

DECISIONS AND ORDERS

MASSACHUSETTS ENERGY FACILITIES SITING COUNCIL

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THE COMMONWEALTH OF MASSACHUSETTS

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Docket: EFSC #76-24

Petition for Approval of a Joint Long-Range Supply Forecast

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APPEARANCES: Patrick J. Kenny, Albert V. Coleman for New England  
Electric System

Michael T. Gengler, for Manchester Electric Company  
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A Tentative Decision in this matter was issued on 20 April 1977 and reviewed by the Siting Council at its June 15, 1977 meeting. The companies filed objections to the demand forecast approval of a low bound growth rate of approximately 3% compounded as described in Tables I and II of the April 20, 1977 Tentative Decision and to the rejection of two 115 KV transmission lines from Plainville to Wrentham.

The companies used a band width approach to demand forecasting. The companies did not provide any point within the band as one of highest confidence. The Siting Council must have a most likely growth rate in order to effectively evaluate future generation and other supply forecasts. Therefore the Council directs the companies, in their 1978 Supplement to be filed in December 1977, to develop a demand forecast growth rate which reflects a best estimate of load growth.

Supply Segment of Long-Range Forecast

In order to meet the anticipated energy demand over the forecast period, the companies propose to construct several transmission lines and substations.

During the proceeding, the companies and the hearings officer agreed to defer consideration of some proposed facilities to a later

date after the time for decision on the forecast and to take up only the following transmission lines and substations in this first decision on the initial petition:

345 KV lines

1. Tewksbury to Amesbury
2. Tewksbury to Dracut Junction
3. Tewksbury to Golden Hills
4. Millbury to Millville

115 KV lines

5. Plainville to Wrentham
6. Plainville to Wrentham
7. Uxbridge to Northbridge
8. L-138 to Still River
9. Tewksbury to Perry Street
10. Tewksbury to Perry Street
11. Litchfield to Pratts Junction
12. Stockbridge to Fairview Street, Lee
13. Rebuilding Tewksbury to Dracut Line

Substations

14. Hawes Street, Wrentham
15. Whitins Pond, Northbridge
16. Still River, Lancaster
17. Risingdale, Great Barrington
18. Boxford Junction

The agreement to rule on these lines now and to defer a decision the others in the forecast is set out in a letter dated March 18, 1977 from Patrick J. Kenny, counsel for the companies, to Christine Sullivan (Exhibit N-59).

Tewksbury to Amesbury and Boxford Junction Substation line

The New England Power Company proposes to build a 345 KV transmission line from an existing substation in Tewksbury to the Massachusetts-New Hampshire state line in Amesbury, where it will connect with a line the Public Service Company of New Hampshire proposes to build from its proposed Seabrook nuclear plant. The line will be approximately 31.9 miles in length.

The line is proposed to be built on an existing right of way, all

but the last two miles of which is already occupied by one or more existing transmission lines.

Need for the Line and Substation

The applicant states that the line is needed to connect the proposed Seabrook nuclear plant to the main 345 KV New England transmission network. A portion of the line is also required to supply the company's proposed new substation at Boxford Junction. The company submitted evidence that the proposed line is one of three main lines carrying power from Seabrook to New Hampshire and Massachusetts (see Exhibit N-17). With the Seabrook station in service in the 1980's, the line would carry some 1090 megawatts of power to the Massachusetts grid. Total entitlement to the power held by companies in the southern New England States amounts to approximately 45% of the plant output. Thus, about 1050 megawatts out of the total plant capacity of 2300 megawatts will be used for customers south of New Hampshire. The company stated that the existing 345 KV facilities between New Hampshire and Maine can carry only 1050 megawatts and that they are insufficient to absorb the new power from the Seabrook plant. (see Exhibit N-16B).

The line is also needed, the company claims, to serve the proposed Boxford Junction substation. This substation would be placed to serve an area of relatively high load growth where the company's present 115 KV facilities will begin to lack firm capacity in the 1980's given expected loadings (see testimony of Charles H. Moser, Exhibit N-19B). The company describes three contingencies which, if they occurred, would overload certain lines in the 115 KV system and cause loss of load. (see Exhibit N-19B and Exhibit 20).

Based on the above facts and the record as a whole, the Council

finds that the line and the substation are needed and are consistent with the policy of providing a necessary power supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, subject, however, to the following conditions. The Council finds that the need for the line and substation is directly dependent on the completion of the Seabrook nuclear plant: the line, because its purpose is to carry power from the plant; the substation, because the company testified that it may not be the preferred alternative to solving the load problems if the entire line is not built (see testimony of Robert Snow, Tape #4, hearing of March 24, 1977).

The Council approves these facilities; however, the Council directs the Company to undertake construction in a manner which is consistent with the construction program at the Seabrook facility.

#### Site of the line and Substation

The line is to be built along an existing right of way which already contains transmission lines, except for the last two miles in Amesbury which are uncut and unoccupied. The substation is proposed to be located on an existing site owned by the company.

The Council hereby approves the facilities and the sites subject to the following conditions:

Information received from the company indicated that their cost figures, were developed from units costs derived from the company's recent construction experience or the experience of other neighboring utilities for similar facilities, adjusted for known topographical and other differences. Such costs, of course, are subject to reasonable change from a variety of factors including inflation of wage

and material costs, construction problems encountered in the field, engineering design changes and other causes beyond the control of the company. In this context, the Council finds that the company's proposal will satisfy the need discussed above with the least impact on the environment and at the least cost based on information presently available.

The Council expects, in future proceedings involving facility approvals that applicants will present to the Council cost estimates on a current dollar basis with sufficient underlying detail, commensurate with the stage of planning of such facility, to enable the Council to evaluate the reasonableness of such cost estimate and that of alternatives considered or proposed by the applicant. Approval by the Council of a facility at the preliminary licensing stage should not be construed as a binding determination upon a rate-setting agency as to whether the ultimate costs incurred by the applicant for the facility are reasonable or are to be allowed for rate-setting purposes. The Council also recognizes that there may be circumstances whereby escalation of the cost of a facility could cause an applicant to delay or re-evaluate the need for construction. The Council will expect applicants to inform it of all such changes through Supplemental Forecasts and to inform the Council of the ultimate cost of each approved facility so that the Council may be aided through such experience in evaluating cost proposals. The company shall not use the herbicide 245T in maintaining the right of way.

Tewksbury to Dracut 345 KV line

The company proposes a 345 KV line which will run 6.6 miles from the Tewksbury substation to Dracut on the New Hampshire border. The line will continue on to a Public Service Company facility at Scobie Pond in New Hampshire. Company officials testified that the

line is needed to provide electrical reinforcement to the New England 345 KV transmission system and provide reliable power from New Hampshire to the Massachusetts power grid. The company also testified that the need for this line was dependent on the building of the Seabrook plant, or some other large generating station north of Massachusetts, and that without such new generating capacity the existing transmission facilities are adequate to carry power from the north (see Tape #4, hearing of March 24, 1977).

Based on the record, the Council approves the need for and the route of the proposed line subject to the following conditions:

The Council approves this line, however, the Council directs the Company to undertake construction in a manner which is consistent with the construction program at the Seabrook facility.

The company shall not use the herbicide 245T in maintaining the right of way.

Tewksbury to Golden Hill - 1st 345 KV line

The company claims that this line is exempt because it was under construction on May 1, 1976. In support of the claimed exemption the company submitted cost and expense data (Exhibit N-45). Based on this evidence the Council finds and rules that the line was under construction as of that date.

2nd Tewksbury to Golden Hills 345 KV line

The company testified that this line would be needed by 1985 to "provide an additional source for the 115 KV transmission system north of Boston." The justification for the line depends on two contingencies. This first is an outage at Salem Harbor power plant #4 unit the other is an outage on the existing Golden Hills

to Tewksbury 345 KV line (the one now under construction). At the request of the hearings officer, the company furnished historical outage data on 345 KV lines and on the Salem station unit #4. The Council defers its decision on this line until a later time so that further review of this line can be undertaken by the Council's staff. This deferment will not adversely affect the public or the company.

Millbury to Millville 345 KV transmission line

This line represents the Massachusetts portion of a 345 KV line which the company proposes to construct between North Smithfield, Rhode Island and the Millbury, Massachusetts substation. The line would be built entirely along an existing right of way and the Massachusetts portion would be approximately 16.4 miles long.

The company justifies the new line on the basis that it is needed as "reinforcement of the 345 KV grid in southern Massachusetts necessitated by the large imports of power into central Massachusetts which will be experienced in the mid-1980's". (see Exhibit N-19B). Under questioning by the hearings officer the company witness indicated that the "imports" of power refers to the expected contribution to the grid from the Charlestown, R.I. nuclear generating units, designated NEP-1 and 2, which the company plans to build. (see Tape #3 of hearing March 24, 1977). It was also stated that construction had not yet begun to these units and that, although an application for a construction permit had been filed with the Nuclear Regulatory Commission, hearings had not yet begun. Another witness testified that the NEP units were planned for 1984 and 1986 in-service dates (see Tape #3 of March 24, 1977 hearing).

The company testified further that the line was needed basically to bring power from the NEP units to the grid in the event of an outage

or interruption from the east. It was clear from the testimony that the need for the line was directly dependent on the NEP units or some equivalent generating capacity in the area, and the Council so finds.

The Council thus approves of these lines, but only on the condition that the company shall refrain from commencing construction on the Millbury to Millville transmission line until it has either (1) received a construction permit from the Nuclear Regulatory Commission permitting construction of NEP Unit 1 or 2 or (2) commenced construction of a similar block of generating capacity in the Southeastern New England area; provided however that the company may petition the Council for approval of these or other facilities in the area upon a showing of a need therefor independent of or prior to the construction of said generating facilities.

The basis for the company's cost estimate was the same as discussed previously in this order with respect to the other line and substation. Subject to the same principles discussed above, the Council finds the proposed facility to meet the demonstrated need with the least impact on the environment and at the least cost based on information presently available.

Assuming the line is built, because the above conditions are met, the line is subject to the still further condition that the company shall not employ the herbicide 245T in the maintenance of the right of way.

Wrentham to Plainville 115 KV transmission lines and Hawes Street Substation

The company proposes to build two 115 KV transmission lines from Plainville to Wrentham along a new right of way about 2.6 miles in length. The lines would run from a tap in the company's existing 115 KV lines, designated D-182 and C-181, northeast to a proposed new 115 KV to 13.8

KV substation on Hawes Street in Wrentham. The company proposes to have the first line in service in 1977 and the second one on line in 1984.

#### Need for the lines

The company justifies the need for the lines on the grounds that expected load growth in the Foxboro and Franklin portions of its Attleboro power service area (PSA 09) will exceed the firm capacity of the existing transmission and the normal capacity of the distribution facilities in the late 1970's. The Foxboro and Franklin service areas are presently served by a 23 KV system known by the company as the "Union Loop". The Union Loop and its associated substations and feeders comprise the major distribution network to the service areas.

In the testimony the company explained that the original plan was to bring 115 KV service into Foxboro from Hawes Street by extending the line all the way to Foxboro on a new right of way. However this idea had been dropped when load growth in the area did not appear to be as fast as expected.

The company also testified that the Searstown shopping center which will add 8 MW of new load and which the company expected would be built in 1978 is now not expected to be built before 1980. (see Tape of hearing, 3/24/77). There was further testimony that additional feeders had already been added in the Union Loop area sufficient to absorb the expected load growth through 1980, even with the additions of the new Tri-County Technical High School in Franklin. (see Tape, hearing of 3/24/77).

In view of these facts, the Council finds that there will be a need for extra capacity in the Union Loop area in the early 1980's, and for additional back-up later in the decade.

#### Route of the Line

The Council defers the siting of transmission facilities pending further staff review.

Uxbridge to Northbridge 115 KV Transmission Line and Whitins Pond Substation

The company proposes to build a 115 KV transmission line for 1.5 miles from a tap on its Q-143 115 KV line to a new substation in Northbridge. The justification for the line is that, in the late 1970's, there will not be firm distribution and supply capacity in the Northbridge area. Based on the evidence submitted by the company (see, for example, Exhibit N-50) and the testimony, the Council approves the need for and the site of the line and substation subject to the following conditions:

a) the basis for the company's cost estimate was the same as discussed previously in this order with respect to the other lines and substations. Subject to the same principles discussed above, the Council finds the proposed facility to meet the demonstrated need with the least impact on the environment and at the least cost based on information presently available.

b) the company shall not use the herbicide 245T in maintaining the right of way.

c) the substation shall be built so that it will not violate state DEQE noise standards in effect at the time of commencement of construction.

L-138 to Still River 115 KV Transmission Line and Lancaster Substation

The company proposes a 3.0 mile 115 KV line to boost supply and distribution capacity in the towns of Harvard, Bolton, Berlin, Clinton and Lancaster and to relieve the loadings expected on the company's major source of supply in the area, the Fitch Road Substation in Clinton. This substation has a rated firm capacity of 30.5 MVA. The present peak loading on the substation is about 26 MW and the company expects that, with an annual 6% load growth in the area, the load could reach 31.5 MW in the summer of 1979. If the

load growth is less, then this limit would not be reached until some-time in the early or mid-1980's. The Council finds, therefore, that there is a need for an added source of supply into the area now served by the Fitch Road substation in Clinton.

The company proposes to relieve the expected load by building a new transmission line along a new right of way to a new substation to be located in Lancaster. One circuit is proposed for 1979 and a second line is proposed for the late 1980's. The right of way proposed will be 200 feet wide and is nearly a direct line between terminals. Wood H-frame type structures are proposed to be used.

At the request of the hearings officer, the company submitted more detailed information on loadings and expected load growth in the area. The company also submitted a detailed map of the feeder grid in the area to be served in the new area. In view of the fact that this proposed line is on a new right-of-way, the Council must look particularly closely at possible alternatives. There are often several alternatives available in the case of a new radial feed substation such as proposed here. Therefore, the Council is deferring its decision on this proposed line and substation until the staff has had the opportunity to more fully review the possible alternatives.

Tewksbury to Perry Street 115 KV lines

These lines are proposed for 1978 and 1981 to be built along an existing right of way to provide additional power to the Lowell area. Based on the evidence in the record and the testimony of the company, the Council approves these lines subject to the following conditions:

a) the basis for the company's cost estimate was the same as discussed previously in this order with respect to the other lines and substations. Subject to the same principles discussed above,

the Council finds the proposed facility to meet the demonstrated need with the least impact on the environment and at the least cost based on information presently available.

b) the company shall not use the herbicide 245T in the maintenance of the right of way.

Litchfield to Pratts Junction 115 KV line

This line is proposed by the company to firm the supply to the Leominster area. Based on the evidence produced and the testimony (Exhibits N-30, N-24, N-56), the Council approves the line subject to the following conditions:

a) the basis for the company's cost estimate was the same as discussed previously in this order with respect to the other lines and substations. Subject to the same principles discussed above, the Council finds the proposed facility to meet the demonstrated need with the least impact on the environment and at the least cost based on information presently available.

b) the company shall not employ the herbicide 245T in the maintenance of the right of way.

Stockbridge to Risingdale substation, Great Barrington and Stockbridge to Fairview Street, Lee 115 KV transmission lines and Risingdale substation, Great Barrington

The company proposes these lines and substation to boost supply and distribution capacity for the Great Barrington portion of its Southern Berkshire power supply area. The area is now supplied by the Pleasant Street substation in Lee. This substation is owned by Western Massachusetts Electric Company which also supplies its customers from this source. The substation is supplied by two 115 KV lines. Two 23 KV feeders extend from this substation into Great

Barrington to serve the Massachusetts Electric customers in that area. The company expects these feeders to become overloaded in the late 1970's or early 1980's if load growth continues as expected. Voltage drops will also be experienced in such conditions.

To relieve the problem, the company proposes to build a 115 KV line from Fairview Street in Lee to an enlarged 115 KV to 23 KV substation at the present Risingdale 23 KV substation site. The line would be along the route of the existing 23 KV lines. A back up line would be built later.

Based on the evidence and testimony, the Council approves the need for and site of the proposed line and substation, subject to the following conditions:

a) the basis for the company's cost estimate was the same as discussed previously in this order with respect to the other lines and substations. Subject to the same principles discussed above, the Council finds the proposed facility to meet the demonstrated need with the least impact on the environment and at the least cost based on information presently available.

b) the company shall not use the herbicide 245T in maintaining the right of way.

Rebuilding of the Tewksbury to Dracut 115 KV Transmission Line

Based on the evidence in the record, the Council hereby approves the rebuilding and re-locating of this line within the existing corridor as proposed by the company, subject to the following conditions:

a) the basis for the company's cost estimate was the same as discussed previously in this order with respect to the other lines and substations. Subject to the same principles discussed above,

the Council finds the proposed facility to meet the demonstrated need with the least impact on the environment and at the least cost based on information presently available.

b) the company shall not use the herbicide 245T in maintaining the right of way of the approved line.

#### Miscellaneous

The Council bases the above conditions regarding the use of the herbicide 245T on its current status with the Environmental Protection Agency. 245T is under a notice of cancellation from the EPA because of its mutagenic effect on human fetuses. It is prohibited pending completion of EPA cancellation proceedings and the development of full siting guidelines for high voltage transmission facilities.

#### Conclusion

Subject to the above findings and conditions, the Siting Council hereby approves that portion of the supply segment reviewed of the Long Range Forecast of the companies.

The Council will issue a separate decision by December 31, 1977 on the three lines deferred in this decision.

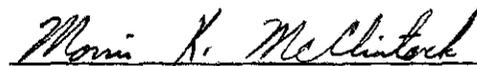
By Order of The Energy Facilities Siting Council:

  
CHRISTINE B. SULLIVAN, CHAIRMAN

  
EVELYN F. MURPHY

FRANK T. KEEFE

  
DAVID H. MARKS

  
MORRIS K. McCLINTOCK

absent  
HOWARD N. SMITH

absent  
JOHN R. VERANI

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Docket: EFSC #77-5

Petition for Approval of an Annual Supplement (1977 - 1981)

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APPEARANCE: Michael T. Gengler of Boston for the company  
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The Commonwealth Gas Company has petitioned the Energy Facilities Siting Council for approval of its first supplement to its long range forecast of gas sendout and supply. The supplement covers the years 1977-1981.

Commonwealth Gas Company is a subsidiary of New England Gas and Electric Association. The Company is engaged in distribution and retail sale of gas to 140,000 customers in central and eastern Massachusetts. Its gas requirements are supplied primarily under contractual agreements with Algonquin Gas Transmission Company and Tennessee Gas Pipeline Company. It owns and operates five propane air facilities which are used to supplement pipeline supplies during peak use periods. The Company also has a 25 year contract with Hopkinton LNG Corporation for LNG liquefaction, storage, and revaporization services.

Commonwealth's supplement is limited to sendout and does not include a demand forecast because the company will not construct new facilities during the forecast period. Siting Council regulations do not require a demand forecast where new facilities are not to

be constructed. See EFSC Rule 66.6

An adjudicatory hearing was held on 21 March 1977 to consider the supplement. At the hearing Commonwealth presented two witnesses, Richard Byrne and Donald Story. Mr. Byrne directed the preparation and submission of the forecast, and Mr. Story is the Managing Engineer of Commonwealth Gas. In Mr. Byrne's prepared testimony and in response to questions from the hearings officer and staff, he summarized the forecasting methodology and sendout forecast.

The company's dependence upon pipeline supplies which are expected to decrease somewhat over the forecast period, is the primary determinant of total sendout. That sendout is expected to remain stable at 26,261,000 MMBTU from 1977 through 1981. Sendout for 1975 was 25,699,000 MMBTU and 28,021,000 MMBTU for 1976. The company anticipates the use of spot propane, LNG purchases from other utilities and additional SNG purchases to fill in gaps in supply through 1979. In its supplement the Company indicated it would be receiving increased supplies of gas in 1980-81 due to arrangements with Eascogas LNG, Inc., for purchase of liquefied natural gas to be imported by Eascogas from Algeria. Due to the termination of gas supply contracts with Sonatrach, the Algerian national oil and gas company, for the Eascogas project, the gas supply to be furnished by Eascogas will not be received by the Company. In view of the termination of the Eascogas project, the Company has informed the Council that its supply situation for years after 1979 will be more specifically addressed in its supplement to be filed with the Council December 31, 1977.

The Council accepts the assumption that pipeline supply will largely determine sendout. The Energy Facilities Siting Council ap-

proves the gas sendout forecast. Because the Company will not be receiving liquefied natural gas from the Eascogas project, the supply forecast is approved through August 31, 1979. The Company is directed to inform the Council of any significant changes in its gas supply.

The Council recognizes the conservation program of Bay State Gas Company including insulation, appliance, and maintenance as an acceptable program and the Council suggests Commonwealth Gas Company consider adoption of this type of program.



