

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

RE: BOSTON EDISON COMPANY, et al.,
Pilgrim Nuclear Generating Station,
Unit No. 2

)
)
) Docket No. 50-471
)
)

TESTIMONY OF PAUL F. LEVY
ON BEHALF OF THE
COMMONWEALTH OF MASSACHUSETTS



COMMONWEALTH OF MASSACHUSETTS

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May 9, 1979

Q. Please state your name, address, and current occupation.

A. My name is Paul F. Levy. I live at 94 Parker Street, Newton Center, Massachusetts. I am currently Director of the State of Arkansas Department of Energy.

Q. Please summarize your educational background and your previous employment and professional experience.

A. I graduated from the Massachusetts Institute of Technology in February, 1974 with an S.B. in Economics, an S.B. in Urban Studies and Planning, and a Master's in City Planning. While at M.I.T., I served as a staff assistant to the Governor's Emergency Energy Task Force during the winter of 1973-74, helping to formulate plans to deal with the Oil Embargo. I also served as a Research Assistant in the M.I.T. Energy Laboratory from February, 1973 to June, 1974, performing work on regional energy economics.

In July, 1974, I was appointed Deputy Director of the Massachusetts Energy Policy Office and served in that capacity until January, 1978. Among my responsibilities were to advise the Governor and the Cabinet on issues pertaining to electric utility financing, capacity expansion, and rate design. I also served as Executive Director of the Governor's Public Power Corporation Study Commission, which studied the feasibility and benefits of creating a public power authority for Massachusetts. I also had other administrative and programatic responsibilities in the Energy Policy Office.

In January, 1978, I was appointed Commissioner of the Massachusetts Department of Public Utilities. In June, 1978, I was appointed Chairman of the Massachusetts Department of Public Utilities and served in that capacity until January, 1979.

In February, 1979, I was appointed a Fellow at the Center for Public Service at Brandeis University, and I served in that capacity, as well as performing consultant work, until this month, when I was appointed Director of the Arkansas Department of Energy.

Q. Have you testified previously before regulatory or legislative bodies?

A. Yes. I testified before this body on the comparative economics of coal-fired and nuclear generating facilities. I have also testified before the Massachusetts Department of Public Utilities on the subject of electricity rate structures. I have testified before the Federal Energy Administration on a number of topics. In addition, I was invited to testify before the U.S. Senate Subcommittee on Energy Conservation and Regulation on portions of the then-proposed National Energy Act. I have also testified on a number of occasions before the Massachusetts Legislature's Committee on Government Regulations.

Q. Have you published any articles, papers, or reports on matters relating to electric utilities?

A. Yes. My Master's thesis, which was published in 1973 as a

report of the M.I.T. Energy Laboratory, was an econometric analysis of the residential demand for electricity in New England. I jointly prepared a report with Karen R. Polenske in 1974 on the multi-regional economic impacts of energy and transportation policies. I jointly prepared a report with Henry Lee and Randall Ellis in 1975 on the economics of coal-fired and nuclear generating facilities in New England. I wrote an article, which was published in Technology Review in 1978, entitled "The Politics of Rate Reform", and another, published this year in the Boston Bar Journal, entitled "Recent Developments in Massachusetts Public Utility Law". I also published an Op-Ed article in The Boston Globe this year entitled, "Why Boston Edison Should Not Build Pilgrim II".

Q. In your capacity as Commissioner and Chairman of the Massachusetts Department of Public Utilities, did you become familiar with Boston Edison Company?

A. Yes. I participated in a number of decisions and orders relating to the Company. These mainly concerned fuel adjustment cases, electricity rate structures, and orders in the current proceeding on Boston Edison Company's construction program (DPU #19494). Although I did not participate in any rate cases involving Boston Edison Company, I became familiar with the cases of the past few years by reading much of the orders, briefs, and/or records of these cases. In addition, in the day-to-day course of

business, I read a number of documents concerning Boston Edison and had many discussions with the staff and other Commissioners about Boston Edison.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to give my professional opinion concerning Boston Edison Company's ability to finance its share of the Pilgrim II nuclear power plant.

Q. Please summarize your opinion on this matter.

A. It is my opinion that if Boston Edison tries to maintain its current 59% ownership in Pilgrim II, it will have extreme difficulty in financing the plant. The major constraint to the Company's successful financing of the plant is its heavy dependence on externally generated capital over the coming years. The cost and availability of this externally generated capital (which amounts to 66% of the total capital requirements for the Company's cost of the plant) is dependent on a number of factors, many of which are beyond the control of the Company.

Q. On what basis do you offer this opinion?

A. I have read a number of documents prepared by officials of Boston Edison Company which support my conclusions. Among the documents I have reviewed, I attach three as Appendices to my testimony for the Board's information and convenience: Appendix I, entitled "Boston Edison Company, Pilgrim Unit II Financial Analysis of Comparative Studies, Treasury Organization, July 17, 1978", which is a public

document and is admitted into evidence as Exhibit AG-II-11 in Massachusetts Department of Public Utilities #19494, Investigation by the Department as to the Capacity Needs of Boston Edison Company and the Construction Program Requested to Meet Such Needs; Appendix II, entitled "Boston Edison Company, Board of Directors Meeting, July 27, 1978, Report on Pilgrim 2 Project", which is a public document and is admitted into evidence as Exhibit AG-II-13 in Massachusetts Department of Public Utilities #19494; and Appendix III, entitled "Testimony of Ralph M. Kelmon", which is the pre-filed direct testimony of the Treasurer of Boston Edison Company in the Company's pending rate case, and which was adopted with minor corrections and changes under oath by Mr. Kelmon on May 2, 1979 in Massachusetts Department of Public Utilities #19991, Boston Edison's pending rate case. I have assumed that the data contained in these three documents is substantially accurate, except for the exceptions mentioned below.

Q. Please summarize your major conclusions.

A. My conclusions, having examined the above-mentioned documents, and some of the Company's filings in this case, are as follows:

- (1) Boston Edison Company will, between now and 1986, have increasing difficulty in selling stock and issuing bonds.

(2) The Company is very dependent on its post-1985 earnings potential to attract investors during the period between now and 1986. These earnings are uncertain and appear to be overstated in the Company's documents.

(3) There are two factors that could improve the Company's earnings and earnings potential. The first is allowance of construction work in progress in the rate base. The second is reducing the Company's share in Pilgrim II.

Q. Why will Boston Edison have increasing difficulty in issuing debt and equity securities between now and 1986?

A. There are a number of reasons.

First, the high percentage of allowance for funds used during construction (AFUDC) will reduce the quality of the Company's earnings in the eyes of the investment community. This is because AFUDC is a non-cash item that is dependent on future regulatory action for its collection.

Page 20* of Appendix I indicates that if Boston Edison retains its 59% share of Pilgrim II, AFUDC as a percentage of earnings per share (EPS) will rise from 35% in 1978 to 95% in 1985. This continuing increase in AFUDC as a percentage of EPS will make the Company's stock less attractive to the investment community compared to other utilities' and other companies' stocks. In addition, it will make the Company's stock less attractive relative to earlier issuances of its own stock.

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*Page references are to overall pages in document, which are in places un-numbered.

Second, page 9 of Appendix I indicates that the external financing requirements for a 59% share in Pilgrim II will result in a cumulative dilution in current stockholders' book value of \$3.11 per share. This dilution makes the Company a less attractive investment to potential investors who fear that the same thing will happen to them.

Third, as a result of the above, institutional investors who, as mentioned on pages 9 and 10 of Appendix I, are already shying away from the Company's securities, would not be likely to become more interested in those securities and in fact might become less interested. Thus, the available market for the Company's securities would not grow appreciably and in fact might shrink.

Fourth, interest coverage on bonds (excluding AFUDC) will drop between now and 1986, making the Company's bonds less attractive. This could result in a further downgrading of the Company's bonds by the rating agencies and would almost certainly prevent the upgrading of the Company's bonds.

As a result of all of the above, the cost of externally generated capital is going to be very high for Boston Edison Company. This will in turn increase AFUDC as a percentage of EPS and will cause further reduction in coverage ratios. These will in turn aggravate the above symptoms.

I believe that, based on the above, there is a

substantial possibility that the market for the Company's securities will become so poor that the Company will be unable to issue securities in accordance with its schedule for financing Pilgrim II.

Q. Why is the Company dependent on its post-1985 earnings potential to attract investors during the next seven years?

A. In light of the above concerns, in order to attract investors during the next seven years, the Company is going to have to demonstrate that its long-term earnings potential (i.e., earnings following 1985) is sound. As I mentioned, these earnings are uncertain and appear to have been overstated in the attached documents.

Q. Why are post-1985 earnings uncertain?

A. Besides the usual business factors, post-1985 earnings are especially uncertain for Boston Edison because they depend on the full inclusion of its share of Pilgrim II in the rate base in 1986. This may not occur if the plant's on-line date is delayed. The usual regulatory standard for inclusion of plant in rate base is that the plant be "used and useful" in the service of the utility's customers. If the plant is delayed, which is not uncommon in the construction of central station electric generating facilities, it may not be included immediately in the rate base by the Massachusetts Department of Public Utilities. Such a delay could occur for any number of reasons -- political, technological, or regulatory -- and is not an

improbable occurrence.

In addition, there is the potential that the Massachusetts Department of Public Utilities would not permit the full inclusion of the plant in rate base even if it is finished on schedule. This could occur if the plant has a low availability or capacity factor and is therefore considered excess capacity. As indicated on pages 14 and 15 of Appendix I, Pilgrim II will have unsold megawatthours of 26% to 9% during the period 1986 to 1990. I agree with the statement on those pages that "a relatively low capacity factor after Pilgrim II goes into service could contribute to a delay in adding the unit to rate base."

Q. Why do earnings appear to be overstated?

A. It appears that the Company's earnings for 1979 to 1987 as are overstated presented in Appendix I/because there is no explicit allowance for reduction in consumption due to increases in prices of electricity during that period, i.e. price elasticity. Turning to page 18 of Appendix I, it can be seen that the Company is expecting rate increases in 1979, 1980, and 1984 totalling \$63 million and increases in fuel costs between 1979 and 1985 totalling \$218 million. The combination of these two items is likely to have an effect on the overall consumption of electricity by the Company's customers as they respond to higher prices by reducing consumption. The amount of the price elasticity effect is difficult to predict, but any reduction in consumption will

adversely affect the Company's revenues and thereby its earnings.

Similarly, the Company is predicting (see page 7 of Appendix I) a net rate increase after Pilgrim II is completed of \$86 million (\$270 million for Pilgrim II's inclusion in rate base minus fuel savings of \$184 million). This large increase in total rates in one year is almost certain to produce price elastic demand reductions and thereby reductions in revenues and earnings for a number of years.

In summary, earnings both between now and 1985 and after 1985 appear to be overstated.

Q. Are earnings after 1985 overstated for any other reasons?

A. Yes. Earnings after 1985 are overstated in the attached documents because the Company overestimated (see page 12 of Appendix I) the fuel savings resulting from Pilgrim II's substitution for oil-fired generation. To the extent that fuel savings do not occur, the net increase in electricity rates in 1986 will be greater than the \$86 million projected. This additional increase in the cost of electricity will cause a further reduction in consumption due to price elasticity effects and will thereby cause a further reduction in earnings.

Q. Why are fuel savings after 1985 overestimated?

A. The fuel savings presented in Appendix I are overestimated because they have been calculated on the basis of a 60%

capacity factor in the early years of the plant's operations. Nuclear power plants usually do not produce power at this high a rate during the early "shakedown" months and often during the early years of a plant's life.

Q. Are there any factors that could improve the Company's earnings or earnings potential and thereby its standing in the financial markets and its ability to raise capital?

A. Yes. There are three factors.

The first, rate increase granted by the Massachusetts Department of Public Utilities has already been factored into the above analysis. As mentioned several times in Appendix I, and as further indicated in Appendix III the anticipated rate increases are necessary just to maintain the Company's financial condition. (See, for example, page 12 of Appendix I, and page 3 of Appendix III.)

The second is the inclusion of construction work in progress (CWIP) in rate base. This would certainly improve earnings during the plant's construction period. However, the Massachusetts electric utilities have recently promised a Massachusetts Legislative Committee that was considering a bill that would have prohibited CWIP that they would not seek CWIP charges before the Massachusetts Department of Public Utilities for at least one year. Assuming the normal six-month statutory period of review by the Massachusetts Department of Public Utilities, CWIP charges would thus be unlikely to be allowed in rate base before

mid-1980, at the earliest. However, even that approval is very uncertain given the political concern about CWIP and given the substantial regulatory policy concerns about it.

The third possibility is a reduction in the Company's share in Pilgrim II. The chart on page 49 in Appendix I indicates that a reduction in the Company's ownership share to 30% or 40% would improve the Company's financial position by reducing the percentage of AFUDC and increasing interest coverage. Whether these changes would be of enough magnitude to materially affect the Company's position in the financial markets is problematic. For example, AFUDC as a percentage of EPS would still remain very high.

Cancelling the unit completely would result in a short-term loss to the Company but improved long-term earnings. This is the case, as can be seen from page 49 of Appendix I, whether or not the Massachusetts Department of Public Utilities permitted amortization of the cancelled plant in the most favorable fashion.

Q. Have you considered the ability of the Company to generate sufficient retained earnings to satisfy its requirement for internally generated capital for the construction of Pilgrim II?

A. Yes. I have reviewed this item, particularly in light of Appendix III, and I am reluctant to draw conclusions because the actual earnings over the coming years are quite

speculative, depending on inflation, internal cost-control, efficiency of operation, the economy, and so on. I can say that, everything else being equal, to the extent that external funds become more expensive because of the factors I have discussed above, retained earnings will suffer. This is because more and more of the Company's cash will be required for dividends and interest payments if it is faced with a difficult external financial market.

Q. Does this complete your testimony?

A. Yes.

RELATED CORRESPONDENCE



APPENDIX I

AG-II-11

RELATED CORRESPONDENCE

BOSTON EDISON COMPANY



PILGRIM UNIT II FINANCIAL ANALYSIS OF COMPARATIVE STUDIES

EXPL #	19494
EXPL #	AG-II-11
DATE	3/13/79
BY	D. Tore

Treasury Organization
July 17, 1978

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BOSTON EDISON COMPANY

PILGRIM UNIT II
FINANCIAL ANALYSIS
OF COMPARATIVE STUDIES

Treasury Organization
July 17, 1978

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PILGRIM UNIT II
FINANCIAL CONSIDERATIONS

The following studies are contained herein:

Tab

1. Financing of Pilgrim Unit II with Boston Edison Company retaining a 59 per cent ownership in the unit with an in-service date of December 1, 1985.
2. Financing of Pilgrim Unit II with Boston Edison Company retaining a 30 per cent ownership in the unit, extending the in-service date from December 1985 to December 1986, and employing the use of combined cycling units to offset the potential deficiency in the company's peak requirements in the 1986-1987 power year.
3. Financing of Pilgrim Unit II with Boston Edison Company retaining a 40 per cent ownership in the unit, extending the in-service date from December 1985 to December 1986, and employing the use of combined cycling units to offset the potential deficiency in the company's peak requirements in the 1986-1987 power year.
4. The financial effects of cancelling Pilgrim Unit II and absorbing the company's investment in the unit without any rate relief by way of amortization of the investment write-off.

Tab

5. The financial effects of cancelling Pilgrim Unit II and the granting of rate relief by the DPU to amortize the investment write-off over a period of thirty years.
6. Income tax treatment of the write-off of Pilgrim Unit II and the book accounting treatment with and without amortization and its affect on retained earnings.
7. A comparative analysis of the critical financial data of the above five-year studies, including:
 - Capitalization
 - a. Capital expenditures.
 - b. Internally generated funds.
 - c. Externally generated funds.
 - d. AFUDC.
 - Earnings
 - a. Earnings per share.
 - b. AFUDC as a dollar amount of EPS.
 - c. AFUDC as a percentage of EPS.
 - Financings
 - a. Debt.
 - b. Preferred.

Tab

Financings (continued)

- c. Common.
- d. Number of issues.

Revenue Requirements

- a. Revenue requirements.
- b. Rate increases.

FINANCIAL CONSIDERATIONS

June 15, 1978

A review of the May 1978 ten-year financial forecast regarding the financing of Pilgrim II indicates that there have been some substantial changes in the forecast since the May 1975 and March 1977 forecasts. Exhibit A attached outlines the changes in the major elements of the forecast. Some of the more significant changes between the 1977 and 1978 figures are outlined below.

1. The cost of Pilgrim II has increased from \$1.5 billion to \$1.95 billion, and the company's share of this cost has increased from \$900 million to \$1.15 billion.

