

Decisions and Orders

Massachusetts Energy Facilities Siting Board

VOLUME 14

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COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

_____)
Brockton Power, LLC, EFSB 99-1)
Motion for Extension of Approval of Petition)
_____)

March 10, 2003

ACTION BY CONSENT

I. INTRODUCTION

This "Action by Consent" is made pursuant to authority granted the Chairman of the Energy Facilities Siting Board ("Siting Board") under 980 CMR 2.06. Section 2.06 provides the Siting Board with the authority to render a decision via Action by Consent when the Board "determines that expeditious action is necessary." 980 CMR 2.06(1).

On March 10, 2000, the Energy Facilities Siting Board ("Siting Board") conditionally approved the petition of Brockton Power, LLC ("Brockton Power" or "Company") to construct a natural gas-fired combined-cycle, electric generating facility with a net nominal electrical output of 270 megawatts in the City of Brockton, Massachusetts. Brockton Power, LLC, EFSB 99-1, 10 DOMSB 157 (2000) ("Brockton Power Decision"). Pursuant to the Brockton Power Decision, the Siting Board's approval of the proposed facility will expire on March 10, 2003. Id. at 269.

II. MOTION TO EXTEND

On February 25, 2003, Brockton Power filed with the Siting Board a request for an extension of Siting Board approval of the facility until July 1, 2004 ("Motion to Extend"). The Company set forth several factors in support of its request.

First, Brockton Power asserts that it has made a multi-million dollar investment in its efforts to bring the proposed facility to fruition, and currently is engaged in confidential negotiations with "a qualified energy company interested in purchasing the rights to construct and operate the proposed facility." (Motion to Extend at 1). The Company states that it requires additional time to complete these negotiations (id. at 2).

In addition, Brockton Power states that there have been changes in electricity market conditions that support the requested extension. Specifically, the Company states that the electricity market is emerging from the negative economic, market and financial developments of the past few years that resulted in the delay or cancellation of projects due to the scarcity of investment capital (id. at 2). The Company cites changes in the wholesale market (e.g., implementation of standard market design and locational marginal pricing) and environmental

initiatives to clean the region's dirtiest generating facilities as further evidence of a changing electricity market (id. at 2). These changes, according to the Company, lead to a renewed opportunity for the siting of clean, efficient and well-sited generating facilities such as the Brockton project (id.).

In further support of its request, Brockton Power argues that litigation-related delays beyond the control of the Company hindered the development of the proposed facility and resulted in the Company's inability to commence construction prior to the March 10, 2003 deadline (id.). As an example, the Company notes that an 18 month delay resulted from the appeal of the Siting Board's Final Decision to the Supreme Judicial Court (id. at 3, citing Tofias v. Energy Facilities Siting Board, 435 Mass. 340 (2001)). The Company maintains that, while the appeal did not stay the Siting Board's decision, it "effectively constrained the Project in moving forward with turbine and other equipment vendors, contractors and investors." (id. at 3).¹

Brockton Power asserts that it is not seeking to alter any aspect of the project, and that the "key findings of the Siting Board's approval are valid and appropriate." (id.). The Company states that, because it submitted its request so close to the expiration of the Siting Board approval, it would be amenable to the Siting Board's issuance of an interim decision that extends Siting Board approval pending any further inquiry the Siting Board seeks to conduct (id.).

III. RULING ON MOTION

In evaluating this Motion to Extend, the Siting Board balances the interests of the public, the Company, and parties to the proceeding to determine whether there is good cause to extend the Siting Board's approval of the proposed facility. Cabot Power Corporation, EFSB 91-101A, December 23, 1997 Procedural Order).²

The Siting Board notes that the Company has provided several reasons for the extension of Siting Board approval of the proposed facility; however, we find that further Siting Board inquiry is necessary. In order to determine whether good cause exists to grant the Company's request as presented, the Siting Board must determine, inter alia: (1) whether the length of the requested extension is reasonable; and (2) whether there have been changes either in background conditions (e.g., land use surrounding the site) or applicable regulations sufficient to alter the

¹ Brockton Power also states that its request for an extension is consistent with the expiration of the Company's Massachusetts Environmental Policy Act Certificate (July 16, 2004) and the extension granted by the Department of Environmental Protection to allow Brockton Power to complete its Air Plans Approval by June 30, 2004 (Motion to Extend at 2-3).

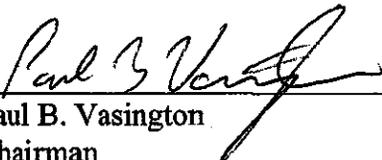
² In the instant case, there are no intervenors or interested persons in the proceeding.

underlying assumptions upon which the Siting Board based its approval.³ Only after such an inquiry will the Siting Board have sufficient information to balance the interests of the public and the Company.

Accordingly, the Siting Board will defer final action on the Company's Motion to Extend. The Siting Board, however, grants an extension of its approval until such time as it rules on the Company's Motion to Extend.

This Action by Consent may be executed in any number of counterparts, each of which shall be an original, but all of which constitute one agreement, and shall be dated and become effective when the copies bearing all of the signatures of the Siting Board members are received by the Chairman. 980 CMR 2.06(2).

Signed:



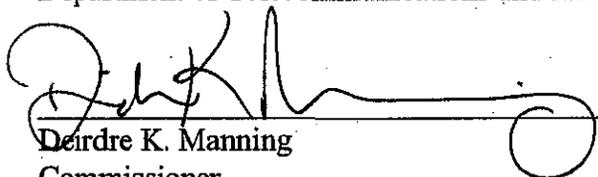
Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

3/5/2003
Date



W. Robert Keating
Commissioner
Department of Telecommunications and Energy

3/7/03
Date



Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

3/5/2003
Date

³ If the Company were proposing changes to its project at this time, the Siting Board also would consider whether the specific project changes would alter the underlying assumptions upon which the Siting Board based its approval; however, the Company currently does not propose such changes.



David L. O'Connor
Commissioner
Division of Energy Resources

3/5/03
Date

Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

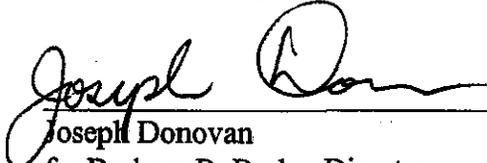
Date

Louis A. Mandarini, Jr.
Public Member

Date

David L. O'Connor
Commissioner
Division of Energy Resources

Date



Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

03/06/03
Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

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Division of Energy Resources

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for Barbara B. Berke, Director
Department of Economic Development

Date

Sonia W. Hamel

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

03/10/03

Date

Louis A. Mandarini, Jr.
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Commissioner
Division of Energy Resources

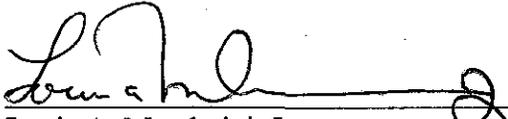
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Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date



Louis A. Mandarini, Jr.
Public Member

3/5/03
Date

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Southern Energy Kendall, LLC)
Motion for Extension to)
Comply with Condition E,)
EFSB 99-4A)

March 10, 2003

ACTION BY CONSENT

I. INTRODUCTION

This "Action by Consent" is made pursuant to authority granted the Chairman of the Energy Facilities Siting Board ("Siting Board") under 980 CMR 2.06. Section 2.06 provides the Siting Board with the authority to render a decision via Action by Consent when the Board "determines that expeditious action is necessary." 980 CMR 2.06(1).

On December 15, 2000, the Energy Facilities Siting Board ("Siting Board") conditionally approved the petition of Mirant Kendall, LLC ("Mirant Kendall" or "Company"), formerly known as Southern Energy Kendall, LLC, to upgrade generating facilities at the existing Kendall Square Station ("Kendall Station") in Cambridge, Massachusetts. Southern Energy Kendall, LLC, 11 DOMSB 255 (2000) ("Final Decision"). In the Final Decision, the Siting Board imposed three conditions, Conditions D, E, and F, for Mirant Kendall to meet prior to the commencement of operation. On November 15, 2002, the Siting Board found the Mirant Kendall has complied with Condition D. Final Decision on Compliance and Request to Amend Condition E, 13 DOMSB 279 (2002) ("Compliance Decision"). At that time, the Siting Board also amended Conditions E and F. Id. Specifically, Condition E, as amended, directed the Company to negotiate a mutually acceptable emergency water agreement with the City of Cambridge and to provide a copy to the Siting Board on the earlier of: (a) March 1, 2003 or (b) that time when Mirant begins taking water from the Broad Canal/Charles River for process and steam purposes, relying upon the City only for sanitary purposes and for emergency process and steam use. Amended Condition E also directed Mirant to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes. Id. Amended Condition E is the only subject of this Action By Consent.

II. REQUEST FOR EXTENSION

On February 25, 2003, Mirant Kendall filed with the Siting Board a request for a one-month extension until April 1, 2003, to comply with Amended Condition E (“Request for Extension”). In support of its request, the Company states that Mirant Kendall and the City of Cambridge (“City”) continue to be engaged in good faith negotiations for an emergency water agreement and the requested extension will provide the parties the opportunity to continue negotiations in an effort to reach a final emergency water use agreement (Request for Extension at 2). Mirant Kendall also states that it does not expect to be taking water from the Broad Canal/Charles River for process and steam purposes before April 1, 2003 (*id.* at n.2).¹

On February 27, 2003, the City submitted a letter stating that it does not object to Mirant’s Request for Extension (City Letter at 1). The City also stated that it is engaged in good faith negotiations with Mirant Kendall regarding an emergency water use agreement and that the requested one-month extension will allow for additional meetings in an attempt to reach an agreement (*id.*). The City also stated that the deadline imposed by the Siting Board in Amended Condition E “has, to date, been effective in focusing the parties’ attention on concluding this matter” (*id.*).

III. RULING ON REQUEST FOR EXTENSION

In evaluating Mirant’s request, the Siting Board notes that the purpose of Amended Condition E was to allow Mirant Kendall to operate the upgraded Kendall Station facility while allowing the Company and the City the time needed to reach an emergency water agreement. Compliance Decision at 288. In that decision, the Siting Board placed considerable weight on the fact that the City was amenable to such an amendment provided that restrictions were placed on Mirant Kendall’s consumption, so that the City’s water supply was not overburdened in the interim.² *Id.* Because Mirant Kendall did not expect to receive a modified National Pollutant Discharge Elimination System (“NEPDES”) permit for Kendall station until early 2003, and given the agreement by the City and the Company, the Siting Board permitted Mirant Kendall to commence operations without an emergency water agreement. *Id.* However, the Siting Board also stated that, given the importance of the emergency water supply agreement, it was important to impose a firm deadline for contract negotiations and set a deadline of March 1, 2003. *Id.*

The Siting Board notes that the affected parties agree to the proposed one-month

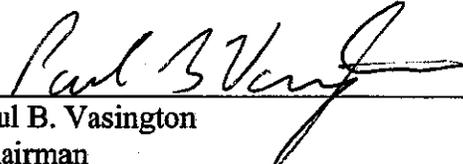
¹ Currently, the Mirant Kendall plant uses water drawn from the Broad Canal for once-through cooling, and uses water obtained from the City for process and sanitary purposes, and for production of steam for distribution to steam customers (Exh. EFSB CF-3). Final Decision at 300.

