0	112.0	N/A	N/A
- Gas	6.0	8.0	5.0	4.0	4.0	5.0	N/A	N/A
Total const. exp's	$151.0	$171.0	$175.0	$220.0	$219.0	$195.0	$ N/A	$ N/A
Subject nuclear plant	$ 2.6	$ 4.8	$ 10.9	$ 23.5	$ 24.3	$ 18.7	$ 16.0	$ 10.2

(1) N/A means not available. For periods after 1980 we have no current projection of construction expenditures other than for our major generating units and consequently show no estimate of total financing requirements for 1981 and 1982. Our expectation is that the financing assumptions applicable to the earlier years would also apply in these years.

(2) Inclusive of AFDC (allowance for funds used during construction) at 9% rate on expenditures after 1974. Figures exclusive of AFDC not currently available.

SUPPLEMENTAL GENERAL AND FINANCIAL INFORMATION SUBMITTED
BY THE CONNECTICUT LIGHT AND POWER COMPANY (CL&P)
PILGRIM STATION UNIT NO. 2
DOCKET NO. 50-471

Question 11. (1) Enclosed are 75 copies of the prospectus for the issuance in February, 1975 of mortgage bonds by CL&P.

(2) Enclosed are 75 copies each of the 1974 Annual Report for Northeast Utilities, the Holding Company System of which CL&P is a part, and of the 1974 CL&P Annual Report, which includes the requested income statement and balance sheet.

(3)(a) Enclosed are 75 copies of the schedule entitled "Sources of Funds For System-Wide Construction Expenditures During Period of Construction of Subject Nuclear Power Plant", showing a projection for CL&P of one potential manner in which CL&P may finance its expected construction costs during this period. The forecast includes figures for gas operations and construction, though it is expected that the gas operations of CL&P will be sold during the period. The receipt of the proceeds from the sale (which would have amounted to about $117 million if the sale had occurred at December 31, 1974) and the elimination thereafter of further gas construction expenditures, would have the effect of reducing these projected amounts of security issues and other funds requirements correspondingly.

It should be understood that these figures are based on actual financing plans only for 1975, and for the period of 1976-1980 are based upon the assumptions described below and assuming normal conditions in the capital market. Market conditions are necessarily very uncertain. Accordingly, specific future detailed financing plans of CL&P simply cannot be well enough defined at this time for such a schedule as this to be very meaningful. The figures in the schedule are based on the assumption after 1975 that 52% of CL&P's capital requirements are to be supplied by long-term debt and 13% by preferred stock. Another 2% is assumed to be supplied by capital contributions from CL&P's parent, Northeast Utilities. The remaining 33% is assumed to be provided by internally generated funds. Of such funds, those resulting from depreciation and amortization have been roughly projected based on past experience and recognizing the additional depreciation in the future after each new generating unit goes into service. Retained earnings have been projected simply as the difference between total projected internal funds and those produced by depreciation and amortization. No actual earnings forecasts have been made, reflecting this proposed construction program; any such forecasts would be highly dependent on the assumed level of rate relief during the period. The caption "Other funds--net" is used as a balancing account to reflect for 1975 other cash requirements outside the construction program net of other internally generated funds not included in the list of "Internal funds". After 1975 the figures are simply to balance the rounding assumed in the figures for net permanent capital supplied. Nothing is shown for "Notes payable" except for the repayment during 1975 of those outstanding at the beginning of 1975, since the assumption is made that all such interim financing is converted into permanent capital. Also, nothing is shown for "Deferred taxes" or "Investment tax credit" because CL&P is in a "flow-through" rate jurisdiction. While the resulting schedule may be viewed as speculative because of the degree of detail called for, it is derived from the more realistic CL&P expectation to finance in general, approximately 50-55 percent of the cost of its plant investment with long-term debt, 10-15 percent with preferred stock, and the remainder to be financed by internally generated funds and capital contributions.

2201 310

B.6 Fitchburg Gas & Electric Light Company (FG&EL)

FG&EL provides electric and gas service to several communities in North Central Massachusetts. Its operating revenues increased from $14.5 million in 1973 to $20.3 million in 1974, although net income fell from $0.8 million to $0.6 million. Invested capital at December 31, 1974 totaled $28.6 million and consisted of 51.4% long-term debt, 15.4% preferred stock, and 33.2% common equity.

The return on common equity in 1974 was 6.3%, compared with 9.5% in 1973. Pretax coverages of long-term interest and total interest charges in 1974 were 2.5 times and 1.7 times, respectively, versus coverages of 2.8 times and 2.1 times in 1973. FG&EL's long-term notes are rated 'Baa' by Moody's and 'BBB' by Standard and Poor's.

FG&EL plans to finance its 0.19% ownership share of Pilgrim 2 by the use of internally generated cash and short-term borrowings which will subsequently be replaced with equity or debt securities. Available sources of funds in 1974 totaled $3.9 million and were derived from $.8 million of internally generated cash and $3.1 million from preferred stock, notes payable, and other sources. Internally generated cash in 1974 represented 20.7% of total construction expenditures.

At our request, FG&EL supplied a projected sources of funds statement for the 1975-1981 period, with underlying assumptions, demonstrating how the requisite funds might be raised. Internally generated cash over this period is projected to be 50.7% of total construction expenditures (net of allowance for funds used during construction) and 104% of its expected outlays for Pilgrim 2. We have reviewed FG&EL's projections and find them within the zone of reasonableness.