2. Due principally to the increase in construction cost, the relationship of internal cash generation to construction expenditures during the six-year period preceding the in-service date of Pilgrim II has decreased from 45% to 34%.

3. Required security issues during the same period have increased from \$641 million to \$787 million.

4. If the forecasted rate increases in the years 1979, 1980 and 1984 are obtained, net operating income during the construction period will continue to grow in a healthy manner. However, the

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increase in money costs associated with the new construction expenditures places a heavy burden on the company and would result in drastic decreases in earnings per share without the application of an allowance for funds used during construction (AFUDC). As a result, AFUDC as a percentage of earnings per share has increased from 52% to 79% during the construction period.

5. The forecast indicates a substantial drop of 3.1 billion kilowatthours, or 20%, in forecasted sales for the year 1987.

6. The annual base rate increase that will be necessary when the unit goes into operation has increased from \$190 million to \$270 million, and the net increase after giving effect to the fuel clause savings has increased from \$45 million to \$86 million.

In summary, the changes from the 1977 forecast indicate a decrease in load growth, an increase in construction expenditures, an increase in the amount of external financing requirements, a greater dependence upon AFUDC to maintain earnings, and the necessity to obtain a larger rate increase at the time the unit goes into operation.

An analysis of the 1978 forecast and the effects of the changes since 1977 are discussed below:

a. During the construction period 1978 through 1985, the company's rate base remains relatively stable at approximately \$1.1 billion; therefore the company will only be allowed rate increases of \$24 million in 1979, \$15 million in 1980 and \$24 million in 1984.

June 15, 1978

b. During the period 1978 through 1985, the company's construction work in progress (CWIP) will increase from \$266 million to \$1.1 billion. Because CWIP is not allowed in the rate base and thus the company is not permitted to earn on these funds during construction, the company has the burden of not only committing its internal funds and raising substantial external funds to finance this program, but must also finance the money costs associated with these construction expenditures.

These annual money costs necessary to finance the construction expenditures increase substantially during the construction period and place a heavy burden on the company's annual net income and earnings per share.

In order to offset the drastic decrease in earnings per share during the construction period due to these additional money costs, the company must continue to apply AFUDC, which in effect represents the money costs associated with CWIP. Thus AFUDC restores the annual earnings per share, but will represent 36% of earnings per share in 1979 and increase annually to the point where it will represent 80% of earnings in 1982, 92% in 1983, 93% in 1984 and 95% in 1985.

c. The company must also consider the fact that not only must approximately \$623 million of internally generated funds be committed

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June 15, 1978

will make it more difficult to place the additional shares successfully. Based upon the facts in the forecast, it does not appear that it would be easy to attract institutional buyers in the future.

(ii) Any investment banking firm or new shareholder would very probably take into consideration the fact that the company's earnings per share during the years 1981 through 1985 are represented by AFUDC of 60%, 80%, 92%, 93% and 95%, respectively. This indicates that relative to that of other utilities, the quality of the company's common stock earnings would be low, and that the company would need a substantial rate increase at the time the unit goes into operation in order to maintain its earnings and the ability to pay its dividends.

(iii) The ability to attract additional common stockholders would to a great extent be based upon the attitude and confidence the investment community and new stockholders have in the Department of Public Utilities' willingness to allow proper rate relief and return on common equity.

(iv) To successfully complete the sale of the eight million shares, it would be essential that the rate increases forecasted during the construction period be obtained on a timely basis.

d. The forecast calls for the sale of \$150 million of preferred stock. All of the factors that pertain to the common stockholders as to quality of earnings and the need for rate increases in order to

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assure the continuation of dividends apply equally to the preferred stockholders.

e. During the period 1979 through 1985, the company must issue \$770 million of additional first mortgage bonds or other long-term debt. From the point of view of the creditors, it is important to point out that the company is going into this project with a triple B/Baa bond rating. Unfortunately, our recent experiences with the Department of Public Utilities and the Massachusetts Supreme Judicial Court do not presage an improvement in our bond rating in the near future.

The current inability to improve our ratings and the fact that the company is taking on a substantial financial burden to undertake new construction do not enhance the company's ability to improve such ratings. If during the construction period the company were to suffer adverse financial experience and have its ratings lowered to that of double B or Ba, the company would in effect be unable to sell additional debt securities, or if it did so, such securities could only be sold at a substantial increase in the cost of money. The inability to sell first mortgage bonds would have a serious and adverse effect on the company's ability to sell additional common or preferred stock also.

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June 15, 1978

If the company maintains its current triple B/Baa rating, I believe the additional bonds could be sold, but once again, it would be imperative to obtain the forecasted rate increases to maintain and protect our current bond ratings.

f. One of the major factors that would normally be taken into consideration in attracting additional security buyers is that the company would need a substantial rate increase at the very moment the unit goes into operation. The rate increase associated with base revenues is estimated to be \$270 million, and it will be necessary to argue that the unit will eliminate the use of six million barrels of oil annually at a net reduction to the consumer in fuel adjustment revenues of \$184 million, or a net increase to the consumer of \$86 million. There are two thoughts that must be kept in mind relative to this rate increase:

(i) The \$270 million rate increase is predicated on the capital and fuel costs of the nuclear plant. Any additional capital expenditures associated with the plant will of necessity increase the required annual rate increases.

(ii) The savings in the fuel adjustment revenues are predicated on a cost of fuel of \$32 per barrel. Because the new unit is estimated to save six million barrels of fuel a year, every change of one dollar in the cost of a barrel of fuel from that \$32 figure would increase or decrease the savings in fuel clause revenues by \$6 million.

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June 15, 1978

g. Over and above the financial risks associated with committing the internally generated funds and raising the external funds is the risk that exists in the environment in which we operate, which includes the social, political, legal and regulatory climate. It is apparent that there are many parties involved with different self-interests and degrees of financial risk. A diagram of the parties involved is attached as Exhibit B, which, although I am sure it is not all-inclusive, does show:

(i) That there are a number of independent parties who have the ability to interfere with the construction of a nuclear plant and drastically affect its cost, construction time requirement and the scheduled operation date.

(ii) Of more importance is the fact that no single party, public or private, has the ability to individually and successfully control either the timely construction, the ultimate cost, or the scheduled operation date of the unit.

On the other hand, it is quite clear that in this fragmented environment the company stockholders and creditors will be carrying the financial risk involved both during the construction program and after the plant is completed. The financial risk to be borne by the stockholders and creditors does not guarantee them a return substantially better than many other investment decisions they may make over the next seven years.

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MP-5-(25)

h. As to generation, although the company's obligation is to plan and provide for the necessary energy for future customers, the financial risks involved must be taken into account. The company is attempting to build its share of the NEPOOL peak, but it must be kept in mind that the necessary revenues come from the capacity factor and not from the peak. It is the capacity factor that makes the project financially viable.

As previously mentioned, the company's kilowatthour sales forecast for 1987, a year after the plant is presently scheduled to go into operation, has declined approximately 20% from 15.5 billion kilowatthours to 12.4 billion kilowatthours. Setting aside the need to meet the NEPOOL and company peak responsibilities for a moment, Exhibit C attached indicates that with Pilgrim II in operation the company will have unsold megawatthours of from 26% to 9% during the period 1986 to 1990.

Building for peak with relatively low annual capacity factors at a cost of \$1,700 per kilowatt as compared to \$227 per kilowatt for Mystic 7 and \$353 per kilowatt for Pilgrim I will result in the company's continuing its relatively high rates.

Because of the high cost of construction and the related necessary rate increase that must follow, the issue of a relatively low capacity factor after Pilgrim II goes into service could contribute to a

July 12, 1978

delay in adding the unit to rate base. The financial implications of such a delay would obviously be disastrous.

In summary, the increased cost of construction, the decreased sales forecast, the current triple B rating, the adverse regulatory and judicial climate and possible action on the part of intervenors have substantially increased the financial risks resulting from the construction of a nuclear plant for current and future stockholders of both common and preferred stock, bondholders and the management of the company.

attachments

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Exhibit A

FINANCIAL FORECAST COMPARISON

Key Facts

	1975 Forecast	1977 Forecast	1978 Forecast
KWH Sales In First Year of Operation (Millions)	13,800 ('83)	13,490 ('84)	12,000 ('85)
KWH Sales In 1987 (Millions)	16,800	15,500	12,400
Cost of Unit:			
Total	\$1.2 Billion	\$1.5 Billion	\$2.0 Billion
BECo. Share	\$.73 Billion	\$.9 Billion	\$1.15 Billion
AFUDC Component of Unit Cost	25%	33%	39%
Capital Expenditures (5 Year period)	\$995 Million	\$1,152 Million	\$1,278 Million
Internal Funds (6 Year period)	\$584 Million	\$514 Million	\$434 Million
External Funds (6 Year period)	\$411 Million	\$638 Million	\$844 Million
Internal Funds as a percent of Construction Expenditures (6 Year period)	59%	45%	34%
Net Securities Issued during construction (6 Year period):			
Amount	\$460 Million	\$641 Million	\$787 Million
Number	10	13	15
Rate Base at Time of Installation	\$1.0 Billion	\$1.2 Billion	\$1.1 Billion
CWIP at Time of Installation	\$.7 Billion	\$.9 Billion	\$1.1 Billion
Rate Relief Required In First Year of Operation:			
Gross Amount	\$ 80 Million	\$190 Million	\$270 Million
Percent Increase of Base Revenues	16%	37%	50%
Fuel Savings	-	\$145 Million	\$184 Million
Interest Coverage (6 Year average)	1.2X	3.0X	2.7X
AFUDC as a percent of Earnings (6 Year period)	23%	52%	79%

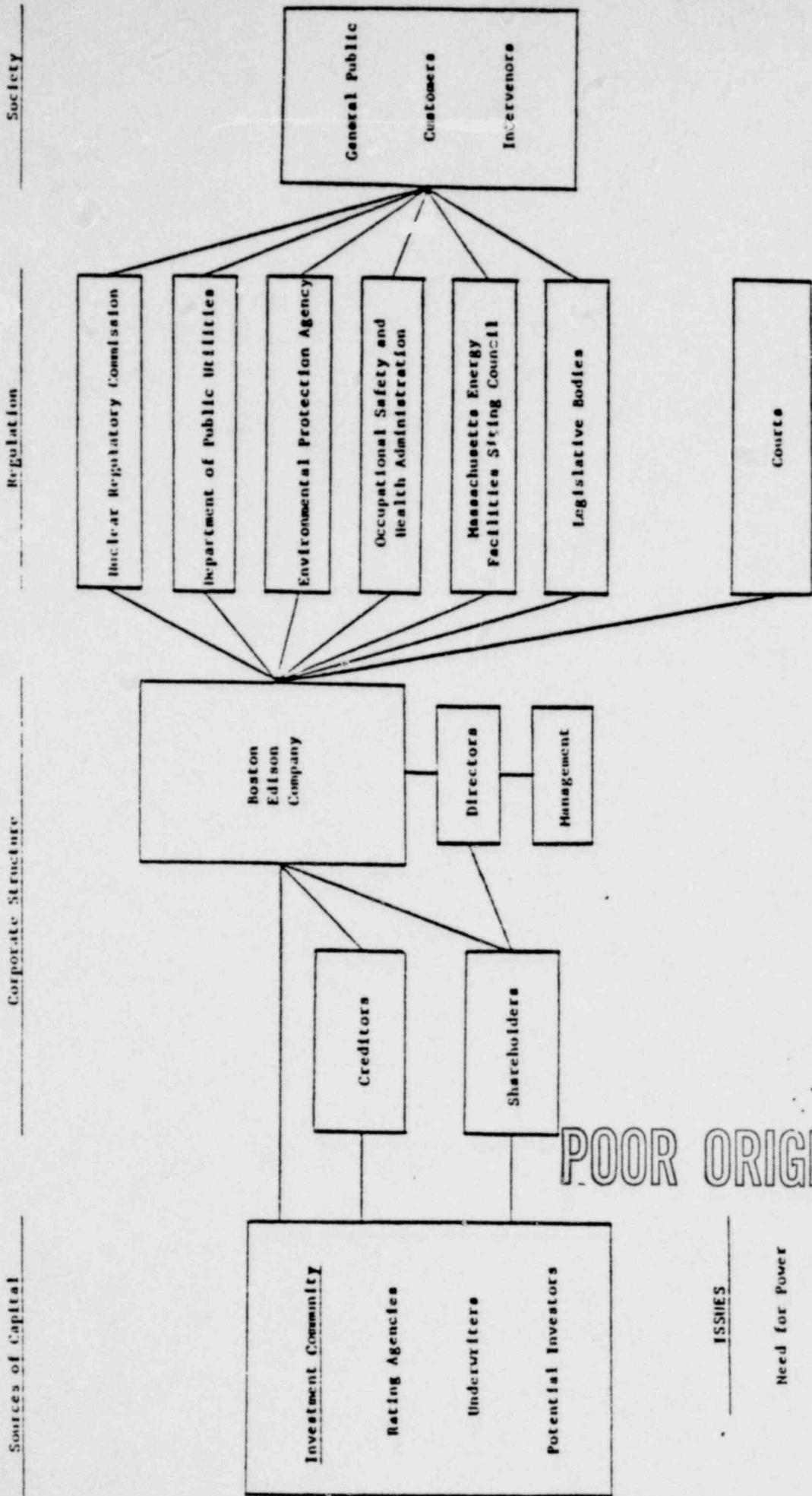
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Exhibit B

FIGURE 11 DECISION PROCESS



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ISSUES

- Need for Power
- Nuclear Power
- Risk Evaluation

BOSTON EDISON COMPANY

MMH Sales Capacity

1983 1984 1985 1986 1987 1988 1989 1990

Without Edgar or Pilgrim II
(000's)

Potential MMH Generation Capacity *	14,800	14,800	14,800	14,800	14,300	14,400	14,400	14,400
Energy Requirements Based on Current Forecast	14,143	14,373	14,176	14,556	14,993	15,458	15,937	16,431
Excess (Deficiency) MMH Capacity	657	427	624	244	(693)	(1,058)	(1,537)	(2,031)
	5%	3%	4%	2%	(5%)	(7%)	(10%)	(12%)

Without Edgar With 50% Pilgrim II
(000's)

Potential MMH Generation Capacity *	14,800	14,800	16,300	18,400	17,800	17,900	17,900	17,900
Energy Requirements Based on Current Forecast	14,143	14,373	14,176	14,556	14,993	15,458	15,937	16,431
Excess MMH Capacity	657	427	2,124	3,844	2,807	2,442	1,963	1,469
	5%	3%	15%	26%	19%	16%	12%	9%

Without Edgar With 30% Pilgrim II
(000's)

Potential MMH Generation Capacity *	14,800	14,800	15,550	16,600	16,050	16,100	16,100	16,100
Energy Requirements Based on Current Forecast	14,143	14,373	14,176	14,556	14,993	15,458	15,937	16,431
Excess MMH Capacity	657	427	1,374	2,044	1,057	642	163	(331)
	5%	3%	10%	14%	7%	4%	1%	(2%)

POOR ORIGINAL

* Based upon 1970-1977 generating capacity experienced for present units and 60% capacity for Pilgrim II.

DCS CAPS

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PILGRIM II ALTERNATIVES

30 PER CENT OWNERSHIP AND BUILD COMBINED CYCLE UNITS

If the company were to reduce its ownership of Pilgrim II from the current 59 per cent to 30 per cent, it is the opinion of the Nuclear Organization that obtaining the construction permit would be delayed approximately a year, thus moving the in-service date of the unit from December of 1985 to December of 1986. This delay would result from the Nuclear Regulatory Commission's reopening the hearings relative to the need for power and financial capability of those companies that would purchase additional ownership in the plant. This one-year delay would increase the cost of the plant by \$250 million.

An analysis of the financial results of the company's 59 per cent v. 30 per cent ownership in the unit indicates that its financial risk, although reduced, is by no means eliminated during and after the construction period.

59% Pilgrim II vs. 30% Pilgrim II

	BECo. 59% Ownership In Pilgrim II <u>(1978-1985)</u>	BECo. 30% Ownership In Pilgrim II <u>(1978-1986)</u>
Construction Period		
Capital Expenditures	\$1.584 Billion	\$1.599 Billion
Internal Funds	\$623 Million	\$878 Million
Internal Funds as % of Capital Expenditures	39%	55%
External Funds*	\$961 Million	\$721 Million
Capital Expenditures	\$1.584 Billion	\$1.599 Billion
AFUDC	<u>.531</u>	<u>.391</u>
Total	\$2.015 Billion	\$1.990 Billion

Number of Security Issues	21	16
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AFUDC as % of EPS

1978	35%	35%
1979	36%	26%
1980	60%	31%
1981	60%	34%
1982	80%	45%
1983	92%	57%
1984	93%	65%
1985	95%	77%
1986		88%

*Excluding refunding issues.