² As stated above, Amended Condition E directs Mirant Kendall to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes.

extension and that both parties indicate optimism that the additional time will allow them to bring this matter to closure. The Siting Board concludes that the requested one-month extension is reasonable and therefore amends Condition E to read as follows:

In order to minimize water impacts, the Siting Board directs the Company to negotiate a mutually acceptable emergency water agreement with the City of Cambridge and to provide a copy to the Siting Board on the earlier of: (a) April 1, 2003 or (b) that time when Mirant begins taking water from the Broad Canal/Charles River for process and steam purposes, and relying upon the City water only for sanitary purposes and for emergency process and steam use. The Siting Board also directs Mirant to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes.

Signed:



 Paul B. Vasington
 Chairman
 Energy Facilities Siting Board/
 Department of Telecommunications and Energy

3/5/2003

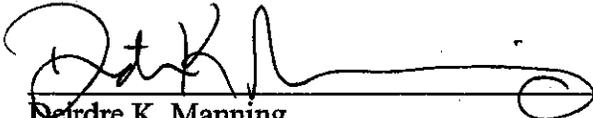
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 W. Robert Keating
 Commissioner
 Department of Telecommunications and Energy

3/7/03

 Date



 Deirdre K. Manning
 Commissioner
 Department of Telecommunications and Energy

3/5/2003

 Date

 David L. O'Connor
 Commissioner
 Division of Energy Resources

 Date

 Joseph Donovan
 for Barbara B. Berke, Director
 Department of Economic Development

 Date

 Sonia Hamel
 for Ellen Roy Herzfelder
 Secretary of Environmental Affairs

 Date

 Louis A. Mandarin, Jr.
 Public Member

 Date

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

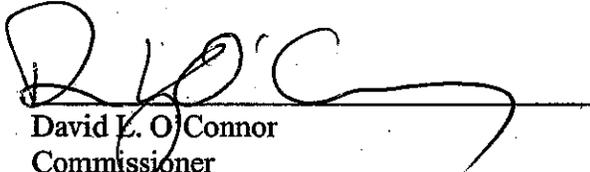
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W. Robert Keating
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Department of Telecommunications and Energy

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Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

Date



David L. O'Connor
Commissioner
Division of Energy Resources

Date 3/5/03

Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

Date

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

Date

W. Robert Keating
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Deirdre K. Manning
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David L. O'Connor
Commissioner
Division of Energy Resources

Date



Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date 03/06/07

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

Date

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
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Date

W. Robert Keating
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Joseph Donovan
for Barbara B. Berke, Director
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Sonia W. Hamel
Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

3/10/03
Date

Louis A. Mandarini, Jr.
Public Member

Date

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

Date

W. Robert Keating
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for Barbara B. Berke, Director
Department of Economic Development

Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date



Louis A. Mandarini, Jr.
Public Member

3/5/03
Date

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Sithe West Medway Development LLC,)
EFSB 98-10)
Motion for Extension of Approval of)
Petition)
_____)

April 10, 2003

ACTION BY CONSENT

I. INTRODUCTION

This "Action by Consent" is made pursuant to 980 CMR 2.06, which provides the Energy Facilities Siting Board ("Siting Board") with the authority to render a decision via Action by Consent when the Board "determines that expeditious action is necessary." 980 CMR 2.06(1).

On April 13, 2000, the Siting Board conditionally approved the petition of Sithe West Medway Development LLC ("West Medway" or "Company")¹ to construct a net nominal 540 megawatt simple-cycle electric generating facility at the proposed site in Medway, Massachusetts. Sithe West Medway Development LLC, 10 DOMSB 274 (2000) ("West Medway Decision"). Pursuant to the West Medway Decision, the Siting Board's approval of the proposed facility will expire on April 13, 2003. Id. at 372.

II. MOTION TO EXTEND

On April 3, 2003, West Medway filed with the Siting Board a request for an extension of Siting Board approval of the facility until August 30, 2004 ("Motion to Extend"). The Company set forth several factors in support of its request.

West Medway states that its primary reason for seeking an extension is to "preserve the Company's opportunity to develop an important, unique addition to the region's portfolio of generating assets" (Motion to Extend at 1). Specifically, the Company asserts that the project, as a clean-burning natural gas facility, can provide energy at periods of high demand more efficiently than the region's existing portfolio of oil-fired peaking facilities (id.).

In addition, West Medway asserts that there have been changes in the electricity market conditions that support the requested extension. West Medway argues that the electricity market is emerging from the negative economic, market and financial developments of the past few years that resulted in the delay or cancellation of projects due to the scarcity of investment

¹ The owner of the subject facility is now Exelon West Medway Development LLC (Motion to Extend at 1, n.1).

capital (id. at 2). The Company also cites changes in the wholesale market (e.g., implementation of standard market design and locational marginal pricing) and environmental initiatives to clean the region's dirtiest generating facilities as further evidence of a changing electricity market (id.). These changes, according to the Company, lead to a renewed opportunity for a clean, efficient and well-sited peaking facility such as the West Medway project (id.).

West Medway asserts that it is not seeking to alter any aspect of the project, and that "the key findings of the Siting Board's decision regarding the Project are still valid and appropriate" (id. at 3). The Company states that, because it submitted its request so close to the expiration of the Siting Board approval, it would be amenable to the Siting Board's issuance of an interim decision that extends Siting Board approval pending any further inquiry the Siting Board seeks to conduct (id.).

III. RULING ON MOTION

In evaluating this Motion to Extend, the Siting Board balances the interests of the public, the Company, and parties to the proceeding to determine whether there is good cause to extend the Siting Board's approval of the proposed facility. Brockton Power LLC, EFSB 99-1 (March 10, 2003 Action By Consent); Cabot Power Corporation, EFSB 91-101A, (December 23, 1997 Procedural Order).

The Siting Board notes that the Company has provided several reasons for the extension of Siting Board approval of the proposed facility; however, we find that further Siting Board inquiry is necessary. In order to determine whether good cause exists to grant the Company's request as presented, the Siting Board must determine, inter alia: (1) whether the length of the requested extension is reasonable; and (2) whether there have been changes either in background conditions (e.g., land use surrounding the site) or applicable regulations sufficient to alter the underlying assumptions upon which the Siting Board based its approval.² Only after such an inquiry will the Siting Board have sufficient information to balance the interests of the public and the Company.

Accordingly, the Siting Board will defer final action on the Company's Motion to Extend. The Siting Board, however, grants an extension of its approval until such time as it rules on the Company's Motion to Extend.

This Action by Consent may be executed in any number of counterparts, each of which shall be an original, but all of which constitute one agreement, and shall be dated and become effective when the copies bearing all of the signatures of the Siting Board members are received

² If the Company were proposing changes to its project at this time, the Siting Board also would consider whether the specific project changes would alter the underlying assumptions upon which the Siting Board based its approval; however, the Company currently does not propose such changes.

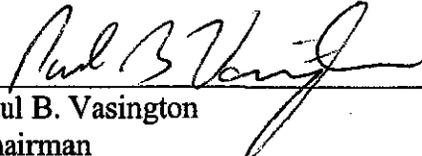
Sithe West Medway Development LLC - EFSB 98-10
Action by Consent

Page 3

by the Chairman. 980 CMR 2.06(2).

Sithe West Medway Development LLC - EFSB 98-10
Action by Consent

Signed:



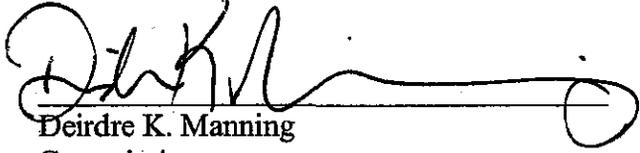
Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

4/7/03
Date



W. Robert Keating
Commissioner
Department of Telecommunications and Energy

April 7, 2003
Date



Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

4/7/03
Date

David L. O'Connor
Commissioner
Division of Energy Resources

Date

Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarin, Jr.
Public Member

Date

Sithe West Medway Development LLC - EFSB 98-10
Action by Consent

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

Date

W. Robert Keating
Commissioner
Department of Telecommunications and Energy

Date

Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

Date



David L. O'Connor
Commissioner
Division of Energy Resources

Date 4/9/03

Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

Date

Sithe West Medway Development LLC - EFSB 98-10
Action by Consent

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

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W. Robert Keating
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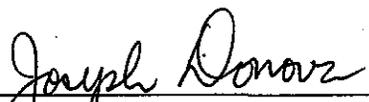
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Joseph Donovan
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Department of Economic Development



Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

Date

Sithe West Medway Development LLC - EFSB 98-10
Action by Consent

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

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W. Robert Keating
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Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

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Sonia Hamel

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

4/8/2003
Date

Louis A. Mandarini, Jr.
Public Member

Date

Sithe West Medway Development LLC - EFSB 98-10
Action by Consent

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

Date

W. Robert Keating
Commissioner
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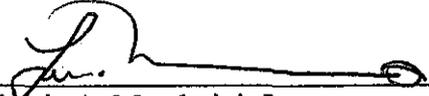
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Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

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Louis A. Mandarini, Jr.
Public Member

4-4-03
Date

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Southern Energy Kendall, LLC)
Motion for Further Extension)
to Comply with Condition E)
EFSB 99-4A)

April 10, 2003

ACTION BY CONSENT

I. INTRODUCTION

This "Action by Consent" is made pursuant to 980 CMR 2.06, which provides the Energy Facilities Siting Board ("Siting Board") with the authority to render a decision via Action by Consent when the Board "determines that expeditious action is necessary." 980 CMR 2.06(1).

On December 15, 2000, the Siting Board conditionally approved the petition of Mirant Kendall, LLC ("Mirant Kendall" or "Company"), formerly known as Southern Energy Kendall, LLC, to upgrade generating facilities at the existing Kendall Square Station ("Kendall Station") in Cambridge, Massachusetts. Southern Energy Kendall, LLC, 11 DOMSB 255 (2000) ("Final Decision"). In the Final Decision, the Siting Board imposed three conditions, Conditions D, E, and F, for Mirant Kendall to meet prior to the commencement of operation. On November 15, 2002, the Siting Board found the Mirant Kendall has complied with Condition D. Final Decision on Compliance and Request to Amend Condition E, 13 DOMSB 279 (2002) ("Compliance Decision"). At that time, the Siting Board also amended Conditions E and F. Id. Specifically, Condition E was amended directing the Company to negotiate a mutually acceptable emergency water agreement with the City of Cambridge and to provide a copy to the Siting Board on the earlier of: (a) March 1, 2003 or (b) that time when Mirant begins taking water from the Broad Canal/Charles River for process and steam purposes, relying upon the City only for sanitary purposes and for emergency process and steam use. Mirant Kendall was also directed to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes. Id. Thereafter, Mirant Kendall filed with the Siting Board a request for a one-month extension until April 1, 2003, to comply with Condition E as amended. The Siting Board issued an Action by Consent on March 10, 2003 granting Mirant Kendall's request for extension and amended Condition E accordingly ("Amended Condition E"). On March 31, 2003, Mirant Kendall filed a motion requesting an additional one month extension from April 1, 2003 to May 1, 2003 to comply with Amended Condition E ("Request for Further Extension"). The Request for Further

Extension is the only subject of this Action By Consent.

II. REQUEST FOR FURTHER EXTENSION

In support of its Request for Further Extension, the Company states that Mirant Kendall and the City of Cambridge ("City") have reached a verbal agreement on emergency water use for the Kendall Station facility (Request for Further Extension at 2). Mirant Kendall also states that the Company and the City are currently exchanging papers and that the requested extension will "provide the parties with an opportunity to finalize and execute the Agreement" (id.).