Applicant: Fitchburg Gas and Electric Light Company Nuclear Plant: Pilgrim Unit 2

Sources of Funds for System-Wide Construction Expenditures During Period of Construction of Subject Nuclear Power Plant
(thousands of dollars)

Security issues and other funds	Construction Years of Subject Nuclear Power Plant 1974	1975	1976	1977	1978	1979	1980	1981
Common stock	$	$ -	$1700	$ -	$ -	$1800	$ -	$ -
Preferred stock		-	800	-	-	700	-	-
Long-term debt		-	2500	-	-	2500	-	-
Notes payable		520	(3592)	2477	2249	(3168)	1370	1231
Contributions from parent-net		-	-	-	-	-	-	-
Other funds		-	-	-	-	-	-	-
Total		520	1408	2477	2249	1832	1370	1231
Internal funds								
Net income		1518	1581	1870	2028	2102	2511	2597
Less:								
preferred dividends		294	294	398	398	398	489	489
common dividends		734	769	1057	1057	1057	1360	1360
Retained earnings		490	518	415	573	647	662	748
Deferred taxes		513	562	595	665	709	754	801
Tax credit		(14)	(25)	(30)	(35)	(40)	(45)	(50)
Depreciation and amort.		900	1026	1103	1197	1296	1398	1504
AFDC		(253)	(30)	(50)	(75)	(150)	(170)	(50)
Sinking & Working Funds		347	(159)	90	126	206	231	116
TOTAL FUNDS	$	$2503	$3300	$4600	$4700	$4500	$4200	$4300
Construction expenditures*								
Nuclear power plants	$	$ 363	$ 745	$1220	$1702	$1882	$1706	$1311
Other		2172	3270	4341	3140	2514	2601	2500
Total const. exp's.	$	$2535	$4015	$5561	$4842	$4396	$4307	$3811
Subject nuclear plant	$	$ 45	$ 90	$ 210	$ 456	$ 351	$ 285	$ 204

*Exclusive of AFDC (allowance for funds used during construction)

Fitchburg Gas & Electric Company

Assumptions Regarding Sources of Funds Schedule
Pilgrim No. 2 Nuclear Station

(1) Return on common equity - 14%.

(2) New long term debt and preferred interest rate - 8%.

(3) Common stock sold at book value.

(4) Common stock dividend payout ratio - 65%.

B.7 Montaup Electric Company (MEC)

All debt and equity securities of MEC are owned by Blackstone Valley Electric Company, Brockton Edison Company, and Fall River Electric Light Company, which in turn are all wholly owned subsidiaries of Eastern Utilities Associates (EUA). MEC supplies electricity to the three EUA companies which jointly service several towns and rural areas of Rhode Island and Massachusetts. Its operating revenues rose from $57.8 million in 1973 to $98.8 million in 1974, while net income increased from $3.8 million to $5.1 million. Invested capital at December 31, 1974 amounted to $78.9 million and consisted of 50.2% long-term debt, 1.9% preferred stock, and 47.9% common equity.

The return on common equity in 1974 was 13.7%, compared with 12.1% in 1973. Pretax coverages of long-term interest and total interest charges in 1974 were 4.7 times and 2.0 times, respectively, versus coverages of 4.5 times and 2.8 times in 1973. As noted above, MEC's securities are privately held and, therefore, are not rated.

MEC plans to finance its 2.15% share of Pilgrim 2 by short-term bank borrowing with subsequent refinancing through the sale of debentures and/or common stock to its above-mentioned owner companies, who would finance their acquisition of MEC's securities through the sale of long-term debt or preferred stock to the public or through the sale of common stock to the parent company, Eastern Utilities Associates. Available sources of funds in 1974 totaled $25.5 million and were derived from $.5 million of internally generated cash and a $25.0 million increase in notes payable. Internally generated cash in 1974 represented 2.1% of total construction expenditures.

At our request, MEC supplied a projected sources of funds statement for the 1975-1982 period, with underlying assumptions, demonstrating how the requisite funds might be raised. MEC's internally generated cash over this period is projected to be 15.1% of total construction expenditures and 132% of its expected outlays for Pilgrim 2. We have reviewed MEC's projections and find them within the zone of reasonableness.

2201 315

Applicant: Montaup Electric Company Nuclear Plant: Pilgrim Station 2

Sources of Funds for System-Wide Construction Expenditures During Period of Construction of Subject Nuclear Power Plant
(millions of dollars)

	Construction Years of Subject Nuclear Power Plant							
Security issues and other funds	1975	1976	1977	1978	1979	1980	1981	1982
Common stock	$ 7.7	$15.0	$ -	$12.8	$ -	$20.0	$ -	$20.0
Preferred stock	-	-	-	-	-	-	-	-
Long-term debt	23.0	-	-	19.2	30.0	-	30.0	-
Notes payable	(11.2)	(5.7)	9.6	(17.5)	(13.7)	(.3)	(3.1)	11.0
Contributions from parent-net	-	-	-	-	-	-	-	-
Other funds	-	-	-	-	-	-	-	-
Total	$19.5	$ 9.3	$ 9.6	$14.5	$16.3	$19.7	$26.9	$31.0
Internal funds								
Net income	2.7	4.5	6.0	7.5	8.4	8.8	9.9	10.4
Less:								
Preferred dividends	-	-	-	-	-	-	-	-
Common dividends	2.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Retained earnings	0	.9	2.4	3.9	4.8	5.2	6.3	6.8
Deferred taxes	.2	.3	.3	.3	.3	.3	.3	.4
Investment tax credit	-	-	-	-	-	-	-	-
Depreciation and amort.	2.1	2.6	2.8	2.9	3.1	3.6	4.1	4.6
Less: AFDC	3.8	1.1	2.1	3.6	4.5	4.8	5.6	6.8
Total	(1.5)	2.7	3.4	3.5	3.7	4.3	5.1	5.0
TOTAL FUNDS	$18.0	$12.0	$13.0	$18.0	$20.0	$24.0	$32.0	$36.0
Construction expenditures*								
Nuclear power plants	$ 5	$ 8	$12	$17	$19	$19	$29	$23
Other	13	4	1	1	1	5	3	13
Total const. exp's.	$18	$12	$13	$18	$20	$24	$32	$36
Subject nuclear plant	$ .5	$ 1.0	$ 2.4	$ 5.2	$ 4.0	$ 3.2	$ 2.3	$ 1.2

*Exclusive of AFDC (allowance for funds used during construction)

4/22/75

2201 316

Montaup Electric Company

Assumptions Made in Preparation of Sources of Funds Statement

(1) The Company will earn 14% on common stock equity.