PHILIP N. SHAPIRO  
Hearings Officer  
Dated: 1 August 1977

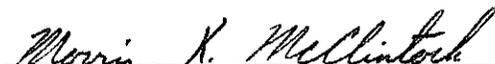
By Order of The Energy Facilities Siting Council:

  
CHRISTINE B. SULLIVAN, CHAIRMAN

  
EVELYN F. MURPHY

FRANK T. KEEFE

  
DAVID H. MARKS

  
MORRIS K. McCLINTOCK

HOWARD N. SMITH

JOHN R. VERANI

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In the Matter of the Hopkinton LNG Corporation  
2 DOMSC 20 (21 September 1977)

Docket: EFSC #77-6

Petition for Approval of an Annual Supplement (1977 -1981)

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APPEARANCE: Michael T. Gengler of Boston for the Company  
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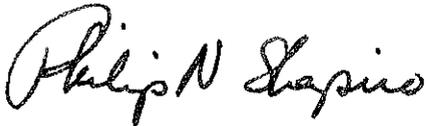
The Energy Facilities Siting Council hereby approves the long range gas forecast of Hopkinton LNG Corporation for the period 1977 through 1981 pursuant to G.L. c. 164, s. 69G et seq.

Hopkinton LNG Corporation is a subsidiary of New England Gas and Electric Association. The corporation is engaged in the providing of liquefaction, storage, and vaporization services for Commonwealth Gas Company and New Bedford Gas and Edison Light Company, both also subsidiaries of New England Gas and Electric Association. It has no gas sendout and no demand requirements. Its facilities consist of three 290,000 barrel above-ground insulated storage tanks and associated liquefaction and vaporization equipment located in Hopkinton and two above ground insulated storage tanks (58,000 and 87,000 barrel capacity) with associated vaporization equipment located in Acushnet.

An adjudicatory hearing was held on 21 March 1977 to consider the first supplement to the May 1, 1976 Long-Range Gas Forecast of

Hopkinton LNG Corporation. At that hearing, Hopkinton presented a single witness, Richard K. Byrne, P.E. who directed preparation and submission of the 31 December 1976 supplement. In his prepared testimony, Mr. Byrne summarized the supplement description of Hopkinton's operation, services, capacity, and equipment reliability. He stated that the corporation does not intend to construct new facilities during the 1977-1981 period and thus does not seek facilities approval from the Council.

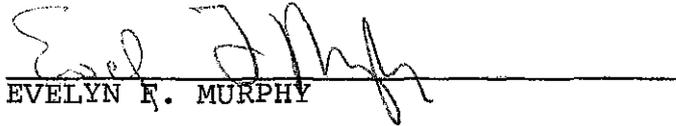
The Council approves the first supplement to the long range forecast of 1 May 1976 of Hopkinton LNG Corporation as presented.



PHILIP N. SHAPIRO  
Hearings Officer  
Dated: 1 August 1977

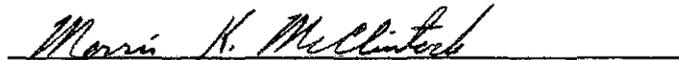
By Order of The Energy Facilities Siting Council:

  
CHRISTINE B. SULLIVAN, CHAIRMAN

  
EVELYN F. MURPHY

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FRANK T. KEEFE

  
DAVID H. MARKS

  
MORRIS K. McCLINTOCK

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HOWARD N. SMITH

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JOHN R. VERANI

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In the Matter of the New Bedford Gas and Edison Light Company  
2 DOMSC 23 (21 September 1977)

Docket: EFSC #77-7

Petition for Approval on an Annual Supplement (1977 - 1981)

-----  
APPEARANCE: Michael T. Gengler of Boston for the Company  
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The New Bedford Gas and Edison Light Company has petitioned the Energy Facilities Siting Council for approval of its supplemental gas forecast of gas sendout and supply for the period 1977 through 1981. The Energy Facilities Siting Council has earlier approved the company's initial forecast of sendout and supply, EFSC No. 76-7. See 1 DOMSC 75.

New Bedford Gas and Edison Light Company is a subsidiary of New England Gas and Electric Association. The Company is engaged in distribution and retail sales of gas to 46,800 firm gas customers in eleven Southeastern Massachusetts cities and towns. Its gas requirements are supplied primarily under contractual agreements with Algonquin Gas Transmission Company. It owns and operates two propane air facilities which are used to supplement its pipeline supplies during the peak use periods. The Company also has a contract for liquefaction and storage service with Hopkinton LNG. The gas stored in this manner is also used during peak use periods.

New Bedford's supplement is limited to sendout and does not include a demand forecast because the company will not construct new facilities during the forecast period. An adjudicatory hearing was held on March 21, 1977 to consider the supplement.

The Company estimates growth in the rate of sendout from 5,888,000 MMBTU in 1977 to 6,200,000 MMBTU in 1981. This represents an annual rate of increase of 1.3%. Pipeline supplies will be decreasing during this period from 5,426,000 MMBTU to 4,800,000 MMBTU. Increases in SNG purchases from Algonquin accounts for the increase in supply available through 1979. In its supplement the Company indicated it would be receiving increased supplies of gas in 1980-81 due to arrangements with Eascogas LNG, Inc., for purchase of liquefied natural gas to be imported by Eascogas from Algeria. Due to the termination of gas supply contracts with Sonatrach, the Algerian national oil and gas company, for the Eascogas project, the gas supply to be furnished by Eascogas will not be received by the Company. In view of the termination of the Eascogas project, the Company has informed the Council that its supply situation for years after 1979 will be more specifically addressed in its supplement to be filed with the Council December 31, 1977.

The Energy Facilities Siting Council approves the Company's gas sendout forecast. The Council accepts the company's assumption that pipeline supply will largely determine sendout. Because the Company will not be receiving liquefied natural gas from the Eascogas project, the supply forecast is approved through August 31, 1979. The Company is directed to inform the Council of any significant changes in its gas supply.

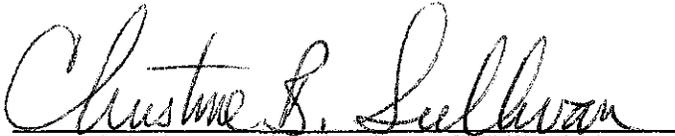
The Council recognizes the conservation program of Bay State Gas Company including insulation, appliance, and maintenance as an acceptable

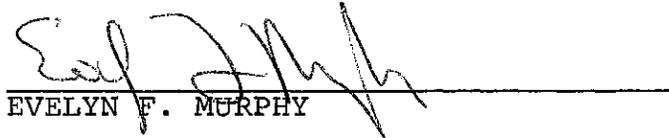
program and the Council suggests New Bedford Gas and Edison Light Company consider adoption of this type of program.

*Philip N Shapiro*

PHILIP N. SHAPIRO  
Hearings Officer  
Dated: 1 August 1977

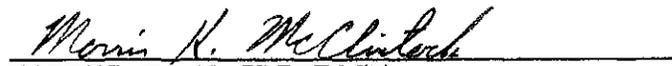
By Order of The Energy Facilities Siting Council:

  
CHRISTINE B. SULLIVAN, CHAIRMAN

  
EVELYN F. MURPHY

FRANK T. KEEFE

  
DAVID H. MARKS

  
MORRIS K. McCLINTOCK

HOWARD N. SMITH

JOHN R. VERANI

\_\_\_\_\_

In the Matter of the Fall River Gas Company  
2 DOMSC 27 (21 September 1977)

Docket: EFSC #77-20

Petition for Approval of an Annual Supplement (1977 - 1981)

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APPEARANCE: Michael T. Gengler of Boston for the company  
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The Fall River Gas Company has petitioned the Energy Facilities Siting Council for approval of its first supplemental forecast of gas sendout and supply for the period through 31 August 1981. The Energy Facilities Siting Council has earlier approved the company's initial forecast of sendout and supply, EFSC No. 76-20. See 1 DOMSC 77.

The company's service area includes the city of Fall River and the towns of Somerset, Swansea, and Westport. The company serves approximately 38000 customers most of whom are residential and commercial users. It forecasts a total sendout growth rate of approximately 2% each year through 31 August 1981, a projection based upon normalized historical experience during the past five years. This forecast methodology assumes that a typical residential or commercial customer will use the same volume of gas in the future as in the recent past. Thus, forecasted sendout growth is premised upon that gas which is to be consumed by new customers. Of course, the growth rate will vary somewhat as winter weather varies from historical experience. Additionally, the growth rate may moderate if typical

customer usage is reduced over time in response to developing conservation policies, gas service prices, and the impact of energy efficient construction. See FEA, Energy Conservation in New Building Design, an Impact Assessment of ASHRAE Standard 90-75 (1976).

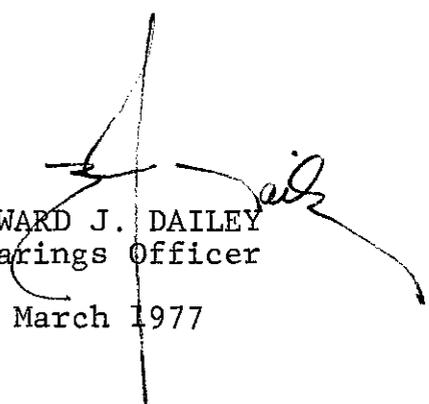
The Siting Council notes and applauds the company's recently established program which offers a retrofit package for pilotless ignition to furnaces and appliances. The Council encourages the company to pursue this program together with other conservation efforts such as a program of residential insulation similar to that offered by the Bay State Gas Company.

The Fall River Gas Company receives primary supply from the Algonquin Gas Transmission Company and supplemental supply from Distrigas of Massachusetts Corporation and from open market purchases of propane. The company anticipates receipt of substantially increased supplies from Distrigas beginning in mid 1978; however, a firm supply agreement has not been executed with Distrigas.

In the absence of substantially increased supplies of supplemental gas, the company will be required to purchase large volumes of propane on the open market. Its propane purchases will accelerate from 11000 MMBTU in 1977 to 107566 MMBTU in 1978 and to 816606 MMBTU in 1981. The Siting Council does not consider Fall River Gas Company's pending agreement with Distrigas or its alternative open market purchase of sharply increased volumes of propane to be firm sources of

supplementary gas supply. Consequently, the company's gas supply forecast cannot be approved for the period after 31 August 1978.

The Energy Facilities Siting Council approves the gas sendout forecast of the Fall River Gas Company. The Council approves the gas supply forecast through 31 August 1978. The company is directed to inform the Council of the status of its efforts to obtain firm supplemental supplies as part of its supplemental forecast of 31 December 1977.



EDWARD J. DAILEY  
Hearings Officer

17 March 1977

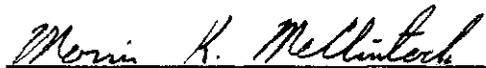
By Order of The Energy Facilities Siting Council:

  
CHRISTINE B. SULLIVAN, CHAIRMAN

  
EVELYN F. MURPHY

FRANK T. KEEFE

  
DAVID H. MARKS

  
MORRIS K. McCLINTOCK

HOWARD N. SMITH

JOHN R. VERANI

\_\_\_\_\_

In the Matter of North Attleboro Gas Company  
2 DOMSC 31 (21 September 1977)

Docket No. EFSC 76-22 and 77-22

Petition for Approval of a Long Range Forecast and Supplement

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North Attleboro Gas Company filed its first long-range forecast on May 3, 1976 and its Supplement on April 1, 1977. This decision will cover both the Forecast and the Supplement. Notice of the filing of the Forecast and of a public adjudicatory hearing on October 18, 1976 at One Ashburton Place concerning forecast was published in the Sun Chronicle. Notice of the filing of the Supplement, the issuance of this decision, and the right of any person to request a hearing on the Supplement was also published in the Sun Chronicle.

North Attleboro is one of the smallest gas companies in the state and is experiencing a gradual loss of customers and decline in sendout. The company has a policy of not accepting new customers, and many existing customers have been switching to electric heating. Sendout is predicted to decline at the following rates:

<u>Class</u>	<u>Compound annual growth rate</u>
central Heating	- .5%
space Heating	- 7.5%
general Service	- 7.5%
water Heating	- 1.0%
commercial and industrial	- 3.5%
total annual Sendout	- 1.0%
peak daily winter sendout	- 3.0%

Existing and Proposed Facilities

The company operates a propane-air plant and a wet sealed natural gas vapor holder. Although plans are not definite, the company anticipates that the vapor holder, which was built in 1925, will soon no longer be workable and that within the next one or two years an LNG storage facility will be necessary. This will be a 30,000 gal. tank and will be used for back up purposes only in the event of a failure in the Algonquin pipeline. It will not be used for additional gas supply.

Supply

N. Attleboro is supplied by the Algonquin Gas Transmission Company under contracts providing for a maximum annual volume of 246.84 (000MMBtu). The total annual sendout required is not expected to go above 200.00 (000MMBtu) for the forecast period due to the decline in sendout North Attleboro is fa-

ing. Total daily sendout available from the pipeline and propane air plant is 2.124 (000MMBtu) and the maximum peak daily requirement is predicted to remain constant at 1.200 (000MMBtu). Although there is some uncertainty as to the magnitude of curtailments by Algonquin, these figures indicate that North Attleboro will have adequate supplies of gas for the forecast period.

Order

The long range forecast and supplement of the North Attleboro Gas Company is approved, and the company is directed to notify the Council as soon as plans to install an LNG storage facility become more definite.

By Order of The Energy Facilities Siting Council:

  
CHRISTINE B. SULLIVAN, CHAIRMAN

  
EVELYN F. MURPHY

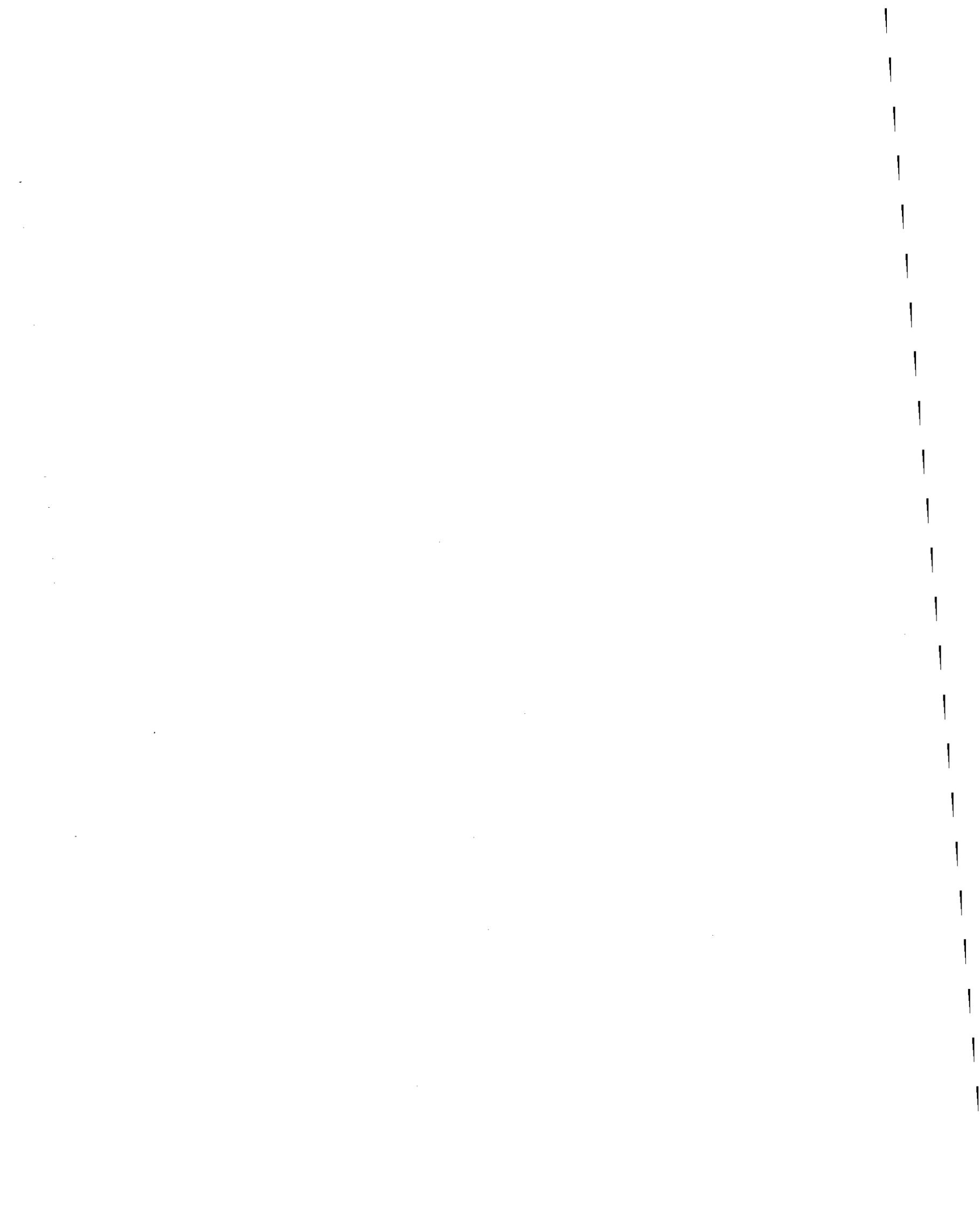
FRANK T. KEEFE

  
DAVID H. MARKS

  
MORRIS K. McCLINTOCK

HOWARD N. SMITH

JOHN R. VERANI



In the Matter of Algonquin SNG, Inc.  
2 DOMSC 34 (21 September 1977)

EFSC No. 76-34 and 77-34

Petition for Approval of a Long Range Forecast and Annual Supplement

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Algonquin SNG filed its long-range forecast on May 28, 1976 and its annual supplement on December 30, 1976. This decision will cover both the forecast and supplement. Notice of the filing of the forecast and supplement, the issuance of the tentative decision, and the right of any person to request a public hearing on the forecast or supplement was published in the Boston Globe and New Bedford Standard Times.

Algonquin SNG, Inc. owns and operates facilities for the production, sale, and delivery of synthetic natural gas in Freetown, Massachusetts. Algonquin SNG sells its entire production to its parent company, Algonquin Gas Transmission Company. Algonquin SNG began operations in 1973 and provides gas to Algonquin Gas that Algonquin Gas then sells under Rate Schedule SNG-1. The regular SNG service is from November 1 through March 31 with start-up and make-up sales from October 16-31 and April 1-15 respectively. For this reason data is reported on a September-August year rather than on a calendar year.

The only significant determinant of Algonquin SNG's future sendout is the contract demand placed upon it by Algonquin Gas Transmission Company. Over the forecast period annual sendout is predicted to increase about 1% from 17,003.070(000 MMBTU) to 17,057.014(000 MMBTU). Peak daily winter sendout will increase from 118.200 to 118.575(000 MMBTU). The reliability of the SNG plant is expressed as a percentage of gas produced during a season relative to the total contracted for quantity of gas. For the forecast years this percentage is predicted

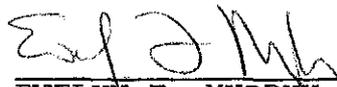
to be approximately 95%. The company also assumes that sufficient naphtha feedstock will be available to manufacture contract quantities of SNG.

Order

The Council determines the SNG plant's reliability to be acceptable, and approves the first long range forecast and annual supplement of Algonquin SNG, Inc. for the years 1976-1982.

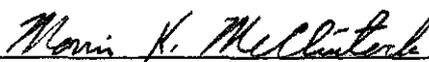
By Order of The Energy Facilities Siting Council:

  
CHRISTINE B. SULLIVAN, CHAIRMAN

  
EVELYN F. MURPHY

FRANK T. KEEFE

  
DAVID H. MARKS

  
MORRIS K. McCLINTOCK

HOWARD N. SMITH

JOHN R. VERANI

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In the Matter of the Wakefield Municipal Light  
Department et al  
2 DOMSC 37 ( November 3, 1977)

Petition of the Wakefield Municipal Light Department and others for  
Approval of the First Annual Supplement to their Long Range Forecasts

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This decision concerns the first annual supplement to forecasts submitted by the following utilities pursuant to Chapter G of EFSC Regulations: 1) Wakefield Municipal Light Department; 2) Westfield Gas and Electric Light Department; 3) Holyoke Gas and Electric Department; 4) Middleborough Gas Department; 5) Merrimac Municipal Light Department; 6) Groveland Electric Light Department; 7) Rowley Municipal Lighting Department; and 8) Russell Municipal Light Department. All of the supplements are discussed individually in the several paragraphs which follow.

The supplement of each of the departments was reviewed by the Council staff. In each case it was suggested that no adjudicatory hearing need be held unless so requested by the department or an interested party as no new facilities within Council jurisdiction have been proposed by any of these companies and no significant change from the forecasts was noted. The departments were so advised and were asked to publish in local newspapers a notice of tentative approval and of the right to a public hearing if requested on their supplements.