Annual Amounts of CWIP

	<u>BECo. 59% Ownership In Pilgrim II</u>	<u>BECo. 30% Ownership In Pilgrim II</u>
1978	\$ 206 Million	\$ 132 Million
1979	274 "	153 "
1980	420 "	201 "
1981	608 "	308 "
1982	807 "	418 "
1983	960 "	502 "
1984	1,125 "	626 "
1985	127 "	809 "
1986	-	188

Allowable Rate Increases

1978	-	\$ 4 Million
1979	\$ 23.7 Million	15 Million
1980	15.0 "	12 "
1981	- "	15 "
1982	- "	8 "
1983	- "	- "
1984	23.7 "	12 "
1985	- "	14 "
1986	270 "	7 "
1987	- "	180 "

Territory Revenue Requirements

1986	\$1.184 Billion	\$1.102 Billion
1987	1.272 "	1.288, "

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Discussion

A reduction of from 59 to 30 per cent of the cost of the unit results in savings of capital expenditures related to Pilgrim II. However, the construction period relating to Pilgrim II and the period necessary to finance CWIP before a major rate increase may be obtained has been extended from eight years (1978-1985) to nine years (1978-1986). The nine-year period will of necessity include expenditures for other types of construction, such as transmission and distribution, expenditures relating to the combined cycle unit and absorption of the company's share of the additional costs of the unit due to a year's delay in its construction period. As a result, the capital expenditures of both the eight- and nine-year periods amount to approximately \$1.6 billion dollars.

Internally generated funds will amount to \$878 million and represent 55 per cent of the capital expenditures. The amount of external funds needed to complete the construction program is \$721 million, and will require sixteen separate security issues, but this external funding is now spread over a longer period (9 years).

The amount of internally generated funds, the percentage of such funds to capital expenditures, and the necessary amount of external funds all represent improvements over the base case of a 59 per cent ownership in Pilgrim II.

During the nine-year construction program, the amount of AFUDC will decline by approximately \$140 million. It should be noted, however, that in the years 1983, 1984, 1985 and 1986, AFUDC will still represent 57 per cent, 77 per cent and 88 per cent of the respective year's annual earnings. Although an improvement over the

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base case, these relatively high percentages will nevertheless continue to indicate to the investment community that the company will need a substantial rate increase at the time the unit goes into operation in order to maintain its earnings and ability to pay its dividends.

It should be noted that the necessary increase in base revenues at the time Pilgrim II goes into operation will be reduced from \$270 million to \$180 million, and the net increase in overall rates after allowing for the fuel adjustment clause savings will be reduced from \$86 million to \$78 million.

In regard to the security issues, the 30 per cent ownership plan requires the issuance of three million shares of common stock rather than eight million shares, and thereby substantially reduces the potential dilution of the current stockholders' equity.

The ability to issue the common stock, preferred stock and debt necessary to fund the construction program will to a great extent be based upon the confidence that the investment community has in the willingness of the Department of Public Utilities to grant the proper rate relief needed to support the additional plant investment.

This plan allows the company to more flexibly commit capital expenditures in accordance with changes in energy and peak demand.

This plan will reduce the amount of excess capacity at the time the unit is scheduled to go into operation and effectively eliminate the possibility of the disallowance of any excess investment in rate base at that time.

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The short construction period associated with combined cycling units will reduce the amount of associated AFUDC and its corresponding effects on the costs of the units, however, there will still be substantial amounts of AFUDC associated with the 30 per cent ownership of Pilgrim II.

In summary, the recommendation to take a position of 30 per cent ownership in the unit, together with the flexibility of employing combined cycling units, is an attempt to reduce the Company's risk associated with a 59 per cent ownership in the unit.

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BOSTON EDISON COMPANY

30% Ownership in Pilgrim II and Build Combined Cycle Units

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>Tota</u>
Capital Expenditures excluding AFUDC	153	114	98	164	175	187	194	257	257	203	1,80
Internal Funds	94	169	83	101	77	85	92	85	90	252	1,13
External Funds	59	(55)	15	63	98	102	102	172	167	(49)	67
AFUDC	18	15	20	26	38	49	60	76	89	25	41
Rate Increase Taken	4	15	12	15	8	-	12	14	7	180	26
Earnings Per Share	3.31	3.91	4.13	4.37	4.82	4.91	5.17	5.20	5.38	6.37	
EPS excluding AFUDC	2.13	2.91	2.83	2.89	2.66	2.13	1.80	1.18	.67	5.05	
AFUDC as a percent of EPS	36%	26%	31%	34%	45%	57%	65%	77%	88%	21%	
Return on Equity	11.1	12.0	12.2	12.6	13.1	12.6	12.5	12.0	11.7	13.0	
Financings											
Debt	40	135	50	50	100	60	50	150	125	50	81
Preferred						35	35			25	9
Common			56				31				8
No. of Issues	1	2	2	1	1	2	3	2	2	2	1
Interest Coverage - SEC											
Including AFUDC	2.58	2.88	2.93	3.22	3.04	2.86	2.75	2.65	2.39	2.89	
Excluding AFUDC	2.29	2.61	2.59	2.77	2.47	2.20	2.01	1.81	1.54	2.67	

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PILGRIM II ALTERNATIVES

40 PERCENT OWNERSHIP AND BUILD COMBINED CYCLE UNITS

If the company were to reduce its ownership of Pilgrim II from the current 59 per cent to 40 per cent, it is the opinion of the Nuclear Organization that obtaining the construction permit would be delayed approximately a year, thus moving the in-service date of the unit from December of 1985 to December of 1986. This delay would result from the Nuclear Regulatory Commission's reopening . . . hearings relative to the need for power and financial capability of those companies that would purchase additional ownership in the plant.

An analysis of the company's 40 per cent ownership in the unit indicates that the company continues to incur a substantial financial risk due to the magnitude of the construction program and the length of time necessary to complete the construction of the unit.

59% Pilgrim II vs. 40% Pilgrim II

	BECo. 59% Ownership In <u>Pilgrim II</u> (1978-1985)	BECo. 40% Ownership in <u>Pilgrim II</u> (1978-1986)
Construction Period		
Capital Expenditures	\$1.584 Billion	\$1.651 Billion
Internal Funds	623 Million	829 Million
Internal Funds as % of Capital Expenditures	39%	50%
External Funds*	\$ 961 Million	\$ 822 Million
Capital Expenditures	\$1.584 Billion	\$1.651 Billion
AFUDC	<u>.531</u>	<u>.470</u>
Total	\$2.015 Billion	\$2.121 Billion
Number of Security Issues	21	17
AFUDC as % of EPS		
1978	35%	35%
1979	36%	30%
1980	60%	36%
1981	60%	40%
1982	80%	57%
1983	92%	73%
1984	93%	78%
1985	95%	84%
1986		89%

*Excluding refunding issues.

Annual Amounts of CWIP

	<u>BECo. 59% Ownership In Pilgrim II</u>	<u>BECo. 40% Ownership In Pilgrim II</u>
1978	\$ 206 Million	\$ 157 Million
1979	274 "	188 "
1980	420 "	247 "
1981	608 "	378 "
1982	807 "	517 "
1983	960 "	632 "
1984	1,125 "	769 "
1985	127 "	935 "
1986	-	172 "

Allowable Rate Increases

1978	-	\$ 4 Million
1979	\$ 23.7 Million	15 "
1980	15.0 "	12 "
1981	- "	12 "
1982	- "	- "
1983	- "	- "
1984	23.7 "	20 "
1985	- "	18 "
1986	270 "	15 "
1987	- "	195 "

Territory Revenue Requirements

1986	\$1.184 Billion	\$1.105 Billion
1987	1.272 "	1.277 "

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Discussion

A reduction of from 59 per cent to 40 per cent of the cost of the unit results in savings of capital expenditures related to Pilgrim II. However, the construction period relating to Pilgrim II and the period necessary to finance CWIP before a major rate increase may be obtained has been extended from eight years (1978-1985) to nine years (1978-1986). The nine-year period will of necessity include expenditures for other types of construction, such as transmission and distribution, expenditures relating to the combined cycle unit and absorption of the company's share of the additional costs of the unit due to a year's delay in its construction period. As a result, the capital expenditures of the 40 per cent option over its nine-year construction period are slightly higher than the capital expenditures of the 59 per cent option over its eight-year construction period.

Internally generated funds will amount to \$829 million and represent 50 per cent of the capital expenditures. The amount of external funds needed to complete the construction program will amount to \$822 million, and will require seventeen separate security issues.

The amount of internal funds generated, the percentage of such funds to capital expenditures, and the necessary external funds all represent improvements over the base case of a 59 per cent ownership in Pilgrim II.

During the nine-year construction program, the amount of AFUDC will decline by approximately \$61 million. It should be noted, however, that in the years 1983, 1984, 1985 and 1986, AFUDC will still represent 73 per cent, 78 per cent, 84 per cent and 89 per cent of the respective year's annual earnings. Although these percentages

represent a slight improvement over the base case, they will nevertheless continue to indicate to the investment community that the company will need a substantial rate increase at the time the unit goes into operation in order to maintain its earnings and ability to pay its dividends.

It should be noted that the necessary increase in base revenues at the time Pilgrim II goes into operation will be reduced from \$270 million to \$195 million, and the net increase in overall rates after allowing for the fuel adjustment clause savings will be reduced from \$86 million to \$65 million.

In regard to the security issues, the 40 per cent ownership plan requires the issuance of four million shares common stock rather than eight million shares, and thereby substantially reduces the potential dilution of the current stockholders' equity.

The ability to issue the common stock, preferred stock and debt necessary to fund the construction program will to a great extent be based upon the confidence that the investment community has in the willingness of the Department of Public Utilities to grant the proper rate relief needed to support the additional plant investment.

This plan allows the company to more flexibly commit capital expenditures in accordance with changes in energy and peak demand.

It will reduce the possibility of excess capacity at the time the unit is scheduled to go into operation and correspondingly reduce

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the possibility of the disallowance of any excess investment in rate base at that time, however, it is conceivable that a case can be made for such a disallowance.

The short construction period associated with combined cycling units will reduce the amount of associated AFUDC and its corresponding effects on the cost of the units during the period following the completion of Pilgrim II since large amounts of AFUDC continue to accrue with a 40 per cent ownership position.

In summary, the financial analysis of a 40 per cent ownership in the unit as compared to a 59 per cent ownership indicates that the company would still be undertaking a substantial financial commitment.

BOSTON EDISON COMPANY

40% Ownership in Pilgrim II and Build Combined Cycle Units

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>Total</u>
Capital Expenditures excluding AFUDC	153	121	105	187	196	207	196	231	255	229	1,880
Internal Funds	94	144	84	101 ^e	68	78	90	81	87	255	1,084
External Funds	59	(23)	21	86	128	129	106	150	168	(26)	796
AFUDC		18	24	32	47	61	74	90	106	26	496
Rate Increase Taken	4	15	12	12			20	18	15	195	291
EPS	3.11	4.02	4.29	4.52	4.70	4.78	5.25	5.28	5.88	6.23	
EPS excluding AFUDC	2.13	2.82	2.74	2.70	2.03	1.31	1.15	.83	.63	4.94	
AFUDC as a percent of EPS	36%	30%	36%	40%	57%	73%	78%	84%	89%	21%	
Return on Equity	11.1	12.4	12.6	12.9	12.6	12.2	12.7	12.3	12.8	12.7	
Financings											
Debt	40	135	50	50	175	60	50	150	125	50	885
Preferred						35	35			25	95
Common			56				62				118
No. of Issues	1	2	2	1	2	2	3	2	2	2	19
Interest Coverage - SEC											
Including AFUDC	2.58	2.83	2.87	3.09	2.77	2.53	2.51	2.57	2.45	2.84	
Excluding AFUDC	2.29	2.52	2.48	2.57	2.67	1.80	1.70	1.65	1.50	2.62	

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BOSTON EDISON COMPANY

FINANCIAL EFFECTS OF A WRITE-OFF OF
PILGRIM II WITHOUT RATE RELIEF AS TO FUTURE AMORTIZATION

The major issues involved in a write-off of the company's investment in Pilgrim II without rate relief is the effect such action would have on the company's stockholders, creditors, and the investment community as a whole. It is assumed that such action would be taken only after the strategy outlined at the recent Executive Retreat meetings has been completed, and adequate relief of the company's financial commitments relating to Pilgrim II were not forthcoming.

A discussion of the strategy the company would follow at the time of announcing a write-off of the investment is not included in this memorandum.

This study will indicate what the financial effects of such a write-off would be on the company's earnings per share and other critical financial data and ratios in the year of the write-off and in subsequent years, taking into consideration the income tax consequences and rate-making process after such a write-off.

The income tax treatment of the write-off of the investment of Pilgrim II and the book accounting treatment and its effect on retained earnings is discussed in Tab 6 of this report.

Cancel Pilgrim II - Writeoff

	BECo. 59% Ownership In Pilgrim II <u>(1978-1985)</u>	Cancel Pilgrim II - Writeoff <u>(1978-1985)</u>
Construction Period		
Capital Expenditures	\$1.584 Billion	\$1.174 Billion
Internal Funds	623 Million	768 Million
Internal Funds as % of Capital Expenditures	39%	65%
External Funds*	\$ 961 Million	\$ 406 Million
Capital Expenditures	\$1.584 Billion	\$1.174 Billion
AFUDC	<u>.531</u>	<u>.109</u>
Total	\$2.015 Billion	\$1.283 Billion

Number of Security Issues

21

10

AFUDC as % of EPS

1978

35%

36%

1979

36%

-

1980

60%

12%

1981

60%

13%

1982

80%

19%

1983

92%

24%

1984

93%

37%

1985

95%

42%

*Excluding refunding issues.

Annual Amounts of CWIP

	<u>BECo. 59% Ownership In Pilgrim II</u>	<u>Cancel Pilgrim II Write-Off</u>
1978	\$ 206 Million	\$ 44 Million
1979	274 "	36 "
1980	420 "	48 "
1981	608 "	80 "
1982	807 "	110 "
1983	960 "	130 "
1984	1,125 "	247 "
1985	127 "	269 "

Allowable Rate Increases

1978	-	\$ 4 Million
1979	\$ 23.7 Million	13 "
1980	15.0 "	15 "
1981	- "	10 "
1982	- "	- "
1983	- "	14 "
1984	23.7 "	6 "
1985	- "	47 "
1986	270 "	50 "
1987	-	38 "

Territory Revenue Requirements

1986	\$1,184 Billion	\$1.154 Billion
1987	1.272 "	1.302 "

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Discussion

If the investment in the unit was written off in 1979 the net loss for the year would be \$35,167,000 and if the common dividends were paid the retained earnings as at December 31, 1979 after the loss and payment of dividends would be reduced to \$41,122,000. A study has been prepared which lists 303 industrial companies that experienced negative earnings during the past five years and paid dividends in the years they experienced the losses.

The write-off would have a permanent negative effect on the company's earnings, as is more fully discussed under Tab 6 of this report.

The write-off against retained earnings would result in the following debt equity ratios as at December 31, 1979:

Debt	59%
Preferred	15%
Common Equity	26%

The total effect on the market value of the company's stock and the effect, if any, on the company's securities ratings is still being explored at this time.

In the years after the write-off the study calls for a number of rate increases to compensate for future increases in rate base and cost of operations. Earnings per share are forecasted to March 24, 1980, the year after the write-off and remain relatively stable for a period of years.

Capital Expenditures for the period 1978-1985 which are the critical years of base case amount to \$1.2 billion and internal funds during that time amount to \$768 million, and represent 65% of such Capital Expenditures. It is important to note that the company would not be required to issue new securities until 1982 thus allowing for a period of recovery before reentering the public markets. However, we would be faced with refinancing \$135 million of long-term debt in 1979 under adverse financial circumstances.

The amount of AFUDC and its relationship to earnings per share is drastically reduced and improves the quality of the company's earnings.

The number of security issues are reduced from 22 to 13 and there is an improvement in the company's interest coverage.

All these factors will, as time goes by, assist in improving the company's financial stability.