(2) New long-term debt will have an interest cost of 8%.

(3) Common stock will be sold to Montaup's owner companies at par value.

B.8 New Bedford Gas and Edison Light Company (NBG&EL)

NBG&EL, a subsidiary of New England Gas and Electric Association, supplies electricity and gas to numerous communities in Southeastern Massachusetts. Its operating revenues increased from $75.8 million in 1973 to $110.4 million in 1974, although net income decreased from $3.3 million to $3.0 million. Invested capital at December 31, 1974 totaled $104.5 million, and consisted of 47.3% long-term debt and 52.7% common equity.

The return on average common equity for 1974 was 5.5%, compared with 6.9% for 1973. Pretax coverages of long-term interest and total interest charges for 1974 were 3.1 times and 1.9 times, respectively, versus coverages of 4.2 times and 2.2 times in 1973. NBG&EL's long-term notes are rated 'Aa' by Moody's and 'A' by Standard and Poor's.

NBG&EL plans to finance its 1.53% ownership share in Pilgrim 2 by the use of internally generated cash and short-term bank borrowings which will be refinanced with the proceeds from the sale of debt or equity securities. Permanent financing will be on a 50/50 debt-equity ratio basis since NBG&EL's Indenture requires that debt capitalization not exceed equity capitalization. Available sources of funds totaled $22.2 million in 1974 and were derived from $5.8 million of internally generated cash and a $16.4 million increase in notes payable, net of refunding requirements.

At our request, NBG&EL supplied a projected sources of funds statement for the period 1975-1982, with underlying assumptions, demonstrating how the requisite funds might be raised. NBG&EL's internally generated cash over this period is projected to be 20.1% of total construction expenditures and 330% of its expected outlays for Pilgrim 2 (net of allowance for funds used during construction). We have reviewed NBG&EL's projections and find them within the zone of reasonableness.

2201 319

NEW BEDFORD GAS AND EDISON LIGHT COMPANY

SOURCES OF FUNDS FOR SYSTEM-WIDE CONSTRUCTION EXPENDITURES
DURING PERIOD OF CONSTRUCTION OF SUBJECT NUCLEAR POWER PLANT

(Thousands of Dollars)

	Construction Years of Subject Nuclear Power Plant							
	1975	1976	1977	1978	1979	1980	1981	1982
Security issues and other funds								
Common stock	$ 9 000	$ -	$ 28 500	$ -	$ 21 000	$ -	$ 24 500	$
Preferred stock	-	-	-	-	-	-	-	-
Long-term debt	14 000	-	28 500	-	21 000	-	24 500	-
Notes payable	(12 400)	16 200	(39 100)	20 600	(15 300)	20 600	(21 600)	27 000
Contributions from parent - net	2 550	3 750	(1 200)	5 100	(9 300)	2 700	(3 600)	2 250
Other funds	-	-	-	-	-	-	-	-
Total	13 150	19 950	16 700	25 700	17 400	23 300	23 800	29 250
Internal Funds								
Net Income	3 835	4 387	3 909	3 526	2 179	2 835	3 362	3 720
Less:								
Preferred dividends	-	-	-	-	-	-	-	-
Common dividends	3 422	4 168	3 714	3 350	2 070	2 693	3 194	3 534
Retained earnings	(4 167)	(4 955)	4 867	(8 718)	611	(4 034)	(3 917)	(5 432)
Deferred taxes	1 649	1 816	1 943	2 323	2 568	2 798	3 018	3 627
Investment tax credit	572	472	468	1 104	693	538	617	1 730
Depreciation and amort.	5 172	5 683	6 163	6 858	7 758	8 624	9 713	11 125
Less: AFDC	604	745	1 280	1 762	2 206	2 693	2 744	3 071
Total	3 035	2 490	12 356	(19)	9 533	5 375	6 855	8 165
TOTAL FUNDS	$ 16 185	$ 22 440	$ 29 056	$ 25 681	$ 26 933	$ 28 675	$ 30 655	$ 37 415
Construction Expenditures*								
Nuclear power plants	$ 1 368	$ 2 713	$ 4 930	$ 6 865	$ 6 970	$ 7 107	$ 7 353	$ 12 240
Other	14 817	19 727	24 126	18 816	19 963	21 568	23 302	25 175
Total const. exp's.	16 185	22 440	29 056	25 681	26 933	28 675	30 655	37 415
Subject Nuclear Plant	$ 410	$ 734	$ 1 703	$ 3 684	$ 2 921	$ 2 460	$ 1 713	$ 842

*Exclusive of AFDC (Allowance for funds used during construction)

2201 320

NEW BEDFORD GAS AND EDISON LIGHT COMPANY

The "Sources of Funds" statement enclosed includes the following basic assumptions:

1. Return on common equity - 11%.

2. New long-term debt interest rate - 10%.

3. Common stock sold at book value.

4. Dividend payout ratio - 95%.

5. Construction expenditures for the 1975-79 period are based on current budget forecasts. The years 1980 to 1982 reflect an increase in construction expenditures of 8% per year, exclusive of nuclear projects plus current estimates of nuclear project costs.