III. RULING ON REQUEST FOR FURTHER EXTENSION

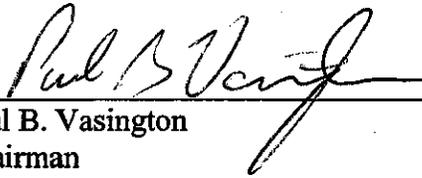
In evaluating Mirant's request, the Siting Board notes that the purpose of granting the initial amendment to Condition E was to allow Mirant Kendall to operate the upgraded Kendall Station facility while allowing the Company and the City the time needed to reach an emergency water agreement. Compliance Decision at 288. In that decision, the Siting Board placed considerable weight on the fact that the City was amenable to such an amendment provided that restrictions were placed on Mirant Kendall's consumption, so that the City's water supply was not overburdened in the interim.¹ Id. Because Mirant Kendall did not expect to receive a modified National Pollutant Discharge Elimination System ("NEPDES") permit for Kendall station until early 2003, and given the agreement by the City and the Company, the Siting Board permitted Mirant Kendall to commence operations without an emergency water agreement. Id. However, the Siting Board also stated that, given the importance of the emergency water supply agreement, it was important to impose a firm deadline for contract negotiations and set a deadline of March 1, 2003. Id. In granting Mirant Kendall the extension from March 1, 2003, to April 1, 2003, the Siting Board took into consideration that both Mirant Kendall and the City indicated optimism that the additional time would allow them to bring this matter to closure (Action by Consent, March 10, 2003, at 2-3).

Based on the information most recently presented by the Company, the extension from March 1, 2003 to April 1, 2003 has resulted in Mirant Kendall and the City reaching verbal agreement and the affected parties exchanging drafts of a written agreement. Clearly the parties are making progress in bringing this matter to closure and in light of such progress, it would be counterproductive not to allow the parties further extension to execute a written agreement. Therefore, the Siting Board concludes that the requested one-month extension is reasonable and amends Condition E to read as follows:

¹ All amendments to Condition E have retained the provision in original Condition E directing Mirant Kendall to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes.

In order to minimize water impacts, the Siting Board directs the Company to negotiate a mutually acceptable emergency water agreement with the City of Cambridge and to provide a copy to the Siting Board on the earlier of: (a) May 1, 2003 or (b) that time when Mirant begins taking water from the Broad Canal/Charles River for process and steam purposes, and relying upon the City water only for sanitary purposes and for emergency process and steam use. The Siting Board also directs Mirant to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes.

Signed:



Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

4/7/03
Date



W. Robert Keating
Commissioner
Department of Telecommunications and Energy

April 7, 2003
Date



Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

4/7/03
Date

David L. O'Connor
Commissioner
Division of Energy Resources

Date

Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarinini, Jr.
Public Member

Date

Southern Energy Kendall LLC - EFSB 99-4A
Action by Consent

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

Date

W. Robert Keating
Commissioner
Department of Telecommunications and Energy

Date

Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

Date



David L. O'Connor
Commissioner
Division of Energy Resources

4/9/03
Date

Joseph Donovan
for Barbara B. Berke, Director
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Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarinini, Jr.
Public Member

Date

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Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

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Sonia Hamel

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

April 9, 2003

Date

Louis A. Mandarini, Jr.
Public Member

Date

Southern Energy Kendall LLC - EFSB 99-4A
Action by Consent

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Energy Facilities Siting Board/
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Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date



Louis A. Mandarini, Jr.
Public Member

4-4-03
Date

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

KeySpan Energy Delivery New England
Order Opening Investigation

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April 10, 2003

ACTION BY CONSENT
(Reissued)

I. INTRODUCTION

This "Action by Consent" is made pursuant to 980 CMR 2.06, which provides the Energy Facilities Siting Board ("Siting Board") with the authority to render a decision via Action by Consent when the Board "determines that expeditious action is necessary." 980 CMR 2.06(1).

On September 9, 2002, Colonial Gas Company d/b/a/ KeySpan Energy Delivery New England ("KeySpan" or "Company") filed with the Siting Board a petition for approval to replace approximately 32,000 feet of natural gas pipeline in the Towns of Bourne, Falmouth and Sandwich ("KeySpan project"). On October 4, 2002, in response to inquires from Siting Board staff, KeySpan stated that it replaced approximately 6000 feet of 8-inch diameter pipeline with 12-inch diameter pipeline between January and May 2000 (October 4 Letter). During this time, the Company replaced pipeline in the Towns of Sandwich and Falmouth along Simpkins and Sandwich Roads (October 4 Letter at 1 and associated map).¹ KeySpan stated that it replaced the pipeline to address specific pressure constraints in the Sandwich and Falmouth area and that a majority of construction occurred on land within the Massachusetts Military Reservation ("MMR") (October 4 Letter at 2 and associated map).

Pursuant to G.L. c. 164, § 69J, natural gas pipelines that are longer than one mile and have a normal operating pressure in excess of 100 pounds per square inch gauge may not be constructed "unless a petition for approval of construction of the facility has been approved by the [Siting B]oard." KeySpan's upgrade of 6000 feet of pipeline would appear to require Siting Board review; however KeySpan did not seek Siting Board approval prior to constructing the project. Therefore, the Siting Board is opening this investigation: (1) to examine the circumstances under which the approximately 6000 feet of pipeline were constructed; (2) to determine whether the approximately 6000 feet of pipeline were constructed in violation of G.L. c, 164, § 69J; (3) to determine whether KeySpan failed to seek other state permits for the upgrade

¹ For a segment of the pipeline along Simpkins Road in Sandwich, the pipeline route is abutted along the east side of the road by property/public way located in Mashpee.

project; (4) to assess whether any damage to the environment or harm to KeySpan's customers occurred due to the Company's failure to obtain Siting Board approval; and (5) to determine whether any redress is warranted. Redress could include monetary sanctions, environmental remediation, recommendations to the Department of Telecommunications and Energy regarding future rate treatment of the costs of the upgrade, or a recommendation to the Office of the Attorney General.

II. BACKGROUND

The legislative mandate of the Siting Board is to ensure a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, § 69H. As the agency of first permit,² the Siting Board provides coordinated review of critical energy infrastructure projects by officials representing consumer, environmental, and economic development interests, including representatives from the Executive Office of Environmental Affairs, the Department of Economic Development, and both the Department of Telecommunications and Energy and the Division of Energy Resources within the Office of Consumer Affairs. In addition, the Siting Board process provides members of the public an opportunity to be heard on important environmental and community issues associated with the construction of energy infrastructure.

Because the Siting Board review process addresses issues of reliability and energy costs, as well as environmental impacts, and because it provides for public input, compliance with individual environmental permitting programs is not a substitute for Siting Board review. Such compliance cannot ensure that Massachusetts energy needs are met through carefully planned infrastructure projects, rather than by a series of stop-gap measures that could result in deterioration of overall system reliability or increased costs to consumers. To allow utilities to substitute compliance with individual environmental permitting programs for Siting Board review would thwart the legislature's intent to provide for a coordinated approach to energy infrastructure projects.

KeySpan has suggested that the Siting Board conduct a post-construction review of the approximately 6000 feet of pipeline in the context of the Board's review of the KeySpan's 32,000 foot project. We will review the long-term impacts of the entire route, including the approximately 6000 feet of pipeline already constructed, during our review of the KeySpan project. However, post-construction review circumvents the major purposes of Siting Board review – to ensure that ratepayers are not charged for unnecessary projects, to ensure that the best

² The Siting Board must approve a particular facility before any other state agency can issue a construction permit for that facility. G.L. c. 164, § 69J.

alternative is built, to address construction impacts and safety issues,³ and to seek community input.

Further, we note that the Siting Board's coordinated review would have been particularly valuable in this instance since multiple state and federal agencies already are cooperating relative to land use issues on the MMR. Specifically, the Acts of 2002, c. 47 ("the Act") establishes an environmental management commission to monitor the activities on the MMR. The Act, at § 4. The commission consists of the Commissioner of the Department of Fisheries, Wildlife and Environmental Law Enforcement; the Commissioner of Environmental Management, and the Commissioner of Environmental Protection. *Id.* The commission is assisted by a community advisory council that includes representatives from the Towns of Falmouth, Bourne and Sandwich, and a science advisory council appointed by the Governor. *Id.* at § 6. In addition, federal entities such as the national guard are required to provide the commission with annual reports regarding various activities on the MMR. *Id.* at § 9.

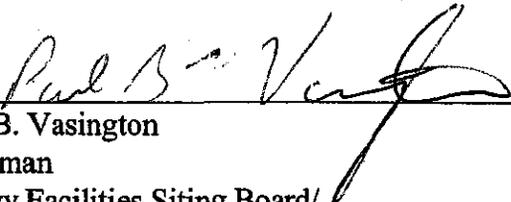
III. ORDER

The Siting Board hereby opens an investigation regarding the circumstances under which KeySpan constructed approximately 6000 feet of natural gas pipeline in the Towns of Sandwich and Falmouth between January and May 2000. The Siting Board directs KeySpan to cooperate fully with this investigation and requires KeySpan, *inter alia*, to provide all information requested by Siting Board staff and to present oral testimony, if requested to do so. At the conclusion of this investigation, the Siting Board will take such further action as it deems necessary.

This Action by Consent may be executed in any number of counterparts, each of which shall be an original, but all of which constitute one agreement, and shall be dated and become effective when the copies bearing all of the signatures of the Siting Board members are received by the Chairman. 980 CMR 2.06(2).

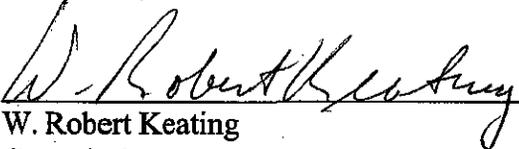
³ The Siting Board has consulted with the Pipeline Safety and Engineering Division of the Department of Telecommunications and Energy ("Pipeline Safety Division"). The Pipeline Safety Division stated that it has reviewed construction records regarding the approximately 6000 feet of replacement pipeline and has found no safety-related issues.

Signed:



Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

4/7/03
Date



W. Robert Keating
Commissioner
Department of Telecommunications and Energy

April 7, 2003
Date



Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

4/7/03
Date

David L. O'Connor
Commissioner
Division of Energy Resources

Date

Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarin, Jr.
Public Member

Date

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

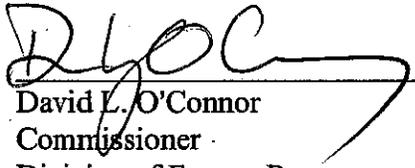
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W. Robert Keating
Commissioner
Department of Telecommunications and Energy

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Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

Date


David L. O'Connor
Commissioner
Division of Energy Resources

Date

4/9/03

Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

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Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

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Louis A. Mandarini, Jr.
Public Member

Date

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

Date

W. Robert Keating
Commissioner
Department of Telecommunications and Energy

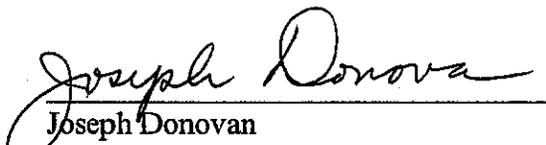
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Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

Date

David L. O'Connor
Commissioner
Division of Energy Resources

Date


Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

April 9, 2003
Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

Date

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

Date

W. Robert Keating
Commissioner
Department of Telecommunications and Energy

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Sonia Hamel
Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

4/9/2003
Date

Louis A. Mandarinini, Jr.
Public Member

Date

**KeySpan Energy Delivery New England
EFSB 02-3**

Page 4

Signed:

**Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy**

Date

**W. Robert Keating
Commissioner
Department of Telecommunications and Energy**

Date

**Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy**

Date

**David L. O'Connor
Commissioner
Division of Energy Resources**

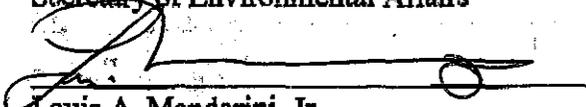
Date

**Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development**

Date

**Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs**

Date



**Louis A. Mandarini, Jr.
Public Member**

4-4-03
Date

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Sithe Edgar Development LLC)
Notice of Probable Violations)
_____)

April 17, 2003

ACTION BY CONSENT

I. INTRODUCTION

This "Action by Consent" is made pursuant to 980 CMR 2.06, which provides the Energy Facilities Siting Board ("Siting Board") with the authority to render a decision via Action by Consent when it "determines that expeditious action is necessary." 980 CMR 2.06(1).