BOSTON EDISON COMPANY

CANCEL PILGRIM II - WRITE-Off

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>Total</u>
Capital Expenditures ^a excluding AFUDC	\$153	\$ 95	\$ 79	\$101	\$119	\$154	\$217	\$256	\$200	\$177	\$1,551
Internal Funds	\$ 93	\$ 81	\$149	\$ 75	\$ 97	\$ 77	\$ 86	\$110	\$110	\$148	\$1,026
External Funds	\$ 60	\$ 14	(\$ 70)	\$ 26	\$ 22	\$ 77	\$131	\$146	\$ 90	\$ 29	\$ 525
AFUDC	\$ 18	\$ 5	\$ 6	\$ 6	\$ 10	\$ 13	\$ 20	\$ 27	\$ 25	\$ 19	\$ 149
Rate Increase Taken	\$ 4	\$ 13	\$ 15	\$ 10	-	\$ 14	\$ 6	\$ 47	\$ 50	\$ 38	\$ 197
EPS	\$ 3.31	(\$ 4.38)	\$ 3.24	\$ 3.33	\$ 3.38	\$ 3.58	\$ 3.43	\$ 3.66	\$ 3.80	\$ 3.88	
EPS excluding AFUDC	\$ 2.13	(\$ 4.03)	\$ 2.85	\$ 2.89	\$ 2.73	\$ 2.73	\$ 2.16	\$ 2.14	\$ 2.53	\$ 2.92	
AFUDC as a percent of EPS	36%	-	12%	13%	19%	24%	37%	42%	36%	25%	
Return on Equity	10.7%	(15.6%)	12.9%	12.9%	12.7%	13.0%	12.1%	12.4%	12.4%	12.3%	
Financings											
Debt	\$ 40	\$135			\$ 75	\$ 50	\$ 75	\$150	\$ 60	\$ 75	\$ 660
Preferred							\$ 35		\$ 35		\$ 70
Common							\$ 60				\$ 60
No. of Issues	1	2	0	0	1	1	3	2	2	1	13
Interest Coverage - SEC											
Including AFUDC	2.53	N/A	2.62	2.64	2.57	2.48	2.26	2.40	2.36	2.62	
Excluding AFUDC	2.24	N/A	2.52	2.53	2.42	2.29	2.01	2.08	2.09	2.41	

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Cancel Pilgrim II - Recover Costs

	<u>BECo. 59% Ownership In Pilgrim II</u>	<u>Cancel Pilgrim II - Recover Costs</u>
	(1978-1985)	(1978-1985)
Construction Period		
Capital Expenditures	\$1.584 Billion	\$1.175 Billion
Internal Funds	623 Million	818 Million
Internal Funds as % of Capital Expenditures	39%	70%
External Funds*	\$ 961 Million	\$ 357 Million
Capital Expenditures	\$1.584 Billion	\$1.175 Billion
AFUDC	<u>.531</u>	<u>.107</u>
Total	\$2.015 Billion	\$1.282 Billion
Number of Security Issues	21	10
AFUDC as % of EPS		
1978	35%	36%
1979	36%	11%
1980	60%	12%
1981	60%	13%
1982	80%	17%
1983	92%	21%
1984	93%	31%
1985	95%	36%

*Excluding refunding issues.

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Annual Amounts of CWIP

	<u>BECo. 59% Ownership In Pilgrim II</u>	<u>Cancel Pilgrim II - Recover Costs</u>
1978	\$ 206 Million	\$ 44 Million
1979	274 "	36 "
1980	420 "	48 "
1981	608 "	80 "
1982	807 "	110 "
1983	960 "	129 "
1984	1,125 "	248 "
1985	127 "	269 "

Allowable Rate Increases

1978	-	\$ 4 Million
1979	\$ 23.7 Million	18 "
1980	15.0 "	14 "
1981	- "	18 "
1982	- "	-
1983	- "	12 "
1984	23.7 "	7 "
1985	- "	47 "
1986	270 "	50 "
1987		38 "

Territory Revenue Requirements

1986	\$1.184 Billion	\$1.153 Billion
1987	1.272 "	1.302 "

Discussion

Even though this study allows the company to recover its investment in Pilgrim II through annual amounts of rate relief, it is assumed that the unrecovered investment will not be allowed in the rate base and will no longer be subject to AFUDC. Therefore, the money costs associated with the unrecovered investment will reduce annual earnings per share on a decreasing scale as the investment is recovered through amortization.

Capital expenditures over the eight-year period are reduced by \$409 million.

Internally generated funds will account for 70 per cent of the construction expenditures, a major improvement from the base case.

The substantial reduction in CWIP on an annual basis reduces the effect of AFUDC on the company's earnings and greatly improves the quality of such earnings.

The company's interest coverages without AFUDC will substantially improve and, together with the higher earnings exclusive of AFUDC, will provide the basis for an improvement in the company's financial viability and ability to undertake its future construction program.

The increases in retained earnings would allow the company to issue additional debt with the necessity to issue only two million shares of common stock to maintain the desired debt-equity ratio.

The financial analysis calls for annual rate increases which will result in a steady growth in earnings per share.

During the eight-year period only \$595 million of additional securities need be issued compared to \$1.2 billion of new securities, as indicated in the base case.

It is the quickest way for the company to regain its overall financial strength and viability.

The use of combined cycling units will give the company more flexibility to match construction expenditures with projected increases in its peak demands.

The disadvantages associated with this course of action include:

Additional base load capacity will be postponed for a considerable period of time.

The company would be committing itself to a larger portion of capacity that would be oil-fired despite uncertainty as to the ramifications of the future government energy policies.

The use of combined cycling units, although improving the company's financial viability during the eight-year period, will very likely increase the cost of power to the customer during the period following 1987.

The company's ability to earn returns ranging between 10 per cent and 12 per cent during the forecast period is dependent upon several timely rate increases from the DPU.

BOSTON EDISON COMPANY

Cancel Pilgrim II - Recover Costs

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>Total</u>
Capital Expenditures excluding AFUDC	153	95	79	100	120	154	218	256	200	177	1,552
Internal Funds	93	90	151	79	101	85	99	120	123	162	1,103
External Funds	60	5	(72)	21	19	69	119	136	77	15	449
AFUDC	18	5	6	7	10	13	20	28	26	20	153
Rate Increase Taken	4	18	14	18		12	7	47	50	38	208
EPS	3.31	3.08	3.46	3.67	4.04	4.22	4.13	4.40	4.66	5.09	
EPS excluding AFUDC	2.11	2.75	3.06	3.20	3.37	3.35	2.83	2.81	3.18	3.95	
AFUDC as a percent of EPS	36%	11%	12%	13%	17%	21%	31%	36%	32%	22%	
Return on Equity	10.7	9.6	10.6	10.9	11.5	11.5	10.9	11.4	11.5	12.0	
Financings											
Debt	40	135			50	50	75	150		75	575
Preferred							35		35		70
Common							60				60
No. of Issues	1	2	0	0	1	1	3	2	1	1	12
Interest Coverage - SEC											
Including AFUDC	2.54	2.50	2.72	2.81	2.86	2.76	2.55	2.72	2.66	2.84	
Excluding AFUDC	2.24	2.41	2.61	2.68	2.69	2.55	2.27	2.37	2.37	2.61	

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PILGRIM II ALTERNATIVES

CANCEL PILGRIM II IN 1979, BUILD COMBINED CYCLE UNITS AND RECOVER

THE COST OF PILGRIM II THROUGH AMORTIZATION (RATE RELIEF)

This study analyzes the financial implications of cancelling Pilgrim II and amortizing the investment over a thirty-year period.

The future generation construction program consists exclusively of combined cycle units scheduled to go into operation to meet the future peak requirements.

A comparative analysis of the financial implications to the company of this plan, compared to the financial implications of a 59 per cent ownership in the unit, is outlined in the following pages.

The income tax treatment of the write-off of Pilgrim II and the book accounting treatment with amortization and its effect on retained earnings is discussed under Tab 6 of this report.

However, based on forecasted figures, approximately \$19,733,000 of the \$26,484,000 investment credit figure will be carried forward to the year 1978 and used to recover taxes which were paid in March and June of 1979 with respect to the 1978 taxable year. That carryforward will result in a cash refund, receivable during the early part of 1980, of approximately \$13,273,000. Thus, the total cash refunds which will be received in 1980 are as follows:

From the taxable year 1977	\$ 970,000
From the taxable year 1978	<u>13,273,000</u>
Total	<u>\$14,243,000</u>

The remaining \$6,751,000 of investment tax credit carryforwards, plus additional credits generated during the years' 1978 through 1981, will be fully absorbed by 1981 based upon current projections.

The Corporate Franchise and Federal income tax savings associated with the \$126.0 million abandonment loss deduction are as follows:

Corporate Franchise	\$ 4,690
Federal Income	<u>58,229</u>
Total	<u>\$62,919</u>

Accounting

No Amortization

Assuming the cancellation of the Pilgrim II unit in 1979 and no rate relief from the DPU, a \$150.0 million expense would be charged against the income of that period. That expense would be reduced by \$66,353,000 of book income tax savings arising from the loss and \$48,480,000 of after tax net income generated during the period producing a net loss, after income taxes, in 1979 of \$35,167,000. The table which follows provides a further breakdown of these figures:

	<u>Pilgrim II</u>	<u>Other</u>	<u>Net</u>
Book Income (Loss) Before Income Taxes	(150,000)	90,734	(59,266)
Income Taxes	<u>(66,353)</u>	<u>42,254</u>	<u>(24,099)</u>
Net Income (Loss)	<u>(83,647)</u>	<u>48,480</u>	<u>(35,167)</u>

Retained earnings as of December 31, 1979 would be as follows:

Balance, December 31, 1978	\$119,726
Net Loss After Income Taxes	(35,167)
Preferred and Preference Dividends	(15,293)
Common Dividends (\$2.44 per share)	<u>(28,144)</u>
Balance, December 31, 1979	<u>\$ 41,122</u>

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The \$83,647,000 reduction in retained earnings, and therefore common equity, associated with the after-tax loss on the Pilgrim II unit will have far-reaching effects. For example, if the Company were to file a cost of service immediately after the loss was recognized for accounting purposes, a permanent annual decrease in revenues of \$6.3 million or 26 cents per share would be incurred, since, based upon a January 1, 1979 capital structure and a 9.65% overall rate of return, an \$83,647,000 reduction in common equity would decrease the overall rate of return to 9.39%. A reduction in the overall rate of return would be produced, since in the cost of capital calculation immediately after the loss, debt capital with its lower cost will be assigned a greater weight than the then diminished equity capital with its higher cost.

In addition, earnings per share will be further permanently reduced because of the inability of the Company to recover the on-going money costs associated with the Pilgrim II unit either by the accrual of AFUDC during the period of construction or by the inclusion of the net plant investment in the facility in rate base, thus charging these costs directly to common stockholders. The absorption of these money costs by the Company's common shareholders will cost approximately 67 cents per share annually.

30 Year Amortization of Pilgrim Unit II With Rate Relief

Assuming that the Department of Public Utilities agrees to permit the Company to amortize the cost of Pilgrim II over a thirty-year period for ratemaking purposes, the write-off of those costs over a comparable period for book purposes will have a less dramatic effect on book income before income taxes. Annual revenues will include \$5.0 million in rates designed to recover the costs incurred with respect to Pilgrim II and annual book expenses will reflect the write-off of Pilgrim II costs over a thirty-year period. This will place the Company in the position of having an investment in Pilgrim II net of tax benefits on which we will be precluded from earning a return. This occurs because we are unable to include the investment in rate base or accrue AFUDC on it. Thus, until we recover the investment fully we will incur money cost associated with financing the asset and these unrecovered money costs will depress earnings. During the ten-year forecast period our unrecovered investment net of taxes ranges from \$81 million in 1979 to \$61 million in 1987 and will have the effect of depressing the Company's 13% allowed return on common equity by 2.1% in 1979 but will gradually decline, as the investment is recovered and as new equity is added to the capital structure, resulting in an effect of depressing that return by 1% in 1987. This differs from the permanent loss in earnings capability that would be incurred if no recovery were allowed by the DPU. The effect on present common stockholders would be equivalent to a loss in earnings per share potential of \$.70 declining to \$.53 by 1987 compared to a permanent loss in earnings per share potential of \$.93 if no recovery is allowed.

Another effect of this transaction on 1979 book income after income taxes, and therefore on common equity, will be a reduction in net income after taxes of approximately \$2.0 million (approximately 17 cents per share) due to a lower amortization of investment tax credit. This lower amortization arises from the carryforward of investment tax credits which resulted from the carryback of the net operating loss incurred in 1979 to the taxable

years 1976 and 1977. As previously noted, all investment tax credit carryforwards will be utilized for tax purposes by 1981. Thus, the above-mentioned \$2.0 loss is a temporary one which will be restored to income by 1981.

100% Write-Off Of Pilgrim II Costs In 1978: No Amortization

Should the Company decide to write-off the cost of Pilgrim II in 1978, rather than in 1979, a book loss of \$32,204,000 would be incurred. The income tax consequences of this course of action would be substantially the same as those just outlined, except that the cash refund applicable to the net operating loss carryback would be approximately \$1.5 million rather than the \$14.2 million figure determined under the previous assumption. Of course, the Company will receive further cash benefits from its net operating loss deduction by way of eliminating the necessity of making tax payments in 1978 and the further reduction of income tax payments in future years.

Retained earnings as of December 31, 1978 would be as follows:

Balance, December 31, 1977	\$106,037
Net Loss After Income Taxes	(32,204)
Preferred and Preference Dividends	(15,293)
Common Dividends	<u>(28,144)</u>
Balance, December 31, 1978	<u>\$ 30,396</u>

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BOSTON EDISON COMPANY

INCOME TAX TREATMENT OF THE WRITE-OFF OF PILGRIM UNIT #2 AND THE

BOOK ACCOUNTING TREATMENT WITH AND WITHOUT AMORTIZATION

AND ITS EFFECT ON RETAINED EARNINGS

Income Taxes

Assuming that the Pilgrim II project is cancelled in 1979 and that the physical abandonment of the property actually occurs in that year, the Company will be entitled to an abandonment loss deduction when it files its 1979 income tax return. The income tax deduction associated with that loss can be calculated as follows:

Book Basis of Pilgrim II	\$150.0
Less: AFUDC Capitalized	(23.0)
Less: Pensions and Payroll Taxes Capitalized	(1.0)
Tax Basis	<u>\$126.0</u>

When the \$126.0 million abandonment loss is combined with the \$72,154,000 of taxable income which would have been determined in 1979 had no abandonment loss occurred, a net operating loss of \$53,846,000 results. The \$53,846,000 net operating loss is then carried back to the taxable years 1976 and 1977, and applied against the taxable income of those periods in the following manner:

1976	\$33,597
1977	<u>20,249</u>
Total	<u>53,846</u>

The net operating loss carryback to the 1977 taxable year will result in a cash refund, receivable in the early part of 1980 of about \$970,000 in Federal tax payments made in March and June of 1978 with respect to the 1977 tax year.