B.9 New England Power Company (NEPCO)

NEPCO is a subsidiary of New England Electric System and serves principally as a wholesale supplier of electricity, primarily to affiliated companies. Operating revenues increased from $219.2 million in 1973 to $372.8 million in 1974 and net income rose to $28.6 million from $24.4 million. Invested capital at December 31, 1974 amounted to $654.1 million and consisted of 49.7% long-term debt, 13.1% preferred stock, and 37.2% common equity. If this capital structure is proformed for the early 1975 first mortgage bond offering of $80 million, the common equity ratio declines to 33.1%.

The return on common equity for 1974 was 10.2%, compared with 9.4% for 1973. Pretax coverages of long-term interest and total interest charges for 1974 were 3.18 times and 2.03 times, respectively, compared with 3.41 times and 2.46 times for 1973. NEPCO's first mortgage bonds are rated "AA" by Moody's and "A" by Standard and Poor's.

NEPCO plans to finance its 11.16% share of Pilgrim 2 by short-term borrowings which would subsequently be permanently financed by the sale of long-term debt, preferred stock, common stock, and capital contributions from New England Electric System. Available funds from these sources in 1974 totaled $93.6 million and were derived from a $30 million common stock issue and a $63.6 million increase in notes payable. The $22.9 million of internally generated cash in 1974 represented 25% of construction expenditures (net of allowance for funds used during construction).

At our request, NEPCO supplied a projected sources of funds statement for the 1975-82 period, with underlying assumptions, demonstrating how the requisite funds might be raised. NEPCO's internally generated cash over this period is projected to be 15.7% of total construction expenditures and 268.6% of its expected outlays for Pilgrim 2.

NEPCO's resale rate to its affiliates and others is subject to the jurisdiction of the Federal Power Commission. According to an FPC order issued November 30, 1973, approving a settlement agreement certified by the Presiding Administrative Law Judge, NEPCO's rates were set to produce an 11.75% return on common equity. On November 29, 1974, NEPCO filed an application with the FPC for an increase in wholesale rates of approximately $22.7 million. Based upon NEPCO's recent earnings performance and current regulatory trends, which would seem to indicate that the FPC will grant rates designed to produce a higher return on common equity than allowed previously, we believe that the 13% return on common equity being projected over the period of construction is within the zone of reasonableness.

APPLICANT: NEW ENGLAND POWER COMPANY NUCLEAR PLANT: PILGRIM II STATION

Sources of Funds for System-Wide Construction Expenditures During Period of Construction of Subject Nuclear Power Plant
(millions of dollars)

Security issues and other funds	Construction Years of Subject Nuclear Power Plant 1975	1976	1977	1978	1979	1980	1981	1982
Common stock	$ 25	$ 20	$ 20	$ 50	$ 70	$ 100	$ 125	$ 95
Preferred stock	25	10	10	20	30	45	50	45
Long-term debt	80	20	45	80	100	155	205	150
Notes payable	(80.2)	.8	12.5	(9.2)	(2.8)	(.5)	12	.7
Contributions from parent-net								
Other funds								
Total	$49.8	$50.8	$87.5	$140.8	$197.2	$299.5	$392.0	$290.7
Internal Funds								
Increases in Working Capital	(2.5)	(1.0)	(1.6)	(1.5)	(1.9)	(1.1)	(0.9)	(1.0)
Retained earnings	2.1	3.1	3.7	4.5	5.6	7.1	8.7	10.4
Deferred taxes	7.6	8.2	10.8	15.6	24.4	37.5	41.4	41.9
Investment tax credit	3.5	.7	1.2	.9	5.3	12.1	4.6	21.3
Depreciation and amort.	22.0	22.5	23.4	25.0	28.6	34.9	47.2	70.9
Less: AFDC	6.3	8.0	14.2	23.1	31.8	44.0	[illegible]	74.7
Total Internal Funds	26.4	25.5	23.3	21.4	30.2	46.5	[illegible]	68.8
TOTAL FUNDS	$76.2	$76.3	$110.8	$162.2	$227.4	$346.0	$430.6	$359.5
Construction expenditures*								
Nuclear power plants (1)	$35.2	$54.7	$ 88.8	$133.8	$176.4	$235.2	$279.3	$232.5
Other	41.0	21.6	22.0	28.4	51.0	110.8	151.3	127.0
Total const. exp's.	$76.2	$76.3	$110.8	$162.2	$227.4	$346.0	$430.6	$359.5
Subject nuclear plant (1)	$ 4.8	$ 5.3	$ 12.3	$ 26.9	$ 21.7	$ 16.8	$ 11.0	$ 5.7

2201 324

* Exclusive of AFDC (allowance for funds used during construction)

(1) NEPCO is currently negotiating with Green Mountain Power Company to acquire its ownership interest in the subject plant. These negotiations are still in progress. However, for purposes of this schedule only, Green Mountain Power Company's share will be included in NEPCO's share.

4-14-75

The Company's construction budgets and related projections of sources of funds are under continuing review and are subject to revision from time to time.

A new "Sources of Funds" statement is provided. The basic assumptions underlying this schedule follow.

1. The Company is a subsidiary of New England Electric System (NEES) and as such pays a larger percentage of its earnings to NEES than would be the case if it were a separate operating company. NEES invests funds from its retained earnings and new common issues in NEPCO through the purchase of the Company's common stock.
2. The Company will earn at least 13% on common stock equity.
3. Construction costs will rise 5% per year due to inflation.
4. Due to the uncertainties regarding future load growth, the Company has adopted a "band width" approach to capacity planning. This band width spans a range of load growth from 4% to 8% a year after 1976. The Company's firm commitments to date are designed to meet a load growth on the low side of the band width. However, the Company has taken options on generating equipment which, if exercised, will permit it to meet the high side of the band width. On the attached statement, we have assumed construction expenditures based upon load growth of about 8% a year after 1976.
5. To further increase internal funds, on November 29, 1974, the Company filed an application with the FPC for an increase in rates which would include construction work in progress in rate base and eliminated the alternative of recording allowance for funds used during construction. This proposed change is not reflected on the attached Source of Funds statement.