The individual decisions as to each company are as follows:

1. Wakefield Municipal Light Department (EFSC Docket #77-2)

There are no substantial changes in Wakefield's supplement from its long range forecast. In the forecast, no firm supply of gas

Finally, the supplement notes that Westfield's supply contract with Lowell Gas Company terminates July 1, 1979. Westfield is asked to inform the Council of the renegotiation of this contract or of any new contract which affects its supply as soon as possible. Assuming Westfield's compliance with the Council's requests as to its proposed LNG storage facility and its supply contracts, the Council approves the company's first annual supplement.

3. Holyoke Gas and Electric Department (EFSC Docket #77-23)

In April of 1977, Holyoke informed the Council of its plans to install a back-up vaporizer for its LNG plant on Mueller Road. The Council, through its staff attorney, responded that the proposed vaporizer came within the exclusions of Rule 67.8 (i) and that further Council review of its construction was unnecessary.

Other than the new vaporizer, there were no substantive changes from the department's forecast in the supplement and thus, that first annual supplement is hereby approved by the Council.

4. Middleborough Gas Department (EFSC Docket #77-18)

There is no significant change from Middleborough's forecast indicated in its annual supplement. However, the Council finds that an LNG supply contract with Lowell Gas Company expired on May 31, 1977 and no amendment to the supplement which would show a new contract for this portion of Middleborough's supply has been filed. Therefore the Council will withhold its approval of this supplement and will review it again upon receipt of the next supplement to be filed by December 31, 1977. Middleborough is directed to make definite

supply plans clear in the upcoming supplement.

5. Merrimac Municipal Light Department (EFSC #77-46)

Merrimac's first annual supplement was not filed until late August, 1977 and its cover letter requested a waiver of the load profile information in Graphs E-26 through E-29. The department also stated that it expects to see little growth in population or commercial development in the town over the next decade.

The information in the supplement reflects little change from the long range forecast and thus the Council approves said supplement and grants the waivers requested for the company's lack of recorded data. See 1 DOMSC 272 and EFSC Administrative Bulletin 77-1 (October 28, 1977)

6. Groveland Electric Light Department (EFSC Docket #77-39)

In its cover letter to the filing of its first annual supplement, Groveland stated that the across-the-board four percent (4%) annual growth in energy and demand assumed in its long range forecast was used again in this supplement. This most likely accounts for the lack of any substantial change in the supplement. However, refinements in individual class projections are promised for the next supplement which should strengthen the accuracy of the information provided and aid the Council's review.

Groveland's first supplement is approved and the requested waiver of the load profile data in graphs E-26 through E-29 is granted as stated in EFSC Administrative Bulletin 77-1 (October 28, 1977). The department is again directed to notify the Council when plans to construct a substation become sufficiently definite to be

included in an annual amended supplement. See 1 DOMSC 242 at p. 244.

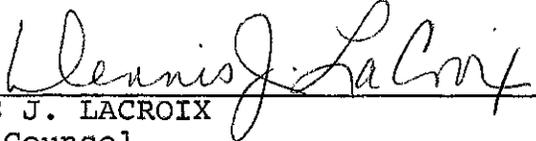
7. Rowley Municipal Lighting Department (EFSC Docket #77-47)

The Council approves Rowley's first annual supplement. Review indicates that the department still obtains all its power from the Town of Ipswich and that there have been no significant changes since the forecast.

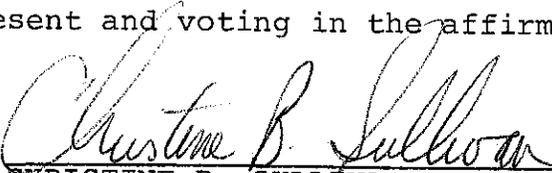
8. Russell Municipal Light Department (EFSC #77-31)

Apart from the re-opening of a large commercial account noted by the company with the attendant change in commercial figures, there is no change in the supplement filed on September 30, 1977. The Council therefore approves Russell's first annual supplement.

For the Energy Facilities Siting Council,

  
\_\_\_\_\_  
DENNIS J. LACROIX  
Chief Counsel

Unanimously approved by all present and voting in the affirmative.

  
\_\_\_\_\_  
CHRISTINE B. SULLIVAN  
Chairman



In the Matter of the Approval of the )  
Boston Edison Company Long-Range Forecast ) EFSC Docket Nos.  
and First Annual Supplement ) 76-12 and 77-12  
2 DOMSC 43 (December 13, 1977) )

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PARTIES and APPEARANCES

Boston Edison Company: Gaynelle Griffin Jones, Esq. and  
John J. Desmond, III, Esq.

Attorney General's Office: Michael B. Meyer, Esq. and  
James C. McManus, Esq.  
Assistant Attorneys General  
Utility Section  
Consumer Protection Division

Stanley U. Robinson, III, pro se

Plymouth County Nuclear Information Committee (PCNIC):  
William S. Abbott, Esq.

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The Massachusetts Energy Facilities Siting Council hereby approves the long-range forecast and first annual supplement thereto submitted by the Boston Edison Company, subject to certain conditions.

BACKGROUND

On December 6, 1977 a hearing was conducted in the above entitled matter pursuant to G.L. c. 164, §69J to consider that portion of the company's long-range forecast not previously made the subject of other Siting Council decisions. The company's first annual supplement to that forecast was also considered at this hearing at

the request of the company in a Motion to Consolidate dated March 25, 1977 which was allowed by the former hearings officer, Mr. Osborn.

As stated, certain portions of the long-range forecast were considered in other adjudicatory hearings and are the subject of the following decisions published in Volume I of the Decisions and Orders of the Massachusetts Siting Council (1 DOMSC \_\_\_\_).

In 1 DOMSC 63 (December 8, 1976), the Council approved the long-range forecast in part as to the company's proposal to construct oil tanks on the site of its Mystic substation. In 1 DOMSC 112 (February 16, 1977), the Council granted the company's request for an exemption pursuant to Council regulations of certain transmission line and substation facilities also proposed for construction in the long-range forecast. In 1 DOMSC 134 (March 19, 1977) the Council considered another company request for an exemption of its Pilgrim II nuclear power plant; this exemption was granted under the "grandfather" provisions of the Council's enacting legislation.

The remainder of the long-range forecast and the first annual supplement thereto, filed pursuant to

G.L. c. 164, §69I, are considered in the following decision.

INTERVENORS' MOTION

By a motion dated November 16, 1977, intervenors PCNIC and Robinson requested that the Council postpone any approval of the Boston Edison forecast pending a decision regarding the concept of peak load pricing by the Department of Public Utilities and the effect thereof on the company's forecast. Alternatively, the intervenors sought to have the forecast rejected as it failed to take peak load pricing into account.

As the first order of business at the December 6 hearing, arguments on the motion were heard.\* Mr. Robinson reiterated the position and argument stated in the motion that the forecast did not consider any of the consequences or impact of peak load pricing on energy demand. He suggested that, given the company's testimony at the DPU hearings, the company no longer believes in this long-range forecast and that it may not be "worth the energy" to consider it further. (Tr. 11).

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\*Intervenor PCNIC did not appear at this hearing. PCNIC's counsel, Mr. Abbott, spoke with the hearings officer briefly by telephone just prior to the hearing and on, the basis of that conversation, indicated that he would not appear. (Tr. 7-9).

Assistant Attorney General Michael Meyer stated that he took no position on the motion itself, but claimed that the subject of peak load pricing should be considered in Council deliberation on the merits of the forecast. (Tr. 12).

Mr. Desmond, on behalf of the company, opposed the motion. Pointing out that the company had used a form of peak load pricing (seasonal differential) since 1973, he stated that the regulations on peak load pricing now before the DPU were not as yet in effect and still were being developed. Mr. Desmond also stated that it was likely that once the regulations were finalized, the effect thereof could and would be treated in future supplements to the long-range forecast. (Tr. 13-15).

Representatives of Massachusetts Fair Share were present and sought to be heard on the motion. The company objected as Fair Share was not an intervenor in this proceeding. The objection was sustained (Tr. 12-13).\*

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\*In a letter to the Council dated November 30, 1977, Fair Share recognized that it was not an intervenor. The letter further stated Fair Share's support for the position of the intervenors as contained in the motion and suggested that should the motion be granted as to postponement, perhaps

After these arguments, the hearings officer denied the motion. (Tr. 16). Since regulations as to peak load pricing now before the DPU are still in their development stages, the company cannot be charged with preparing the long-range forecast of May, 1976 or the first supplement of December, 1976 in light of such regulations. To do so would be to require company personnel to have engaged in mere speculation that goes beyond the parameters of forecasting. As stated in the motion itself: "One thing is certain--peak load pricing and load management will have a large impact on energy demand although no one is yet sure of the specific nature of its impact." Since the intervenors admit to some uncertainty in the effect of this concept in December, 1977, the Council cannot now postpone a decision on nor reject the forecast and supplement solely on the basis that the company did not consider this uncertainty in 1976. Such revision and updating of the forecast as is required by the effect of peak load pricing is more

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it would be possible for Fair Share to participate in a future hearing on the forecast. A copy of this letter was noted as sent to Mr. Desmond.

Since the motion was not so granted, there is no need to anticipate a future hearing on this forecast and supplement. Participation in the Council's hearing on and consideration of the company's next supplement will be welcomed. That supplement is being prepared for filing on or before December 31, 1977.

properly the subject for the supplements filed pursuant to G.L. c. 164, §69I.

THE TESTIMONY

After the ruling on the motion, the testimony of the parties was taken. Ms. Jones made a brief statement for Boston Edison requesting approval of the company's long-range forecast (exhibit BE-5) and the first annual supplement (exhibit BE-5A). She then called Robert D. Saunders as a witness.

Mr. Saunders is employed by Boston Edison as the Manager of its Rate Research and Forecasting Department, a position he has held since May of 1977. He has been with that department in other capacities since July of 1962 and with the company since April of 1953. Upon being questioned by Ms. Jones, Mr. Saunders adopted and affirmed under oath his pre-filed written direct testimony which commented on the company's forecasting method used in and on the content of "Section II Electric Power Needs and Requirements" within the forecast and supplement.\* His written testimony was marked and accepted as BE-44 without

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\*The forecast (BE-5) and supplement (BE-5A) were discussed generically as one unit at the hearing (Tr. 68) and will similarly be treated in this decision.

objection from the parties.

Cross-examination of Mr. Saunders then ensued. During his questioning of the witness, Assistant Attorney General Meyer introduced the following exhibits: a 54 page document from the company entitled "Detailed description of method used by Boston Edison Company in arriving at its long-range forecast" dated October 11, 1977 from DPU No. 19300 (AG-1); a 22 page document (with Appendices A through E) also from Boston Edison entitled: "Submitted in Response To The Department Utilities' Proposed Regulations [re: peak load pricing] DPU 18810" (AG-2); six (6) pages of tables and diagrams which were taken from written testimony of a company employee, Mr. Sweeney, filed before the DPU in that department's matter, No. 19300 (AG-3); and a 32 page DPU document (with attached tentative regulations) in which the principle of peak load pricing is discussed (AG-4).\* The company had no objection to the introduction of these documents.

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\*With respect to AG-4, the company and the Attorney General differed as to the legal effect and nature of this document (Tr. 49-52). It is the Council's opinion that the resolution of this dispute is of no significance to its decision as it feels that peak load pricing is still not in final operable form and thus could not have entered into the forecast development except in a most speculative manner. See supra, at p. 4.

After Mr. Meyer, Mr. Robinson questioned the company's witness. During his questioning, Mr. Robinson asked the witness for certain information and figures from the supplement to be filed by the company by December 31, 1977. Ms. Jones objected to this as irrelevant to the present proceedings and that objection was sustained (Tr. 61). Mr. Robinson also asked what effect there would have been in the forecast if the company had the opportunity to consider peak load pricing as formulated in DPU No. 18810. This question was objected to as speculative and irrelevant. That objection was sustained and Mr. Robinson concluded his questioning (Tr. 66). Ms. Jones conducted a brief redirect examination of the witness (Tr. 66-67).

Marc G. Hoffman, a staff economist for the Council, then examined Mr. Saunders, focusing on the company's methodology, its elements and how it was changing (Tr. 68-124).

Following Mr. Hoffman, Mr. Meyer presented his witnesses, Anthony G. Petrello, a mathematician, and Larry S. Eckhaus, a utility analyst (Tr. 126-135). Mr. Petrello's written testimony, which he adopted and affirmed under oath, was marked and accepted as exhibit AG-5. Mr. Petrello outlined certain principles of statistical forecasting as are rele-

vant to the development of reasonably accurate long-range demand and energy forecasts. On cross-examination, he admitted that he had not studied the company's forecast in any depth, having only recently "flipped through it." (Tr. 131).

Mr. Eckhaus' written testimony, which he likewise adopted and affirmed under oath, was marked and accepted as exhibit AG-6. As a utility analyst, he was asked to study and comment on the company's forecast. The thrust of his remarks went to the absence of consideration of the peak load pricing effect in the company's projections.\*

The hearing concluded with brief statements being taken from each party and any participating persons who wished to be heard. Boston Edison requested that the Council approve both its forecast and first annual supplement. The Attorney General's office opposed, stating that the company's forecast failed to meet the requirements of G.L. c. 164, §69J. Mr. Robinson adopted the position of the Attorney General and added that the company could not adequately

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\*In this regard, the witness opined that "[t]he absence of this radically different approach to rate design as in input to any forecast of electric power needs and requirements cannot be excused." AG-6, p. 2.

explain the content or methodology of the forecast through its witness, Mr. Saunders. Mr. Robinson noted that Mr. Saunders had at best tangential knowledge of the decisions made within the forecast methodology; indeed, Mr. Saunders was not the forecaster responsible for exhibits BE-5 and BE-5A.

Finally, Roberta Rodkin, Esq. spoke as a participating person on behalf of Massachusetts Fair Share pursuant to EFSC Rules 15.3 and 14.7. She supported the requests of the Attorney General and Mr. Robinson for rejection of the forecast; she also pointed out that the company's upcoming supplement would project about a 25 percent reduction in demand from that projected in the forecast now before the Council.

After a date was set for the submission of written memoranda by any party who wishes, the hearing was adjourned.

CONDITIONAL APPROVAL

G.L. c. 164, §69J provides that projections of the demand for electric power be based "on substantially accurate historical information and reasonable statistical projection methods." Much was made by the intervenors of the lack of reasonable statistical projection methods in

the company's forecast; the Council's staff also found the methodology used by the company deficient in this regard. It is this deficiency which prompts the Council to approve the forecast and supplement conditionally, subject to review of the company's revised methodology in the upcoming supplement.

It is to be noted that this conditional approval is recognition of the company's good-faith effort in complying with statutory requirements of recent vintage regarding the filing of an energy demand forecast. In fact, the Council finds that exhibits BE-5 and BE-5A comply with those requirements. However, the company is now on notice that a methodology of forecasting which may have been accepted without questioning for many years for in-house use must be revised and updated if it is to continue to pass muster in the light of public review.

It was obvious from the questioning of Mr. Saunders by the parties and Council staff that Mr. Ferguson, a respected company forecaster for many years, was the driving force behind certain judgments and underlying assumptions made and used in the forecast (Tr. 55). While Mr. Ferguson, who recently retired and personnel within Boston Edison

may have accepted and even understood these assumptions, judgments and their impact on the forecast data, the company should realize that the same factors are not so easily understood by those outside the company to whom the forecast is available by statute for energy policy review. Often Mr. Saunders could not adequately nor completely respond to questions seeking an explanation or quantification of elements within the forecast. He seemed unable to do so by virtue of the extensive presence of Mr. Ferguson's hand in the ultimate form of the forecast. Indeed it appeared, as pointed out by Mr. Robinson, that Mr. Saunders had only tangential knowledge of portions of the forecast. Although he attested to its reliability (Tr. 68), he could not personally describe some underlying data not obvious from the face of the forecast (e.g., Tr. 79, 92, 95).

However, exhibits BE-5 and BE-5A do represent what the company was able to produce as a forecast for external review pursuant to Siting Council statutes and regulations. The Council believes, as stated above, that these exhibits were filed in good faith, given the state of the art of utility forecasting as then practiced within the company's walls. (Tr. 68). Now that the forecasts of utility com-

panies are to be scrutinized by others than the internal corporate staff, Boston Edison is to be aware of the need for changing its methodology of forecasting to achieve a more easily identifiable and quantifiable statistical basis for review.

Trend line analysis, even coupled with judgmental modifications to the line, can no longer be said to be a valid forecast methodology. There have been and continue to be changes in the historical and causal relationships which underlie this analysis. The company may say that their own judgmental modifications, given their historical accuracy for in-house use, upgraded the validity of the trend line method. However, in BE-5 and BE-5A, there is no explanation of the reason or reasons for making that judgment and its relation to a consequent change in the trend analysis. Nor is the impact of the judgments used ever quantified in the forecast. Consequently the judgments and their impacts on the trend cannot be reviewed (except perhaps in-house) for reasonableness. The only way the Boston Edison forecast could be evaluated for accuracy is by use of a totally independent forecast.\* This should not

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\*In fact, the company used NERA and Gilbert Associates studies as "external checks" of its results. Cf. BE-5A, at II-2.

continue in future company filings.

Fortunately, the Council has reason to expect that the company will not so continue. Mr. Saunders testified that his department is currently developing an alternative forecasting methodology (Tr. 69-75). His ascendancy to the position once occupied by the respected Mr. Ferguson has given him a chance to implement the necessary changes as he recognizes them (Tr. 73-75; 87-89). The Council looks forward to receiving the company's next supplement with its improved methodology, one more easily identified and reviewed by those not of the Boston Edison corporate staff. For these reasons, the Council approves the company's filings, BE-5 and BE-5A, subject to certain conditions stated below.

THE CONDITIONS

G.L. c. 164, §69J provides that the Council may "approve the long range forecast subject to stated conditions." Accordingly, the Council conditions its approval of the Boston Edison forecast and first annual supplement upon the following.

In developing and updating its methodology, the company should incorporate these points:

1. All adjustments to historical data should be specified and justified;

2. All analyses of trend lines used should include:
  - a) statistical criteria of the selection;
  - b) statistical measures of trend lines selected and of those rejected;
  - c) identification of the historical data used in these analyses;

3. The use of trend line analyses should be justified and include therein:

- a) identification of causal factors;
- b) a discussion of the relationship of causal factors in historical and projection periods relative to the forecasted variable;
- c) a discussion of the superiority of the trend line analyses relative to other statistical methods;

4. All judgments employed in the forecast should be identified and causally related to each element in the forecast affected by a particular judgment;

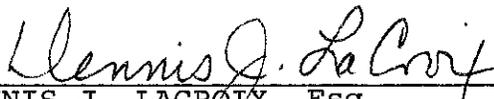
5. The impacts of each judgment on the affected elements should be quantified.

The Council does not accept the forecasted growth rate in BE-5 and BE-5A for purposes of justifying generating

capacity expansion or proposed transmission facilities because of the present limitations of the company's methodology.

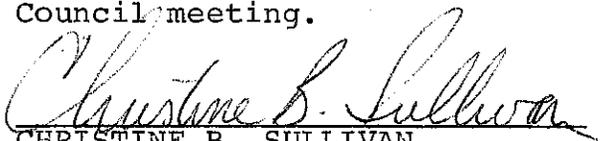
ORDER

It is ordered that the long-range forecast of the Boston Edison Company be approved subject to the above stated conditions. How the company fulfills these conditions will be a primary question in the Council's consideration of the upcoming company supplement.



DENNIS J. LACROIX, Esq.  
Hearings Officer  
December 13, 1977

This decision was approved 4 - 1 at the December 21, 1977 Council meeting.



CHRISTINE B. SULLIVAN  
Chairman

In the Matter of Boston Edison Company  
2 DOMSC 58 (December 21, 1977)

EFSC 76-12

Petition for Approval of Certain Transmission Facilities

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APPEARANCES:

John J. Desmond, III, Esq. and Gaynelle G. Jones, Esq.  
for Boston Edison Company

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I. SUMMARY OF PROPOSED TRANSMISSION LINES

In this proceeding the Boston Edison Company (the Company) has requested that the following transmission lines be approved by the Energy Facilities Siting Council pursuant to M.G.L. c. 164, §69J:

- A. A 345 kV transmission line from Walpole Station to Needham Station scheduled for an in-service date of 1982,
- B. A 345 kV underground transmission line from Mystic generating station to Lincoln Street with an in-service date of 1985,
- C. 345 kV and 115 kV transmission lines from Woburn Station to Tewksbury,
- D. A 345 kV transmission line and associated 115 kV

work from Woburn Station to Waltham Station with an in-service date of 1986,

- E. Two underground 115 kV transmission lines from Hyde Park Station to Dewar Street Station with an in-service date of 1981, and
- F. An underground 115 kV transmission line from Chelsea Station to a new substation on Bremen Street in East Boston with an in-service date of 1981.