Since the net operating loss carryback completely eliminates the taxable income determined with respect to the year 1976 and all but \$11,766,000 of the 1977 taxable income, an investment tax credit carry-forward will have been created in the following amounts:

1976	\$17,760
1977	<u>8,724</u>
Total	<u>\$26,484</u>

BOSTON EDISON COMPANY

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<u>Tab</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>Total</u>
<u>1 59% Pilgrim II 1985 - Base Case</u>											
Capital Expenditures	153	153	180	230	232	218	194	224	198	288	2,070
Internal Funds	93	96	67	87	58	62	71	89	314	169	1,106
External Funds	60	57	113	143	174	156	123	135	(116)	119	964
AFUDC	18	25	37	53	74	94	111	119	22	28	581
<u>2 30% Pilgrim II</u>											
Capital Expenditures	153	114	98	164	175	187	194	257	257	203	1,802
Internal Funds	96	169	83	101	97	85	92	85	90	252	1,130
External Funds	57	(55)	15	63	98	102	102	172	167	(49)	672
AFUDC	18	15	20	26	38	49	60	76	89	25	416
<u>3 40% Pilgrim II</u>											
Capital Expenditures	153	121	105	187	196	207	196	231	255	229	1,880
Internal Funds	96	144	84	101	68	78	90	81	87	255	1,084
External Funds	57	(23)	21	86	128	129	106	150	168	(26)	796
AFUDC	18	18	24	32	47	61	74	90	106	26	496
<u>4 Cancel Pilgrim II - Write Off</u>											
Capital Expenditures	153	95	79	101	119	154	217	256	200	177	1,551
Internal Funds	93	81	149	75	97	77	86	110	110	148	1,026
External Funds	60	14	(70)	26	22	77	131	146	90	29	525
AFUDC	18	5	6	6	10	13	20	27	25	19	149
<u>5 Cancel Pilgrim II - Recover Costs</u>											
Capital Expenditures	153	95	79	100	120	154	218	256	200	177	1,552
Internal Funds	93	90	151	79	101	85	99	120	123	162	1,103
External Funds	60	5	(72)	21	15	69	119	136	77	15	449
AFUDC	18	5	6	7	10	13	20	28	26	20	153

BOSTON EDISON COMPANY

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	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
<u>59% Pilgrim II 1985 - Base Case</u>										
Earnings Per Share	\$3.25	\$3.70	\$4.04	\$4.38	\$4.40	\$4.45	\$4.50	\$4.91	\$5.42	\$5.43
AFUDC - EPS	\$1.15	\$1.35	\$1.83	\$2.61	\$3.53	\$4.08	\$4.38	\$4.67	\$.85	\$1.09
AFUDC as a Percent of EPS	35%	36%	45%	60%	80%	92%	93%	95%	16%	20%
<u>30% Pilgrim II</u>										
Earnings Per Share	\$3.31	\$3.91	\$4.13	\$4.37	\$4.82	\$4.91	\$5.17	\$5.20	\$5.38	\$6.37
AFUDC - EPS	\$1.18	\$1.00	\$1.30	\$1.48	\$2.16	\$2.78	\$3.37	\$4.02	\$4.71	\$1.32
AFUDC as a Percent of EPS	36%	26%	31%	34%	45%	57%	65%	77%	88%	21%
<u>40% Pilgrim II</u>										
Earnings Per Share	\$3.31	\$4.02	\$4.29	\$4.52	\$4.70	\$4.78	\$5.25	\$5.28	\$5.88	\$6.23
AFUDC - EPS	\$1.18	\$1.20	\$1.55	\$1.82	\$2.67	\$3.47	\$4.10	\$4.45	\$5.25	\$1.29
AFUDC as a Percent of EPS	36%	30%	36%	40%	57%	73%	78%	84%	89%	21%
<u>Cancel Pilgrim II - Write Off</u>										
Earnings Per Share	\$3.31	(\$4.38)	\$3.24	\$3.33	\$3.38	\$3.58	\$3.43	\$3.66	\$3.80	\$3.88
AFUDC - EPS	\$1.18	\$.35	\$.39	\$.44	\$.65	\$.85	\$1.27	\$1.52	\$1.37	\$.96
AFUDC as a Percent of EPS	36%	-	12%	13%	19%	24%	37%	42%	36%	25%
<u>Cancel Pilgrim II - Recover Costs</u>										
Earnings Per Share	\$3.31	\$3.08	\$3.46	\$3.67	\$4.04	\$4.22	\$4.13	\$4.40	\$4.66	\$5.09
AFUDC - EPS	\$1.18	\$.33	\$.40	\$.47	\$.67	\$.87	\$1.30	\$1.59	\$1.48	\$1.14
AFUDC as a Percent of EPS	36%	11%	12%	13%	17%	21%	31%	36%	32%	22%

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BOSTON EDISON COMPANY

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Tab	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	Total	
1	<u>59% Pilgrim II 1985 - Base Case</u>											
	Financings (Millions)											
	Debt	40	185	75	100	125	75	160	50	-	60	870
	Preferred	-	-	25	50	-	25	-	50	-	-	150
	Common	52	54	-	-	60	62	-	-	-	-	228
	No. of Issues	2	4	2	3	3	3	2	2	-	1	22
2	<u>30% Pilgrim II</u>											
	Financings (Millions)											
	Debt	40	135	50	50	100	60	50	150	125	50	810
	Preferred	-	-	-	-	-	35	35	-	-	25	95
	Common	-	-	56	-	-	-	31	-	-	-	87
	No. of Issues	1	2	2	1	1	2	3	2	2	2	18
3	<u>40% Pilgrim II</u>											
	Financings (Millions)											
	Debt	40	135	50	50	175	60	50	150	125	50	885
	Preferred	-	-	-	-	-	35	35	-	-	25	95
	Common	-	-	56	-	-	-	62	-	-	-	118
	No. of Issues	1	2	2	1	2	2	3	2	2	2	19
4	<u>Cancel Pilgrim II - Write Off</u>											
	Financings (Millions)											
	Debt	40	135	-	-	75	50	75	150	60	75	660
	Preferred	-	-	-	-	-	-	35	-	35	-	70
	Common	-	-	-	-	-	-	60	-	-	-	60
	No. of Issues	1	2	0	0	1	1	3	2	2	1	13
5	<u>Cancel Pilgrim II - Recover Costs</u>											
	Financings (Millions)											
	Debt	40	135	-	-	50	50	75	150	-	75	575
	Preferred	-	-	-	-	-	-	35	-	35	-	70
	Common	-	-	-	-	-	-	60	-	-	-	60
	No. of Issues	1	2	0	0	1	1	3	2	1	1	12

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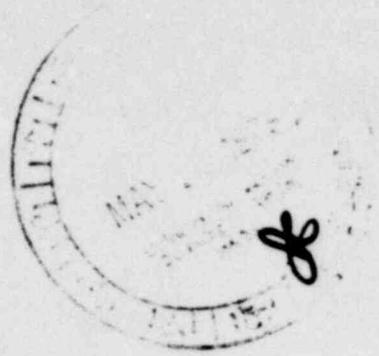


APPENDIX II

Return to S. Stowe

STATE JUDICIAL DEPT

AG-II-13



BOSTON EDISON COMPANY

BOARD OF DIRECTORS MEETING

JULY 27, 1978

REPORT ON PILGRIM 2 PROJECT

19494

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INDEX

- I. Directors Meeting Objective
 - Establish a plan with alternatives if necessary
 - Agree to financial criteria and time limits for decision-making
 - Agree on an August program
- II. Summary of June 26th Meeting
- III. Significant Events Since June 26th
- IV. Changed Financial Impact Makes Current Program Untenable
- V. Alternatives to Present Plan
- VI. Major Constraints to Base Case.
- VII. Financial Constraint
- VIII. Reduce Present Project Commitment
- IX. CWIP Constraint
 - Mass Legislature
 - Mass DPU
 - Federal Government
- X. Ability to Find a Market for Sale of Part of the Unit
- XI. Sale of Complete Unit
- XII. Cancel and Salvage the Unit
- XIII. August Corporate Action Program

Report on Pilgrim 2

Recommendations for July 27 Board Meeting

I. Meeting Objective: Present and discuss the key time and financial constraints impacting the Pilgrim 2 project and set corporate action plan for the month of August.

II. Summary of June 26 Meeting

We first would like to briefly summarize the areas we reported to the Board on June 26th with our position on them.

- While there are uncertainties in regard to the regional and Company load forecasts, we believe that to economically meet our customers' power needs in the future, Edison will require Pilgrim 2 in 1985. New England and the other joint owners will also have a need for the unit.
- The only potential economic alternative to Pilgrim 2 is a combined cycle unit for service in the mid-1980's. There is a question whether this type of unit, which would have to burn oil and have a potential for conversion to liquified coal, would be permissible. It is our opinion that a base load coal plant could not be brought in service by that time, new technologies will not be available, and added conservation measures will not be sufficient to prevent a capacity shortage.
- We have made considerable Pilgrim 2 licensing progress, but the major open issues at the NRC are financial qualifications and alternate sites. The Attorney General has asked

the ASLB to also reopen the need-for-power issue. The entire licensing process has been clouded by the interaction of ongoing DPU-EFSC public hearings on our construction program. We believe we will prevail in these hearings except on the financial qualifications issue.

- We reviewed the legal situation from a licensing point of view and from the obligations of Directors.
- The positive public attitude towards nuclear power has been decreasing and several of the strong societal trends are running against its use as an energy source. We believe that, considering these societal factors, the plant can still be licensed and constructed to meet our power needs, but in the short term, time is running against us.
- We reviewed the financial problems associated with continuing to build the unit without setting forth any proposed solutions. We also reviewed the cost of cancelling the unit on July 1, 1978 or January 1, 1979. As we plan to discuss these financial concerns later in this report, we shall not review them here.

In summary, on June 26, we provided the Directors with data on the major elements that are impacting the decision before us.

III. Significant Events Since June 26

There have been a number of significant events since our last meeting that bear on the decision before the Board, and we would like to report on them briefly.

1. Seabrook Shutdown

The order by the NRC to stop construction at the Seabrook site pending a decision by the EPA on cooling towers is additional evidence of the state of confusion that exists at the federal government level in regard to construction of nuclear power plants. In a state with CWIP in rate base and strong support from the governor, the federal process has shut down construction. In addition, this situation further supports earlier comments regarding the impact of NRC Commissioners Gilinsky and Bradford, who voted for the shutdown in the 2-1 NRC decision. Our judgment is that the EPA will uphold their prior decision to permit direct discharge from the Seabrook site, but it is uncertain as to how quickly the NRC will act to allow construction at the site to start up again. The added delays at Seabrook could also make the New England power supply situation in the mid-1980's more critical.

2. NRC Financial Qualifications Letter

We included in the "Information for Directors" the letter received from the NRC last Friday in which they stated that based on information provided by the Company in a financial plan, that the NRC could not conclude the

Company's financial qualifications will permit raising necessary funds to build Pilgrim 2 at the present time. They indicated that at the minimum they would wait to see the results of our third quarter earnings. This means no hearings on Financial Qualifications can take place until November 1978 at the earliest. The impact of the NRC staff letter is to clearly establish Financial Qualifications as the critical licensing path to continue the unit. Although the letter suggests the consideration of an alternative financial plan, we do not believe that the submission of a revised financial plan is a viable alternative to this problem at the present time.

3. DPU Changes

The makeup of the DPU was finalized on June 29th with the appointment of Commissioner Paul Levy as Chairman. The vacancy on the Commission was filled by Donald C. Hillman. Chairman Levy did not participate in our recent retail rate decision, so it is difficult to predict future actions without a track record. He is generally considered by external sources as competent and fair. Commissioner Hillman comes to the DPU from the Insurance Commissioner's office, and has no utility experience. Both of these men were appointed to the DPU from Secretary of Consumer Affairs Christine Sullivan's office, which hopefully

will resolve the DPU/EFSC jurisdictional problem but not impact the ultimate DPU decision.

4. Massachusetts Legislature

The Massachusetts legislature has ended its regular 1978 session. Any opportunity for emergency legislative relief on CWIP prior to the 1979 legislative session has been eliminated.

We have factored these recent events into the course of action we propose to discuss with you this morning.

IV. Changed Financial Impact Makes Current Program Untenable

From the financial data presented to you on June 26th and the discussion, it is clear that management can no longer recommend that we continue to license and construct Pilgrim 2 with a 59% ownership position.

It is appropriate to review with you what financial factors have changed since the 1975 and 1977 financial forecasts that have led to this conclusion.

These facts have been summarized by Mr. Tyrrell and are shown here as Exhibit A. (From 1/17/78 Pilgrim Unit 2 Financial Analysis of Comparative Studies Report - Section 1, Exhibit A.)

- KWH Sales Forecast decreased by 20% in 1987
- Cost of Unit increased \$800 million to \$2.0 billion
- AFUDC Component of Unit Cost increased to 39% from 25%
- Total External Funds required (six year period) increased from \$411 million to \$844 million - fifteen financings in six years
- CWIP at time of commercial service increased to \$1.1 billion (excluding AFUDC)
- Rate Relief Required in First Year of Operation increased to \$270 million - 50% of Base Revenues. After expected fuel savings, net annual rate increase of \$86 million would occur in 1986
- Interest coverage (six year average) decreased to 2.7X including AFUDC

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- AFUDC as a percentage of earnings (six year average) increased to 79% with a high of 95% in 1985.

The cumulative effect of the above indicates that a revised project program is required.

Exhibit A

EXHIBIT A

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FINANCIAL FORECAST COMPARISON

Key Facts

	1975 Forecast	1977 Forecast	1978 Forecast
KWH Sales In First Year of Operation (Millions)	13,800 ('81)	13,490 ('84)	12,000 ('85)
KWH Sales In 1987 (Millions)	16,800	15,500	12,600
Cost of Unit:			
Total	\$1.2 Billion	\$1.5 Billion	\$2.0 Billion
BECO. Share	\$.73 Billion	\$.9 Billion	\$1.15 Billion
AFUDC Component of Unit Cost	25%	33%	39%
Capital Expenditures (6 Year period)	\$995 Million	\$1,152 Million	\$1,278 Million
Internal Funds (6 Year period)	\$584 Million	\$514 Million	\$434 Million
External Funds (6 Year period)	\$411 Million	\$638 Million	\$844 Million
Internal Funds as a percent of Construction Expenditures (6 Year period)	59%	45%	34%
Net Securities Issued during construction (6 Year period):			
Amount	\$460 Million	\$641 Million	\$787 Million
Number	10	13	15
Rate Base At Time of Installation	\$1.0 Billion	\$1.2 Billion	\$1.1 Billion
CWIP at Time of Installation	\$.7 Billion	\$.9 Billion	\$1.1 Billion
Rate Relief Required in First Year of Operation:			
Gross Amount	\$ 80 Million	\$190 Million	\$270 Million
Percent Increase of Cash Revenues	16%	37%	50%
Fuel Savings		\$145 Million	\$184 Million
Interest Coverage (6 Year average)	3.7X	3.0X	2.7X
AFUDC as a percent of Earnings (6 Year period)	23%	52%	79%

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V. Alternatives to Present Plan

While there are many variations and combinations of alternatives, there were four principal ones selected for study.

Base Case - Present Plan (59% Ownership - No CWIP)

Alt. #1 Maintain 59% ownership with CWIP.

Alt. #2 Sell off a substantial additional share of the unit to the minimum consistent with financial risk, assuming no regulatory relief (i.e., CWIP in rate base).

Alt. #3 Sell the unit complete with construction management to another utility or the state buying back a manageable amount of power.

Alt. #4 Cancel the unit, minimizing the potential loss to stockholders.

The management's proposal involves the possibility that all of these alternatives may be necessary to implement over a period of time. Attached as Exhibit B is a decision flow diagram that would bring us through the various alternatives.

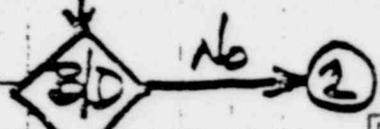
Discuss 12 options with CEO on 1/24/10

Options: - 59% ownership with CWIP
 - sell down to 30% B ownership
 - sell out 100%
 - cancel

Version for making copies



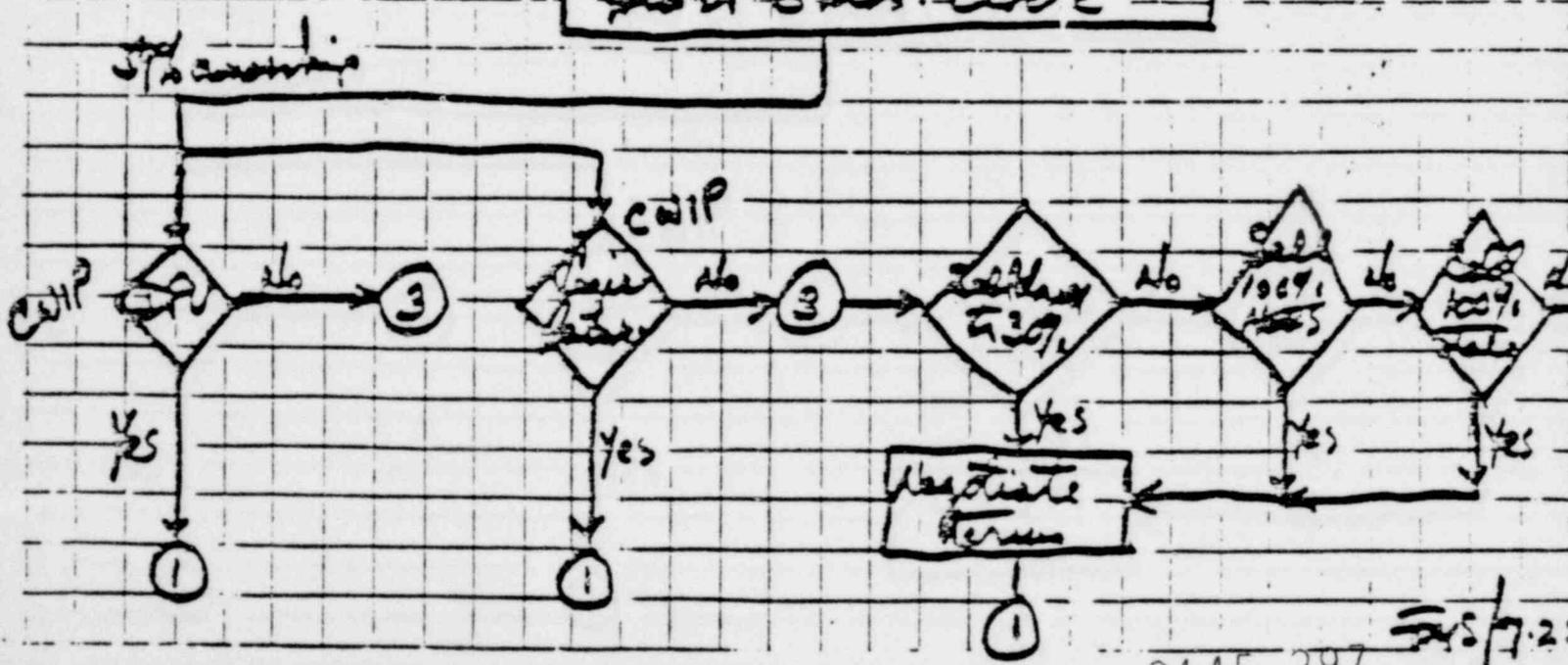
Meet with Regulatory, Executive and Legislative government leaders to disclose situation and check attitudes on CWIP