On February 10, 2000, the Siting Board conditionally approved the petition of Sithe Edgar Development LLC ("Sithe" or "Company") to construct a natural gas-fired combined-cycle, electric generating facility with a net nominal electrical output of 775 megawatts in the Town of Weymouth, Massachusetts.¹ Sithe Edgar Development LLC, 10 DOMSB 1 (2000) ("Final Decision"). On November 30, 2001, the Siting Board conditionally approved a Notice of Project Change filed by Sithe. Sithe Edgar Development LLC, EFSB 98-7A (2001) ("Project Change Decision"). The Project Change Decision authorized the use of two construction shifts, one beginning at 7:00 a.m. and ending at 5:00 p.m., and a second beginning at 5:30 p.m. and ending at 2:00 a.m. Project Change Decision at 16.

In accordance with G. L. c. 164, § 69H(4), the Siting Board is authorized to levy a civil penalty when an applicant has violated any order of the Siting Board. The applicant is subject to a civil penalty not to exceed \$1000 per day per violation, with a maximum civil penalty of \$200,000 for any related series of violations.

Pursuant to Condition P of the Project Change Decision, the Company is required to submit monthly noise complaint reports for the duration of nighttime construction. See Project Change Decision at 29. On December 10, 2002 and January 14, 2003, the Company submitted reports for the months of November 2002 and December 2002, respectively. Based on the Siting Board's review of the Company's monthly noise report for the months of November and December 2002, the Siting Board is issuing this notice of probable violations of the following orders or conditions in EFSB 98-7A.

¹ As of November 1, 2002, the owner of the subject facility is Exelon Fore River Development, LLC ("Exelon").

II. PROBABLE VIOLATIONS

A. Use of Outdoor Crane or Other Noisy Equipment After 11:00p.m.

In accordance with Condition N of the Project Change Decision, the Siting Board directed the Company to limit the use of outdoor cranes or other particularly noisy equipment to occasional occurrences during the night shift, and prior to 11:00 p.m. when possible. When this is not possible, the Siting Board directed the Company to provide advance notice to all affected neighbors and the Town of Weymouth. Project Change Decision at 29.

On November 6, 2002, at 11:15 p.m., Eileen Burwell, a resident of 50 Monatiquot Street, reported crane noise (November 2002 Noise Complaint Report at 1). The Company indicated that the Nighttime Noise Monitor called the WGI supervisor, who informed him that the crane (cherry picker) was in the process of being shut down (id.). The Company's response to the complaint indicates that the crane may have been operating after 11:00 p.m. The Company made no claim that it gave prior notification to either the affected neighbors or the Town of Weymouth of the use of noisy equipment after 11:00 p.m. The Siting Board finds that use of an outdoor crane after 11:00 p.m. without prior notice is a probable violation of Condition N of the Project Change Decision and hereby fines the Company \$1000.00 for said violation.

B. Prohibited Activity on Second Construction Shift

In order to mitigate the noise impacts of the second shift, the Project Change Decision placed various restrictions on second shift construction work. According to the Noise Mitigation Plan submitted by the Company, second shift work would generally take place in enclosed structures. Id. at 8. Specifically, the Company agreed that such activity would take place "in and around the turbine building, inside two warehouse buildings attached to the turbine building, and within the pipe that runs the air-cooled condenser" in order to take advantage of the shielding provided by these structures. Id. at 9. In addition, the Company agreed that second shift construction work would take place entirely to the north of a line running approximately from 340 to 600 feet north of Monatiquot Street ("second shift construction line"). Project Change Decision at 10.

On November 14, 2002, at 6:25 p.m., Eileen Burwell reported the sound of loud, banging noises near the ACC. According to the Company, both the Nighttime Noise Monitor and the WGI supervisor investigated work activity near the ACC but did not hear banging sounds (November 2002 Noise Report at 2). The WGI supervisor indicated that he would continue to investigate and shut down any activity that might be the cause of banging sounds (id.). The Company's response to the complaint suggests that there was ongoing work activity near the ACC during the second shift. The Siting Board finds that second shift construction work on or in the area of the ACC units is a probable violation of the noise mitigation plan approved by the

Siting Board in the Project Change Decision, which limits second shift construction work to enclosed structures, and hereby fines the Company \$1000.00 for said violation.

On December 13, 2002 at 8:35 p.m., Eileen Burwell reported the sound of a circular work saw in use along the fenceline (December 2002 Noise Report at 2-3). According to the Company, the Nighttime Noise Monitor noticed this activity during an inspection, and reported that the WGI supervisor stopped this work at 8:33 p.m (id.). The Siting Board finds that second shift construction work along the Monatiquot Street fenceline is a probable violation of the Project Change Decision, which requires second shift construction work to be confined to the north of the second shift construction line, and hereby fines the Company \$1000.00 for said violation.

III. PROCEDURE

Exelon has the right to appear with counsel before Siting Board staff in an informal conference on any or all of the probable violations at the offices of the Siting Board on (date), 2003. At the informal conference, the hearing officer will make available to Exelon the evidence on which the Siting Board based its issuance of this Notice of Probable Violations, and the Company may present evidence disputing the probable violations.

If Exelon chooses to dispute the probable violations set forth in this notice but does not choose to attend the informal conference, it should send a written response to this notice to the Siting Board on or before (date), 2003. The reply must include a complete statement of all relevant facts, and a full description of the reasons the Company disputes the probable violations enumerated in this notice.

If Exelon chooses not to dispute the probable violations, it should sign and return the attached Consent Order. The Consent Order must be accompanied by a check in the amount of \$3,000 made payable to the Commonwealth of Massachusetts, and mailed to the Energy Facilities Siting Board, One South Station, Boston, MA 02110. The Siting Board hereby authorizes Diedre Matthews, Director of the Siting Board, to sign on behalf of the Siting Board any Consent Order or other agreement with the Company regarding this Notice of Probable Violations.

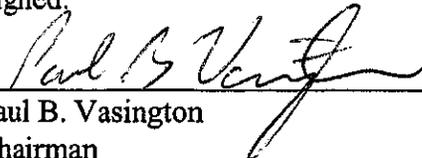
If Exelon does not respond to this notice as required by (date) 2003 and does not attend the informal conference, the Company will be deemed to have admitted the allegations and will be subject to all penalties set forth herein.

This Action by Consent may be executed in any number of counterparts, each of which shall be an original, but all of which constitute one agreement, and shall be dated and become effective when the copies bearing all of the signatures of the Siting Board members are received by the Chairman. 980 CMR 2.06(2).

Sithe Edgar Development LLC; EFSB 98-7
Notice of Probable Violations

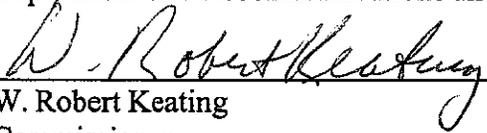
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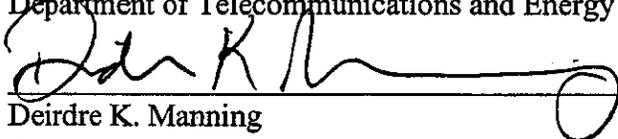
Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

4/7/03
Date



W. Robert Keating
Commissioner
Department of Telecommunications and Energy

April 7, 2003
Date



Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

4/7/03
Date

David L. O'Connor
Commissioner
Division of Energy Resources

Date

Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis J. Mandarini, Jr.
Public Member

Date

Sithe Edgar Development LLC; EFSB 98-7
Notice of Probable Violations

Signed:

Paul B. Vasington
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Energy Facilities Siting Board/
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Notice of Probable Violations

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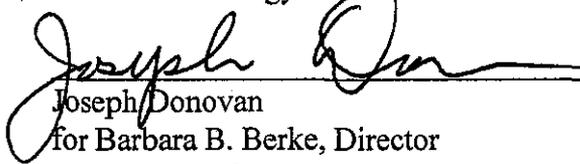
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David L. O'Connor
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Division of Energy Resources

Date



Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

April 17, 2003
Date

Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis J. Mandarini, Jr.
Public Member

Date

Sithe Edgar Development LLC; EFSB 98-7
Notice of Probable Violations

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Sonia Hamel
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

4 / 17 / 03
Date

Louis J. Mandarin, Jr.
Public Member

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Sithe Edgar Development LLC; EFSB 98-7
Notice of Probable Violations

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Commissioner
Division of Energy Resources

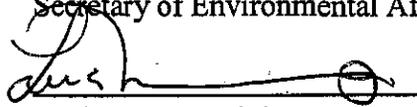
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Secretary of Environmental Affairs

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Public Member

4-4-03
Date

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

In the Matter of the Petition of Colonial Gas)
Company d/b/a KeySpan Energy Delivery)
New England to Construct an Underground)
Natural Gas Pipeline in the Towns of)
Bourne, Sandwich, and Falmouth,)
Massachusetts)

EFSB 02-1

FINAL DECISION

Selma Urman
Presiding Officer
May 9, 2003

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FIGURE 1: Map of Preferred and Alternative Routes

LIST OF ABBREVIATIONS

AFNG	Air Force National Guard
Algonquin	Algonquin Gas Transmission Company
Btu	British thermal units
BBtu	billion British thermal units
<u>1997 BECo Decision</u>	<u>Boston Edison Company- Hopkinton and Milford, 6 DOMSB 208 (1997)</u>
Bourne	Town of Bourne
Bourne Line	Pipeline extending from Bourne Take Station to Falmouth and Hyannis
<u>1998 Cabot Power Decision</u>	<u>Cabot Power Corporation, 7 DOMSB 233 (1998)</u>
<u>CELCo Decision</u>	<u>Cambridge Electric Light Company, 12 DOMSB 305 (2001)</u>
Colonial	Colonial Gas Company
Company	KeySpan Energy Delivery New England
CWMA	Crane Wildlife Management Area
d/b/a	doing business as
dBA	decibels, A-weighted
Department	Massachusetts Department of Telecommunications and Energy
Distrigas	Distrigas of Massachusetts Corporation
DSM	demand-side management
D.T.E. 01-105	<u>KeySpan Energy Delivery New England, D.T.E. 01-105 (2003)</u>
ENF	Environmental Notification Form
2001 Forecast and Supply Plan	<u>KeySpan Energy Delivery New England, D.T.E. 01-105 (2003)</u>
G.L.	Massachusetts General Laws
KeySpan	KeySpan Energy Delivery New England
LNG	liquefied natural gas
MAOP	maximum allowable operating pressure