This decision will consider only lines B through F.

## II. HISTORY OF THE PROCEEDING

The transmission lines that are the subject of this decision were first proposed for approval by the Company in its Long-Range Forecast filed with the Siting Council on April 30, 1976. The first Annual Supplement 1-A updated the Long-Range Forecast and was filed December 31, 1976. Consideration of the proposed transmission lines was separated from the remainder of the Forecast and Supplement, and public adjudicatory hearings concerning the lines lettered B through F were held on November 23, 1976 and December 14, 1976.

The record concerning these lines consists mainly of testimony presented by the Company and Company responses

which should be resolved on the basis of the most recent and accurate load projections. Therefore, the Company is directed to review the projected in-service dates and revise them according to the most recent load forecast.

IX. ORDER

The Energy Facilities Siting Council approves the following transmission facilities:

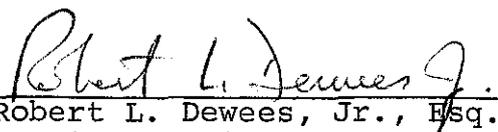
1. Mystic Station to Lincoln Street 345 kV transmission line
2. Woburn to Tewksbury 115 kV and 345 kV transmission project
3. Hyde Park to Dewar Street 115 kV transmission line
4. Chelsea to East Boston 115 kV transmission line and substation

The following conditions apply to the above approvals:

1. Due to recent revisions in the Boston Edison Company load forecast, the Company will submit to the Council revised and updated in-service dates by January 31, 1978.
2. Because type of construction, exact location, and ultimate design have not been finally determined for the above lines, any party or state or local governmental agency may negotiate or

enter into agreements with the Company as to matters of final design, engineering, and construction.

3. The above projects are approved at their projected costs. These costs are, no doubt, subject to reasonable change from a variety of factors including inflation of wage and material costs, construction problems encountered in the field, engineering design changes and other causes beyond the control of the Company. The Company is directed to notify the Council of all such changes in the annual Supplements and of the final cost figure for each project. Approval by the Council of a facility at the preliminary licensing stage should not be construed as a binding determination upon a rate setting agency.
4. The chemical herbicide 245T will not be used in any fashion without Siting Council approval pending review by the Environmental Protection Agency pursuant to 40 CFR 162. See 1 DOMSC 227 and 1 DOMSC 327.
5. The Company is directed to notify the Siting Council when construction begins.

  
Robert L. Dewees, Jr., Esq.  
Hearings Officer  
January 5, 1978

This decision was approved unanimously by all members present and voting at the December 21, 1977 Council meeting.

  
CHRISTINE B. SULLIVAN  
Chairman

In the Matter of Cambridge Electric Light Company,  
New Bedford Gas and Edison Light Company,  
and Canal Electric Company

2 DOMSC 66

Docket: EFSC 77-4

Petition for Approval of Demand Forecasts

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APPEARANCE: Michael T. Gengler, Esq. of Boston  
for the companies  
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The NEGEA Service Corporation has filed the first supplement to its Long Range Electric Forecast, 1976-1985 on behalf of the principal electric utility operating companies of New England Gas and Electric Association. The operating companies include Cambridge Electric Light Company, New Bedford Gas and Edison Light Company, and Canal Electric Company. Each has petitioned the Energy Facilities Siting Council for approval of the demand forecast segment of the first supplement. High voltage transmission, substation, and generating facilities have been reviewed separately.

The first supplement employs the same demand forecast method which was reviewed and approved by the Council in its adjudication of the Long Range

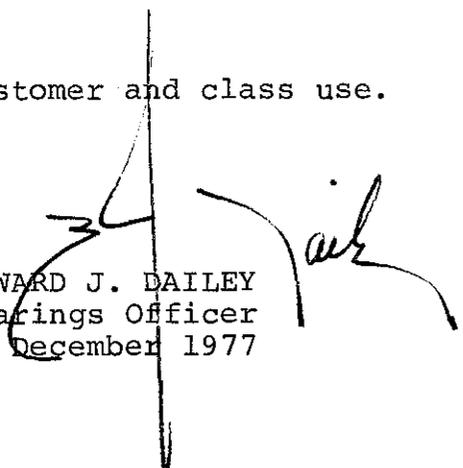
Electric Forecast. See 1 DOMSC 221 ( 13 May 1977).

The supplement is subject to the same concerns about the potential for overstatement of residential and commercial demand in the New Bedford Gas and Edison Light Company service area. See 1 DOMSC at 224.

#### FINDINGS

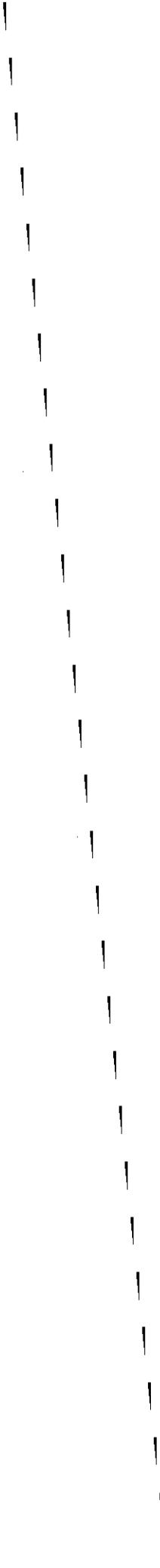
The Siting Council recognizes that the first supplement was completed some six months prior to review of the Long Range Electric Forecast. Consequently, the supplement cannot be responsive to the issues raised in the decision upon the Forecast. Therefore, pursuant to G.L. c.164, §§69I, J, the Council approves the demand segment of the first supplement with the expectation that subsequent forecast supplements will consider and study quantitative study of those significant factors such as appliance efficiency and saturation, conservation, price, and electric heat penetration which influence

customer and class use.

  
EDWARD J. DAILEY  
Hearings Officer  
28 December 1977

This decision was unanimously approved by all present and voting in the affirmative at the January 26, 1978 meeting.

  
CHRISTINE B. SULLIVAN  
Chairman



In the Matter of Boston Gas Company and Massachusetts LNG, Inc.  
2 DOMSC 69 (March 15, 1978)

EFSC 77-25

Petition for Approval of a Joint Long Range Forecast  
Supplement

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APPEARANCE: Margaret N. St. Clair, Esq. for Boston  
Gas Company and Massachusetts LNG, Inc.  
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The Energy Facilities Siting Council approves with conditions the first Long-Range Forecast Supplement filed jointly by Boston Gas Company and Massachusetts LNG, Inc.

Boston Gas Company filed its Supplement on December 31, 1976. On October 14, 1977 the Council Staff issued an Information Request concerning the Supplement which was responded to by the Company. After notice was published in the Boston Globe and the Patriot Ledger, a public adjudicatory hearing was held on December 1, 1977. Testimony was received from James H. Dodge, Controller of Boston Gas and John T. McKenna, Vice President-Gas Supply. These officers were responsible for the preparation of the Supplement. No intervenors or participating persons entered appearances in this proceeding.

The Supplement shows that the Company will have adequate supplies for its customers as gas resources are forecast to be greater than gas requirements for the period encompassed by the Supplement. See Tables G-22 and G-23. The Council finds the Company's predicted growth rates reasonable. There were no new facilities proposed in the Supplement; however, possible gas facilities may be required within the forecast period. The Company will inform the Council if any of these become necessary. While approving the Supplement, the Council notes that estimates of pipeline supplies and sendout requirements require greater substantiation.

Pipeline supplies are the predominate source of supply, and their availability directly influences all other supply planning. The Company's judgment as to the level of pipeline curtailments relative to contracted volumes is the key estimate of expected availability. This judgment is based on estimates from pipeline suppliers, the Company's experience with these estimates, and an evaluation from an outside consultant. However, this judgment was not fully explained to the Council,

and the curtailment estimates were analyzed in summary fashion only. See Response to Information Request, question #5. Consequently, the Council cannot readily evaluate the Company's estimate of curtailments. The Company is directed to provide a comprehensive estimate of pipeline supply together with source data for that estimate as part of its supplemental forecast to be filed in December 1978.

The Company's forecast of sendout requirements consists of subjective judgment about additional supplies, sales outlook, and load losses. The limitation of this approach is that it is highly subjective and aggregated, and it fails to consider change in use by individual customers or customer classes. While this approach may be adequate for year to year forecasting of net load additions, it is not sufficient for longer term forecasting.

The Company resists a more comprehensive method of forecasting because of its view that gas supply is the major constraint on sendout and that weather is a far more significant planning variable than changes in customer use. These arguments fail to address questions

of changes in customer use patterns which have occurred during the past five years and which may be anticipated during the next five years as a result of price, conservation, supply, and other factors. Such changes and the reasons for the changes can be determined only by a study of customer and class use. Without an understanding of customer and class use, the Company runs a significant risk of greatly overstating or understating send-out requirements under the present method.

The Company's conclusion that there will be no dramatic changes in the factors affecting net load additions from year to year may be reasonable; however, something more than subjective evaluation of yearly changes is required. The broad claim that weather is a more significant planning variable than customer use patterns is insufficient as a forecasting methodology without more detailed qualitative and quantitative analysis. While it is not the intent of this decision to impose burdensome cost and data requirements on the Company, the Council must be able to understand and evaluate the Company's forecasting process.

The Company is directed to provide a comprehensive analysis of customer use patterns as part of its supplemental forecast to be filed in December 1978. This analysis shall explain how historical changes in customer use patterns support management decisions about future sendout requirements and shall describe the magnitudes of and reasons for predicted customer use changes in the forecast period. The study shall explain what factors influence customer use changes including, but not limited to, conservation, changes in the numbers of customers, advertising and marketing policies of the Company, customer response to price changes, and state and federal energy policies.

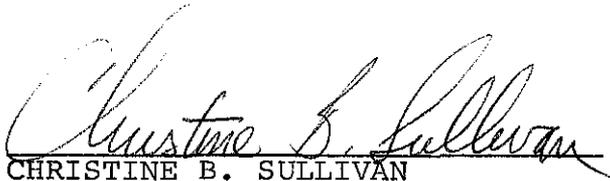
ORDER

The forecast supplement is approved subject to the requirements for a comprehensive estimate of pipeline supply and analysis of customer use patterns to be included in the December 1978 Supplement.

By Order of the Energy Facilities Siting Council

Rob Dewees  
Hearings Officer

This decision was unanimously approved by all members present and voting in the affirmative at the March 15, 1978 Council meeting.

  
CHRISTINE B. SULLIVAN  
Chairman

In the Matter of the Approval of the Long-Range  
Forecast and Second Annual Supplement of the  
Taunton Municipal Lighting Plant, Docket Nos. 76-51; 78-51

2 DOMSC 75 (September 6 , 1978)

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APPEARANCES: Edward A. Roster, Esq. for the Lighting  
Plant

Paul K. Connolly, Jr., Esq. for the  
intervenors, On The Corner, Inc.

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The Massachusetts Energy Facilities Siting Council hereby conditionally approves the long-range forecast and second annual supplement thereto submitted by the Taunton Municipal Lighting Plant. The Lighting Plant is ordered to comply with certain conditions.

I. HISTORY OF THE CASE

The Taunton Municipal Lighting Plant filed its long-range forecast with the Siting Council on September 9, 1977 and its second annual supplement to the forecast on March 14, 1978. The first annual supplement was not filed. On June 5, 1978, On The Corner, Inc., a non-profit consumer organization based in Taunton, was admitted as an

intervenor in this case. Both the Council staff and the intervenors submitted information requests to the company and these requests, along with the company's responses, were included as exhibits in this proceeding. A pre-hearing conference was held on June 8, 1978, and the adjudicatory hearing was conducted over two days, July 25 and August 17, 1978. This is the first decision the Council has issued concerning the Taunton Municipal Lighting Plant.

## II. CONDITIONAL APPROVAL

The Siting Council gives only conditional approval to Taunton's forecast and supplement because the Council finds the company's forecast and supplement to be inadequately documented. G.L. c. 164, S.69J provides that projections of the demand for electric power be "based on substantially accurate historical information and reasonable statistical projection methods." Section 69J further provides that "if the Council determines the standards set forth (in 69J) have not been met, it shall approve the long-range forecast subject to stated conditions."

The major fault in the company's forecast and supplement is that the forecasting methodology is not sufficiently

explained and justified according to the standards set forth in Council Rule 63.5, Methodology for Forecasting Demand. The Council recognizes that the Taunton Municipal Lighting Plant is not a large electric company and therefore does not expect the company's forecasting methodology to be as statistically detailed and sophisticated as methodologies used by the major electric companies. However, the Council does expect all companies to document their methodology, whether it be primarily judgemental or highly statistical, in a manner consistent with Council Regulations. The Council must be able to determine the methodology, assumptions, and source data used to derive the various growth projections included in the forecast and supplements. Only after reviewing this information can the Council determine if the forecast or supplement is based on reasonable statistical projection methods. For the Taunton forecast and supplement, this information was inadequate.

The Council will not reject outright the forecast and supplement because this proceeding is the first Council review of the company's methodology, and the company has in good faith attempted to comply with the requirements of a relatively new statute. In addition, as the first Council action on the Taunton forecast and

supplement, this decision will serve to clarify what the Council will require of the company in the third annual supplement.

III. THE CONDITIONS

Pursuant to G.L. c. 164, §69J, the Council approves the Taunton Municipal Lighting Plant forecast and supplement upon the following stated conditions that must be complied with in the third supplement, to be filed December 31, 1978:

1. The company should comply with the requirements of Rule 63.2, Description of Agreements, to the fullest extent possible. In addition, on cross-examination, the intervenors established that the unit contract for the sale of capacity to Montaup Electric Company accounts for a significant portion of the output of the company's Unit #9. This unit contract should be described and explained in greater detail and a copy of the Taunton-Montaup contract should be provided with the filing of the next Supplement, due December 31, 1978.
2. The company should comply with Rule 63.7, Level of Aggregation, to the fullest extent possible. The forecast must be disaggregated so that

separate forecasts of total electric energy consumed are made for each customer class. Cross-examination by the intervenors revealed that the company's individual customer class projections were calculated to fit an assumed 5% company wide growth rate. Thus, instead of forecasting for each class individually and then aggregating the classes to obtain an overall company growth rate, individual class rates were determined from the judgement that the company wide growth rate would be 5% per year. This procedure does not satisfy Rule 63.7. Any source data and assumptions used should be documented and discussed.

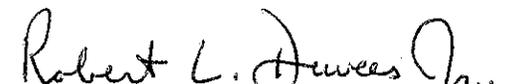
3. The company should comply with Rule 63.5, Methodology for Forecasting Demand, to the fullest extent possible. Specific attention should be given to documenting and discussing the "determinants of future demand" listed in Rule 63.5 (b). This should include a discussion of what source materials were used, any analyses that were performed, any judgements made, and how all of the above considerations for each of the determinants entered into the forecast.

4. The extent of customer conservation over the forecast period should be quantified and explained.
5. All assumptions and judgements made in preparing the third annual supplement should be fully explained and justified, and the impact of these assumptions and judgements on the supplement should be quantified, to the extent possible.

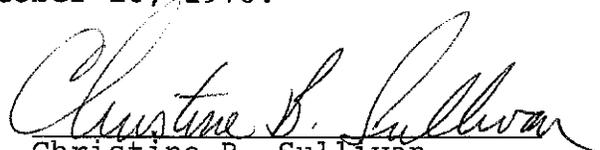
The Council staff stands ready to answer any questions the company may have in regard to preparation of the next supplement.

IV. ORDER

It is ordered that the forecast and supplement of the Taunton Municipal Lighting Plant be approved subjected to the above stated conditions. Compliance with these conditions will be the primary question in the Council's review of the third annual supplement.

  
Robert L. Dewees, Jr., Esq.  
Hearings Officer

Adopted by unanimous vote of Council members present and voting at EFSC meeting of October 18, 1978.

  
Christine B. Sullivan  
EFSC Chairman

COMMONWEALTH OF MASSACHUSETTS  
Energy Facilities Siting Council  
2 DOMSC 81

EFSC No. 78-48

In the Matter of )  
Proposed Rulemaking: )  
Siting Standards for Intrastate )  
Liquefied Natural Gas Storage )  
Facilities )  
)

MEMORANDUM OF  
DECISION

At its meeting of August 16, 1978, the Energy Facilities Siting Council unanimously adopted Regulations for the Siting of Intrastate Liquefied Natural Gas Storage Facilities, Chapter K. The council's action concludes a sixteen month study of LNG storage facility siting.

Chapter K is the product of a long process which fully involved concerned citizens, the Massachusetts gas industry, environmental groups, elected officials, the Department of Public Utilities, federal agencies, and LNG experts. Advanced notice of rulemaking was first published during June of 1977 with a comment period which extended through December. Thereafter, the Staff and the Council's gas utility member, Professor Henry P. Marcus, conducted regular meetings with the Massachusetts Gas Utility Policy Committee to discuss revisions to draft regulations. Formal rule-

making pursuant to G.L.c. 30A, ss 2 commenced in July of this year. Public hearings were held on August 2, 4, 16 1978. We believe that every practical effort has been made to work openly, to solicit comment and opinion from all responsible sources, and to respond with practical siting standards for LNG storage facilities.

It is to be noted also that Chapter K is consistent with and representative of our continuing program to develop siting standards for major energy facilities. See Chapter J, Coastal Zone Management; Administrative Bulletin 78-1, Transmission Facilities; Staff draft of siting standards for oil facilities. Siting standards facilitate the difficult decisions which must be made in energy siting by establishing a uniform and open process for systematic review of the issues associated with each proposal. Moreover, siting standards assure a balanced consideration of the competing interests of need, cost, and environmental impact. Finally, these standards implement the legislative mandate of G.L.c. 164, ss 69G et seq. to conduct comprehensive review of proposed facilities.

STATEMENT OF NEED

We have reviewed the comments and testimony of those many groups and persons who have participated in this rulemaking. Stricter standards for LNG storage facility siting are required to protect the public from extreme hazard in the event of a major, albeit improbable accident. Proponents argue that fire and thermal radiation hazards should be confined to the facility site. Opponents counter that the costs associated with hazard confinement are not justified because of the slight risk of major accident.

The Staff has recognized that it is largely impossible to calculate the probability of an LNG storage facility accident. See LIQUEFIED NATURAL GAS SITING GUIDELINES, AN EXPLANATION (Staff Report, July 1978). However, the Staff argues, and we agree, that the need for stricter standards should not turn on improbability:

It is important to recognize that the resort to statistical jargon and cost/risk/benefit analysis can easily obscure the issue which is presented by LNG. It is not the improbability of an accident which is at issue; rather, the issue is the magnitude of hazard in the event of an accident. Under present siting standards established by the National Fire Protection Association, an LNG facility presents an immediate hazard to those who live and work in its vicinity because dangerous levels of thermal radiation (intense heat) and flammable vapor (fire) are allowed to extend well beyond the perimeter of the site, even in

from 23,600 gallons to 25,000,000 gallons, it is only prudent to establish standards for new facilities which will confine fire and thermal radiation to facility sites.

The siting regulations which we have adopted assume a conservative design accident and mandate thermal radiation and flammable vapor exclusion zones which largely confine the hazard to the LNG facility site. The intent is to limit the magnitude of hazard so that involuntary risk to members of the public will be minimal even in the event of a major accident. Thermal radiation at the site boundary is reduced by as much as a factor of 10 relative to the present NFPA standard while flammable vapor is limited to the site boundary. Consequently, risk to the public will be greatly reduced. At the same time, these regulations will not make LNG siting prohibitively expensive or impracticable because the increased safety margins can be achieved with relatively small sites by use of insulated concrete or earthen dikes. For example, a 50,000 gallon tank can be sited on as little as 6.4 acres while a major 13,000,000 gallon tank will require only 34 acres (a site which is 2/3 the size of the Boston Common). Sites within these ranges are readily available, even in densely populated areas of the Commonwealth.

In comparison with current industry siting standards, there will be additional costs associated with Chapter K. These costs are a result of the requirements for storage tank diking, insulation, and somewhat larger site sizes. Capital costs may be increased from 9 to 20 percent relative to the cost associated with conventional design. See Staff analysis developed from cost estimates submitted by Distrigas of Massachusetts Corporation. This represents a cost to a consumer of not more than \$1.49 per year. It does not alter the cost advantage of gas relative to other fuels.

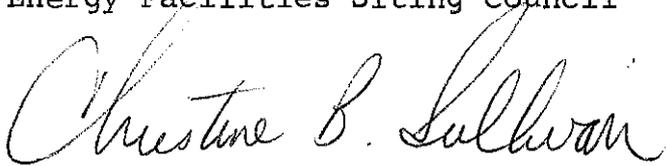
We do not ignore the fact of increased costs. It is not possible, however, to provide greater safeguard to the public without extracting some costs. We conclude that the substantial safeguards of these siting regulations merit the necessary costs for compliance.