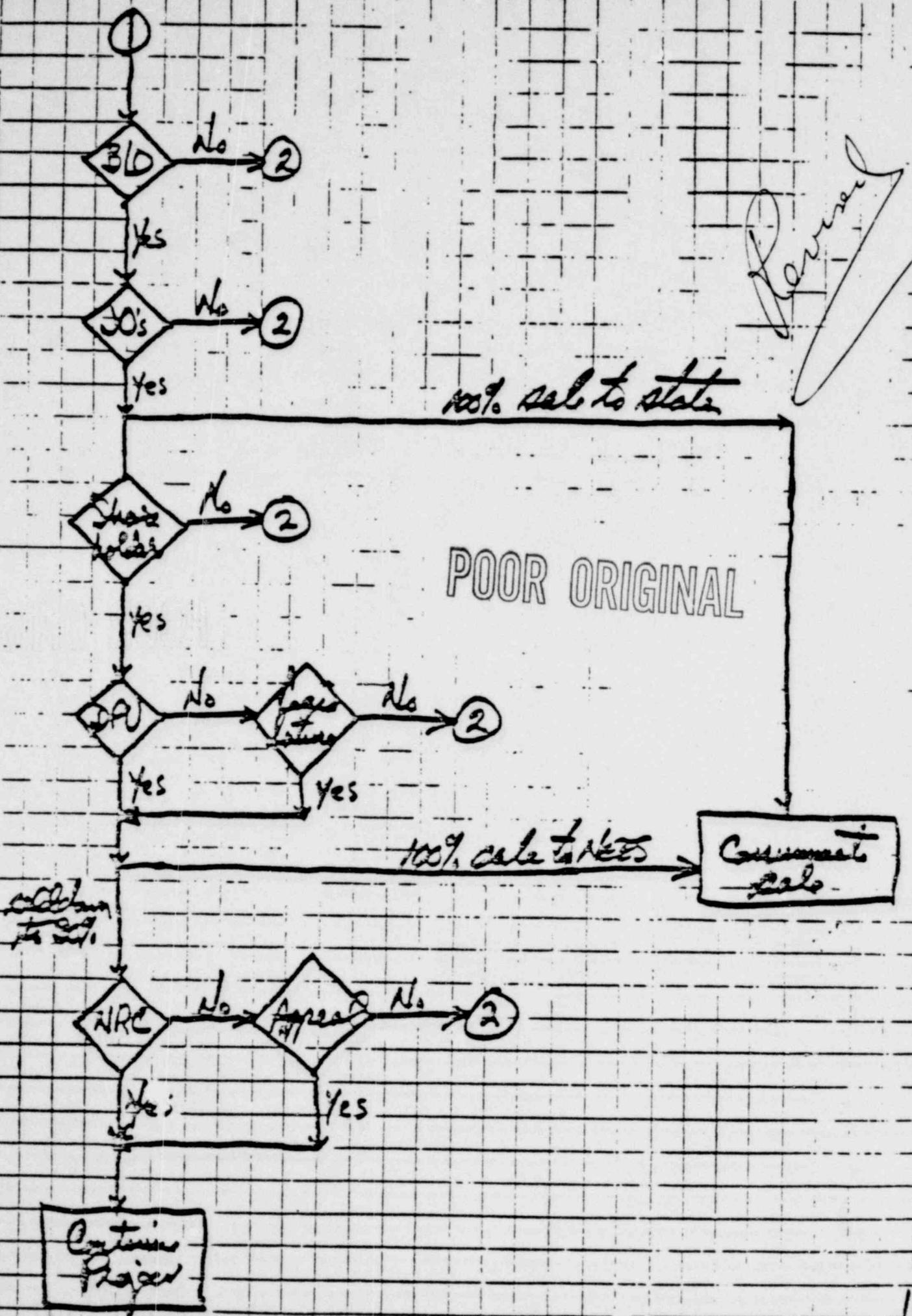


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Continue work effort to summarize for licensing and asset protection

Meet with DOJ's, discuss and start to exec. else's





VI. Major Constraints to Base Case

We have identified three major constraints to the Base Case or Alternatives #1 or 2.

1. The ability to remain financially viable if we ultimately must cancel the Unit.
2. Massachusetts doesn't permit CWIP in the Rate Base.
3. The ability to find a market for sale of part of the Unit.

The major constraint is financial and controls all other alternatives. It establishes how much time is available to pursue other alternatives. The issue of CWIP in rate base is the constraint to Alternative #1 (59% ownership) which is the most desirable and impacts Alternative #2 by making it only marginally acceptable. Finding buyers for shares of all of the unit impacts Alternative #2 (sell down) and Alternative #3 (sell the unit).

VII. Financial Constraints

Our forecasts indicate that if it becomes necessary to cancel the unit and take the loss in 1979, retained earnings after the write-off and the payment of dividends would be reduced to approximately \$40 million. The \$40 million figure is predicated upon the receipt of rate relief in 1979. Every attempt should be made to prevent the retained earnings from falling below this level.

If we cancel in 1979 with rate relief the following occurs.

	<u>Pilgrim II</u>	<u>Other</u>	<u>Net</u>
Book Income (Loss) Before Income Taxes	(150,000)	90,734	(59,266)
Income Taxes	66,353	42,254	(24,099)
	<u>(83,647</u>	<u>48,480</u>	<u>(35,167)</u>

Net loss for the year 1979 would be \$35,167,000 and retained earnings after the payment of preferred and common dividends would be approximately \$40 million.

If the unit was written-off in 1978 the net loss for the year would be \$32,204,000 and retained earnings after the payment of preferred and common dividends would be approximately \$30 million. In both years \$150,000,000 was the amount of the Company's write-off.

If cancellation and write-off become necessary, the Company will incur an \$84 million reduction in retained earnings and common equity which will have far reaching effects. This reduction in equity would decrease our overall rate of return allowed for rate setting purposes to 9.39% from 9.65% based on a January 1, 1979 capital structure. This would produce a permanent annual decrease in revenues of \$6.3 million or 26 cents per share. In addition, earnings per share would be further permanently reduced because of the Company's

inability to recover the ongoing money costs associated with Pilgrim 2 either through AFUDC or by inclusion of the net plant investment in rate base. The absorption of these money costs by the common stockholders will further permanently reduce earnings per share by 67 cents annually.

We have also analyzed the impact on earnings if we are allowed by the DPU to recover our investment in Pilgrim 2 (\$150 million) through an amortization of the cost over 30 years which would require an additional \$5 million in revenues annually. In the analysis we assumed that the DPU would not allow inclusion of the unrecovered investment in rate base. This places the Company in a position of having an investment, net of tax benefits associated with a tax write-off, on which we will be precluded from earning a return. This occurs because we are unable to include the investment in rate base or accrue AFUDC on it. The effect on present common stockholders would be equivalent to a loss of earnings per share of \$.70 declining to \$.53 by 1987 and to zero by the end of the third year period. This compared to a permanent loss in earnings per share potential of \$.93 if no recovery is allowed.

If the net investment is included in rate base during the amortization period, the common stockholders would incur no loss and this is the treatment we would request of the DPU.

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VIII. Reduce Current Project Commitment

Because of this financial exposure, we propose that the Pilgrim 2 project resource commitment be reduced to the minimum necessary to continue licensing activities and protect our current asset. We would stop all new procurement and reduce the overall effort to approximately 30% of current levels. This action would be taken after evaluation of meetings with government officials. If this decision is made by the management it would trigger full disclosure to the public. Going to a reduced effort means accepting a December 1986 in-service date as the earliest possible date and a corresponding increase in the cost of the plant (\$200 million). This decision would permit us to continue to approximately July 1, 1979 when the Company's cancellation exposure would reach \$167 million. A decision to return the project to current levels, however, would be required by February 1, 1979 to meet the December 1986 in-service date. We do not recommend a wait to July but it establishes the outer bounds based on present information that we can work with to achieve a goal of minimizing our risk by either obtaining CWIP in rate base or selling down our share of the Unit.

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IX. CWIP Constraints

One constraint which makes it impossible to continue with 59% ownership is the lack of CWIP in rate base in Massachusetts. It would be necessary for the DPU to allow the inclusion of CWIP in rate base for major projects or to be directed to do so by legislation. Alternate #1 requires that we assess whether CWIP can be achieved from either group in a timely manner.

Mass Legislature

The earliest this could be achieved is the Spring of 1979 as the legislature has prorogued for 1978. This will require that the Governor and State Legislative leaders be advised of the problem and that they indicate potential support for processing new legislation early in 1979. We are faced, of course, with elections in November and known changes in the legislative leadership will occur in 1979. We also must consider that we are asking for progress payment support through rate increases in addition to rate increases we will require to recover increased operating costs. Fuel costs will also increase and impact customer bills via the fuel adjustment clause. The increases required before the unit goes into service are summarized as follows:

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>Tot</u>
Rate Increases Associated with CWIP in Rate Base	\$23	\$14	\$20	\$17	\$14	\$5	\$32	\$12
Normal Rate Increase	24	15	-	-	-	24	-	6
Automatic Fuel Adjustment Clause Increases	<u>15</u>	<u>28</u>	<u>25</u>	<u>29</u>	<u>30</u>	<u>40</u>	<u>51</u>	<u>21</u>
Total Increases Required	<u>\$62</u>	<u>\$57</u>	<u>\$45</u>	<u>\$46</u>	<u>\$44</u>	<u>\$69</u>	<u>\$83</u>	<u>\$40</u>

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The rate increases associated with CWIP in Rate Base totals \$125 million but it should be understood that cumulatively these rate increases represent \$513 million of additional revenues that customers would pay during the seven year period preceding the Pilgrim 2 in-service date. In effect, to reduce financial risk to an acceptable level we will be asking customers to make progress payments on the unit before it goes into service and by reducing rate base, receive the benefits over the life of the plant. We propose to meet with the Governor and legislative leaders in August 1978 to evaluate the potential for legislative success in 1979.

Mass DPU

The quickest way to ascertain if CWIP is possible is via the DPU. We propose to meet with the Secretary of Consumer Affairs and the DPU to advise them of the seriousness of the problem. Care will be taken to prevent third party communications that may impact the current DPU/EFSC hearings on our construction program but these hearings are of little consequence if we must make the decision to cancel the Unit. We recognize that we may be asking the DPU to act prior to the outcome of these hearings but such action is necessary. An alternative is for the DPU to speed up the construction program hearings. We propose to advise the DPU in mid-August of our intent to file a new retail rate case in mid September to be effective

October 1, 1978. Assuming they will suspend the rates, they will have six months, to April 1, 1979, to render a decision. The rate filing would be based on CWIP in the rate base for Pilgrim 2. This would establish a date certain for a DPU decision on CWIP (4/1/79) which is within our financial solvency constraint. We would ask the DPU to treat this subject as a separate issue first in the proceeding and issue an interim order at the earliest possible date. This could reduce the time exposure of waiting for a decision, however, you should be aware of the potential for significant intervention on this issue which might prevent an early decision.

Federal Government

While we recommend immediate contacts with Administration and Congressional leaders, it is doubtful that Federal legislative relief can be achieved before 1980 if at all. Our objective with this effort will be to solicit support for CWIP at the State level from DOE and Congressional leaders. DOE will be asked to become an intervenor in the State hearings.

Regardless of available alternatives, we plan to continue efforts at all levels to get CWIP in rate base in Massachusetts. A factor to be continually assessed, however, is how long can we wait in the CWIP process and maintain our 59% ownership position. We will evaluate this for the Board in August but the latest may be the September Board Meeting. It will take time to move other alternatives to completion within the financial solvency time limit of July 1, 1979.

During the August period we propose that informal discussions with other utilities and Joint Owners be initiated to sell down or sell off the Unit.

X. Ability to Find a Market for Sale of Part of the Unit

If we are unable to secure CWIP in a reasonable period of time we must go to Alt. #2 and sell down our 59% share of the unit to minimize risk. The validity of this alternative must be determined by first establishing as a criterion the minimum ownership position the Company will accept without obtaining CWIP in rate base, and secondly, determining the minimum level of ownership in the unit that we desire to remain as construction managers and plant operators.

To determine the minimum ownership position which would enable us to finance construction, we tested a sell-down to 40% position (Financial Analysis Report, Section 3) and found it unworkable without CWIP, and also tested a 30% ownership position (Financial Analysis Report, Section 2). We believe the 30% ownership level is marginally acceptable as a financial risk without CWIP, and propose that this become the sell-down minimum level for continuing with this alternative. This study assumed that we would meet load requirements for additional capacity by installing a combined cycle plant as needed or by purchase. Selecting this alternative and staying within the financial solvency time limits to confirm its viability will result in a December 1986 in-service date at the earliest and a \$200 million increase in the unit cost over the base case.

The reasons for selection of this alternative based on a review of key financial data are as follows (Financial Analysis, Section 2):

- Construction period extended to 1986 with capital expenditures of approximately \$1.6 billion as at present
- Internal funds as a percentage of Capital Expenditures during the period (1978-1986) improve to 55% as compared to 39%. Additionally, the internal funds percentage during the five years of heavy construction (1982-1986) improve to 40% from 33%
- External funds will be reduced from \$721 million from \$961 million - sixteen financings over a longer period (nine years)
- AFUDC will decline by \$140 million over the nine-year period and reach 85% of 1986 projected earnings
- The necessary in-service rate increase will be reduced from \$270 million to \$180 million with the net increase after fuel savings reduced from \$86 million to \$78 million
- Required common stock issues decrease from eight million shares to three million shares, reducing potential dilution
- The company can control the in-service date of needed cycling unit capacity based on more current data, reducing future risk

We believe this alternative is marginal without CWIP, and would continue efforts to obtain it to improve this course of action if selected.

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We do not believe that selling down the unit to below this level is acceptable. We could continue to have the management responsibility for licensing and construction of a project in which we would have a minor interest. The 30% level represents 345 MW of capacity. Additional capacity needs can best be supplied from smaller combined cycle units or purchasing power from a new Pilgrim 2 owner or another plant built by others.

We propose to investigate this alternative informally with potential utility buyers and our Joint Owners in parallel with efforts to achieve CWIP. We shall evaluate the potential for this alternative and report to the Directors at the August meeting.

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XI. Sale of Complete Unit

In the event we are unable to establish a market for 29% more of the unit (Edison to retain a minimum of 30%) we shall endeavor to sell the entire unit, including the transfer of project management, to another utility, or if no private buyers can be found, to the Commonwealth (Alt. #3). This step prior to cancellation and salvage would be a last ditch effort to minimize shareholder loss and still continue the project which is necessary for the region. Because of inflation and increasing regulatory requirements, Pilgrim 2 will produce the lowest cost power of any new base load power plant built in New England.

With this decision, which we will face only after exhausting all other remedies, the Company will give up the Pilgrim 2 site to a new owner/manager even with Pilgrim 1 operating next to it. We would endeavor to buy as a partner up to 30% of the unit to serve our customers' energy needs and stay within our financing capabilities.

XII. Cancel and Salvage the Unit

We have discussed the financial impact of canceling the unit #4) under Financial Constraints (Section VII). This alternative will only be taken after we have exhausted all other avenues to keep the unit for New England and our customers. We are fully cognizant of the impact of such a decision nationally, regionally, in the Commonwealth, on our customers and on the shareholders.

There are various salvage alternatives. The cancellation costs utilized in the studies are based on no salvage value on the Combustion Engineering Nuclear Steam Supply components and the General Electric turbine generator. It is assumed we will pay the full contract price for this equipment. A uranium ore resale credit of \$21.5 million has been included.

We would endeavor to sell the complete plant equipment package including engineering if possible or the major components. Due to the uncertainty associated with such sales it is believed prudent to not assume a salvage value.

XIII. August Corporate Action Program

August Objectives: Limit increases in financial exposure to the minimum necessary to support licensing and protect the value of the asset; obtain evaluation of potential to get CWIP from State; obtain verbal evaluation of potential to sell down to 30%; continue licensing efforts to achieve all but NRC approval of financial qualifications.