B.10 Public Service Company of New Hampshire (PSCNH)

PSCNH supplies electricity to approximately 84% of the population of the state of New Hampshire. Operating revenues increased from $111.5 million in 1973 to $155.9 million in 1974, while net income rose to $16.3 million from $14.3 million. Invested capital at December 31, 1974 amounted to $394.9 million and consisted of 53.4% long-term debt, 14.1% preferred stock, and 32.5% common equity.

The return on common equity for 1974 was 11.3% compared with 10.0% in 1973. Pretax coverages of long-term interest and total interest charges in 1974 were 2.83 times and 2.10 times, respectively, versus 2.90 times and 2.33 times in 1973. PSCHN's publicly held debentures are rated "BBB" and and "Baa" by Standard and Poor's and Moody's,respectively.

PSCNH plans to finance its 3.47% share of Pilgrim 2 by the use of internally generated cash and the issuance of bonds, preferred stock and common stock. Available funds from these sources in 1974 totaled $70.2 million and were derived from $16.5 million of internally generated cash, and $53.7 million of security issuances and other funds. Internally generated cash in 1974 represented 38.2% of 1974 construction expenditures (net of allowance for funds used during construction).

At our request, PSCNH supplied a projected sources of funds statement for the 1975-82 period, with underlying assumptions, demonstrating how the requisite funds might be raised. PSCNH's internally generated cash over this period is projected to be 20.6% of total construction expenditures and

653% of its expected outlays for Pilgrim Unit 2. We have reviewed PSCNH's projections and find them within the zone of reasonableness.

2201 327

Applicant: PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE   Nuclear Plant: PILGRIM STATION UNIT NO. 2

Sources of Funds for System-Wide Construction Expenditures During Period of Construction of Subject Nuclear Power Plant (See Note)

(Thousands of Dollars)

	Construction Years of Subject Nuclear Power Plant							
Security Issues and Other Funds	1975	1976	1977	1978	1979	1980	1981	1982
Common Stock	$ 5,000	$17,000	$ 31,000	$ 49,000	$ 49,000	$ 30,000	$23,000	$13,000
Preferred Stock	15,000	13,000	19,000	27,000	27,000	20,000	17,000	-
Long-Term Debt	20,000	45,000	65,000	94,000	94,000	70,000	60,000	32,000
Notes Payable	(26,128)	(25,470)	(14,687)	27,816	45,936	21,672	(34,774)	(26,807)
Total	13,872	49,530	100,313	197,816	215,936	141,672	65,226	18,193
Internal Funds								
Net Income	24,000	26,920	32,700	41,640	52,500	62,180	69,960	76,040
Less: Preferred Dividends	4,000	5,120	6,400	8,240	10,400	12,280	13,760	14,440
Common Dividends	10,000	14,200	17,100	21,700	27,400	32,400	36,500	40,000
Retained Earnings	10,000	7,600	9,200	11,700	14,700	17,500	19,700	21,600
Deferred Taxes	1,900	3,300	6,000	11,340	19,100	24,057	13,300	14,500
Investment Tax Credit	3,500	1,000	950	1,900	2,000	12,700	1,200	12,700
Depreciation	16,000	16,800	17,700	18,900	20,200	23,600	33,200	37,900
Allowance for Funds	(4,200)	(7,400)	(13,300)	(25,200)	(42,400)	(53,500)	(29,500)	(32,200)
Sinking Fund & Working Capital	9,800	(2,600)	(2,800)	(2,800)	(2,800)	(2,800)	(2,800)	(2,800)
Total	$37,000	$18,700	$ 17,750	$ 15,840	$ 10,800	$ 21,557	$35,100	$51,700
TOTAL FUNDS	$50,872	$68,230	$118,063	$213,656	$226,736	$163,229	$100,326	$69,893
Construction Expenditures*								
Nuclear Power Plants	$28,220	$41,800	$ 79,674	$166,231	$178,659	$113,479	$ 46,876	$14,893
Other	22,652	26,430	38,389	47,425	48,077	49,750	53,450	55,000
Total	$50,872	$68,230	$118,063	$213,656	$226,736	$163,229	$100,326	$69,893
Subject Nuclear Plant	$ 828	$ 1,643	$ 3,841	$ 8,332	$ 6,429	$ 5,210	$ 3,724	$ 1,893

NOTE: The information shown on this sheet is not a forecast of what will actually occur. It is a projection based on anticipated construction expenditures and capital requirements and on certain assumptions, including assumptions as to the cost of additional capital and as to the adequacy of revenues during the period.

*Exclusive of AFDC.

2201 328

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

BASIC ASSUMPTIONS OF SOURCE OF FUNDS

1. The Company will earn 14% on common stock equity.
2. New long-term debt and preferred stock will have an interest cost of 8%.
3. Common stock will be sold at book value.
4. Common stock dividend payout ratio is 65%.
5. Continuation of an 8% rate of inflation as to both construction labor and materials has been assumed. Better control of the rate of inflation by the nation would reduce construction costs.
6. Includes Investment Tax Credit at 4%.

2201 329

4/2/75

B.11 United Illuminating (UI)

UI supplies electricity to the southwestern part of Connecticut. Operating revenues increased from \$116.8 million in 1973 to \$173.8 million in 1974, while net income rose to \$20.6 million from \$14.6 million. However, \$4.8 million of this increase was attributable to a change in the method of accounting for fossil fuel costs - \$1.9 of which represented the cumulative effect of the change prior to January 1, 1974. Invested capital at December 31, 1974 amounted to \$349.3 million and consisted of 53.7% long-term debt, 15.7% preferred stock, and 30.6% common equity. If this capital structure is proformed for the early 1975 common stock offering of 600,000 shares, the common equity ratio rises to 32.9%.