#### ORDER

The Energy Facilities Siting Council finds that Chapter K is a fair and balanced response to the need for regulatory standards and LNG storage facility siting and an appropriate exercise of Council jurisdiction,

consistent with its legislative mandate. It is therefore ordered that these regulations shall govern all intrastate LNG storage facilities proposed for construction from and after September 1, 1978.

Energy Facilities Siting Council

A handwritten signature in cursive script that reads "Christine B. Sullivan". The signature is written in black ink and is positioned above the printed name and title.

CHRISTINE B. SULLIVAN  
Chairman



In the Matter of the Rowley Municipal  
Light Board et al.  
2 DOMSC (June 22, 1978)

Petition of the Rowley Municipal Light Board and the Groveland Electric Light Department for Approval of the Second Annual Supplement to their Long Range Forecasts

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This decision concerns the second annual supplement to forecasts submitted by the following utilities pursuant to Chapter G of EFSC Regulations: 1) Rowley Municipal Light Board and 2) Groveland Electric Light Department. Both supplements are discussed individually in the several paragraphs which follow.

Each supplement was reviewed by the Council staff. In each case it was suggested that no adjudicatory hearing need be held unless so requested by the department or an interested party as no new facilities within Council jurisdiction have been proposed by these companies and no significant change from the forecasts was noted. The departments were so advised and were asked to publish in local newspapers a notice of tentative approval and of the right to a public hearing if requested on their supplements.

The individual decisions as to each company are as follows:

Rowley Municipal Light Board (#78-47)

Review of Rowley's second supplement shows some indication of the benefit of customer efforts to conserve. Average use per customer has decreased .06 from last year and total output requirements grew only .02 (against a predicted .04 growth) despite a more than forecasted growth in the number of commercial customers. There are no other substantial changes in the supplement from last year. Thus the Council APPROVES Rowley's second annual supplement and thanks the Light Board for its quick response to staff questions.

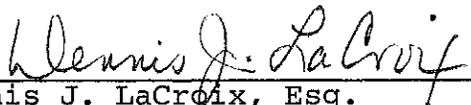
Groveland Electric Light Department (#78-39)

As promised last year, Groveland refined its individual class projections to arrive at a more accurate overall growth projection. These refined projections were based on assumptions that 1) electric heating usage will continue to grow at a high rate now but its cost will cause it to level off at four percent; 2) there will be no appreciable population growth until the town's planned sewer system is operational although usage per customer is projected to grow at two percent a year; and 3) there will be no growth in commercial use for the next several years.

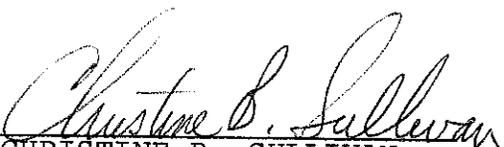
Upon review of Groveland's second supplement as refined and revised, the Council finds the department's figures and assumptions on which the figures are based to be reasonable,

especially in light of the small size of the system where a small absolute change in a customer group results in a large percentage adjustment. Thus the Council APPROVES Groveland's second supplement and thanks the department and its consultants of Vanderweil Engineering, Inc. for their cooperation in responding to staff questions.

Energy Facilities Siting Council

  
\_\_\_\_\_  
Dennis J. LaCroix, Esq.  
Chief Counsel

This decision was unanimously approved by all present and voting in the affirmative at the October 18, 1978 meeting.

  
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CHRISTINE B. SULLIVAN  
Chairwoman



In the Matter of the Concord Municipal Light Plant, et. al.  
2 DOMSC 91 (May 24, 1978)

EFSC Nos. 78-45; 78-52; 78-46

Petition of the Concord Municipal Light Plant and others for approval of the second annual supplement to the long-range forecast.

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This decision concerns the second annual supplements to long-range forecasts submitted by the following electric utilities pursuant to M.G.L. c. 164, § 69I: 1) Concord Municipal Light Plant; 2) Princeton Electric Light Department; and 3) Merrimac Municipal Light Department.

The supplement of each of the departments was reviewed by the Council staff. In each case it was suggested that no adjudicatory hearing need be held unless so requested by the department or an interested party as no new facilities within Council jurisdiction have been proposed by any of these companies and no significant change from the forecasts was noted. The departments were so advised and were asked to publish in local newspapers a notice of tentative approval and of the right to a public hearing if requested on the supplements.

The individual decisions as to each company are as follows:

1. CONCORD MUNICIPAL LIGHT PLANT (EFSC #78-45)

Concord's long-range forecast was not filed until February 1977 and since this is Concord's second filing it is in essence the first supplement, although it is docketed 78-45. There are no significant changes from the forecast filed a year ago. Cf. 2 DOMSC 284 (June 1977). The Light Plant uses the same forecasting methodology, and overall system growth predictions show little variation from those in the forecast. Growth rates for residential, commercial, and industrial classes are all within the 2-3.5% per year range. All of Concord's power is supplied by Boston Edison Company, and while there are no plans to construct any facilities, the Light Plant is tentatively considering purchasing a 115 kV transmission line which the Council will review at the appropriate time. The Council APPROVES Concord's first supplement.

2. PRINCETON MUNICIPAL LIGHT DEPARTMENT (EFSC #78-52)

At long last Princeton has made its first filing with the Council. The forecast presents only actual historical data, however the Department Manager has indicated<sup>1</sup> that the forecast years would show a growth

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1. Phone conversation with Richard F. Wheeler, Department Manager, May 11, 1978.

rate similar to the 1% overall growth that occurred from 1976 to 1977. The Department has a total of 902 residential customers, there are one or two commercial accounts for which data was not reported in the forecast, and there are no industrial customers.

The only unusual aspect of the forecast is the large amount of power in the "losses" category, approximately 10% of the total system output. This is because the substation that taps power from the New England Power Company is 4 miles from the town load center and the losses occur over this stretch of transmission line. The Department is considering moving the substation closer to the town to reduce these losses.<sup>2</sup>

Princeton has no plans to construct any facilities aside from the tentative plans to move the substation. The forecast is APPROVED SUBJECT TO THE CONDITIONS that the first supplement be filed by December 31, 1978, that data on the commercial accounts be included, and that power requirements for the forecast years be provided.

3. MERRIMAC MUNICIPAL LIGHT DEPARTMENT (EFSC #78-46)

Merrimac uses the same conservative forecasting assumptions that were used in the initial long range forecast.

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2. See footnote #1.

Cf. 1 DOMSC 272 (May 1977) and 2 DOMSC 37 (November 1977). Although several classes fluctuated significantly from what was predicted in the 1977 supplement, these fluctuations are to be expected in a small company, and there was no overall net system growth for 1977, when a 2.4% increase was predicted. The summer peak rose substantially in 1977, however the winter peak declined and the result was a slight improvement in the Department's load factor. All power for the Department is purchased from New England Power Company, and there are no plans to construct any facilities in the forecast period. The second annual supplement is APPROVED.

Energy Facilities Siting Council

by Robert L. Dewees, Jr.  
Robert L. Dewees, Jr., Esq.  
Counsel

Dated at Boston this 24th day of May, 1978.

This decision was unanimously approved by all present and voting in the affirmative at the October 18, 1978 meeting.

Christine B. Sullivan  
CHRISTINE B. SULLIVAN  
Chairwoman

In the Matter of the Westfield Gas and Electric Light  
Department et. al.  
2 DOMSC 95(June 7, 1978)

EFSC Nos. 78-26; 78-27; 78-31

Petition of the Westfield Gas and Electric Light Department and others for approval of the second annual supplement to the long-range forecast.

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This decision concerns the second annual supplements to long-range forecasts submitted by the following utilities pursuant to M.G.L. c. 164, § 69I: 1) Westfield Gas and Electric Light Department; 2) North Attleboro Gas Company and 3) Russell Municipal Light Department.

The supplement of each of the departments was reviewed by the Council staff. In each case it was suggested that no adjudicatory hearing need be held unless so requested by the department or an interested party as no new facilities within Council jurisdiction have been proposed by any of these companies and no significant change from the forecasts was noted. The departments were advised and were asked to publish in local newspapers a notice of tentative approval and of the right to a public hearing if requested on the supplements.

The individual decisions as to each company are as follows:

1. WESTFIELD GAS AND ELECTRIC LIGHT DEPARTMENT (EFSC #78-26)

Several changes have occurred in Westfield's supply planning since the filing of the 1977 Supplement. The back-up LNG vaporizer proposed in 1977 has been installed and, after final testing, will become operational in the fall of 1978. In 1977 Westfield tentatively proposed to construct a 55,000 gallon LNG storage tank by 1981, however, these plans have now been abandoned. Instead Westfield plans to construct a gas pipeline interconnection with Bay State Gas Company and sign a long term contract for gas supply with Bay State. Gas supplied through this pipeline will provide Westfield with all of its peak shaving requirements. Most of the gas will be supplied through the pipeline, and the remainder of the contract volumes will be supplied as LNG for the existing LNG satellite plant.

Construction of the pipeline is scheduled to begin as soon as the contract is signed and be completed by the fall of 1978. The pipeline will be slightly less than 5000 feet long and will operate at less than 70 p.s.i.

and is therefore not within the Council's jurisdiction. See Council Rules 3.3, 67.7 and 67.8. As a result of the interconnection with Bay State, the LNG contract with Lowell Gas and the propane contract with Burek Oil Company will not be renewed.

Westfield presents essentially a no growth forecast although the company may have sufficient supply to initiate a modest residential load growth program.<sup>1</sup> The Council APPROVES the second annual supplement SUBJECT TO THE CONDITIONS THAT the contract with Bay State is signed, that a copy of the signed contract is submitted to the Council, and that the supplement filed December 31, 1978 takes into account the changes in Westfield's supply plans.

2. NORTH ATTLEBORO GAS COMPANY (EFSC #78-27)

North Attleboro's supplement shows little change from the long range forecast. Cf. 2 DOMSC 31 (July 1977). The company continues to experience a gradual loss of customers with a resulting decline in sendout of approximately 1% per year predicted for the forecast period.

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1. Phone conversation with Daniel Galubec, Westfield Gas and Electric, May 22, 1978.

The company has tentative plans to construct a 30,000 gallon LNG storage and vaporization facility to replace an existing wet sealed gas holder. The company has agreed not to formally propose this facility until at least June, 1978, and the Council will not commence any review of this facility until such formal proposal occurs. See letter from Jay L. Underhill, President, North Attleboro Gas Company dated September 21, 1977, EFSC 77-22. The Supplement is APPROVED, however, the Council reserves judgment on the tentative plans for an LNG facility or the adequacy of those portions of the supplement used to justify the need for the facility.

3. RUSSELL MUNICIPAL LIGHT DEPARTMENT (EFSC #78-31)

Russell is an all-requirements customer of Western Massachusetts Electric Company and predicts an overall system output growth of 3% per year and peak growth of 2% per year, which are the same rates found in the 1977 supplement. See 2 DOMSC 37 (November 1977). The Department serves only 358 customers which are broken down into the following classes: 266 residential, 24 hot water, 38 all electric, 19 commercial, and 11 municipal. Since there are no significant changes from the 1977

supplement, the second supplement is APPROVED.

Energy Facilities Siting Council

by Robert L. Dewees Jr.  
Robert L. Dewees, Jr. Esq.  
Counsel

Dated at Boston this 7th day of June, 1978.

This decision was unanimously approved by all present and voting in the affirmative at the October 18, 1978 meeting.

Christine B. Sullivan  
CHRISTINE B. SULLIVAN  
Chairwoman



DECISION

In the Matter of Middleborough Gas Department, et al.

2 DOMSC 100

EFSC Nos. 78-18; 78-2, 78-44

Petitions for Approval of Annual Supplements to Long Range  
Forecasts

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This decision concerns the second annual supplements to long-range forecasts submitted by the following gas utilities pursuant to M.G.L. c. 164, § 69I: 1) Middleborough Gas Department; 2) Wakefield Municipal Light Department; and 3) Ware Gas Company.

Each supplement was reviewed by the Council staff and in each case it was suggested that no adjudicatory hearing need be held unless so requested by the department or an interested party as no new facilities within Council jurisdiction were proposed in any of the supplements and no significant change from the forecasts was noted. The departments were so advised and, except for Ware (due to its abandonment proceeding), were asked to publish in local newspapers a notice of the tentative decision and of the right to request a public hearing on the supplements.

The individual decisions as to each company are as follows:

MIDDLEBOROUGH GAS DEPARTMENT (#78-18)

In its decision on Middleborough's first supplement, the Council withheld its approval because an LNG supply contract with Lowell Gas Company had expired and there was no showing that this portion of Middleborough's supply would be accounted for in the future. 2 DOMSC 37, 39 (Nov. 1977). In the second supplement, the department advises that it will be supplied with LNG by Bay State Gas Company through March, 1981. Based on its contracted-for supplies of firm gas, SNG and LNG, the department feels "quite confident" in its prediction for sendout and in its ability to meet these levels through 1981. Beyond then, the department is still confident of its projections but to a lesser degree.

The Council accepts the department's prognostications and APPROVES its second annual supplement and retroactively does the same for the first supplement, given the new LNG contract. The Council also thanks the department for prefacing the supplement tables with a brief but clear narrative of the tables' content; this is most helpful to the staff in reviewing annual filings.

WAKEFIELD MUNICIPAL LIGHT DEPARTMENT (#78-2)

In Wakefield's forecast and first supplement, no firm supply of gas was shown beyond August 31, 1978. As a result in both instances, the Council approved these filings only

to that date. Cf. 1 DOMSC 264, 268 (April, 1977) and 2 DOMSC 37, 38 (Nov. 1977). The department's second supplement filed December 30, 1977 again showed no firm supply beyond August 31, 1978. However, a check on Boston Gas Company's (Wakefield's sole supplier) latest supplement revealed a contract for the sale of gas to Wakefield with a termination date of August 31, 1983. A telephone call to Michael Adams of Wakefield's gas division confirmed that the department has contracted for a firm supply from Boston Gas until 1983; the 1978 date marks a time for renegotiation of price only, not supply. In the future, companies are asked to differentiate between "termination dates" for purposes of contract price versus supply if, as in this situation, such a distinction is present.

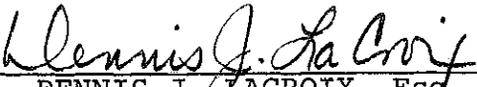
In Table G-7 (Company Use, Losses, etc.), the company shows improvement in decreasing this type of sendout from 6.7 to 4.6 (000 MMBTU). The Council finds this encouraging given the overall gas supply problems and hopes the department will continue to "cut its losses" internally as well as urging conservation on its customers. The Council APPROVES the Wakefield supplement through the five year forecast period.

WARE GAS COMPANY (#78-44)

Ware Gas Company made its first filing with the Council in March, 1977. At that time, the company submitted several

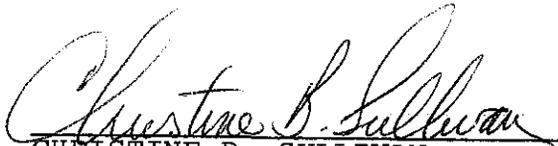
this notice will be posted in the Town Hall for the month of June. Finally, the Council asks that the company notify Council staff of completion of proceedings before the DPU.

Energy Facilities Siting Council

by   
DENNIS J. LACROIX, Esq.  
Chief Counsel

Dated at Boston this 30th day of May, 1978.

This decision was unanimously approved by all present and voting in the affirmative at the Council meeting on October 18, 1978.

  
CHRISTINE B. SULLIVAN  
Chairwoman

DECISION

In the Matter of Algonquin SNG, Inc, et al.  
2 DOMSC 105 (May 23, 1978)

EFSC Nos. 78-34; 78-6; 77-14;78-14

Petitions For Approval of Annual Supplements to Long Range  
Forecasts

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ALGONQUIN SNG (#78-34)

Algonquin SNG filed its second annual supplement to its long range forecast on December, 1977 pursuant to G.L. c. 164, § 69I. There has been no substantial change in the company's recent filing when compared with its past two filings. Cf. 2 DOMSC 34 (1977). The company still sells its entire SNG production to its parent company, Algonquin Gas Transmission Company who then sells it to its customers pursuant to long-term service agreements and pertinent rate schedules. As in past years the only significant determinant of the company's future sendout is the contract demand by Algonquin Gas. Operating at the level explained in Part II of the supplement, the SNG plant will produce 100% of the total annual contract demand, with 90% of that total being produced from November 1 through March 31 in each fiscal year.

The company again indicates that, at present, it

does not plan to construct and facilities subject to Council jurisdiction within the forecast period. Nonetheless, the company states that it "reserves any questions of jurisdiction of the Council over its facilities." While this is understood and duly noted, the Council appreciates the company's filings as providing background data useful in the exercise of the Council's regulatory responsibilities. The Council APPROVES the second annual supplement of Algonquin SNG, Inc.

HOPKINTON LNG (#78-6)

Review of the second supplement to the long-range forecast of Hopkinton LNG Corporation shows no substantial change from its first two filings. Cf. 1 DOMSC 74 (1976) and 2 DOMSC 20 (1977). The corporation is jointly owned by New England Gas and Electric Association (NEGEA) and Air Products and Chemicals, Inc., a corporation otherwise unrelated to NEGEA or its subsidiaries. Hopkinton LNG does not intend to construct new facilities during the forecast period. The Council APPROVES its second supplement.

NEW ENGLAND LNG Co., Inc. (#77-14, 78-14)

New England LNG Co., Inc's (NELNG) forecast, filed

April 30, 1976, included a claim that a proposed storage facility in Fall River was exempt from the requirement of approval by the Council. The company contended that this facility was "grandfathered" by the Council's enabling legislation, Ch. 617 of the Acts of 1975. The Council disallowed this claim and disapproved the long range forecast in a lengthy and detailed decision. 1 DOMSC 164 (1977). Compare 1 DOMSC 24 (1976), 1 DOMSC 134 (1977) [other "grandfather" decisions]; the latter is the subject of court review in Plymouth County Nuclear Information Committee v. Energy Facilities Siting Council, 1978 Mass. Adv. Sh. 139. The company is presently seeking judicial review of this decision in the Supreme Judicial Court pursuant to G.L. c. 25, § 5.

NELNG filed its first and second annual supplements to the forecast as required by G.L. c. 164, § 69I. Formal review of the first supplement was postponed pending a decision of the forecast appeal to the Supreme Judicial Court. Cf. EFSC Docket #77-14: Chief Counsel's letter of October 24, 1977. Since no court decision has been reached as yet and keeping in mind the Council's statutory responsibility to review forecasts and supplements annually, a review of the supplements was made after

receipt of the second supplement on December 30, 1977.

Aside from the supplements themselves, the Council finds that it essentially has nothing to review. The company states that it is currently making no purchases or sales of gas and has entered into no valid written agreements for supply or sales of gas with any other party which would result in deliveries during the period covered by the supplements. The only facilities owned or controlled by NELNG, existing or planned, are facilities "upon which construction has begun" at Fall River, Massachusetts. (Supplements at p. 4). As stated above, Council jurisdiction over these facilities is a matter of dispute and litigation at this time. It is hoped that "construction" will not continue until this dispute is resolved.

Thus, since there has been no change in the substance of the company's filings since the initial forecast of April, 1976, the Council reaffirms its forecast decision and order at 1 DOMSC 164, 204 and, in so doing DISAPPROVES the NELNG first and second supplements. This disapproval is without prejudice to the company's right to propose the contested facilities for Council approval or to

modify its forecast at any time according to the earlier Council decision. Cf. 1 DOMSC at 204.