Program:

A. Proceed on a multiple path action plan to secure CWIP, sell down to 30%, sell the Unit or cancel the Unit.

B. Monitor the program with the Directors monthly and be prepared at any time prior to July 1, 1979 to order cancellation.

C. Initial August 1978 Actions.

1. Meet with the Governor, the Secretary of Consumer Affairs and the DPU to explain the problem and determine feasibility of CWIP relief.

- a. Request the DPU to agree to consider CWIP in a new September retail rate case filing. Filing CWIP in rate base in September would fix the yes/no CWIP decision from the DPU at April 1, 1979. The DPU could consider the CWIP issue first in the case and issue an interim order of this item alone. Also a companion wholesale rate S-5 filing should include CWIP in any event where FERC has emergency regulations.
- b. Request the Governor to support 1979 legislation on CWIP.

c. Edison could consider petitioning the DPU this Fall for generic hearings on its own as an alternative to rate case submission.

2. Meet informally with potential large buyers of power to determine if there is any interest in purchasing large additional shares of the Unit. This is not a substitute for a later formal NEPOOL offer to sell but an effort to realistically evaluate the potential for success.

3. Meet with the Joint Owners Chief Executives to review the project including the situation on CWIP. The objective will be to test the viability verbally, without making an official offer to sell at this time, of our ability to sell down to 30%.

4. Cut project back to 30% level to minimize financial exposure and maximize time available before need to make cancellation decision.

a. Continue licensing effort

b. Protect our current asset

c. Stop new procurements

d. Accept December 1986 in-service date.

5. Prior to August 15, file a letter of intent with the DPU stating we are planning to file a new retail rate case in mid-September with an effective date of October 1, 1978. The rate case filing will include CWIP in rate base.

6. Meet with State legislative leaders to explain the problem and seek CWIP relief. The objective would be to obtain their support for legislation to be filed in early December permitting CWIP in rate base with early legislative action. Action could be achieved by June 1, 1979.

7. Meet with Mass. Congressional leaders with the objective of explaining the problem and enlisting their support for CWIP at the state level as well as at the federal level.

At present, DOE has a study underway on CWIP impact on energy supply. This study and the administrations' support will be an essential part of the federal legislation directing all state's to include CWIP in rate base. Realistically, any final congressional action is estimated to be in 1980.

8. Meet with DOE officials with the objective of explaining the CWIP problem and enlisting their support. Support would be to assist in the state's effort with an intervention in DFJ proceedings in support of CWIP. Our project should also impact the current DOE study leading to administration support of legislation on CWIP.

9. Continue to seek remaining permits to construct Pilgrim
2. Meet with the NRC to seek agreement to expedite all open licensing questions except the issue of financial qualifications.

10. Evaluate the results of the above actions and report to the August Board of Directors Meeting the potential for obtaining CWIP and/or selling down to 30%. That report will include a September action plan and measure our progress against goals including time constraints.

APPENDIX III

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Boston Edison Company
D.P.U.

Exhibit No. BE-100



TESTIMONY
OF
RALPH M. KELMON

- Q. Will you give your name and address, please?
- A. My name is Ralph M. Kelmon. My business address is 800 Boylston Street, Boston, Massachusetts.
- Q. What position do you hold at Boston Edison Company?
- A. I am Treasurer of the Boston Edison Company.
- Q. How long have you been Treasurer?
- A. Since August 1, 1975.
- Q. What position did you hold at Boston Edison prior to your appointment as Treasurer?
- A. I served as the Company's Assistant Treasurer from 1957 through July 31, 1975.
- Q. Would you describe your duties as Treasurer?
- A. My duties include the preparation of financial plans, review and analysis of operations and preparation of financial and statistical reports.
- Q. Please describe briefly your educational background and your experience in the public utility field.
- A. I received a Bachelor of Science degree in Business Administration from the University of Florida in 1941 and an M.B.A. degree from the Harvard Graduate School of Business Administration in 1943. Prior to joining Boston Edison Company in

1951, I was employed as a work controller with Allegheny Ludlum Steel Corporation; as an assistant professor of accounting at the University of Florida; and as a staff member with Lybrand, Ross Bros. & Montgomery, Accountants and Auditors. I am a member of the American Institute of Certified Public Accountants; the Massachusetts Society of Certified Public Accountants; the American Accounting Association; the National Association of Accountants; the American Economic Association; and the American Management Association, and I am a Director of the Reading Cooperative Bank.

I was chairman of the Accounting Division Executive Committee of the Edison Electric Institute in 1970-1971. I previously was chairman of the EEI Application of Accounting Principles Committee.

- Q. Would you describe generally the service area, the operating system and the electric facilities of Boston Edison Company?
- A. Boston Edison is an operating public utility engaged principally in the generation, purchase, transmission, distribution and sale of electric energy. It was incorporated in 1886 under the laws of the Commonwealth of Massachusetts. The Company supplies electricity at retail in the cities of Boston, Somerville, Newton, Chelsea, Waltham and Woburn, in the towns of Brookline, Arlington, Watertown and Framingham, and in thirty other towns in eastern Massachusetts covering an area of approximately 590 square miles within thirty miles of Boston. The population of the territory served with electricity at retail was approximately 1,600,000 in 1970. The Company also supplies electricity at wholesale for

resale to other utilities including the total electric requirements of three municipal electric departments in the vicinity of Boston.

Q. Mr. Kelmon, why is Boston Edison presently seeking rate relief?

A. The Company's purpose in seeking rate relief is to obtain a level of rates which will enable the Company to continue to provide an adequate and reliable supply of electric energy to its customers. The level of rates necessary to provide this high quality service is that which will allow the Company to fully recover its costs of operation; that is, its total costs of doing business. Persistent inflation is substantially increasing the costs of operation and rate relief is essential to offset its effects.

In order to maintain the high quality service I refer to, critical improvements are required in the Company's financial condition. The Company must be allowed to attract needed capital on economic terms, to improve its internal generation of cash, and to earn a fair return for its investors.

Q. Mr. Kelmon, can you describe the financial condition of Boston Edison?

A. Financially, Boston Edison is not sound. While the Company's results for 1978 showed improvements as a result of increased rates and steps taken by the Company to minimize costs, earnings in 1978 were below the level last attained from 1968 through 1972, a period of 6 to 10 years ago. Earnings in 1977 were 16 percent below the level of common dividends.

The Company's 1978 return on year-end common equity, at 9.54% is one of the lowest in the industry, well below the 13% return allowed by the Department. In 1977, the return on equity was 6.33%, less than half the "theoretically" allowed return. Returns on common equity and earnings per common share from 1967 through 1978 are presented below in Table 1.

TABLE 1

<u>Year</u>	<u>Return on Common Equity</u>		<u>Earnings Per Common Share</u>
	<u>Allowed</u>	<u>Earned</u>	
1967	12.02%	10.99%	\$2.82
1968	12.02	10.91	3.07
1969	12.02	11.22	3.10
1970	12.02	11.54	3.24
1971	12.02	11.76	3.42
1972	12.02	11.22	3.77
1973	12.02	8.21	2.78
1974	13.36	8.09	2.53
1975	13.00	7.70	2.45
1976	13.00	8.56	2.74
1977	13.00	6.33	2.06
1978	13.00	9.54	2.96

The financial deterioration from 1972 is quite evident. Exhibit No. BE-101 is a graphical presentation of the return on common equity actually earned from 1967 through 1978 versus that allowed by the Department. Exhibit No. BE-102 is a graphical presentation of earnings per common

share for the same period. The pattern since 1972 is self-explanatory. Recovery revenues have been insufficient; costs have far outpaced revenues and have thereby created the shortfall in recent earnings performance and actual returns on common equity earned.

Other indices of performance such as coverages, capitalization, and bond ratings also indicate a seriously deteriorated financial condition. The Company ranks near the bottom in most financial industry-wide comparisons. Later in my testimony I will elaborate on these and on their deleterious effects upon ratepayers.

Overall, the financial health of the Company is poor. We have strived to make improvements and have succeeded in many areas. But substantial further improvement is necessary before our financial condition can once again be deemed healthy.

- Q. You have emphasized the return on equity. Can you please explain why?
- A. The return on equity is the most important benchmark of the Company's performance because by nature it reflects any deficiencies in rate relief. By this, I mean that it represents the bottom line on the income statement, after operating expenses and other capital commitments have been met. The total revenues allowed in a rate proceeding are earmarked to recover specific costs: so much is earmarked to recover depreciation expenses, so much for taxes, for interest costs, for preferred dividends and so on. However, should

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there be a deficiency in the recovery of any of these specific items, it would show up on the income statement as a deficiency in the recovery of common equity annual costs.

Should an inadequate allowance be made to depreciation expense, the return on common equity would be affected. Should an adjustment be made to remove a required investment from rate base, the return on common equity would be affected. The same applies to adjustments to the level of revenues and to the other items comprising the cost of service.

Therefore, the deficiency in earned return on common equity recovery can be, and is, an accumulation of recovery deficiencies for a number of individual cost of service items.

- Q. Did not the Company show improvement, financially, in 1978?
- A. The answer to that question is relative. Relative to 1977, 1978 was a year of financial improvement for Boston Edison. However, let us look at that base year of 1977. Earnings were \$2.06 per share, substantially below the dividend level of \$2.44 per share. Return on common equity, as mentioned, was 6.33%, well below the theoretically "allowed" level of 13%. 1977 can hardly be termed a reasonable financial year with which to compare later years.

Referring once again to Exhibits No. BE-101 and BE-102 it is evident that comparisons with earnings per share and the return on common equity six years ago indicate that 1978's performance can hardly be termed adequate; it is well below the levels attained then. For the period 1968 through 1972 both earnings per share and returns on common equity

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exceeded the comparable figures for 1978. Additionally, inflation's dilutive effects upon earnings and returns since that time underscore the inadequacy of the earnings and return levels attained in 1978. Much higher levels of earnings and returns are necessary before the levels of even 6 to 10 years ago can be attained.

As a means of further comparison, the present yields on Baa/BBB rated long-term bonds are approaching 11%. Certainly common equity is judged riskier than long-term debt and should provide a commensurate yield premium over that which can be obtained with investments in long-term debt. The Company's 1978 return on equity, at 9.54% hardly provides that, since it is over a full percentage point below the debt yield.

In summary, yes, financial improvements were realized in 1978, however, they cannot, per se, be considered adequate and have not placed the Company in a sound financial condition. They represent steps towards financial health; however, substantial additional improvement is absolutely essential.

Mr. Kelmon, what are the reasons for the Company's financial performance over the period to which you just referred?

One of the major reasons for this performance is regulatory lag. By the time past rate increases became effective inflation had increased the Company's cost to the point where the new rates were not sufficient to fully recover total costs of operation. This was a by-product of an historical test period approach to ratemaking which did not grant sufficient recognition to forward looking test year adjustments.

Would you please elaborate?

Yes. Theoretically, when using the historical test period method for computing the cost of service, the costs and revenues of that period are adjusted to reflect the costs and revenues during the period the rates will be in effect. In this manner an historic test period can reflect a "future" period. However, the forward looking adjustments are critical. If they are not reflective of what can be expected when the rates are in effect, resultant revenues will not be sufficient to fully offset total costs of operation and the resultant deficiencies will cause shortfalls in the return on equity and adversely affect other critical financial benchmarks.

Mr. Kelmon, you speak of recovering or offsetting "total costs of operation". Can you define what you are referring to?

When I speak of costs of operation I am referring to operating costs, such as operation and maintenance expenses, depreciation, and taxes, and to capital costs, such as interest obligations, preferred and preference obligations and the return on common equity allowed by the commission. These cost areas represent total costs to provide adequate and reliable electric service, and are the costs Boston Edison seeks to fully recover through approved rate levels.

Have you looked at the effects of regulatory lag upon this case?

Yes we have. Assuming that rates based upon the requested revenue level are placed into effect in October, 1979, the 1979 return on equity would be 11.0%, well below the 15%

cost included in the capital structure. In 1980 the return would be 13.9% and in 1981 it would be 13.0%, both well below the required level of 15%. The reason for this scenario is regulatory lag. Little of the relief will be reflected in 1979 since the rates will not be in effect for the entire year. The shortfall in 1979 is due to the regulatory lag of the Company's previous rate case. In 1980 and 1981 when the rates will be in effect for the entire years the lag is most evident. Additional rates will be needed to offset these deficiencies.

Q. Mr. Kelmon, is regulatory lag the only reason for the Company's poor financial condition and performance?

A. No, it is not. As I had previously mentioned, the historical test period approach to ratemaking, as applied in the Commonwealth, has deficiencies, many of which are evident in the adjustments made to the cost of service.

Q. Can you explain?

A. Theoretically, use of the cost of service concept in ratemaking is geared to generate sufficient revenues to fully recover total costs of operation of the Company. A brief simplified example would probably best illustrate the concept, as well as areas of potential deficiency.

In Exhibit No. BE-103 the total annual costs of operation for the example are calculated. Operating and capital costs have been determined separately to show the derivations. Both, however, are integral components of the Company's total costs. Operating costs are \$315 and capital costs

4. \$110, totalling \$425. It must be remembered that in the
5. case of an actual company these costs would be annual expenses
6. incurred, which would have to be recovered through revenues.
7. In Exhibit No. BE-104 a proper method of recovering total
8. costs is presented. It conforms to the ratemaking methodology
9. used by this Department, employing the cost of service, rate
10. base, and rate of return components. As is evident the
11. total recovery revenues exactly offset the total costs of
12. operation, thereby achieving full recovery.

13. Exhibit No. BE-105 contains an income statement and the
14. calculation of return on common equity for the example. In
15. this theoretical example the return on equity is 15%, which
16. it should be since the outstanding common equity was assigned
17. a 15% annual cost in Exhibit No. BE-103. The next exhibit,
18. Exhibit No. BE-106, presents areas of potential deficiency.
19. The exhibit details three cases where adjustments have been
20. made without regard to the total costs to be recovered,
21. illustrating adjustments to operating costs, capital costs,
22. and revenues, respectively. Total recovery revenues are
23. computed as well as the resultant returns on common equity.
24. In each case it is evident that the revenue deficiency from
25. the theoretically required revenue causes substantial short-
26. falls in the required return on equity.

27. Q. Mr. Kelmon, if I understand you correctly, you do not object
28. to the cost of service method of ratemaking in theory?

A. That is correct. Theoretically, it does allow for full
recovery of costs. It is in the actual implementation of
the method that deficiencies arise.

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- Q. Do regulatory authorities in other states and FERC utilize this cost of service ratemaking concept?
- A. Yes they do.
- Q. Have utilities in those jurisdictions been affected as Boston Edison has?
- A. Generally no, because other regulatory authorities have recognized the forces of inflation and have made provisions in their methods used to calculate cost of service, without offsetting them with counterproductive adjustments.
- Q. Can you cite examples of these provisions?
- A. Other regulatory authorities have recognized end of year rate base and forecasts of operation, maintenance and other expenses. Many use prospective test years. Some jurisdictions allow the inclusion of construction work in progress in rate base, either in full or in part. Increases in the allowed return on equity have been allowed. Others provide interim relief when conditions reviewed in prior cases change and speedy relief through cost of capital or rate of return adjustment clauses.
- Q. Has Boston Edison been provided with any of these adjustments?
- A. No.
- Q. Are you requesting any of the provisions you have just mentioned to offset the effects of inflation and regulatory lag?
- A. Yes. I believe Edison needs relief from both counter productive adjustments, and the economic effects of regulatory lag; year-end rate base and a return on common equity of 15% rather than the 13% allowed in DPU 19300.

Q. Mr. Kelmon, what have been the effects upon the Company of the lack of timely and adequate rate relief?

A. As I mentioned at the outset of my testimony, the Company has suffered serious deterioration in its financial condition.

Q. Would you elaborate further on the Company's current financial condition.

A. I have already discussed the earnings and return on equity situation.

Because the Company's earnings and returns have not been adequate for several years now, the Company's ability to raise capital has suffered an alarming deterioration. The Company's access to the common equity market has been all but cut off because of the depressed price of its stock. The Company's common stock has continuously sold below its book value for over five years. The amount of bonds the Company can issue has been extremely limited because of poor ratings and poor coverages.

Q. Do you have data which summarizes the Company's deteriorated financial position?

A. Yes. In addition to the return on equity and earnings per share data contained in Exhibits No. BE-101 and BE-102, such data are contained in Exhibit No. BE-107 consisting of seven pages of tables designated collectively as "Boston Edison Company Comparative Financial Statistics 1967 - 1978". The exhibit presents Company financial data on an annual basis for each of the years 1967 - 1978. Pages 1 - 7, respectively, show capital expenditures; the percentage of capital funds generated internally and externally; year-end capital structure; year-end capitalization ratios; weighted cost of debt and

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preferred stock together with return on common equity; interest coverages both in accordance with the SEC test and in accordance with the Company's mortgage indenture; and the Company's unfinished construction balances.