<u>MECo/NEPCo Decision</u>	<u>Massachusetts Electric Company and New England Power Company, 18 DOMSC 383 (1989)</u>
MHC	Massachusetts Historical Commission
MHD	Massachusetts Highway Department
MMBtu	million British thermal units
MMBtu/day	million British thermal units per day
MMBtu/hr	million British thermal units per hour
MMR	Massachusetts Military Reservation
<u>MMWEC Decision</u>	<u>Massachusetts Municipal Wholesale Electric Company, 12 DOMSB 18 (2001)</u>
<u>1998 NEPCo Decision</u>	<u>New England Power Company, 7 DOMSB 333 (1998)</u>
NHESP	Massachusetts Natural Heritage and Endangered Species Program
NSTAR	NSTAR Electric Company
<u>NSTAR Decision</u>	<u>NSTAR Gas Company, 13 DOMSB 143 (2001)</u>
ORW	outstanding resource water
psi	pounds per square inch
psig	pounds per square inch, gauge
ROW	right of way
Sagamore Line	Pipeline extending from Sagamore Take Station to lower Cape
Siting Board	Massachusetts Energy Facilities Siting Board

The Energy Facilities Siting Board hereby APPROVES, subject to one condition, the petition of Colonial Gas Company, d/b/a KeySpan Energy Delivery New England, to construct approximately six miles of 12-inch diameter natural gas pipeline along a route between a point near the intersection of Route 28 and Barlow's Landing Road in Bourne and an existing regulator station at the junction of Carrier Road and Route 151 in Falmouth.¹

I. INTRODUCTION

A. Summary of the Proposed Project

Colonial Gas Company ("Colonial"), d/b/a KeySpan Energy Delivery New England² ("KeySpan," or the "Company"), distributes and sells natural gas to local customers in twelve towns on Cape Cod plus portions of Wareham, Carver, and Plymouth (Exh. KEY-1, at 1-5, 2-3).³ In order to distribute gas to customers on Cape Cod, the Company owns and operates a system of pipelines and also receives liquified natural gas ("LNG") at its plant in South Yarmouth (id. at 2-3). The backbone of the Company's Cape Cod system consists of: (1) a pipeline extending from the Bourne Take Station near the Bourne Bridge southward toward Falmouth and then eastward toward Hyannis (the "Bourne Line"); and (2) a pipeline extending from the Sagamore Take Station near the Sagamore Bridge eastward to the lower Cape (the "Sagamore Line") (id.). The Company proposes to upgrade approximately 30,000 linear feet of 12-inch diameter pipeline in Bourne, Sandwich, and Falmouth ("proposed project" or "proposed pipeline") in order to accommodate increased demand for natural gas in the area served by the Bourne Line (id. at 1-1).

¹ While the Siting Board's decision constitutes approval of the entire project, including approximately 9000 feet of natural gas pipeline previously constructed, it does not resolve the question of whether Colonial Gas Company constructed approximately 6000 feet of pipeline in violation G.L. c. 164, § 69J, and, if so, what penalties the Siting Board may assess. That matter is the subject of an ongoing investigation, Colonial Gas Company d/b/a KeySpan Energy Delivery New England, EFSB 02-3.

² KeySpan New England LLC is a Massachusetts limited liability company that wholly owns Colonial Gas Company, Boston Gas Company, and Essex Gas Company (Exh. KEY-1, at 1-8).

³ Colonial also delivers gas to customers in the Lowell area (Exh. KEY-1, at 2-2).

The Company anticipates converting the existing 8-inch pipeline for use as part of the 60 pounds per square inch (“psi”) system, delivering gas from a regulator on the Bourne Line in the Town of Bourne (“Bourne”) to existing distribution lines within the Massachusetts Military Reservation (“MMR”) (*id.* at 1-1, 2-6). The new pipeline would generally follow the route of the existing Bourne Line, but would depart from it in three locations (*id.* at Fig. 4-16). Construction would not occur along two sections of the proposed route where Colonial already has replaced 8-inch pipeline with 12-inch pipeline (Exh. PO-G-12). The proposed pipeline would be tested for certification to operate at a pressure of 270 per square inch gauge (“psig”), but would be operated at a maximum of 200 psig, consistent with the certification of contiguous lengths of pipeline on the Bourne Line (Exh. KEY-1, at 2-6; Exh. PO-G-10).

KeySpan’s preferred route for the pipeline begins on the existing Bourne Line near the intersection of Route 28 and Barlow’s Landing Road in Bourne (Exh. KEY-1, at Fig.1-2 and p. 4-18). From this intersection, the preferred route follows the west edge of Route 28 south to Otis Circle (*id.*). Crossing Otis Circle, the preferred route follows Connery Avenue southeast into the MMR and also into Sandwich (*id.* at Figs. 1-1, 1-2 and p. 4-20). The preferred route skirts the cantonment area of MMR, southward on West Truck Road and eastward on South Inner Road, southward on Guenther Road, eastward on South Truck Road, and southeast on Simpkins Road, where it leaves the MMR (*id.* at 4-18; Exh. PO-RS-1). The route then follows the west side of Sandwich Road to the south (crossing into Falmouth), and the north side of Route 151 eastward to the Route 151 regulator station at the junction of Route 151 and Carrier Road (Exh. KEY-1, at 4-18).

The Company also provided notice of an alternative route which starts along Route 28, continues generally along Route 28A to its intersection with Route 151, and then follows Route 151 east to the Route 151 Regulator Station (*id.* at 1-3, 1-4). The alternative route is entirely within the towns of Bourne and Falmouth (*id.* at 1-4). The preferred and alternative routes are shown in Figure 1.

B. Procedural History

On September 9, 2002, KeySpan filed with the Energy Facilities Siting Board (“Siting

Board”) its petition to construct the proposed project. The Siting Board docketed the petition as EFSB 02-1.

In accordance with the direction of the Presiding Officer, KeySpan provided Notice of Public Comment Hearing and Adjudication. On October 29, 2002, the Siting Board conducted a public comment hearing in Bourne, Massachusetts regarding the proposed project. The Air Force National Guard (“AFNG”) filed a timely petition to intervene in this proceeding. The Presiding Officer granted the AFNG’s petition to intervene.

The Siting Board conducted one day of evidentiary hearings in this proceeding on February 11, 2003. KeySpan presented the testimony of the following witnesses: Theodore E. Poe, Jr., Manager of Energy Planning at KeySpan, regarding need and project alternatives; David C. Kearney, Manager of Operations Engineering, regarding project overview, need, project alternatives and route selection; Theodore A. Barten, P.E., Managing Principal of Epsilon Associates, Inc., regarding project overview, project alternatives, route selection, environmental impacts and consistency with the policies of the Commonwealth; and John Vieira, Senior Scientist at Epsilon, regarding route selection and environmental impacts. In addition, Stanley Allgore, Construction Manager for KeySpan, testified at the hearing with respect to certain construction permitting issues. The AFNG did not present a direct case.

The Presiding Officer entered 133 exhibits, consisting primarily of information request responses and record request responses, into the evidentiary record. On February 28, 2003, KeySpan submitted a brief.

C. Jurisdiction and Scope of Review

KeySpan filed its petition to construct a natural gas pipeline in accordance with G.L. c. 164, § 69H, which requires the Siting Board to implement the energy policies in its statute to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, and pursuant to G.L. c. 164, § 69J, which requires a project applicant to obtain Siting Board approval for the construction of proposed energy facilities before a construction permit may be issued by another state agency.

As a new pipeline over one mile in length intended for the transmission of natural gas,

KeySpan's proposed project falls within the definition of "facility" set forth in G.L. c. 164, § 69G, which provides that a "facility" includes:

a new pipeline for the transmission of gas having a normal operating pressure in excess of 100 pounds per square inch gauge which is greater than one mile in length except restructuring, rebuilding, or relaying of existing transmission lines of the same capacity.

G.L. c. 164, § 69G.

Before approving a petition to construct facilities, the Siting Board requires an applicant to justify its proposal in three phases. G.L. c. 164, § 69J. First, the Siting Board requires the applicant to show that additional energy resources are needed (see Section II.A, below). Next, the Siting Board requires the applicant to establish that, on balance, its proposed project is superior to alternative approaches in terms of cost, environmental impact, reliability, and ability to address the identified need (see Section II.B, below). Finally, the Siting Board requires the applicant to show that it has considered a reasonable range of practical facility siting alternatives and that the proposed site for the facility is superior to a noticed alternative site in terms of cost, environmental impact, and reliability of supply (see Section III., below).

II. ANALYSIS OF THE PROPOSED PROJECT

A. Need Analysis

1. Standard of Review

In accordance with G.L. c. 164, § 69H, the Siting Board is charged with the responsibility for implementing energy policies in its statute to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, § 69H. In carrying out this statutory mandate with respect to proposals to construct natural gas pipelines, the Siting Board evaluates whether there is a need for additional natural gas facilities in the Commonwealth to meet reliability, economic efficiency, or environmental objectives. See NSTAR Gas Company, 13 DOMSB 143, at 153 (2001) ("NSTAR Decision"); Massachusetts Municipal Wholesale Electric Company, 12 DOMSB 18, at 43 (2001) ("MMWEC Decision"); Massachusetts Electric Company and New England Power Company, 18 DOMSC 383, at 393 (1989) ("MECo/NEPCo Decision").

In evaluating the need for new energy facilities to meet reliability objectives, the Siting Board may evaluate the ability of its existing system to accommodate changes in aggregate demand or supply,⁴ to serve major new loads, or to maintain reliable service in certain contingencies. The Siting Board previously has approved proposals to construct gas pipelines to accommodate load growth within a utility's service territory (see Boston Gas Company, 17 DOMSC 155 (1988)) and to transport natural gas to generating facilities. See NSTAR Decision at 149; MMWEC Decision, 12 DOMSB 18; Berkshire Gas Company, 20 DOMSC 109 (Phase II) (1990). In such cases, the proponent must demonstrate that additional energy resources are necessary to meet reliability objectives by establishing that its existing system is inadequate to serve the anticipated load with acceptable reliability.

2. Description of the Existing System

KeySpan stated that it receives natural gas for its Cape Cod service territory from the Algonquin Gas Transmission Company ("Algonquin") at the Sagamore Take Station, Bourne Take Station, and Rochester Take Station (Exh. KEY-1, at 2-3). Customers located east of the Cape Cod Canal are supplied with gas from the Sagamore and Bourne Take Stations (id.).

The backbone of the Company's Cape Cod distribution system consists of (1) the Bourne Line, extending from the Bourne Take Station southward toward Falmouth and then eastward toward Hyannis, which typically operates at 200 psig, and (2) the Sagamore Line, extending from the Sagamore Take Station eastward toward the lower Cape, which typically operates at 270 psig (id.).⁵ The Bourne Line and the Sagamore Line are linked at a regulator station on Oak Street in Barnstable ("Oak Street Regulator"), which backfeeds the Bourne Line from the higher pressure

⁴ With respect to changes in demand or supply, the Siting Board has found that new capacity is needed where projected future capacity available to the system is found to be inadequate to satisfy projected load. ANP Blackstone Energy Company, 8 DOMSC 1, at 27 (1999); Cabot Power Corporation, 7 DOMSB 233, at 249 (1998) ("1998 Cabot Power Decision"); New England Electric System, 2 DOMSC 1, at 9 (1977).