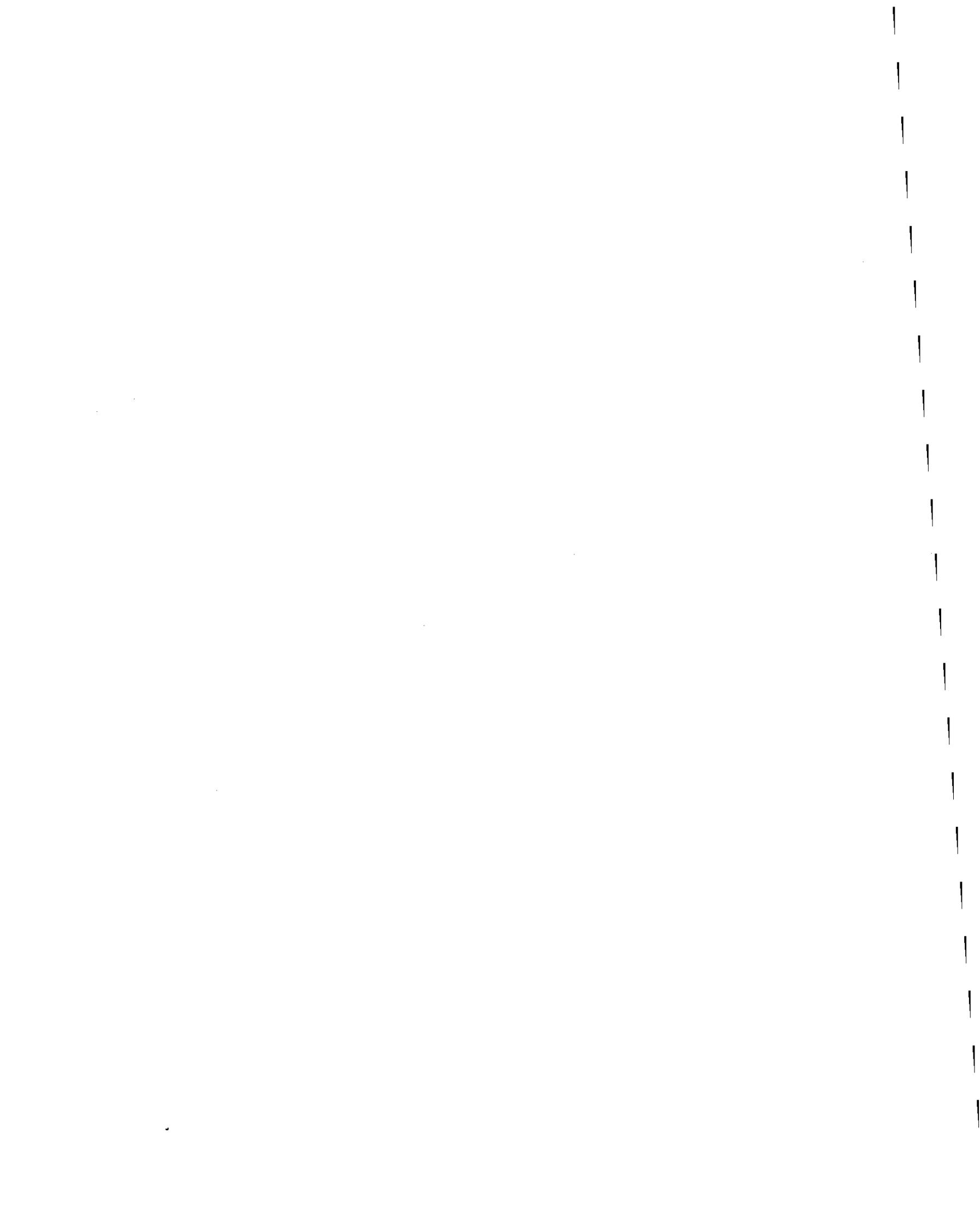
Energy Facilities Siting Council

by Dennis J. La Croix  
DENNIS J. LACROIX, Esq.  
Chief Counsel

Dated at Boston this 23rd day of May, 1978.

This decision was unanimously approved by all present and voting in the affirmative at the October 18, 1978 Council meeting.

Christine B. Sullivan  
CHRISTINE B. SULLIVAN  
Chairwoman



In the Matter of Athol Gas Company

2 DOMSC 110 (June 15, 1978)

EFSC No. 78-38

Petition for Approval of an Annual Supplement to a Long  
Range Forecast

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The Council approved the Athol forecast and first supplement for 1977 only. See 1 DOMSC 238 (May 11, 1977). At that time, counsel for Athol indicated that the company was gradually losing customers, that operation of the company was uneconomical and that a petition for abandonment would soon be filed with the Department of Public Utilities.

The 1978 Supplement was originally filed on January 12, 1978 and then corrected with a filing on June 12, 1978. It continues to show a gradual loss of sendout. The company has now petitioned the Department of Public Utilities for abandonment (DPU #19518) and all of the company customers have been notified of this petition. Home Gas Corporation will continue to supply propane to present customers.

Consequently the Council DISAPPROVES Athol's latest supplement as it fails to meet the statutory requirements of M.G.L. c. 164 § 69J. However, in light of the abandonment proceedings, the Council expects that nothing will be done to cure this defect. Since all customers have been notified of the abandonment proceedings the Council waives

the requirement that notice of this decision and the right to a hearing be published in local newspapers. However, this notice will be posted in the Town Hall for one month. Finally, the Council requests that the company notify the Council staff of completion of proceedings before the DPU.

Energy Facilities Siting Council

by Robert L. Dewees Jr.  
Robert L. Dewees Jr., Esq.  
Counsel

Dated at Boston this 15th day of June, 1978.

This decision was unanimously approved by all present and voting in the affirmative at the October 18, 1978 Council meeting.

Christine B. Sullivan  
CHRISTINE B. SULLIVAN  
Chairwoman

COMMONWEALTH OF MASSACHUSETTS  
Energy Facilities Siting Council

In the Matter of the Petition of )  
Boston Edison Company for Approval )  
of an Annual Supplement (1978-87) to ) E.F.S.C. No. 78-12  
the Long Range Forecast of Electric )  
Power Needs and Requirements )  
2 DOMSC 112 (October 11, 1978) )

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PARTIES and APPEARANCES\*

Boston Edison Company: John J. Desmond, III, Esq.  
Assistant General Counsel  
and Ropes and Gray (by George  
Lewald, Esq. and Roscoe  
Trimmier, Jr., Esq.)

Attorney General's Office: Michael B. Meyer, Esq.  
Assistant Attorney General  
Utilities Division

Boston Clamshell: Harvey Salgo, Esq.

Mass. Public Interest Research Group: Charles Harak, Esq.

DPU Staff: John L. Talvacchia, Esq.

Mass. Energy Office: Alan Johnson, Esq.

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\*This list names only those parties who actively participated in this case. Others named in the service list who were either intervenors or interested persons pursuant to EFSC Rules 15.2 and 15.3 and who are not listed above took no part in this case by either presentation of witnesses or written argument.

The Massachusetts Energy Facilities Siting Council conditionally approves the second Annual Supplement (1978-87) to the Boston Edison Company's long-range forecast pursuant to G.L. c. 164, ss69J and as further described in this opinion.

HISTORY OF THIS PROCEEDING

On December 30, 1977 as required by G.L. c. 164, ss69I, Boston Edison Company ("BECO" or "Company") filed an annual supplement to its long range forecast of electric power needs and requirements with the Energy Facilities Siting Council ("EFSC" or "Council"). This second supplement covered the years 1978-87 and was subject to Council review under G.L. c. 164, ss69J.

The adjudicatory proceeding herein, as a vehicle for Council review, was announced in a notice published by the Company according to the hearings officer's instructions. At the March 30, 1978 prehearing conference in this case, the only party who sought to intervene was the Attorney General. That intervention was allowed and in an order dated March 30, 1978, the Council established a reciprocal discovery schedule and set a hearing date of May 8, 1978.

However, this schedule was suspended two weeks later so that this proceeding, EFSC No. 78-12, could be coordin-

ated with a proceeding, DPU 19494, being initiated by the Department of Public Utilities ("Department" or "DPU").\* This coordination was done to avoid duplication of testimonial and evidentiary matters on issues common in both proceedings.\*\* Consequently, by an order dated April 14, 1978, the Council joined its review of the Company's forecast supplement with the Department proceedings in DPU 19494; the DPU Commissioners issued a similar pronouncement on April 18, 1978. (Tr. II: 209-211).

The scope of joint hearings was defined on April 24, 1978 by the Council and the Department. DPU 19494 was divided into two separate phases. Phase I would focus on the BECo supplement only and would be jointly conducted by the two agencies. Phase II would continue the Department's investigation of the BECo capacity needs and construction program and would not involve the Council. (Tr. III; 330-331).

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\*DPU 19494 is an investigation by the DPU in BECo's capacity needs and the construction program required to meet such needs. This investigation came about as a result of the most recent BECo rate case, DPU 19300, and the orders therein.

\*\*The first phase of the investigation in DPU 19494 was a review of the Company's projections of need for electric power as found in the supplement under review by the Council.

As a result of the change in the proceedings, the Council heard additional motions to intervene in this matter. (Tr. III; 338 et seq.). In a decision dated April 26, 1978, the Council granted the petitions to intervene of the Boston Clamshell Alliance, the Attorney General, the Department of Public Utilities Staff, the Massachusetts Energy Office, the Town of Dover, Massachusetts Fair Share, Massachusetts Public Interest Research Group, and the Plymouth County Nuclear Information Committee.\* Petitions to intervene from the following individuals were denied, but they were permitted to participate as interested persons pursuant to EFSC Rule 15.3 (4): Stanley U. Robinson, III, Charles Norman, Alleen Wenckus and Torgeir Kvale.\*\*

After several prehearing conferences and extensive reciprocal discovery, the joint hearings began on July 17, 1978 and concluded on August 30, 1978.\*\*\* The

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\*Clamshell, PIRG and PCNIC were required to be represented by a lead counsel during the hearings as a condition to their intervention. Cf. EFSC Rule 15.2(5). Of those granted intervention, PCNIC and the Town of Dover did not so participate, nor did Mass. Fair Share (due to personnel difficulties) after its brief involvement in discovery.

\*\*The Council has not received any input from these parties.

\*\*\*Sessions were held three days a week for that seven week period, with a total of twenty days of joint hearings.

Company presented six witnesses and the intervenors, fourteen; all were cross-examined. The parties introduced numerous exhibits. The record in this case was closed on September 8, 1978. Initial briefs were filed on September 27, 1978 and reply briefs on October 4.

CONDITIONAL APPROVAL

Last year, in its review of the BECo long-range forecast and first annual supplement thereto, the Council recognized the difficulties faced by the Company's forecasting personnel in making public the product of their work pursuant to EFSC statutes and regulations. See 2 DOMSC 43, 53 (December 13, 1977). In that decision, the Council put the Company on notice that a forecast which may have been accepted without question for many years for in-house use would not necessarily be one acceptable for public and Council review. Id. at 53. Yet the Council acknowledged the good faith effort of the Company under the circumstances and approved the forecast and its first supplement subject to certain conditions. Id. at 54, 56-57.

The Council today recognizes that last year's BECo decision required the Company to embark upon a process of revision that would certainly not be

completed in one year.\* The Council sees this process as an on-going one which will necessitate the continuing cooperative efforts of the Council, the Company and the public.\*\* Of these efforts, it must be said that those of the Company are most important if progress is to continue apace. Today the Council finds that the Company's efforts in its most recent supplement (EX. BE-1, BE-2) exhibit a decided improvement over the filings reviewed last year. Looking at the forecasting effort as a whole, the Council acknowledges that this year's supplement is not an unreasonable first attempt in a very

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\*Indeed, in fairness to the Company, the timing of last year's decision, its receipt by the Company and the date of filing of the supplement now under review must be considered. (Cf. EX. BE-100 pp. 8-9). It can hardly be said that the Company had much time to consider the conditions imposed and specifically address them in this supplement; no intervenor challenged this point. That changes in methodology are evident in this supplement reflects the Company's continuing good faith efforts to improve its forecasting techniques.

\*\*To some extent it is a hindrance to these cooperative efforts that the public review of the supplement is done within the context of adversarial adjudicatory proceedings. The crux of the review, especially in BECo's case, is an evaluation of forecasting technique. This calls for an exchange of ideas on economic and statistical theory and an exploration of the relative strengths and weaknesses of such sophisticated concepts as comprise forecasting's state of the art, particularized by application to a company's service area. Too often, the adjudicatory proceeding becomes a contest where "winning" rather than review becomes the goal. See Haskell P. Wald, "Reflections on Administrative Hearings," Public Utilities Fortnightly (June 8, 1978).

difficult area. This year's supplement was accurately categorized by the Company in its brief (at p. 5) as "a transitional forecast in the sense that it is a substantial departure from the forecasting procedures utilized by the Company in the past."

However, problems remain with specific aspects of BECo's forecasting methodology despite the overall improvement noted, and thus the Council must again give only a conditional approval to this year's supplement. The inadequacies in the BECo methodology and the conditions imposed thereon are detailed below. Generally speaking, a review of the wealth of material presented by the parties in this proceeding gives the distinct impression that the BECo approach and present state of development of its methodology suffers from ambiguities, imprecision, and a nonrigorous application of analytical tools. This impeded the reviewability of the supplement and is a definite concern for the Council; note that reviewability was the thrust of last year's critique of the judgmentally modified trend line analysis approach then used by the Company. 2 DOMSC 43, 55 et seq. While the Company has taken steps toward improving its methodology by no longer relying solely on its past approach, one lesson to be learned from the extensive and intensive

review of this BECo supplement as evidenced by the hundreds of pages of pleadings, briefs and the like in this docket, is that the company should be more rigorous in the definitions used in explicating its methodology.

Again, this is not to say that the Company has not improved on the forecast reviewed last year; it has. The improvement is noticeable and considerable; conceptually, the Company is definitely moving in the right direction. Nonetheless, the Council is mindful that this year's supplement is transitional and as such still contains flaws of some magnitude. Consequently, the Council must maintain its position of last year and does not accept the forecasted electrical consumption or demand growth rates of this year's supplement for purposes of justifying generating capacity expansion or proposed transmission facilities. See 2 DOMSC 43, 57-58. The Council's reluctance to accept the results of the forecast for this purpose stems from the record in this case which shows that even with improvements to date, the accuracy of the projections is still suspect due to basic problems with the mechanics of the methodology and the supporting assumptions. This is described in more detail in the conditions stated below. However, the Council is ready to reconsider

this reluctance upon the filing of the next Beco supplement to be due on April 1, 1979. It is hoped that the next five months will enable the Company to address the Council's concerns in that supplement given the extended filing date. The Council staff will be instructed to schedule proceedings on the next filing as soon as it is received from the Company.

In this decision, the Council is not attempting to choose a methodology for the Company. It seems, however, that some of the intervenors would have the Council do this, given the thrust of their comments on the tentative decision asking for more "specific" findings. They assume, of course, that one methodology can be said to be proper and that the record herein clearly shows what that methodology is. The Council does not feel that either assumption should be made in this matter; the Council's decision assessed the Company's forecast based on an evaluation of the evidence presented and the state of the art of forecasting.

As has been pointed out, the review of this year's BECo. supplement continues the learning process begun with last year's review of and decisions on the first BECo. filings with the Council. 2 DOMSC 43 (December 13, 1977). In both cases, the Council, with intervenor input, examined

the Company's forecasting efforts. Methodological shortcomings were pointed out and discussed in both decisions as were the inadequate substantiation of assumptions used by the Company. Specific conditions were then and are now imposed which addressed these shortcomings and the lack of substantiation providing the Company with some direction from the Council's review process. To go further would be to do the forecasting for the Company, a step and position which the Council finds inappropriate to take at this stage of the learning process.

Before turning to the conditions of approval, the Council must address a potential source of confusion with its decision not to accept BECo's forecasted growth rates as a basis for justifying proposed facilities. It must be clear from the outset that this can have no effect on the Company's proposal to build the nuclear power plant known as Pilgrim II. Any Council action on this facility is precluded by an earlier Council decision which exempted or "grandfathered" that facility from Council review. 1 DOMSC 134 (March 10, 1977). This decision was upheld by the Supreme Judicial Court in Plymouth County Nuclear Information Committee, Inc. V. Energy Facilities Siting Council, 1978 Mass. Adv. Sh. 139. The Council, by its ruling today, cannot and is not prohibiting construction of Pilgrim II.

However, it is to be noted that the DPU sat jointly with the Council in this BECo supplement review as Phase I of its investigation into the BECo capacity needs and construction program. As stated earlier, this joint hearing was convened to avoid repetition of testimony and evidence on issues common to the Council's review and the Department's investigation. Phase II of the DPU investigation will more specifically focus on the details of the BECo construction program which obviously includes Pilgrim II. The Council offers the Department today's BECo forecast supplement decision as its assessment of the Company's methodological mechanics for use in its continuing deliberations.

#### RESIDENTIAL FORECAST

The principle methodological problems in the residential forecast are: 1) the average of Case I and Case II; 2) the use of a short-run own-price elasticity factor in an end-use model, 3) the population/household projections, and 4) the projections of appliance use efficiency, penetration, and saturations.

The averaging of two cases, each of which the Company apparently believes to be unrealistic, is an unreasonable methodology. The Council cannot be expected to do the evaluative work necessary to determine the appropriate

assumptions which is the Company's responsibility. The present "Cases" illustrate the inappropriateness of this averaging method. The Council has been asked to accept as part of this average the assumption of no appliance efficiency gains by 1987. This assumption has already been surpassed. On the other hand, the assumption of increasing appliance efficiency in Case II which the Company believes to be too optimistic and others believe to be too pessimistic, was applied in a nonrigorous manner. In fact, if the Company had followed its own description of the computer program, "USAGE" (P. II-64-65, Supplement I-B) then its stated justification for averaging---"... to account for the expected total of various appliances since all of the existing stock will not be replaced during the forecast period..." (BECO Brief p. 24) -- should have been accommodated. Asking the Council to accept an average of Cases is a relegation of the responsibility to analyze developing trends and to compute a best estimate of these factors as part of the Company's forecast.

The Company's explicit recognition of a price effect is a big step forward from previous forecasts. However, the Council must assure that this development proceeds on a sound methodological basis.

The Company's use of a short-run, own-price elasticity and improved appliance efficiency for short-run and long-run adjustments respectively of forecasted residential electrical consumption to forecasted higher prices suffers from both nonrigorous definitions and inconsistency of application. While the Company's efforts are a good first attempt, the record indicates that price elasticity effects are significantly more complex than the Company's current representation. The problems with the Company's application include; 1) the change in appliance efficiency does not adequately capture all the long-run price elasticity effects such as impacts on appliance use, penetration, retrofitting and replacement rates. 2) The forecast of price increases is not based on a reviewable methodology. 3) The short-run price elasticity estimate, while defensible, was inadequately estimated for the service area. 4) It is preferable in an end-use model to explicitly reflect price or other effects such as income elasticity, cross price elasticities, changes in life styles, in the parameters of the variables which are effected, be it average use, penetration/saturation, appliance life, or new appliance efficiency.

The Council takes notice of the Company's increased attention to the demographic portion of the forecast. The importance of this portion was demonstrated by the sensitivity of the forecast to key demographic assumptions. Because of the wide disagreement shown in the record and the uncertainty in this area, the Council finds that additional work is necessary before the population/household projections can be accepted.

Overall, the Council finds great value in the end use modelling approach for the residential sector. The Company has initiated a great deal of data collection and analysis. However, in addition to the inadequacies noted above, the record indicates that reevaluation of the new appliance efficiencies is in order. As noted above, the Company should be providing its best estimates of new appliance efficiencies, specifically, the average consumption of each new appliance by type and year as Federal appliance efficiency standards are implemented by appliance manufacturers. Related variables such as present average use (consumption per appliance), average appliance life, and penetration rate including inter-appliance substitution, should be reviewed by the Company.

CONDITIONS ON RESIDENTIAL FORECAST

1. The Company shall develop its best estimate for the assumptions regarding new appliance efficiencies.

2. The Company shall review the estimates of annual kilowatthour consumption per appliance both currently and with its best estimates for new appliance efficiencies including projections of average appliance life, penetration rate, inter-appliance substitution, DOE new appliance efficiency standards, and conservation programs and policies of the Commonwealth.

3. The Company shall reevaluate and restate the demographic portion of the forecast, in particular:

- 1) fertility rates,
- 2) net migration projections,
- 3) headship rate projections, and
- 4) customer/household counts.

4. In end use models, price elasticity effects are more appropriately estimated for their impacts on average use, penetration/saturation rates, appliance life, and new appliance efficiencies. In models which include explicit elasticity parameters, such parameters should preferably be estimated for the specific service area and from a model which permits consistent application in the

forecasting model. When explicit price elasticities are used, the forecast of future prices becomes important enough for the Council to require that such forecasts be based on a reviewable methodology.

COMMERCIAL

All parties recognize the "transitional" nature of the Company's first attempt at an econometric modeling of its commercial sector. While the Council need not require a perfectly specified model with excellent statistical qualities, it must require that some faith can be placed in the predictive power of a model. The record indicates that the methodological approach to estimating the Commercial model is not sufficiently sound to justify faith in its predictions. Even the Company (though perhaps not for the appropriate reasons) believed there was a need to mix the results of the econometric model with a trendline analysis. The averaging of two methods to produce a forecast is inappropriate here because implicit in averaging two forecasts is the assumption that each forecast is equally probable. The methodological confusion with the econometric model is evident in the choice of rate of change variables for GNP and price while the forecasted values for these variables are average values, held constant throughout the forecast period.

CONDITION ON THE COMMERCIAL FORECAST

1. The Company shall review the approach taken to modelling the Commercial sector. If additional econometric modelling is similarly deemed unproductive, the Company should pursue alternative approaches.

INDUSTRIAL FORECAST

The Council recognizes the Company's efforts to disaggregate its Industrial forecast by two-digit SIC code as required by law. This represents the Company's first attempt and the Company did not have sufficient time to incorporate the conditions of last year's decision in this forecast. The Council finds that the Company's justification of the various trending techniques was impossible to review. Clearly, the conditions in last year's decision provide a basis for the Company's revision of the industrial forecast. Forecasts of economic activity for each SIC group should be as service area specific as possible as well as reviewable for consistency with state and national economic and demographic projections. Whatever method is chosen in the future, conservation must be addressed in greater detail than is implicit in selected historic data points.