Q. What have interest coverages been during the last twelve years?

A. Over the past twelve years interest coverage fell from a high in 1967 of 5.03 times to a low in 1974 of 1.74 times. Since then some recovery has been realized however the coverage ratio must be raised substantially if the Company is to improve its bond ratings. The following table illustrates the downgrading our bond ratings have undergone, from the "highest quality" to the lowest grade which qualifies for commercial bank investment:

<u>Date of Rating Change</u>	<u>Moody's</u>	<u>Standard & Poor's</u>
Prior to November, 1969	Aaa	AAA
November, 1969	Aa	AAA
June, 1979	Aa	AA
April, 1973	Aa	A
December, 1973	A	A
May, 1974	Baa	BBB

Standard and Poor's ratings literature issued in August 1974 stated that Edison was barely able to maintain even the BBB rating.

Q. What is the significance of these deratings in terms of Edison's ability to raise capital?

A. The Company's ability to raise significant sums of money through the issuance of long-term debt has been severely restricted. A rating of less than "A" means that certain

large institutional investors, such as savings banks, certain life insurance companies and state retirement funds, are legally precluded from purchasing the Company's bonds. Moreover, the deratings have significantly increased the cost at which the Company has been able to issue bonds.

Q. What bonds has the Company been able to issue over the last five years?

A. The Company did not issue any long-term debt in 1973. An issue then would have resulted in an immediate derating. In 1974, Edison was forced to reduce a planned \$75 million issue of long-term debt to a \$60 million intermediate term (5 year) issue carrying an effective interest rate of 12.60%. This cost was 266 basis points above the cost of \$75 million of first mortgage bonds issued by an "Aa" electric utility two days before Edison's issue and 232 basis points above the cost of \$150 million of first mortgage bonds issued by another "Aa" electric utility five days after Edison's issue.

In May 1977, Edison issued \$60 million of first mortgage bonds to refinance \$60 million borrowed from the First National Bank of Chicago in 1973. The terms of that financing were possible only because the bonds were utilized to refinance existing debt. The rating agencies made it clear that any attempt to issue a substantial amount of new debt would probably have resulted in another bond derating. As it was, the rate obtained on those bonds was the highest of any public utility offering at that time.

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On December 15, 1978, the Company executed a Bond Purchase Agreement for a private placement of \$95 million of first mortgage bonds with a 25 year term and at a cost of 9.75%. The Company delivered \$49.5 million of the bonds in December 1978 and used the proceeds to reduce short-term debt. The remaining \$45.5 million are to be delivered in August 1979, with the proceeds to be used in 1979 to retire the \$60 million of first mortgage bonds which were issued in 1974. Our agreement to utilize the second portion to retire existing debt was necessary because of the high percentage of debt and low percentage of common equity in our capital structure.

3. Q. What is the Company's common equity ratio?

4. A. It is presently 29.3%.

5. Q. Please explain the importance of a proper common equity ratio in the Company's capital structure.

6.
7. A. The Company's common equity base is the foundation upon
8. which the other financings of the Company rest. The bond
9. holders and other senior capital holders look to the common
10. equity base of the Company for the protection of their
11. investment. The Common equity ratio is thus extremely
12. important to the Company's ability to sell its other securi-
13. ties. In order to exhibit the financing flexibility neces-
14. sary to meet capital requirements at reasonable costs, the
15. Company's common equity ratio should be raised to about 35%.

Q. How can Edison improve its common equity ratio?

A. The Company must sell substantial amounts of common stock to regain and maintain a sound capital structure.

Q. Has Edison been able to sell common stock in adequate amounts?

A. No, because its stock has been selling so far below book value, it would not have been prudent to do so. Edison issued common stock at below book value in 1973. It did not issue any common stock in 1974, 1975 or 1976. The only issue since 1973, a \$50 million issue in May of 1977, yielded net proceeds 20% below book value. The May 1977 issue was originally planned for 1976 but if issued then would have produced even greater dilution than the 20% actually experienced.

Q. What is the significance of the market price of the stock being below the book value?

A. When a company sells stock at a price below book value, the immediate effect of this sale is to reduce the company's book value per share. If the company's actual rate of return on book equity does not rise, then the earnings per share will decline, as well as the book value per share. This can be seen from a simple numerical example. Suppose a company has 100 shares outstanding and that book value per share is \$10, so that the total book equity of the company is \$1,000. Suppose now that the company sells an additional 10 shares at a price of only \$7 per share. It will thus raise \$70 in new capital and its total book equity will increase from \$1,000 to \$1,070. But the total number of shares has increased from 100 to 110. Thus, book value per

share has declined from \$10 to \$9.73, a decline of 2.7 percent. This is the process known as "dilution". If the balance available for common were \$100 prior to and after the sale, it can be seen that earnings per share were \$1.00 prior to the sale but only \$0.91 after, a decline of 9%.

Q. What is the effect of dilution on stockholders who owned the stock prior to its sale?

A. The book value per share and the earnings per share decline as a direct effect of the sale. Although, in our example, the previous stockholders contributed 93 percent of the company's equity capital (\$1,000 out of \$1,070), they own only 91 percent of the company (100 shares out of 110 shares). If the company is a regulated utility which is selling stock to raise capital in order to meet its public utility obligations, the fact that it must sell the stock at less than book value means that the existing stockholders are deprived of part of their ownership share. That is, the effort of the utility to meet its obligation to serve its customers results in a virtual confiscation of part of the property of the stockholders.

Q. Does this equally affect the new stockholders?

A. No. The new stockholder will only buy if the price of the stock is low enough to assure him that his interests are protected. However, if there are future sales of stock at less than book value, he will stand to lose along with all other then-existing stockholders.

That expectation will also affect his willingness to buy stock today. Suppose that the investor thinking of

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buying the newly issued shares of the utility company today expects that the company will engage in a succession of new stock issues in the years to come. If he assumes, quite reasonably, that these future sales of stock will be at market prices which imply the same price-earnings ratio as now with a return on book equity the same as now, and hence the same ratio of price to book equity per share as exists today, then he must expect that future sales of stock will give rise to future declines in book value and earnings per share. If he forms this expectation he may very well not be willing to buy the stock at the existing price or indeed at any price.

3. Q. Is the Company now able to engage in common equity financing?

4. A. Not in sufficient amounts to restore a sound capital structure.

5. The closing price of the Company's stock was \$23.25 on March
6. 9, 1979, about 75% of book value of \$31 per share at the end
7. of 1978. Barring substantial improvement in price, the
8. Company is this year facing its third successive sale of
9. common stock at below book value. Passing the question of
0. whether a continuous pattern of sale at below book value is
1. possible, to do so can only worsen the Company's financial
2. condition.

3. Q. What is the rating of the Company's common stock?

4. A. The Company's common stock presently carries a B+ rating,
5. the lowest rating carried by an electric utility listed on
6. the New York Stock Exchange.

7. Q. Is the Company able to sell preferred stock?

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A. The Company expects to be able to issue some preferred stock in future years. However, between the preferred and preference stock, the capital structure already is fairly heavy now in this area. Additional Common Equity must be issued first to balance the capital structure better.

Q. What has the Company done to satisfy its capital requirements in these circumstances?

A. It has had to resort to nonconventional financing. In 1975 the Company issued "preference" stock, a new type of security junior to preferred stock and without the protection of a coverage test as a condition of issuance. Edison was able to raise \$47 million at a cost of 12.68%. It issued \$40,125,000 of preference stock in May 1976 at a cost of 10.24%. In order to sell the first series of preference stock the Company had to enter into a repurchase commitment that is intended to maintain the market price.

In December 1975 the Company raised \$23 million through a 10-year note with a sinking fund. As security for this loan the Company was required to pledge moveable gas turbine facilities.

In August 1978 the Company entered into an agreement with Prulease, Inc. whereby the Company is able to finance the acquisition costs of nuclear fuel up to a maximum amount of \$50,000,000 at any one time outstanding. Principal is paid quarterly and interest is at a rate equal to Prulease's ninety day commercial paper rate plus 1-1/8%.

Q. Can the Company expect to finance its construction program by intermediate term financing?

A. No. A limited amount of intermediate term financing would not adversely affect the Company. However, for the most part, our financial obligations should conform to the life of the assets in which our capital is invested. This is because we cannot quickly recover the principal amount so committed. Instead we can only recover it slowly through annual depreciation of about 3%. Since we can recover so little of the capital investment quickly, we must ensure that no matter how bad capital markets become, our refinancings never create a liquidity crisis for us which would affect our ability to serve our customers. Thus, we must maintain long-lived securities to match our long-lived assets. In other words, so that we never need to refinance vast sums in any short period, most of our funds should come from long-term debt, preferred stock, or common stock.

Q. How would you summarize the Company's financial picture?

A. It shows low internal financing capability, extensive reliance on outside capital, poor coverage and earnings, and high capital costs. The Company cannot issue common stock without causing substantial dilution. Its weak equity base, low bond ratings and poor coverage have drastically impaired its ability to issue first mortgage bonds. It has been able to meet its capital requirements up to now only through innovative nonconventional financing at high cost.

Q. Mr. Kelmon, would you please describe the Company's construction program and projected cash requirements for construction?

A. For the period 1979 through 1983 the Company's total cash requirement for new construction and nuclear fuel is projected

to be \$983,000,000. The Company will also have to refinance \$173,000,000 of long-term debt. The total amount required for new construction and refinancing is thus over a billion dollars. This means that for every dollar of its \$1.1 billion net plant investment as of year end 1978 the Company must raise more than a dollar over the ensuing five years.

The Company's current major construction project is Pilgrim 2, a nuclear generating unit with a capability of 1150 MW. Edison owns 59% of the unit, with the remainder being owned by other New England utilities. The unit is scheduled to go into service in the mid-1980's. Our total cash requirements for the unit's construction will amount to \$567,000,000 exclusive of AFUDC over the period 1979-1985.

Q. How much of the capital requirement over the next five years must be raised from outside sources?

A. The total amount of required outside financing is projected to be \$775,000,000 including the \$173,000,000 of debt to be refinanced.

Q. Can the Company expect to continue to finance its construction program in the same way that it has managed to finance past construction requirements?

A. The present construction program represents a financial challenge that the Company cannot economically meet unless it is allowed the opportunity to earn a fair return on common equity. This conclusion is shared by the investment community as shown in Exhibit No. BE-108, a report by a security analyst dated May 8, 1978. The analyst recommended that Boston Edison's common shareholders sell their common

stock in the Company. Exhibit No. BE-109, the Electrical Week issue of May 15, 1978, described the analyst's "sale" recommendation as the most "vigorous" the analyst had ever made for the stock of a single company (at 3).

The analyst's report discussed the financial burden ahead for Edison in financing the Pilgrim 2 unit, its history of inadequate earnings, and its proven inability to obtain timely and sufficient rate relief. It concluded that in contrast to Edison, there are many electric utilities that not only can cover the dividend adequately but have a reasonable prospect of increasing it gradually over a period of years. The report is a clear indication from the investment community that Edison must improve its earnings.

In particular, it must be able to issue common stock in order to rebuild its common equity base and be able to issue bonds and preferred stocks. But to be able to do that its earnings must improve. The only solution lies in regulation which recognizes that fact by allowing timely rate increases when needed and in adequate amounts, including provision for a fair return on common equity.

Q. Mr. Kelmon, should the determination of the allowed rate of return be influenced at all by the nature of the Company's construction program?

A. Only to the extent that it affects the assessment of risk. The fact that the Company is engaged in construction should not cause any deviation from firmly established ratemaking precedents. I am greatly troubled by the fact that in recent

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years regulatory authorities and even the courts seem to have departed from the traditional standards of the Bluefield and Hope cases which provide, among other things, that the return on equity should be commensurate with returns on investments in other enterprises having corresponding risks and should be sufficient to assure confidence in the financial integrity of the enterprise so as to maintain its credit and to attract capital. Anything less results in confiscation.

It appears to have been the view of some regulators in the recent past that the use to which capital is to be put could modify the standard used in determining the allowed rate of return which, in turn affects the ability of the Company to raise that capital. Even the Court has expressed the view that the Company's construction program, in effect, places it in a category of not conducting business as usual and, therefore, the traditional policies of confiscation might not be applicable.

For a public utility there is only one business and that is to discharge its public responsibility to serve its rate-payers adequately, reliably and at the lowest possible cost. As an integral part of the discharge of those responsibilities utilities must from time to time construct facilities in order to ensure sufficient capacity to meet expected demand. That is an awesome responsibility, the decisions which must be made are difficult, and the risks are great given the uncertainties associated with the nation's energy problems which are even more acute in New England. But these responsibilities must be

met now as they have been in the past. The same standards which applied in the more stable economic times and before energy problems became acute must apply now.

There is no question that because of the energy crisis, inflation and other socio-economic factors the costs of meeting the energy needs of our customers have increased dramatically - so have the risks. But that does not mean that traditional regulatory principles are to be cast aside. Edison and other electric utilities now have a greater need to attract capital.

Electric utilities have little or no choice in their construction programs because they must serve the needs of their communities despite the negative impact of new higher cost facilities on earnings and creditworthiness. Electric utilities have also become a focal point of environmental and consumer discontent which has extended utilities' construction periods, increased their costs and raised the risks of not completing projects. Electric utilities are unable to sell their plant, to disinvest or refuse to invest in new plant when the regulatory environment is unsatisfactory.

Q. How do these factors affect utilities in general and specifically Boston Edison?

A. All of these factors indicate unquestionably that the risks associated with utilities are substantially greater than unregulated enterprises and much greater than the risks of regulated enterprises some years ago. Therefore, rather than negatively impacting on the allowed rate of return, if anything, the fact that utilities are engaged in projects to

1. meet the future needs of their customers leads inevitably to
2. the conclusion that under existing regulatory principles the
3. allowed rate of return should be increased to allow utilities
4. to compete strenuously for the inordinate share of the
5. capital market which they require.

6. Yet Boston Edison has been and continues to be unable
7. to attract equity capital on reasonable terms because it has
8. not been allowed a rate of return sufficient to restore and
9. sustain the price of its stock at or above book value.

10. Unless and until that occurs, the Company will be forced to
11. pay exorbitant costs for the capital it is able to raise and
12. these costs will eventually be passed on to its customers.

13. Q. Are you saying, Mr. Kelmon, that ratepayers will have to
14. absorb these higher costs?

15. A. Yes. Customers are seriously affected. With a deteriorated
16. financial position impairing the ability to finance necessary
17. facilities at reasonable costs the Company must obtain the
18. required funds at whatever costs the market demands. For
19. example, debt costs could easily approach 15% in the foreseeable
20. future. Since such interest charges are an integral compon-
21. ent of the Company's annual capital costs the ratepayer
22. would have to bear these higher costs. It is in the best
23. interests of ratepayers, of the Company and the economy of
24. its service area that lower costs be borne now rather than
25. face substantially higher costs in the future.

26. Q. What should the Department do in this proceeding to assist the
27. Company in restoring its financial health so that it can con-
28. tinue to provide adequate and reliable service to its customers?

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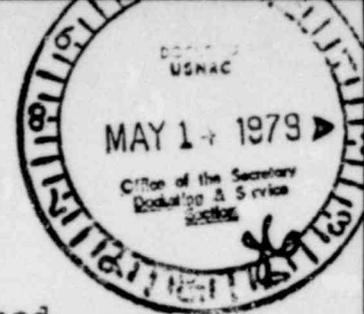
A. The Department should ensure that these proceedings are conducted expeditiously such that the final decision is arrived at in a manner that is consistent with proper ratemaking principles and that the proposed adjustments be viewed in light of the Company's total costs for which recovery is an absolute necessity. It is my firm belief that if full recovery is realized, the concerns of ratepayers and investors will have been balanced, for the Company would be recovering nothing more than its total costs of operations.

I ask the Department to provide the Company with sufficient revenues to cover its costs of providing service and an allowance for a fair return on its equity in this proceeding. Only in so doing can it properly discharge its responsibilities to serve the public interest.

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CERTIFICATE OF SERVICE



I, Michael B. Meyer, hereby certify that the attached "Testimony of Paul F. Levy on Behalf of the Commonwealth of Massachusetts" has been served on the following list by hand delivering or by mailing postage prepaid, first class copies to the below parties at their usual business addresses:

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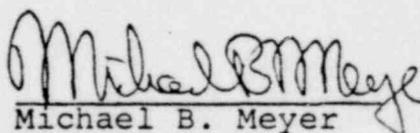
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May 9, 1979


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