The return on common equity for 1974 was 15.3%, excluding the cumulative effect to January 1, 1974 of the change in fuel cost accounting. The return on common equity for 1973 would have been 14.8%, assuming this accounting change had been in effect and after the restatement of the financial data to reflect the flow-through of additional tax benefits resulting from the adoption of shorter tax depreciation lives for certain plant. Pretax coverages of long-term interest and total interest charges in 1974 were 3.08 times and 2.33 times, respectively, versus a restated 3.05 times and 2.74 times in 1973. UI's publicly held debentures are rated "A" by both Moody's and Standard and Poor's.

UI plans to finance its 3.3% share of Pilgrim 2 by the use of internally generated cash and the issuance of debentures, preferred stock and common stock. Available funds from these sources in 1974 totaled \$75.2 million and were derived from \$12.5 million of internally generated cash, \$25 million of security issuances, and \$37.7 million of notes payable. Internally generated cash in 1974 represented 18.8% of 1974 construction expenditures (net of allowance for funds used during construction).

At our request, UI supplied a projected sources of funds statement for the 1975-82 period, with underlying assumptions, demonstrating how the requisite funds might be raised. UI's internally generated cash over this period is projected to be 44.4% of total construction expenditures and 619% of its expected outlays for Pilgrim 2. We have reviewed UI's projections and find them within the zone of reasonableness.

2201 331

Applicant: The United Illuminating Company Nuclear Plant: Pilgrim Nuclear Station

Sources of Funds for System-Wide Construction Expenditures During Period of Construction of Subject Nuclear Power Plant (millions of dollars)

	Construction Years of Subject Nuclear Power Plant							
	1975	1976	1977	1978	1979	1980	1981	1982
Security issues and other funds								
Common stock	$21.4	$ -	$15.0	$ -	$25.0	$ -	$ -	$ -
Preferred stock	10.0	-	15.0	17.0	-	-	25.0	-
Long-term debt	30.0	-	30.0	38.0	40.0	45.0	-	-
Notes payable	(40.4)	31.8	(4.3)	6.4	(6.2)	1.4	(24.1)	1.2
Contributions from parent-net	-	-	-	-	-	-	-	-
Other funds	6.5	(4.3)	(5.7)	(9.3)	(6.9)	(11.6)	3.6	(14.1)
Total	27.5	27.5	50.0	52.1	51.9	34.8	4.5	(12.9)
Internal funds								
Net Income	22.6	25.6	27.9	33.4	37.9	43.2	48.4	52.8
Less:								
preferred dividends	4.2	4.5	5.1	6.6	7.9	7.9	10.0	10.5
common dividends	10.3	11.3	11.7	13.1	13.9	16.0	16.0	16.0
Retained earnings	8.1	9.8	11.1	13.7	16.1	19.3	22.4	26.3
Deferred taxes	(1.1)	(1.1)	(1.1)	(1.0)	.1	.2	.2	.2
Investment tax credit	-	-	-	-	-	-	-	-
Depreciation and amortization	13.8	16.3	16.9	17.2	16.0	19.4	22.7	26.0
Less: AFDC	(6.2)	(3.6)	(7.2)	(11.4)	(15.7)	(16.8)	(11.8)	(11.0)
Total	14.6	21.4	19.7	18.5	16.5	22.1	33.5	41.5
Total Funds	$42.1	$48.9	$69.7	$70.6	$68.4	$56.9	$38.0	$28.6
Construction expenditures*								
Nuclear power plants	$15.7	$32.9	$55.3	$58.8	$55.3	$42.4	$23.8	$13.3
Other	26.4	16.0	14.4	11.8	13.1	14.5	14.2	15.3
Total const. exp's.	$42.1	$48.9	$69.7	$70.6	$68.4	$56.9	$38.0	$28.6
Subject nuclear plant	$ .8	$ 1.6	$ 3.7	$ 7.9	$ 6.4	$ 5.0	$ 3.2	$ 1.7

* Exclusive of AFDC (allowance for funds used during construction). Nuclear power plants construction include fuel costs.

03/03/75

2201 332

THE UNITED ILLUMINATING COMPANY

Assumptions Used in Statement of Sources of Funds
for System-wide Construction Expenditures During Period
of Construction of Pilgrim Nuclear Station

1. Projections of construction expenditures for the four nuclear power plants in which the Company is a participant (Seabrook Nos. 1 and 2, Millstone No. 3, Pilgrim No. 2) during this period are based upon most recent estimates received from the participants responsible for construction of such plants. No expenditures for other new generating units are included in construction expenditures during the period 1976-1982. Either escalation of the cost of the four nuclear plants or additions to the Company's construction program for the period of expenditure for any additional generating unit will increase the funds required. Cost of nuclear fuel for the four nuclear plants is included in the construction expenditures; thus fuel leasing, if utilized, would reduce the amount of capital to be raised by the Company. Projections for construction expenditures other than nuclear power plants during the period 1976-1982 are based on a projected 4% annual rate of load growth. That rate of growth is considered the lower edge of the band width containing the probable rate of growth and any growth in excess of 4% will increase these expenditures.

2. The amount of internal funds provided is based upon the assumption that sufficient increases in revenues will be authorized without delay through the regulatory process throughout the period such that the Company will earn a 15% return on average common stock equity. There is, of course, no assurance that such a rate of return will be allowed throughout the period or that, even if allowed, such rate of return will be earned in view of regulatory and other factors. Dividends per share are assumed to remain at the current level. While the Connecticut Public Utilities Commission has under consideration various proposals to authorize the normalization method of accounting for tax benefits, there is no assurance that the Commission will adopt any of such proposals and these calculations are based on the flow through method presently required by that Commission.