⁵ Intermediate pressure distribution lines fed by the Bourne Line and by the Sagamore Line are linked to some extent, so there is not a clear-cut boundary between areas served by the two lines (Exh. PO-N-8). The Company typically runs the Bourne and Sagamore Lines at lower pressures in the summer, when demand is lower (Tr. at 9).

Sagamore Line (*id.*). The Company noted that as demand increases on the lower Cape, which is supplied by the Sagamore Line, its ability to backfeed the Bourne Line through the Oak Street Regulator is reduced (Tr. at 25-26). Similarly, the Company indicated that the limited ability of the Bourne Line to move gas from the Bourne Take Station creates a need for supplementary delivery through the Oak Street Regulator, which in turn reduces the ability of the Sagamore Line to deliver sufficient gas to the lower Cape (*id.* at 26). The Company stated that the Bourne Line is currently able to deliver approximately 2400 million Btus per hour (“MMBtu/hr”) into the local distribution system from the Bourne Take Station and through the Oak Street Regulator (Exh. PO-N-9).

In addition to its pipeline resources, KeySpan is able to vaporize LNG delivered by truck to its South Yarmouth LNG facility (Exh. KEY-1, at 2-5). The South Yarmouth LNG facility has a storage capacity of 174.3 million cubic feet and a sendout capacity of 32 million cubic feet per day, with a heat content of approximately 28,800 million Btus per day (“MMBtu/day”) (*id.* at 2-5, n.1; Exh. PO-N-13). The Company stated that in recent years it has become increasingly dependent on the South Yarmouth LNG facility to maintain adequate volumes and pressure in its system, and expressed concern about “over-utilization” of the facility (Exh. KEY-1, at 2-6, 3-7). The Company noted that its use of the South Yarmouth LNG facility to increase pressure on the lower Cape reduces its ability to bring additional pipeline supply into the system through the Bourne and Sagamore Take Stations (*id.* at 3-7).

3. Need for Additional Resources

a. Sendout Projections

To document the future requirements of its Cape Cod customers, KeySpan provided a copy of its most recent approved forecast, developed in 2001 and entitled “Long-Range Resource and Requirements Plan (2001-02 to 2005-06)” (“2001 Forecast and Supply Plan”) (Exh. PO-N-15, Bulk Att.). See KeySpan Energy Delivery New England, D.T.E. 01-105 (2003) (“D.T.E. 01-105”). KeySpan also provided projected annual growth rates for the period 2002-03 to 2005-06 for each of four upper Cape towns served primarily by the Bourne Line (Exh. RR-EFSB-3).

Based on its 2001 Forecast and Supply Plan, KeySpan indicated that base case design

year sendout requirements for the Cape Cod service territory are projected to increase from 10.9 trillion Btu in split year 2001-02 to 12.2 trillion Btu in 2005-06. D.T.E. 01-105, Exh. D.T.E. 1-62. This forecasted growth represents an average sendout growth of 3% per year, which compares to the average annual Cape Cod growth rate of 4.6% reported by the Company for the period of 1994 to 2001 (Exh. PO-N-1; Tr. at 44). As of November 30, 2001, KeySpan had a total entitlement on the Algonquin pipeline system for delivery to all KeySpan city gates of 348,412 MMBtu/day. D.T.E. 01-105, Petition at 9, 95-97. The Company indicated that it has entered into contracts with Algonquin for an additional 15,000 MMBtu/day of deliverability to the Cape Cod system when Algonquin's HubLine project comes on line in the spring or summer 2003, increasing to an additional 25,000 MMBtu/day on November 1, 2003 (Exhs. KEY-1, at 2-2; PO-G-9).⁶

With respect to sendout in the upper Cape area, the Company indicated that it first determined town-by-town growth factors from a Massachusetts market analysis database that includes five-year projections of construction growth by town (Exh. RR-EFSB-3; Tr. at 47). The Company then applied the town growth factors to its forecasted sendout for the Cape Cod service territory, in order to derive projected sendout by town (Exh. RR-EFSB-3; Tr. at 47). The resulting average annual growth rates for sendout between 2002-03 and 2005-06 in four upper Cape towns – Bourne, Falmouth, Mashpee, and Sandwich – range from 3.7 to 5.3% (Exh. RR-EFSB-3). The Company stated that this projected growth compares to an average annual growth rate from 1994 to 2001 of 5.2% for the overall four-town area (Exh. PO-N-1; Tr. at 45).

b. Delivery Volumes and Pressures

KeySpan asserted that in light of increasing gas requirements, reinforcement of the existing Bourne Line delivery system is necessary to maintain adequate delivery pressure throughout Cape Cod (Exh. KEY-1, at 2-6). KeySpan further asserted that its existing facilities

⁶ The Company stated in KeySpan Energy Delivery New England, D.T.E. 01-105 (2003) that there is a need for incremental supplies to serve the Cape Cod area; the specific contracts were reviewed and approved by the Department of Telecommunications and Energy ("Department") in KeySpan/Hubline, D.T.E. 02-18 (2002).

will be insufficient to provide continuous natural gas service to existing and new customers on Cape Cod with an adequate margin of reliability, beginning in the 2003-04 heating season (*id.* at 2-6, 2-8; Exh. PO-N-11).

The Company explained that the peak hour requirements to be served via the Bourne Line, including supply from both the Bourne Take Station and the Oak Street Regulator, would increase from 2073 MMBtu/hr in 2001-02 to 2219 MMBtu/hr in the 2003-04 heating season (Exhs. KEY-1, at 2-7; PO-N-8). The Company indicated that in its system planning, it assumed the portion of this requirement supplied via the Bourne Take Station would increase from 1297 MMBtu/hr in 2001-02 to 1558 MMBtu/hr in 2003-04, an increase of 9.6% per year, while the portion to be provided via the Oak Street Regulator would decrease from 776 MMBtu/hr in 2001-02 to 661 MMBtu/hr in 2003-04 (Exhs. KEY-1, at 2-7; PO-N-8).⁷

The Company stated that, as the system is presently configured, the maximum volume that can be provided by the Bourne Line via the Bourne Take Station is approximately equivalent to the peak hour requirement to be supplied through those facilities in the 2002-03 heating season – a level of 1401 MMBtu/hr (Tr. at 20-21). The Company indicated that, beginning in the 2003-04 heating season, when the peak hour requirement to be supplied through the Bourne Take Station is projected to be 1558 MMBtu/hr, it may no longer be able to maintain the pressure at the intermediate system in Falmouth (Route 151 Regulator) necessary to ensure reliable supply to Woods Hole (Exh. KEY-1, at 2-8 to 2-9).

KeySpan stated that it attempts to maintain a minimum pressure of 10 psig in its intermediate pressure system on Cape Cod in order to maintain an adequate margin of reliability (Exh. PO-N-9; Tr. at 39). For planning purposes, the Company uses a pressure of 15 psig as a trigger to begin evaluation of a potential developing need for system improvements; the

⁷ The Company indicated that the flow breakdown reflects its assumptions as to future year operational settings at the Oak Street Regulator, as well as year-to-year sendout and resource supply assumptions for the Cape Cod system (Tr. at 28-29). The Company stated that the regulator setting can be used on a seasonal or contingency basis to restrict flow to the Bourne Line, allowing more gas to flow east on the Sagamore Line (*id.*). However, the Company did not explain the relationship of its assumed yearly flow rates to any specific constraints or changes on either the Bourne Line or the Sagamore Line for the years modeled.

Company generally selects pressure regulator settings to maintain 15 psig, where feasible (Exh. PO-N-10; Tr. at 39). The Company stated that problems of inadequate pressure on Cape Cod currently are most acute in the Woods Hole area of Falmouth (Exh. PO-N-1). The Falmouth area is served by a 60 psig distribution system which is fed by the Bourne Line (Exh. KEY-1, at 2-8). Gas from the Bourne Line is regulated down to 76 psig at the Route 151 regulator station, and is further regulated to 60 psig at the Sandwich Road regulator station, approximately 5.5 miles downstream (id.).⁸ KeySpan indicated that, in recent years, the inlet pressure for the Sandwich Regulator fell below 60 psig as a result of heavy gas usage in southern Falmouth during peak days (id.). Delivery pressures at Woods Hole fell as low as 1.57 psig in January 2000 (Exh. PO-N-6). Replacement of pipe along Sandwich Road south of the Route 151 Regulator in Falmouth has since alleviated the most serious pressure concerns at Woods Hole (Tr. at 40). However, based on its analysis of future supply reliability, the Company believes that further system enhancement is needed.

To predict the change in reliability of supply over several future years, the Company modeled peak day delivery volumes and pressures in the upper Cape area from 2001-02 to 2005-06 (Exh. PO-N-16).⁹ The Company indicated that the peak hour requirements to be served via the Bourne Line, including supply from both the Bourne Take Station and the Oak Street Regulator, will reach 2144 MMBtu/hr in 2005-06 (Exhs. KEY-1, at 2-7; PO-N-8).

The Company analyzed its delivery capability using software identified as the Stoner model, which applies the fundamental flow equation to predict gas flow in a pipeline system (Exh. PO-N-16). The Company stated that the Stoner model, as calibrated by the Company, relative to conditions measured on days of maximum sendout in January 2003, was accurate to within 3.7% for hourly flows and 4.2% for daily flows (id.).

⁸ An inlet pressure of at least 86 psig at the Route 151 regulator station is required in order to maintain the desired outlet pressure of 76 psig (Exh. KEY-1, at 2-8). An inlet pressure of at least 70 psig at the Sandwich regulator station is required in order to maintain the desired outlet pressure of 60 psig (id. at 2-8, n.3).

⁹ As specified in its 2001 Forecast and Supply Plan, D.T.E. 01-105, at 83, KeySpan selected as its design day a day of 78 effective degree days at Logan Airport in Boston (Tr. at 57).

The Company's modeling for 2001-02 design conditions shows an inlet pressure at the Route 151 Regulator of 85 psig, and pressures of 21 psig at the end of the distribution system in Woods Hole and 25 psig at a location in Chatham served by the Sagamore Line, assuming a peak hour flow of 1250 MMBtu/hr at the Bourne Take Station, delivery from Algonquin at 270 psig, and design-day LNG reserves (Exh. PO-N-4). In the 2005-06 heating season, however, the Company's modeling indicates that peak hour flow through the Bourne Take Station would be 1446 MMBtu/hr, which is 698 MMBtu/hr less than the projected total requirement for the area served by the Bourne Line; and that with the other supply assumptions unchanged, the pressure at the inlet to the Route 151 Regulator would be only 8 psig – a level that is well below the Company's minimum (Exhs. PO-N-14; PO-N-16; RR-EFSB-4).¹⁰ The Company further indicated that, under these same assumptions, the 2005-06 modeled minimum pressure would decline to zero at the end of the distribution system in Woods Hole, and to 15 psig at the location in Chatham supplied from the Sagamore Line (Exhs. KEY-1, at 2-7; PO-N-4; PO-N-8; RR-EFSB-4).

c. Demand Side Management

KeySpan considered whether the implementation of accelerated demand-side management ("DSM") programs could offset the need for upgrades to its distribution system. The Company asserted that, to address the identified pressure issues, it would need to implement enough DSM measures to counter anticipated growth in normalized sendout on Cape Cod (Exh. KEY-1, at 3-12). The Company concluded that DSM measures alone would not address the identified need (*id.*).