CONDITION ON THE INDUSTRIAL FORECAST

1. All the conditions contained in last year's decision are found to be appropriate and are imposed again. See 2 DOMSC 43, 56-57.

PEAK FORECAST

The peak forecast is dependent upon the energy forecast, the contention that demand at peak is totally unresponsive to higher prices, and estimates of historic class peak factors. The Council notes the Company's initial analysis of the relationship between peaks and temperatures and urges continuation and refinement of this analysis. The Council recognizes the difficulties involved in estimating the impacts from relatively new phenomena such as higher prices and from anticipated changes such as peak load pricing and load management. However, the Council has greater difficulty in accepting the Company's argument that it did and must defer judgement in these areas until more experience is gained to permit some quantification of their effects. In fact, the Company presumes that peak load pricing will have no effect on peak demand. The Company has not done sufficient analysis to justify this judgement. Indeed, the intervenors introduced evidence which indicated a

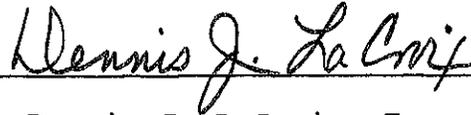
potential reduction in peak loads from peak load pricing. The Council recognizes that the inclusion of effects of peak load pricing and load management would be appropriate to the level of analysis which is permitted by existing data. It is incumbent on the Company to seek out data, pursue various avenues of analysis as objectively as possible, and develop appropriate methodologies which can begin to reflect peak load pricing and load management as well as changing load patterns in the peak load forecast.

CONDITIONS ON THE PEAK LOAD FORECAST

1. The Company shall collect and analyze data relating to peak load pricing and load management.
2. The Company shall develop methodologies appropriate to reflect potential impacts from peak load pricing and load management.

CONDITION ON ALL SECTORS

1. Conservation, including the conservation programs and policies of the Commonwealth, shall be explicitly considered in any methodology.

A handwritten signature in cursive script, reading "Dennis J. LaCroix", written over a horizontal line.

Dennis J. LaCroix, Esq.  
Hearings Officer

Approved unanimously by Council members present and voting  
at EFSC meeting on October 18, 1978.

A handwritten signature in cursive script, reading "Christine B. Sullivan", written over a horizontal line.

Christine B. Sullivan  
EFSC Chairman

COMMONWEALTH OF MASSACHUSETTS  
Energy Facilities Siting Council

In the Matter of the Petition of	)	
Boston Edison Company for Approval	)	
of an Annual Supplement (1978-87)	)	EFSC No. 78-12
to the Long-Range Forecast of	)	
Electric Power Needs and Requirements	)	
2 DOMSC 132	)	

MEMORANDUM and ORDER:  
DECISION CLARIFICATION

On November 1, 1978, Boston Edison Company requested in a written motion that the Siting Council correct what BECo categorized as an "oversight or omission" in the final decision in the above entitled matter. BECo argues that the construction prohibition contained in the decision (at pp. 8 and 10) does not apply to its proposed Walpole to Needham 345 kV transmission line and bases this argument on the following statement of Acting Chairman Murphy as to amendments to the tentative decision (cf. Motion, para. 1):

"... ask the Hearing Officer to amend the decision to explain why we are not putting in specific findings of fact or reason(s) on the methodology. Point 1. And Point 2, that we will consider the exemption of the Walpole to Needham line - that will be handled within ... the hearing on that line, that will be commenced within the next two weeks. Again with the request of the Council to

the Hearing Officer to do so. With those two points in mind, if no objection, I call for a vote ...". (Statement of Acting EFSC Chairman Evelyn F. Murphy as per Council's Tape Recording of Council Meeting of October 18, 1978.)

The only opposition to this motion came from the Town of Dover as an intervenor herein. (It is noted that the Town is also an intervenor in the Walpole-Needham line proceedings, EFSC Nos. 76-12; 77-12.)

The Council disagrees with the BECo position that an exemption from the construction prohibition of the decision in this matter was specifically granted for the Walpole-Needham line. Acting Chairman Murphy's "Point 2" above states that an exemption will be considered for that line and such consideration will be done as part of the hearings on that line which have been reconvened. The most that can be said here is that the possibility of an exemption for the line exists and will be part of the Council's deliberations in proceedings on the line.

Therefore it is ORDERED that the BECo request for a correction of the final decision (cf. Motion, para. 3) in this matter be DENIED. However, a copy of this Memo-randum and Order shall be appended to that decision in the record to indicate clearly that the question of an

exemption for the Walpole to Needham line as discussed above will be considered by the Council as part of its proceedings on the line in EFSC Nos. 76-12; 77-12.

Energy Facilities Siting Council

by Dennis J. LaCroix  
Dennis J. LaCroix, Esq.  
Hearings Officer

Dated at Boston this 13th day of November, 1978.



COMMONWEALTH OF MASSACHUSETTS  
Energy Facilities Siting Council  
2 DOMSC 135 18 October 1978

EFSC No. 78-1

In the Matter of	)	
The Massachusetts Municipal Wholesale	)	DECISION
Electric Company	)	1978 Supplemental
	)	Forecast
	)	

The Massachusetts Municipal Wholesale Electric Company has petitioned the Energy Facilities Siting Council for adjudicatory approval of its 1978 supplemental forecast of electric energy demand and generating capacity requirements for the ten year period ending in 1987. The forecast is approved subject to specific conditions set forth in this Decision and in particular to the condition that the forecast is not adequate or sufficient to justify any generating capacity beyond that which has been approved in earlier decisions of the Council. See 1 DOMSC 1, 52, 101, 154, 308.

The company's 1978 forecast is a revision of the initial long range forecast which was filed and approved in 1976. The revision consists largely of adjustments for actual experience during 1976, 1977.

As was the case with the 1977 supplemental forecast, the effect of these adjustments is to moderately depress the forecast of energy demand and consumption. This is consistent with reduced rates of growth which have been forecast by most of the New England Power Pool companies. See NEPOOL forecasts for the ten year periods commencing in 1976, 1977, 1978. Nevertheless, the hearings officer's extensive review of the Massachusetts Municipal Wholesale Electric Company's forecast method, data, and calculations, together with the analysis of the Siting Council's chief economist and the testimony of Susan C. Geller for the Department of the Attorney General, have raised serious questions about the continued sufficiency of the forecast method.

While it has been adequate during the company's start up phase, the method will not be able to provide reasonably accurate and statistically justified projections of demand and consumption in subsequent forecast periods. In fact, continued reliance upon this method will inevitably result in overstatement of the energy requirements of the company's 30 municipal systems after 1980 because of an inherent bias against factors which retard energy growth. This can lead to purchase or construction of generating capacity that

is not required and which would be a costly burden to municipal consumers. When it is recognized that capital costs for each megawatt of capacity will soon approach one million dollars, the practical necessity for accurate forecasting becomes apparent.

The company's forecast is an aggregation of the individual forecasts of 30 municipal systems. Each municipal system forecast is in turn an aggregation of customer class and large user energy use projections. For each customer class and large user, a forecast algorithm calculates prospective use from a simple, straightline projection of base use, incremental load change, seasonal use and an undefined variable called conservation. The outputs of the algorithm are then adjusted upward or downward through consultation between the company's staff and each municipal system manager. Finally, these adjustments are aggregated to produce an energy use forecast for each municipal system. A peak demand forecast is derived by dividing projected energy use by the product of the number of hours in each year and annual load factor.

This forecasting method has been challenged by

Staff and the Department of the Attorney General, and the company has consented to the filing of a listing of "Limitations" set forth in the Stipulation of the Parties which is attached and incorporated in this Decision. These limitations undercut the forecast method; it will no longer be adequate to meet the statutory mandate of G.L.c. 164, ss69I, 69J or the requirements of Chapter G of the Council's regulations.

Without attempting to restate the limitations stated in section I of the Stipulation, we note the following:

1. Forecast data is imprecise, conflicting, and unverified.
2. The straightline projection or trend analysis has not been and cannot be verified statistically.
3. A causal relation between historic experience and the forecast period has not been demonstrated. Therefore, the use of a straightline projection or trend analysis has not been justified.
4. The adjustments to straightline projections have not been identified, explained, or justified. Consequently,

these adjustments cannot be reviewed for reasonableness.

5. The conservation variable has not been defined, quantified, or explained; and it has been employed in a manner which inherently biases the forecast against factors which retard energy growth.

The company recognizes the significance of these limitations and has agreed to specific conditions for subsequent forecasts which will be incorporated in the Order. See section III of the Stipulation.

The Council accepts the Stipulation (specifically, sections I, II, III) as an appropriate resolution of the issues raised by the company's forecast method. However, we must emphasize a particular concern about the company's treatment of conservation and its reliance upon historic use as the primary index of prospective use. The forecast is premised upon an assumption that historic use patterns prior to 1973-1974 will be re-established during the forecast period. Conservation is treated as a transitory factor or anomaly. Indeed, the company's algorithm can factor conservation impacts in such a manner that where positive conservation is assumed for the embargo period, demand and consumption

will be higher in the forecast period than if no conservation is assumed. This treatment of a complex variable is unacceptable.

New England is now five years past the embargo, and it is clear that the past is not prologue. We take notice of the fact that conservation is an institutionalized fact. The cumulative, long term impacts of price; insulation; appliance and machinery efficiency; state building code; reductions in heating, cooling, and lighting levels; load management; electric heat penetration; and similar factors must be considered and assessed in every forecast which is submitted to this agency. Certainly, there is room for much discussion and uncertainty as to the magnitude of impact of these factors. There is no room for an argument that conservation will be replaced by historic use patterns.

#### ORDER

The 1978 supplemental forecast of the Massachusetts Municipal Wholesale Electric Company is approved conditionally pursuant to G.L.c. 164, ss69I, 69J. This conditional approval recognizes the company's good faith effort to comply with relatively recent statutory and

regulatory requirements for electric energy forecasting. It recognizes also the company's willingness to work with our Staff and its commitment to develop a long range forecast method which employs adequate data and reasonable statistical techniques.

Approval is subject to the following conditions and requirements:

1. The forecast is not sufficient to justify any generating capacity beyond that which has been approved in earlier decisions of the Energy Facilities Siting Council.

2. The forecast method, data, and calculations presently employed by the company are subject to the limitations set forth in section I of the Stipulation of the Parties. It will not be accepted as a statistically valid approach to long range energy forecasting in any subsequent proceeding before this agency without compliance with the provisions of paragraph 3, 4 below.

3. In subsequent forecasts, the company shall comply with each condition set forth in section III of the Stipulation:

- A. To the extent the Company's forecast relies on the individual forecasts of its members, such individual forecasts and the back-up data must be provided. The filing shall indicate the extent of the reliance on the individual forecasts of the members and provide a summary thereof.
- B. Use of Historic Data
  - 1. Historic data for all the independent factors used in the forecast methodology should be reported.
  - 2. The sources and derivation of all historic data should be documented.
  - 3. All adjustments to historical data should be specified and justified.
- C. Each use of time trend line analysis should be justified and include therein:
  - 1. Identification of causal factors.
  - 2. A discussion of the relationship of causal factors in historical and projection periods.
  - 3. A discussion of the suitability of trend analysis relative to other statistical methods.
  - 4. Discussion of the suitability of the functional form used.
- D. All regression analyses should include:
  - 1. Statistics for the Regression;
    - (a) Variance of the Regression;
    - (b) Standard Error of the Estimate;
    - (c) Residual Sum of Squares;
    - (d) Adjusted  $R^2$ ; and
    - (e) F-test.

2. Statistics and Data for Each Independent Variable

- (a) Mean;
- (b) Standard Deviation;
- (c) Estimated Coefficient
- (d) Standard Error of the Coefficient of t-statistics;
- (e) The workpapers on all regression analysis must be saved.

E. Regarding Judgments

- 1. All judgments employed in the forecast should be identified and causally related to each element in the forecast affected by a particular judgment.
- 2. The impacts of each judgment of the affected elements should be quantified.

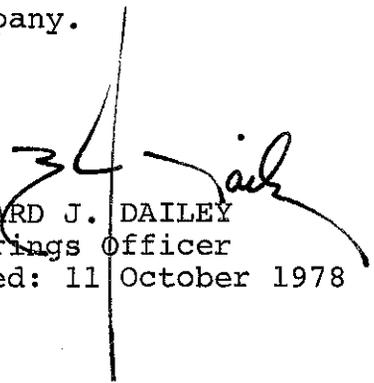
F. Data Collection

The Company shall use its best efforts to initiate a standardized data collection effort for its members. The Company shall collect the following items:

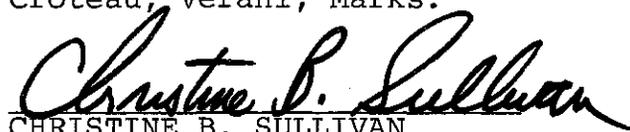
- 1. Historic Consumption for:
  - (a) Residential class without space heating
  - (b) Residential class with space heating
  - (c) All Commercial Customers who use less than 10% of total class consumption
  - (d) Each commercial customer who uses 10% or more of total class consumption
  - (e) All industrial customers who use less than 10% of total class consumption
  - (f) Each industrial customer who uses 10% or more of total class consumption
  - (g) All other class individually.

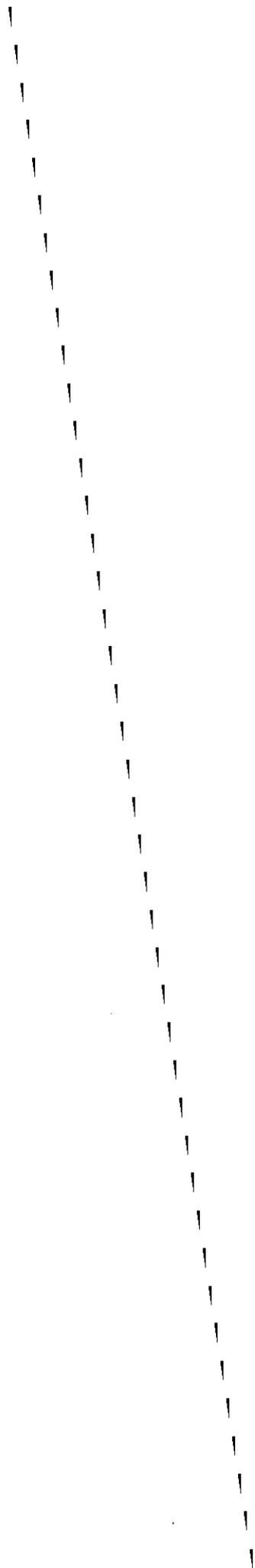
7. The company's 1979 forecast is to be filed on or before 1 April 1979 and is to include actual data for the entire calendar year 1978.

8. A copy of this decision is to be provided to each municipal system which is represented by the company.

  
EDWARD J. DAILEY  
Hearings Officer  
Dated: 11 October 1978

Unanimously approved by the Energy Facilities Siting Council at its meeting of 18 October 1978. Present and voting in the affirmative: Murphy, Marcus, McClintock, Croteau, Verani, Marks.

  
CHRISTINE B. SULLIVAN  
Chairman



COMMONWEALTH OF MASSACHUSETTS

ENERGY FACILITIES SITING COUNCIL



MASSACHUSETTS WHOLESALE  
ELECTRIC COMPANY

1978 Supplement To Its  
Long Range Energy and  
Demand Forecast

E.F.S.C. 78-1

STIPULATION OF THE PARTIES

Massachusetts Municipal Wholesale  
Electric Company

By Its Attorneys

Maurice J. Ferriter, Esquire  
Kenneth Barna, Esquire  
Begley, Ferriter, Brady & Lavelle  
59 Suffolk Street  
Holyoke, Massachusetts 01040

FRANCIS X. BELLOTTI  
Attorney General of Massachusetts

By: David M. Siegel  
Assistant Attorney General  
One Ashburton Place  
Boston, Massachusetts 02108  
(617) 727-1085

STAFF OF THE ENERGY FACILITIES  
SITING COUNCIL

By: Marc Hoffman  
One Ashburton Place  
Boston, Massachusetts 02108

RECEIVED  
SEP 29 1978  
Energy Facilities Siting Council

September 29, 1978

The Massachusetts Municipal Wholesale Electric Corporation (MMWEC), Council Staff and the Attorney General hereby agree and stipulate to the following with respect to the 1978 Annual Supplement of MMWEC's Long Range Forecast.

MMWEC consents to the filing by the Attorney General and the Council staff of the following contained in Roman Numeral I.

I. LIMITATIONS OF FORECAST METHODOLOGY USED IN MMWEC'S 1978 ANNUAL SUPPLEMENT

The Forecast Methodology used in MMWEC's 1978 Annual Supplement contains the following limitations:

- 1) Inadequate documentation of the following precluded review of the methodology:
  - (a) adjustments made to initial forecast to produce the present forecast,
  - (b) trend line analysis, and
  - (c) adjustments to results calculated from trend lines.
- 2) Data obtained from the 1975 Load Survey questionnaire has the following limitations:
  - (a) Imprecise data was obtained as a result of insufficiently defined questions.
  - (b) Discrepancies were found between answers on questionnaires and data inputs used in forecast algorithm.
- 3) The lack of statistical evaluation of the trend line analysis used for the forecast results in the inability to estimate prediction intervals and the inability

to review the use of trend analysis. Specifically, there were no:

- (a) estimates of the variance of the estimated slope coefficient,
  - (b) evaluation of the slope coefficients,
  - (c) statistical standards by which to accept or reject an estimated trend,
  - (d) reporting of the coefficient of determination.
- 4) The lack of discussion of causal conditions in either the historical or forecast periods to justify the applicability of trend line analysis.
- 5) The treatment of conservation has the following limitations:
- (a) There is ambiguity of the term "conservation". Problems arise in MMWEC's use of conservation as a deviation from some "normal" trend line without identifying the underlying causal factors for both the "normal" trend line and conservation adjustment.
  - (b) The treatment of conservation implicitly assumes that conservation is a transitory phenomenon, as the conservation variable is not made cumulative over time.
  - (c) The assumptions underlying the conservation input and the actual impact of this input on the forecast were not identified. In general, where any positive conservation was assumed, it served to increase the forecast above a forecast that would have resulted where no conservation was assumed.

(d) In the forecast period, the algorithm applies the estimate of the percentage of conservation only to the base component of load, while the estimate of conservation was stated as a percentage of total load (base and seasonal load).

II. CONCLUSIONS

The parties agree to the following and request that they appear as conclusions in the Council decision:

The Company's forecast supplement should be approved by the Council with conditions.

It is to be noted that this conditional approval is in recognition of the Company's good-faith effort in complying with recent statutory requirements regarding the filing of an energy demand forecast. In fact, the Company's current methodology in the 1978 Annual Supplement complies with the Council's past decisions for this Company. This approval with conditions is also in recognition that MMWEC's initial methodology was a product of its short history of operations which has made difficult the obtaining of an extensive data base for each member. The nature of MMWEC and its relationship to its members has caused a certain reliance in its methodology on the judgments of the managers of its Municipal Electric Departments. The Council takes notice of the Company's willingness to work with the Council Staff and Intervenors in an attempt to obtain a load forecast that as accurately as possible predicts the future. However, the Company is now on notice that the methodology of forecasting which was previously accepted by the Council is no longer acceptable and must be changed if it is to continue to pass muster in the light of public review. The Council takes notice of the Company's commitment to develop a methodology based on reasonable statistical methods.

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The forecast methodology and the forecast derived therefrom are no longer reasonable for purposes of justification or approval of generating capacity and generating and transmission facilities. Therefore, this forecast methodology and the resulting forecast cannot be relied upon by MMWEC for purposes of justification to, or approval by, the Council of generating capacity and generating and transmission facilities.

This approval with conditions is not intended to rescind for this Company any past Decision or Order of the Council which approved contracted generating capacity and generating and transmission facilities.

III. CONDITIONS

The parties agree to the following conditions for future forecasts and request that they appear as conditions in the Council decision:

- A. To the extent the Company's forecast relies on the individual forecasts of its members, such individual forecasts and the back-up data must be provided. The filing shall indicate the extent of the reliance on the individual forecasts of the members and provide a summary thereof.
  
- B. Use of Historic Data
  - 1. Historic data for all the independent factors used in the forecast methodology should be reported.
  - 2. The sources and derivation of all historic data should be documented.
  - 3. All adjustments to historical data should be specified and justified.
  
- C. Each use of time trend line analysis should be justified and include therein:
  - 1. Identification of causal factors.
  - 2. A discussion of the relationship of causal factors in historical and projection periods.
  - 3. A discussion of the suitability of trend analysis relative to other statistical methods.
  - 4. Discussion of the suitability of the functional form used.