3. Financing assumptions reflect actual plans for early 1975 and budgeted plans for the remainder of the year. Thereafter the sources of external funds have been based on the following assumptions:

   (a) Capitalization ratios in the range of 47 to 53% for long-term debt, 14 to 17% for preferred stock, and 31 to 37% for common stock equity.

   (b) The balances of short-term notes payable have been maintained at reasonable levels.

   (c) Interest costs of 7½% for short-term borrowings.

   (d) Interest costs of 10% for long-term debt.

   (e) Preferred stock dividend rate of 10½%.

   (f) Net proceeds of $20 3/8 per share before expenses of issue for common stock to be sold in late 1975; sales thereafter assumed prices of five times the prior year's earnings per share, discounted by 15%.

The Company has no assurance that any of these assumptions will be realized or that financing on any other basis will in fact be available throughout the period.

B.12 Western Massachusetts Electric Company (WMECO)

WMECO, a wholly-owned subsidiary of Northeast Utilities, supplies electricity to the western part of Massachusetts. Operating revenues increased from $90.8 million in 1973 to $119.1 million in 1974, while net income rose to $13.3 million from $12.1 million. However, $1.7 million of this increase was attributable to a change in the method of accounting for fossil fuel costs prior to January 1, 1974. Invested capital at December 31, 1974 amounted to $306.7 million and consisted of 50.2% long-term debt, 11.4% preferred stock, and 38.4% common equity. If this capital structure is proformed for the early 1975 first mortgage bond offering of $10 million, the common equity ratio drops to 37.2%.

The return on common equity for 1974 was 9.2%, including the cumulative effect to January 1, 1974 of the change in fuel cost accounting. The return on common equity for 1973 would have been 9.1% assuming this accounting change had been in effect. Pretax coverages of long-term interest and total interest changes in 1974 were 2.54 and 1.78, respectively, versus a restated 2.63 times and 2.02 times in 1973. WMECO's first mortgage bonds are rated Baa by Moody's and BBB by Standard and Poor's.

WMECO plans to finance its 4.63% share in Pilgrim 2 by the use of internally-generated cash and by bank loans which will be refunded with debt and equity securities and capital contributions by Northeast Utilities. Available funds from these sources for 1974 totaled $50.6 million and were derived from $5.5 million of internally-generated cash, $24.9 million of security issuances, and $20.2 million of notes payable, capital contributions and other funds. Internally-generated cash in 1974 represented 14.0% of 1974 construction expenditures (net of allowance for funds used during construction).

At our request, WMECO supplied a projected soruces of funds statement for the 1975 - 1980 period, with underlying assumptions, demonstrating how the requisite funds might be raised. According to WMECO, no current projections have yet been made for 1981 - 1982. WMECO's internally generated funds over the 1975 - 1980 period are projected to 26.9% of total construction expenditures and 248% of its expected outlays for Pilgrim 2 (inclusive of allowance for funds used during construction). We have reviewed WMECO's projections and find them within the zone of reasonableness.

2201 336

Applicant: Western Massachusetts Electric Company Nuclear Plant: Pilgrim Station Unit No. 2

Sources of Funds for System-Wide Construction Expenditures During Period of Construction of Subject Nuclear Power Plant
(millions of dollars)

Security issues and other funds	Construction Years of Subject Nuclear Power Plant							
	1975	1976	1977	1978	1979	1980	1981 (1)	1982 (1)
Common stock	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Preferred stock	0.0	10.0	5.0	5.0	5.0	5.0	N/A	N/A
Long-term debt - net	10.0	55.0	20.0	25.0	25.0	30.0	N/A	N/A
Notes payable - net	(1.0)	(55.0)	-	-	-	-	-	-
Contribution from parent - net	20.0	15.0	0.0	0.0	0.0	0.0	N/A	N/A
Other funds - net	9.0	5.0	1.0	(2.0)	(1.0)	(1.0)	N/A	N/A
Total	38.0	30.0	26.0	28.0	29.0	34.0	N/A	N/A
Internal funds								
Net income	11.0							
Less:								
preferred dividends	3.0							
common dividends	12.0							
Retained earnings	(4.0)	4.0	1.0	3.0	1.0	0.0	N/A	N/A
Deferred taxes	3.0	4.0	4.0	4.0	4.0	6.0	N/A	N/A
Investment tax credit	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A
Depreciation and amort.	10.0	12.0	12.0	12.0	15.0	17.0	18.0	20.0
Total	9.0	20.0	17.0	19.0	20.0	23.0	N/A	N/A
TOTAL FUNDS	$47.0	$50.0	$43.0	$47.0	$49.0	$57.0	$N/A	$N/A
Construction expenditures (2)								
Nuclear power plants	$33.0	$34.0	$31.0	$34.0	$29.0	$17.0	$24.0	$43.0
Other	14.0	16.0	12.0	13.0	20.0	40.0	N/A	N/A
Total const. exp's.	$47.0	$50.0	$43.0	$47.0	$49.0	$57.0	$N/A	$N/A
Subject nuclear plant	$ 1.4	$ 2.6	$ 5.9	$12.6	$11.0	$10.0	$ 8.6	$ 5.5

(1) N/A means not available. For periods after 1980 we have no current projection of construction expenditures other than for our major generating units and consequently show no estimate of total financing requirements for 1981 and 1982. Our expectation is that the financing assumptions applicable to the earlier years would also apply in these years.

(2) Inclusive of AFDC (allowance for funds used during construction) at 9% rate on expenditures after 1974. Figures exclusive of AFDC not currently available.