The Company indicated that additional reductions from DSM of 300 billion Btus ("BBtu") in annual sendout and 4 BBtu in peak day sendout would be required each year, on average, to offset growth for the overall Cape Cod service territory over the five-year forecast period (Exh. KEY-1, at 3-12). The Company stated that for the upper Cape area – the area

¹⁰ The Company indicated that the pressure and flow results returned by the computer model may not reflect conditions that would actually occur, but may reflect an inability of the model to solve for all variables simultaneously, when demand at any point is greater than the capacity of the pipeline system (Tr. at 31).

served by the Bourne Line – the required additional reductions in annual and peak day sendout over the forecast period would be approximately one-third those for the Cape Cod service territory as a whole (Tr. at 91-93). However, the Company noted that DSM efforts targeted at just countering the amount of growth in the upper Cape area would not be sufficient to meet the identified need (id.). Specifically, the Company confirmed that because the Bourne Line is supplied from the Sagamore Line via the Oak Street Regulator as well as from the Bourne Take Station, growth throughout the Cape Cod service territory is a factor in diminishing over time the Company's ability to meet requirements in the upper Cape area (id.).

Comparing these required DSM reductions to past implementation of DSM, the Company stated that in all years up to 1998 it had been able to implement a cumulative total of 156 BBtu in reductions of annual sendout through demand-side response, and 1.4 BBtu in reductions of peak day sendout (Tr. at 90). The Company also estimated that implementing the level of DSM reductions required to offset projected growth in sendout would cost \$52,000,000 for the first five years (id.).¹¹

d. Analysis

In order to meet its statutory mandate, the Siting Board first evaluates whether there is a need for additional energy resources to meet reliability, economic efficiency, or environmental objectives. The Siting Board must find that additional energy resources are needed as a prerequisite to approving a proposed energy facility. NSTAR Decision, 13 DOMSB at 158; MMWEC Decision, 12 DOMSB at 56; MECo/NEPCo Decision, 18 DOMSC at 396-403.

Here, KeySpan has proposed to increase its distribution system capacity by replacing existing natural gas pipeline with pipeline of a larger diameter and varying the route of the existing pipeline in three areas. The Company has projected an increasing demand for gas on Cape Cod in its Cape Cod Division, and for individual towns in that division. The Company has entered into contracts to acquire additional supplies of natural gas to be delivered to the Bourne

¹¹ The Company developed this estimate based on the costs of its existing DSM program (Exh. KEY-1, at 3-12). The Company argued that its cost estimate is conservative (i.e., low) because its calculations are based on proportional program costs rather than an increasing cost of implementing successively less efficient DSM measures (id.).

and Sagamore Take Stations to meet this demand; however, in order to provide reliable gas service, it also must be able to transport these new supplies from its take stations to its customers at adequate pressures.

KeySpan's analysis indicates that its existing delivery system likely will be insufficient to serve peak load beginning in the 2003-04 heating season. Given the present system configuration, the maximum volume that can be delivered by the Bourne Line via the Bourne Take Station is approximately equivalent to the Company's projected peak hour use of these facilities in 2002-03, leaving little room for increased use of these facilities in response to load growth.¹² In addition, the Company's modeling shows design-day inlet pressures at the Route 151 regulator station dropping from 85 psig in 2001-02, to 8 psig in 2005-06. Design-day delivery pressures at this location therefore are likely to be well below the Company's preferred inlet pressure of 86 psig beginning in the 2003-04 heating season. Similarly, the Company's modeling projects that design-day pressures at Woods Hole will drop from 21 psig in 2001-02, to zero pressure for the 2005-06 heating season.¹³ Thus, the Company has established that its existing delivery system will be insufficient to maintain adequate pressure for existing and future customers in the Falmouth area, beginning in the 2003-04 heating season. In addition, the Company's modeling suggests that in the longer term, low pressures may develop in the

¹² Because the Company can set the Oak Street Regulator to various pressures, the division of flow between the Sagamore and Bourne Take Stations is somewhat discretionary, and the Company's expectation of the flow that needs to be carried by each line is somewhat flexible. However, any increase in gas provided to the Falmouth area through the Oak Street Regulator would reduce the supplies of gas available to serve growing load on the lower Cape. In light of the developing pressure problems in the Chatham area, the Company's assumption that declining volumes would be available via the Oak Street regulator over time appears reasonable.

¹³ The Siting Board notes that the 2005-06 modeling run projects only an 8 psig pressure drop between the Route 115 regulator station and Woods Hole, despite the existence of an intermediate regulator station at Sandwich Road. The specific modeled values may reflect an inability of the model to solve for all variables simultaneously in a situation where demand exceeds capacity at some point on the pipeline system. However, given the already marginal pressures both at the Route 151 regulator station and at Woods Hole, any possible inconsistencies do not cast doubt on the need for additional resources to provide reliable service to the Woods Hole area.

Chatham area, where delivery pressures are expected to decline from 25 psig in 2001-02 to 15 psig by the 2005-06 heating season in the absence of delivery system reinforcements.

To evaluate the potential to meet the identified need through accelerated implementation of DSM, the Company assumed that sufficient DSM to offset Cape Cod's projected year-to-year growth in annual and peak day sendout of 300 BBTu and 4 BBTu, respectively, would be required. The Company appropriately determined that, given the current operational necessity of backfeeding gas to the Bourne Line from the Sagamore Line in the mid-Cape area during peak load periods, it would not be able to meet the identified need simply by offsetting sendout growth in the upper Cape area. In addition, the Company's analysis of the level of DSM required to offset projected sendout growth on Cape Cod, in comparison to the level of DSM currently being attained there, and of the estimated cost of the added DSM, supports the Company's conclusion that it is unlikely accelerated DSM could reasonably be implemented to meet the identified need. Therefore, the Siting Board finds that accelerated DSM would not eliminate the need for additional energy resources.

Based on the modeled delivery pressures at Falmouth and Woods Hole, the Company has established that its existing system is inadequate to serve its anticipated load with sufficient reliability, specifically in the Falmouth area. Consequently, the Siting Board finds that there is a need for additional energy resources to maintain reliable gas service to customers on Cape Cod, especially in the Falmouth area.

4. Consistency with Long-Range Forecast

G.L. c. 164, § 69J requires that a facility proposed by a gas company required to file a long-range forecast pursuant to G.L. c. 164, § 69I be consistent with that company's most recently approved long-range forecast. G.L. c. 164, § 69J. KeySpan is a gas company required to file a long-range forecast pursuant to G.L. c. 164, § 69I. See G.L. c. 164, §§ 75B, 75H. Consequently, to satisfy the statutory requirement, the Siting Board reviews the consistency of the proposed gas pipeline with KeySpan's most recently approved long-range forecast.

The Company stated that its most recent forecast – the 2001 Forecast and Supply Plan – was approved by the Department in January 2003 (Exh. PO-N-15, Att.). See D.T.E. 01-05. The

Company stated that it continues to use the methods detailed in the 2001 Forecast and Supply Plan to prepare updated forecasts (Exh. PO-N-18). The Company added that no updates were made to assumptions of the model between the preparation of the 2001 Forecast and Supply Plan and the subject petition (Tr. at 15).

Tables provided in the Petition as Attachments F, G, and H contain the same data as three pages of tables in the 2001 Forecast and Supply Plan showing base case comparison of resources and requirements (Exhs. KEY-1, at 2-19 to 2-21; PO-N-15, Bulk Att., at Tables G-22D(rev.) and G-23D(rev.)). These tables project design-year and design-day resources and requirements for KeySpan from 2001-02 to 2005-06 (*id.*).

As discussed in Section II.A.3.a, above, the Company developed its projections of future gas delivery requirements for the upper Cape area by applying town-by-town growth factors to its forecasted sendout for the Cape Cod service territory, in order to derive projected sendout by town. These projections drive the findings of need for additional energy resources to serve the Falmouth area. Thus, the Company has established that the load assumptions in its system analysis for the proposed project are consistent with its current town-level forecasts for the Cape Cod district, and are derived from the information presented in its most recently approved long-range forecast. Accordingly, the Siting Board finds that the proposed project is consistent with the Company's most recently approved long-range forecast.

B. Comparison of Proposed Project and Alternative Approaches

1. Standard of Review

G.L. c. 164, § 69H requires the Siting Board to evaluate proposed projects in terms of their consistency with providing a reliable energy supply to the Commonwealth with a minimum impact on the environment at the lowest possible cost. General Laws, c. 164, § 69J requires a project proponent to present "alternatives to planned action" which may include: (a) other methods of generating, manufacturing, or storing electricity or natural gas; (b) other sources of electrical power or natural gas; and (c) no additional electric power or natural gas.¹⁴

¹⁴ G.L. c. 164, § 69J, also requires an applicant to provide a description of "other site
(continued...)

In implementing its statutory mandate, the Siting Board requires an applicant to show that, on balance, its proposed project is superior to alternative approaches in terms of cost, environmental impact, and ability to meet the identified need. Cambridge Electric Light Company, 12 DOMSB 305, at 321 (“CELCo Decision”); Boston Edison Company - Hopkinton and Milford, 6 DOMSB 208, at 252 (1997) (“1997 BECo Decision”); Boston Edison Company, 13 DOMSC 63, at 67-68, 73-74 (1985). In addition, the Siting Board requires a petitioner to consider reliability of supply as part of its showing that the proposed project is superior to alternative project approaches. CELCo Decision, 12 DOMSB at 321; 1997 BECo Decision, 6 DOMSB at 253-257; MECo/NEPCo Decision, 18 DOMSC at 404-405.

2. Potential Project Approaches

The Company presented six project approaches¹⁵ for analysis: (1) installation of a 12-inch pipeline to replace existing sections of the Bourne Line (“proposed project”); (2) installation of a new 12-inch pipeline connecting the existing Sagamore Line and the Bourne Line on a route through the Farmersville section of Sandwich and the Newtown and Santuit sections of Barnstable (“Newtown-Santuit Connector”); (3) expansion of unloading, vaporization, and piping capacity at the existing South Yarmouth LNG facility (“South Yarmouth LNG Expansion”); (4) construction of a new LNG storage and injection facility (“New LNG Facility”); (5) construction of a new propane/air storage and injection facility (“New Propane/Air Facility”); and (6) addition of compression along the Bourne and/or

¹⁴ (...continued)
locations.” G.L. c. 164, § 69J. The Siting Board reviews the Company’s preferred route, as well as other possible routes, in Section III.B, below.

¹⁵ G.L. c. 164, § 69J requires the Company to consider the alternative of “no additional electric power.” The Company considered a no-build alternative, but concluded that it would not be an effective long-term solution to supply and pressure issues associated with increasing growth (Exh. KEY-1, at 3-12 to 3-13). The Siting Board notes that the no-build alternative would not meet the needs identified in Section II.A, above, and therefore eliminates it from further consideration. KeySpan also analyzed additional conservation and load management options and determined that these options would not meet the identified need. These options are discussed in Section II.A.3(d), above.