D. All regression analyses should include:

1. Statistics for the Regression;
  - (a) Variance of the Regression;
  - (b) Standard Error of the Estimate;
  - (c) Residual Sum of Squares;
  - (d) Adjusted Coefficient of Determination; and
  - (e) F-test.
2. Statistics and Data for Each independent Variable.
  - (a) Mean;
  - (b) Standard Deviation;
  - (c) Estimated Coefficient;
  - (d) Standard Error of the Coefficient of t-statistic;
  - (e) The workpapers on all regression analysis must be saved.

E. Regarding Judgments.

1. All judgments employed in the forecast should be identified and causally related to each element in the forecast affected by a particular judgment.
2. The impacts of each judgment on the affected elements should be quantified.

F. Data Collection

The Company shall use its best efforts to initiate a standardized data collection effort for its members.

The Company shall collect the following items:

1. Historic Consumption for:
  - (a) Residential class without space heating
  - (b) Residential class with space heating
  - (c) All Commercial Customers who use less than 10% of total class consumption
  - (d) Each commercial customer who uses 10% or more of total class consumption
  - (e) All industrial customers who use less than 10% of total class consumptions
  - (f) Each industrial customer who uses 10% or more of total class consumption
  - (g) All other classes individually.
2. Number of customers for 1(a) through 1(g) above.
3. Average price for:
  - (a) Residential class without heating
  - (b) Residential class with heating
  - (c) Commercial class
  - (d) Industrial class
4. Historical housing starts and building permit data for:
  - (a) Residential
    - 1) Single Home
    - 2) Apartments
  - (b) Commercial
  - (c) Industrial

IV FEASIBILITY STUDY

The Company shall conduct a feasibility study concerning the performance of an appliance saturation survey of the residential customers of its members.

V. EXTENSION OF FILING TIME

The parties agree that a need exists to extend the filing of the Company's 1979 Annual Supplement to March 31, 1979.

Massachusetts Municipal Wholesale  
Electric Company

By Its Attorneys

*Maurice J. Ferriter (K.B.)*

*Kenneth Barna*

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STAFF OF THE ENERGY FACILITIES

SITING COUNCIL

By:

*Marc Hoffman*

\_\_\_\_\_  
Marc Hoffman

One Ashburton Place

Boston, Massachusetts 02108

Dated: September 29, 1978

COMMONWEALTH OF MASSACHUSETTS  
Energy Facilities Siting Council  
2 DOMSC 156

EFSC No. 78-24

In the Matter of	)	
	)	
The Massachusetts Electric Company	)	DECISION AND ORDER
	)	(Revised)
<u>et al</u>	)	
	)	

On 8 September 1978, the Attorney General of the Commonwealth filed a Motion to Dismiss the 1978 forecast supplement which has been submitted to the Energy Facilities Siting Council by the New England Electric System companies and Manchester Electric Company under G.L.c. 164, §§69I, J. In his Motion, the Attorney General claims that the 1978 forecast supplement, together with the 1977 supplement and the 1976 forecast, fail to meet the basic information, documentation, and explanation requirements of EFSC Rule 63.5 and are therefore so inadequate that comprehensive review and adjudication are impossible. For their part, the companies resist the Motion to Dismiss.

On 12 October 1978, a hearing was held to consider the Motion to Dismiss. At the close of argument and

questioning, the parties were asked to address a threshold question of whether New England Electric System

"has complied with the Siting Council's directive (in its decision of June 15, 1977, 2 DOMSC 1) that it develop a demand forecast growth rate which reflects a best estimate of load growth, and which is premised upon a reasonable and valid statistical method for arriving at the best estimate, as required by General Laws, chapter 164, section 69J." See transcript, 57.

The hearings officer suggested that this question could be treated as an adjunct to the Motion to Dismiss. Transcript, 57.

The parties filed responses to this question on 20 October 1978. The Attorney General argues that the companies have failed to comply with the directive while New England Electric System argues that it has complied with the directive, at least as it has understood that requirement. See Attorney General's "Comments" of 20 October 1978, New England Electric System's "Statement" of 20 October 1978.

#### The Threshold Question

New England Electric System employs a bandwidth projection of energy consumption and peak demand. The bandwidth represents, in the companies' judgement,

the range of possible growth rates. The lower bounds are currently projected as 4.3% compound annual growth for consumption and 3.9% compound annual growth for peak demand. The upper bounds are as much as 10.2% for consumption and 10.4% for peak demand, growth rates which exceed those experienced during the ten years prior to the oil embargo. See attached diagrams of bandwidth growth rates.

New England Electric System is alone among electric and gas companies in steadfastly maintaining that a bandwidth is a forecast under G.L.c. 164, §§69I, J. New England Electric System is alone also in having failed to receive at least conditional forecast approval from the Siting Council.

At its meeting of 15 June 1977, the Council specifically refused to accept the bandwidth projection as a forecast. In its Decision, the Council stated:

The companies used a bandwidth approach to demand forecasting. The companies did not provide any point within the band as one of highest confidence. The Siting Council must have a most likely growth rate in order to effectively evaluate future generation and other supply forecasts. Therefore, the Council directs the companies, in their 1978 Supplement to be filed in December 1977, to develop a demand forecast growth rate which reflects a best estimate of load growth. See 2 DOMSC 1 (emphasis added).

The logic of the Siting Council's decision is that a bandwidth merely sets the bounds or parameters for future consumption and demand. It may be the starting point for development of a forecast, but it is not a forecast and cannot be equated with a forecast. A forecast generates the most probable growth rate or expected value from reasonable statistical techniques which are fully documented and premised upon stated relationships between the determinants of demand and assumptions about the future. It is the growth rate of "highest confidence", "the most likely growth rate", "the best estimate of load growth." See 2 DOMSC 1.

New England Electric System has repeatedly resisted compliance with the requirement to provide a best estimate. See, for example, Petitioners' Comments to Second Tentative Decision in EFSC No. 76-24. The apparent reason for this resistance is the companies' concern that the Council will inflexibly apply the best estimate of consumption and demand as the only determinant of a reasonable capacity expansion program. This is not the case.

We recognize that a reasonable capacity expansion program should factor economics, oil substitution, reliability criteria, and environmental safeguards together

with the best estimate of consumption and peak. For example, there may be economic and environmental advantages, relative to existing capacity, which justify construction and operation of new capacity in increments and at a time which is earlier than would be justified on the basis of the best estimate of load alone. See Planning for Uncertainty, 3 EPRI JOURNAL 6 (May 1978). In order to evaluate the advantages of such a capacity expansion program, however, there must be a properly derived best estimate of consumption and peak. The best estimate provides the reference base from which to evaluate the impact of other factors which lead to definition of a reasonable capacity expansion program. Without the reference base, it is simply impossible to objectively evaluate the other factors, and the capacity planning process becomes nothing more than an unreviewable, subjective, rhetorical, and speculative exercise.

In its 1978 supplement, New England Electric System has again submitted a bandwidth as its forecast. See forecast supplement tables E-1 through E-11. As noted above, the bandwidth includes a wide range of growth rates with an upper bound that exceeds historically experienced growth rates. A statistically validated best

estimate has not been derived from the bandwidth and has not been submitted as required by 2 DOMSC 1. However, the companies have presented a one page "informational" document which is identified as a "best estimate" projection of energy consumption and peak demand. This projection was derived from a study conducted by National Economic Research Associates, Inc. (NERA).

Curiously, the NERA "best estimate" has been disclaimed by the companies. It has been submitted for no other reason than to comply with the Siting Council's directive in 2 DOMSC 1. It is not the companies' forecast, is not derived from the bandwidth, does not represent the best estimate of growth within the band, has no methodological relation to the bandwidth, and is not relied upon in any manner for capacity planning. See New England Electric System "Statement" of 20 October 1978.

The filing of a "best estimate" which has been disclaimed and the companies' renewed request for approval of the bandwidth represent a failure to comply with the Council's directive in 2 DOMSC 1. A pro forma "best estimate" does not constitute substantial compliance with this agency's order. The repeated submission of a bandwidth ignores the Council's clear refusal to accept

the bandwidth as a forecast.

It would be pointless and futile now to review and adjudicate a "best estimate" which the companies have disclaimed and upon which they do not rely as a forecast filing. Similarly, it would be futile to review and adjudicate the bandwidth again. The Council declined to accept the bandwidth in June 1977. The bandwidth is not a forecast and will not become a forecast through further adjudication.

It remains to determine the Council's authority to disapprove the 1978 forecast supplement without further hearings. Generally, a regulatory agency must afford a full opportunity for hearings. See G.L.c. 30A, §11. However, there are occasions when the agency may dismiss the proceeding at the threshold.

A "rejection" of a filing... is more like a motion to dismiss on the face of the pleading... It is appropriate where the filing is so deficient on its face that the agency may properly return it to the filing party... It is a peremptory response... which classically is used not to dispose of a matter on the merits but rather as a technique for calling on the filing party to put its papers in proper form and order. Its use is not limited to defects of form. It may be used by an agency where the filing is so patently a nullity as a matter of law, that administrative efficiency and justice are furthered by obviating any docket at the threshold rather than opening a futile docket. Municipal Light Boards of Reading and Wakefield v. Federal Power Commission, 450 F. 2d. 1341, 1346 (D.C. Cir. 1971).

The Municipal Light Board's decision aptly describes the situation presented by the 1978 forecast supplement. The companies were given fair warning more than a year ago, and it would be patently futile to proceed further with the bandwidth which the Council has already declined to accept or with a so-called "best estimate" which the companies disclaimed. Therefore, the 1978 forecast supplement is disapproved.

The New England Electric System companies and the Manchester Electric Company are directed to file a new long-range forecast of energy consumption and peak demand on or before 1 April 1979. The forecast shall meet the requirements of the Order which accompanies this Decision.

The Attorney General's Motion to Dismiss

Our disapproval of the forecast supplement on the basis of the threshold question forecloses any need to rule upon the Attorney General's Motion to Dismiss. At the same time, however, we recognize the Attorney General's frustration at being unable to obtain more than a generalized explanation and documentation of the companies' forecast methodology. We emphasize,

therefore, that forecast adjudication is not an exercise in legalistic posturing, jousting, or rhetoric. Companies are required to file all information, documentation, and explanation which are reasonably necessary for full review and adjudication. Information cannot be withheld, and companies will not be permitted to release information in piecemeal fashion through endless rounds of discovery. Failure to comply with our Chapter G regulations through forecast filings and responsive discovery is a basis for dismissal of forecast proceedings. Of course, these same strictures apply to intervening parties.

#### Proposed Transmission Facilities

Generally, the Siting Council will not approve construction of proposed transmission and ancillary facilities until it has approved a forecast of energy consumption and peak demand. See G.L.c. 164, §69J. However, there are extraordinary cases where facilities may be needed to assure immediate, reliable service for the protection of the public. In such cases, the Council will review and adjudicate proposed facilities independently from its review and adjudication of the forecast of consumption and demand.

New England Electric System's proposed North Chelmsford to Meadowbrook transmission facility appears to meet the criteria outlined above because of presently experienced system overloads in the area to be served by this facility. The companies are directed to proceed with review and adjudication of the facility.

All remaining facilities, including those which were deferred or otherwise suspended in 2 DOMSC 1 shall continue to be deferred until the companies have received forecast approval from the Council.

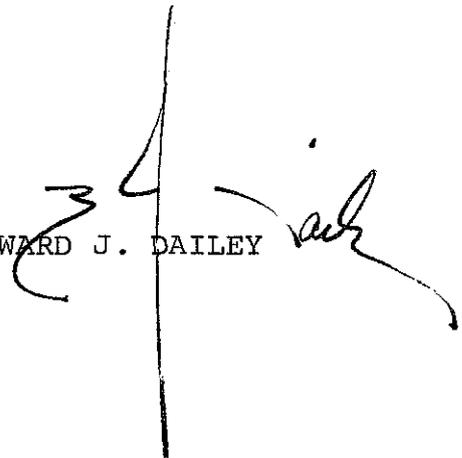
ORDER

The New England Electric System and Manchester Electric Company shall submit a new long-range forecast of energy consumption and peak demand on or before 1 April 1979. This forecast may be submitted as supplement 1C and shall meet the following requirements:

1. The forecast shall fully comply with Rule 63.5 and applicable provisions of Rules 69.1, 69.2, 69.3.
2. The forecast shall include in tables E-1 through E-11 a best estimate of energy consumption and peak demand for the ten year forecast period which is premised upon reasonable statistical projection methods.

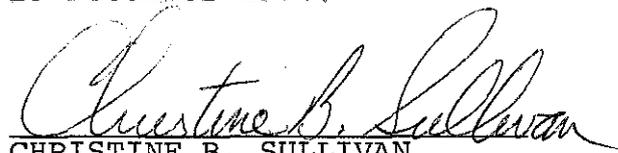
3. The forecast filing shall include full identification, explanation, and documentation of the methodology used to generate the forecast.

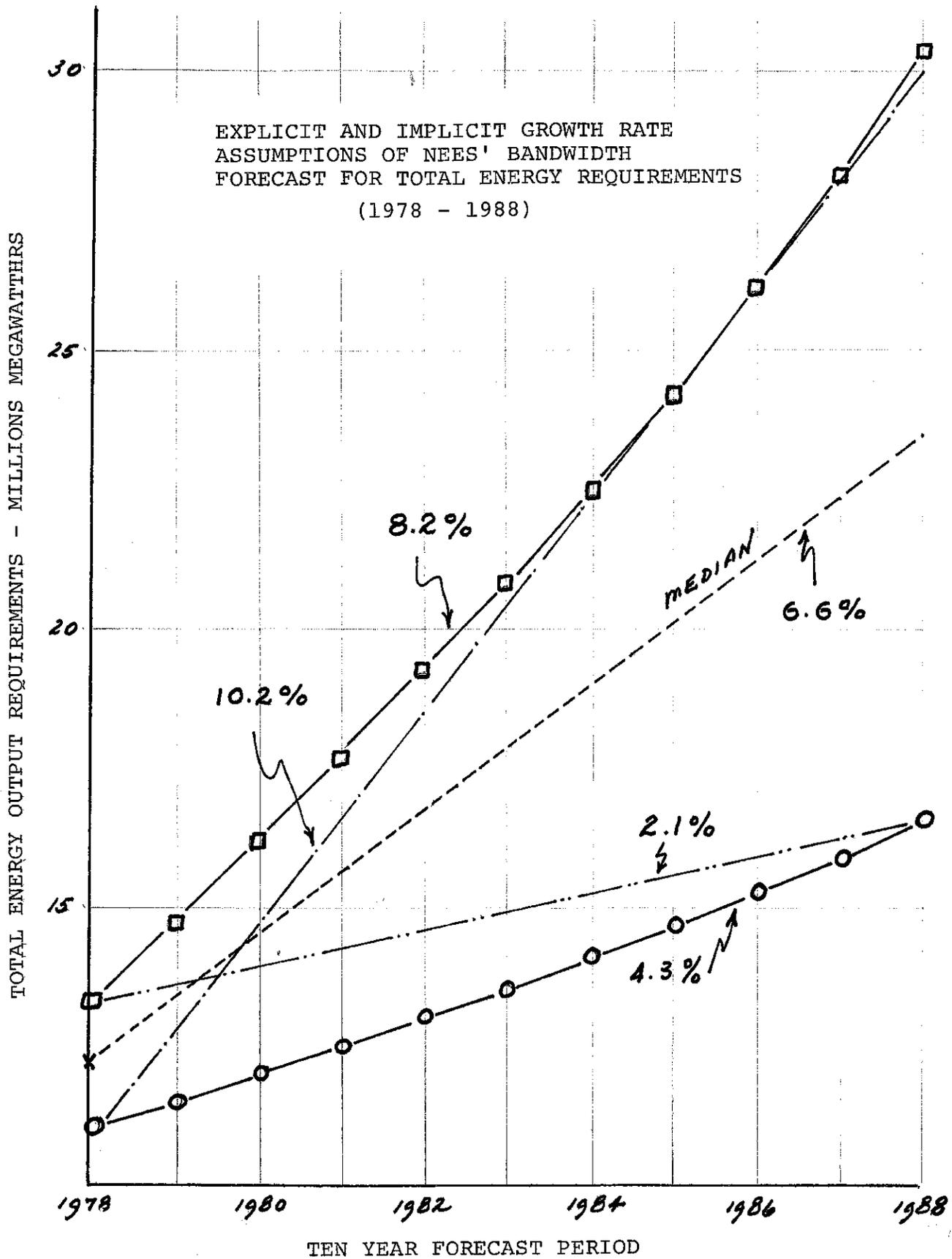
  
DENNIS J. LACROIX

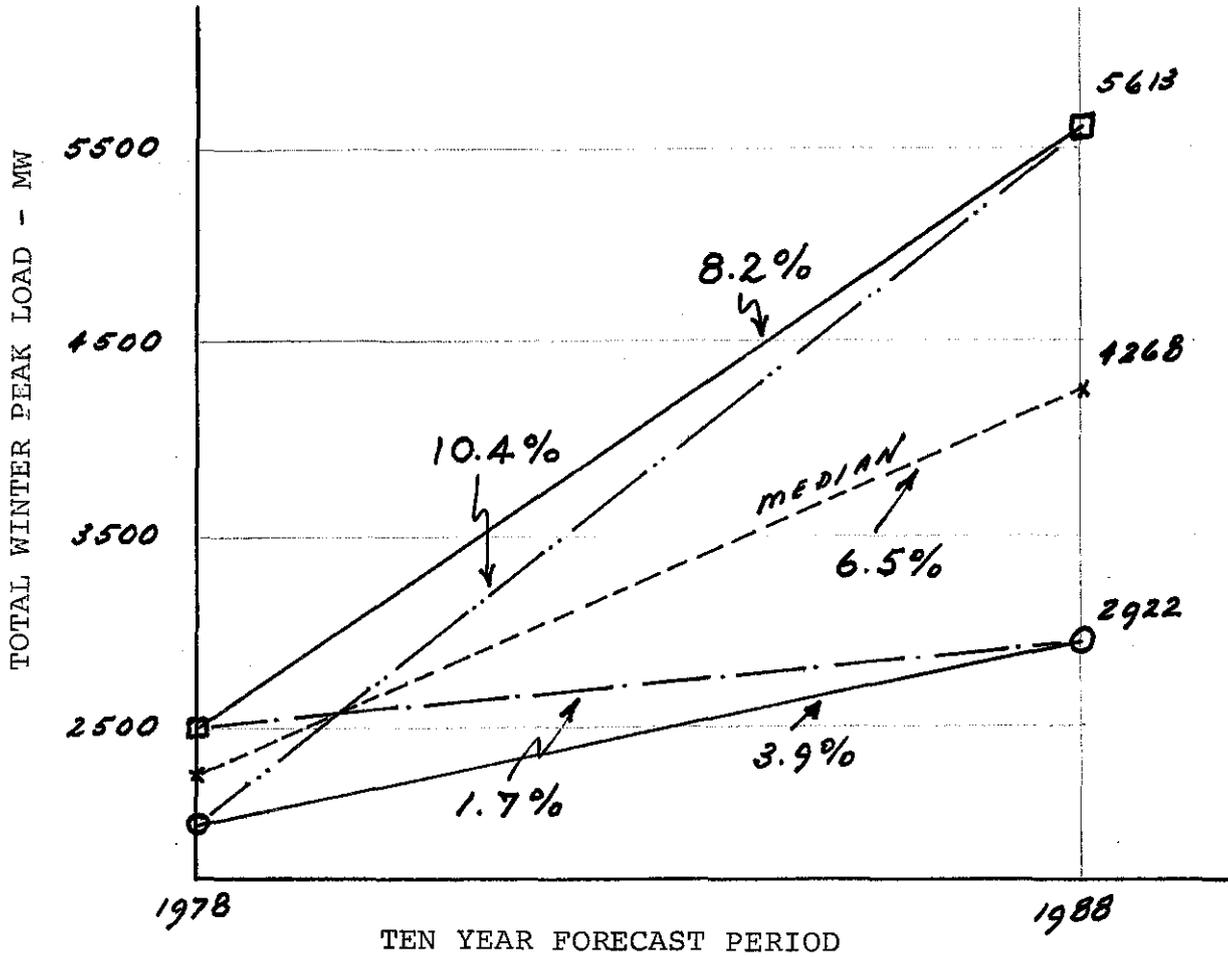
  
EDWARD J. DAILEY

Dated: 31 October 1978

Unanimously approved and adopted by the Energy  
Facilities Siting Council on 15 November 1978, revised on  
15 December 1978.

  
CHRISTINE B. SULLIVAN  
Chairman





EXPLICIT AND IMPLICIT GROWTH RATE ASSUMPTIONS  
FOR NEEDS' BANDWIDTH FORECAST - SYSTEM LOAD

(1978 - 1988)