2201 037

SUPPLEMENTAL GENERAL AND FINANCIAL INFORMATION SUBMITTED
BY WESTERN MASSACHUSETTS ELECTRIC COMPANY (WMECO)
PILGRIM STATION UNIT NO. 2
DOCKET NO. 50-471

Question 11. (1) Enclosed are 75 copies of the final prospectus for the issuance in January, 1975 of mortgage bonds by WMECO.

(2) Enclosed are 75 copies of the WMECO 1974 Annual Report, which includes the requested income statement and balance sheet. Reference is made also to the 1974 Annual Report of Northeast Utilities, the Holding Company System of which WMECO and CL&P are a part, 75 copies of which Report are included with this filing.

(3)(a) Enclosed are 75 copies of the schedule entitled "Sources of Funds For System-Wide Construction Expenditures During Period Of Construction Of Subject Nuclear Power Plant", showing a projection for WMECO of one potential manner in which WMECO may finance its expected construction costs during this period. It should be understood that these figures are based on actual financing plans only for 1975 and for the period of 1976-1980 are based upon the assumptions described below and assuming normal conditions in the capital market. Market conditions are necessarily very uncertain. Accordingly, specific future detailed financing plans of WMECO simply cannot be well enough defined at this time for such a schedule as this to be very meaningful. The figures in the schedule are based on the assumption after 1975 that 52% of WMECO's capital requirements are to be supplied by long-term debt and 8% by preferred stock. The remaining 40% is assumed to be provided by internally generated funds except in 1976, when a capital contribution is required to help pay off outstanding notes payable. Those internal funds resulting from depreciation and amortization, and deferred income taxes have been roughly projected based on past experience and recognizing the additional effects in the future after each new generating unit goes into service. Investment tax credit adjustments are expected to be minimal during this period. Retained earnings have been projected simply as the difference between total projected internal funds and those produced by depreciation and amortization plus deferred income taxes. No actual earnings forecasts have been made, reflecting this proposed construction program; any such forecasts would be highly dependent on the assumed level of rate relief during the period. The caption "Other funds--net" is used as a balancing account to reflect for 1975 other cash requirements outside the construction program net of other internally generated funds not included in the list of "Internal funds". After 1975 the figures are simply to balance the rounding assumed in the figures for net permanent capital supplied. Nothing is shown for "Notes payable" except for the repayment during 1975 and 1976 of those outstanding at the beginning of 1975, since the assumption is made that all such interim financing is converted into permanent capital. While the resulting schedule may be viewed as speculative because of the degree of detail called for, it is derived from the more realistic WMECO expectation to finance in general, approximately 50-55 percent of the cost of its plant investment with long-term debt, 10-15 percent with preferred stock, the remainder to be financed by internally generated funds and capital contributions.

APPENDIX C

ERRATA
NOVEMBER 3, 1975
PILGRIM NUCLEAR GENERATING STATION
UNIT NO. 2

Page	Line	Change
1-1	last	Delete "Amendments 1 through 18" and replace with "Amendments 1 through 19".
1-2	14	Insert "be" between "will" and "able".
1-9	—	After "(9)" delete entire sentence substitute "(Deleted)".
2-13	1	Delete "25,00" and substitute "25,000".
2-13	24	Delete "district" and substitute "districts".
2-14	16	Delete "Plimouth" and substitute "Plymouth"
2-22	8-11	Delete paragraph beginning with "The X/Q values"... and replace with "The X/Q values in seconds per cubic meter at the outer boundary of the low population zone of 2400 meters were calculated to be 2.3×10^{-5} for the 0-8 hours period, 1.5×10^{-5} for the 8-24 hour period, 5.6×10^{-6} for the 1-4 day period, and 1.4×10^{-6} for the 4-30 period".
2-26	4	Delete "applicant" and substitute "applicants".
2-30	15	Delete "relatively" and substitute "relative".
3-22	9	Following the sentence ending with "analyses", add "or by previous qualification tests and/or analyses for comparable environmental conditions."
4-12	9-10	Between "combinations." and "will", insert the following "We have concluded that the use of the proposed analytical techniques.."

2201 339

Page	Line	Change
5-7	22	Insert "steam generator" between "through" and "safety"
5-9	11	Delete "combination" and substitute "combinations".
5-11	9-11	Delete from after "radioactivety monitor" to end of sentence and substitute "and containment pump and sump pump system."
6-27	3	Delete "absorption" and substitute "adsorption".
6-29	19	Delete "propsed" and substitute "proposed".
7-7	10	Delete "Air" from item (8).
8-4	17	Between "proposed" and "d-c" insert "safety related".
9-4	24	To the sentence which ends in "isolation valves.", add "upstream of all heat exchangers."
9-4	24	Before the sentence which begins with "System", add the following sentence "Standpipes are provided downstream of the safety related heat exchanges to provide redundant safety related discharge paths in the event that the normal discharge path is blocked".
9-10	8	Delete "spray" and substitute "sprinkler".
9-11	7	Delete "in these areas." and substitute "for the control room, the computer room, the switchgear battery and auxiliary panel rooms."
10-2	18	Delete "main steam Line tunnel." and substitute "auxiliary building".
11-18	8	After "detectors" insert "or Geiger Mueller detectors, or scintillation and halogen filters".
11-18	9	To the sentence ending in "effluents" add "as appropriate."

2201 340

Page	Line	Change
15-5	5	Delete "compments" and substitute "components"
15-8	—	Under the heading "EXCLUSION AREA", Change to "(Rem at 441 meters)". Under the heading "LOW POPULATION ZONE", delete "(6840 meters)" and substitute "(Rem at 2400 meters)"
19-1	12	Change "no diversion or special" to read "no diversion of special".
A-6	22	Between the events of April 29, 1975 and May 15, 1975, insert the following "May 2, 1975 Submittal of Amendment No. 18, consisting of changes to various sections of the PSAR "

2201 341