Sagamore Lines (“Compression Stations”) (Exh. KEY-1, at 3-1 to 3-12).¹⁶

a. The Proposed Project

The Company proposes to install 12-inch diameter pipeline with a design pressure of 270 psig to replace existing 8-inch sections of the Bourne Line (Exhs. KEY-1, at 3-2; PO-G-3; PO-G-10). The Company would construct pipeline in Bourne and Falmouth and, depending on the route selected, also in Sandwich (Exh. KEY-1, at 1-4). The Company provided a map indicating that the majority of the proposed route avoids residential areas (id. at 4-17).

b. Newtown-Santuit Connector

The Newtown-Santuit Connector approach would consist of constructing an additional connection between the Sagamore Line and the Bourne Line approximately 3 miles west of the existing connection at the Oak Street Regulator (id. at 3-3). The new connector would begin at the Sagamore Line along Route 6 in Sandwich, approximately 9 miles east of the Sagamore Take Station, and end at Route 28 in the Santuit section of Barnstable, connecting there to the Bourne Line (id. at 3-3, 3-4, 3-6; Exh. PO-G-6, Att.).

c. South Yarmouth LNG Expansion Approach

The South Yarmouth LNG Expansion approach would involve enlarging the truck unloading facilities at the existing South Yarmouth LNG facility, adding a fifth vaporizer, enlarging plant discharge piping, and increasing the frequency of LNG trailer deliveries (Exh. KEY-1, at 3-8). The Company indicated that this approach would not alleviate pressure

¹⁶ The Company briefly discussed other approaches that it considered and rejected during project development. For instance, the Company considered constructing an LNG facility at Chatham, which had previously been studied by Colonial (Exh. PO-G-16, Att.). However, KeySpan stated that an LNG facility in Chatham had been proposed to address pressure needs on the lower Cape and would not meet supply needs identified in the Falmouth area; consequently, this approach was not considered further (Exh. EFSB-PA-4). In addition, the Company provided information on reactivating the Cataumet propane/air facility, but stated that reactivating the Cataumet facility would cost more than building new infrastructure (Exh. PO-PA-18).

problems in the Falmouth/Woods Hole area (id. at 3-9). In addition, the Company stated that it has concerns about delivering gas in the event of winter storms that may disrupt truck traffic (id.).

d. New LNG Facility Approach

The New LNG Facility Expansion approach would involve construction of a new satellite LNG facility in the Falmouth area (Exh. KEY-1, at 3-9). As conceived by the Company, the new LNG facility would consist of four 55,000 gallon LNG tanks, a vaporization system, truck unloading facilities, and associated structures and equipment (id.). The Company did not identify potential sites for such a facility, but stated that at least 10 acres would be needed (id.).

e. New Propane/Air Facility Approach

The New Propane/Air Facility approach would be generally similar to the New LNG Facility approach (Exh. KEY-1, at 3-10). Propane would be trucked in instead of LNG, and the propane would be mixed with air to provide a fuel with burning characteristics generally similar to natural gas (id.; Tr. at 65). The Company did not identify potential sites for such a facility, but stated that at least 10 acres would be needed (Exh. KEY-1, at 3-10).

The Company suggested that reliability of this approach would be inferior to the proposed project because deliverability to customers would be dependent on truck deliveries during winter months (id. at 3-14; Tr. at 64). The Company stated that the preferred pipeline pressure for blending propane/air into natural gas is low pressure up to 60 psig; the Company asserted that because of the pressure profile on the Cape, actual blending would be very limited under this alternative (Exh. KEY-1, at 3-10). High pressure compressors would be required if the Company chose to feed the propane/air mixture directly into the relatively high pressure Bourne Line, which would add further to operating costs (id. at 3-10; Exh. PO-PA-13).

f. Compression Stations Approach

The Compression Stations approach, as envisioned by the Company, would consist of installation of three compression stations along the Bourne Line by 2005-06, with back-up

compressors at each location (Exh. KEY-1, at 3-10).

g. Analysis

The Company has presented six approaches to addressing gas supply and pressure issues in the Falmouth area, and throughout its Cape Cod distribution system. Of these approaches, one, the South Yarmouth LNG Expansion approach, would not directly support pressure and delivery requirements in the Falmouth area. This approach also would involve the environmental and traffic impacts associated with a large number of truck trips, and would be subject to weather interruption. The Siting Board therefore will not pursue this approach further.

In addition, the New Propane/Air Facility approach is generally similar to the New LNG Facility approach, but would require compression. Compression adds costs to this approach and may have noise impacts. As with the New LNG Facility, this approach raises reliability issues associated with reliance on trucking in winter. Based on these disadvantages, the Siting Board will not analyze this approach further. Consequently, the Siting Board will confine its further review to the proposed project, the Newtown-Santuit Connector approach, the New LNG Facility approach, and the Compressor Station approach.

3. Reliability Comparison

a. The Proposed Project

The Company stated that the proposed project would allow delivery of sufficient gas to its customers through 2005-06, beyond which it did not project the amount of demand growth (Tr. at 74). The Company stated that the proposed pipeline could supply 1821 MMBtu of gas [per hour] through the Bourne Take Station, which would be sufficient for Cape Cod through 2005-06, if Algonquin delivers gas at 270 psig and if 1400 MMBtu/hr were available from the South Yarmouth LNG facility (Exhs. PO-PA-8; RR-EFSB-1; Tr. at 84). The Company noted that the proposed project would not add to the mechanical complexity or operational control complexity of the KeySpan distribution system (Exh. KEY-1, at 4-3). The Company also indicated that, by improving the ability of the Bourne Line to deliver gas, the proposed project would enhance the ability of the Sagamore Line to serve the lower Cape, since less gas would be

backfed into the Bourne Line at the Oak Street Regulator in Barnstable (Tr. at 26, 66). The Company asserted that the proposed project would be the most reliable approach among the alternatives considered (Exh. KEY-1, at 3-14).

b. New LNG Facility

The Company indicated that construction of a new LNG Facility on the Bourne Line could address the need for greater distribution system pressures in the Falmouth area at least through 2005-06 (*id.* at 3-9; Tr. at 84). The Company noted that this approach also would enhance the ability of the Sagamore Line to serve the lower Cape, since less gas would be backfed into the Bourne Line at the Oak Street Regulator in Barnstable (Tr. at 66). However, the Company noted that it has concerns about the deliverability of gas by truck during winter storms, which could reduce the reliability with which this alternative would be available to meet peak demand, and argued that this approach therefore would be less reliable than the proposed project (Exh. KEY-1, at 3-9, 3-14).

c. Compression Stations Approach

The Company stated that three compression stations could deliver sufficient volumes and pressures of gas to serve the Falmouth area adequately through 2005-06 (Tr. at 84). The Company also indicated that this approach would enhance the ability of the Sagamore Line to serve the lower Cape, since less gas would be backfed into the Bourne Line at the Oak Street Regulator in Barnstable (Tr. at 66). Since compressors need regular maintenance in order to provide continuous service, each compressor station would include a redundant (*i.e.*, back-up) compressor and appropriate controls (Exh. KEY-1, at 3-12).

d. Newtown-Santuit Connector

The Company stated that its modeling shows that this approach would provide adequate supplies and pressures in Falmouth only through the 2003-04 winter heating season (Exhs. KEY-1, at 3-4; PO-PA-10). Maintaining adequate supplies and pressure in Falmouth in later years would require the installation of approximately four miles of 12-inch diameter main

along the Sagamore Line (Exh. KEY-1, at 3-4).

e. Analysis

The proposed project, the New LNG Facility approach, and the Compression Stations approach would provide additional energy resources to meet the needs of KeySpan customers on the upper Cape at least through 2005-06. All three approaches would reduce the extent to which the Sagamore Line, which is needed for other customers, is used as a supplementary source of gas along the Bourne Line. The proposed project results in the simplest operating system and is likely to be least vulnerable to disruption. However, redundant equipment, built as part of each compression station, would enhance the reliability of the Compression Stations approach. The record shows that, with respect to reliability, the proposed alternative would likely be superior to the new LNG facility, which involves supplementary delivery of fuel by truck. Accordingly, the Siting Board finds that the proposed project would be comparable to the Compression Stations, and superior to the New LNG Facility, with respect to reliability.

The Newtown-Santuit Connector, while providing pressure relief to the Falmouth area through 2003-04, would not, without further reinforcement of the Sagamore Line, provide adequate design-day pressures in the 2004-05 and 2005-06 heating seasons. The Siting Board therefore finds that the proposed project would be superior to the Newtown-Santuit Connector with respect to reliability.

4. Environmental Impacts

a. The Proposed Project

KeySpan asserted that there would be no long-term environmental impacts from the proposed project (Exh. KEY-1, at 3-3). The Company indicated that there would be short-term impacts along existing roads, including traffic impacts that it characterized as minimal along the preferred route and construction noise for two or three days at residences such as those along Sandwich Road in Falmouth (*id.*; Exh. PO-E-30). The Company stated that construction of the proposed project would require no significant tree clearing (Exh. KEY-1, at 3-3)

b. New LNG Facility

The Company argued that this approach is inferior to the proposed project on environmental grounds because 10 to 12 acres of land would be occupied and because significant truck traffic would be required to refill the LNG facility on an ongoing basis (Exh. KEY-1, at 3-9, 3-14). The Company suggested that it would be challenging to find a suitable site (id.). The Company stated that, in addition to the land use impacts, trucking fuel in from an LNG off-loading facility such as Distrigas in Everett would result in traffic, noise, and air pollution impacts (Exh. PO-PA-14).

c. Compression Stations

KeySpan argued that the Compression Stations approach is inferior to the proposed project on environmental grounds because the compressors would consume gas and would emit noise and nitrogen oxides when operating (Exh. KEY-1, at 3-12, 3-14). The Company noted that three 1,000 horse-power engines operating at full load for 1,300 hours per year would emit approximately 1,800 pounds of nitrogen oxides and 2,600 pounds of carbon monoxide annually (id. at 3-12). The Company stated that using mufflers and acoustic enclosures would mitigate the noise of compressor engines (id.).

d. Newtown-Santuit Connector

As presented by the Company, the Newtown-Santuit Connector would consist of approximately 28,000 feet of new 12-inch pipeline beginning at the Sagamore Line along Route 6 in Sandwich, approximately 9 miles east of the Sagamore Take Station, and ending at Route 28 in the Santuit section of Barnstable, connecting there to the Bourne Line (id. at 3-3, 3-4, 3-6; Exh. PO-G-6, Att.). The pipeline route is along Great Hill Road and Newtown Road in Sandwich and along Santuit Newtown Road in Barnstable (Exh. KEY-1, at 3-3, 3-4). The Company indicated that the route for the Newtown-Santuit Connector would run largely through residential neighborhoods (id. at 3-4, 3-6).

e. Analysis

The record shows that the proposed project, which involves the installation of approximately 32,600 feet of new 12-inch pipeline either along an existing pipeline right-of-way (“ROW”), or within streets, would have limited temporary environmental impacts associated with the installation of the pipeline. Construction of the Newtown-Santuit Connector would have similar types of impacts but would affect an area with more residences than the proposed project. Construction of a new LNG facility would require the development of at least 10 acres of land; operation of the facility would result in minor traffic, noise, and air pollution impacts associated with trucking fuels to the Cape. Finally, the record shows that the operation of three compressors would generate some noise and air pollution, unlike the proposed project. Consequently, the Siting Board finds that the proposed project would be superior to the Newtown-Santuit Connector, the New LNG Facility and the Compression Stations, with respect to environmental impacts.

5. Cost

a. Description

KeySpan estimated that the capital cost of the proposed project following the preferred route would be \$3,200,000 (KEY-1, at 3-14). However, depending on the route selected, the length of construction could be from 32,600 to 42,900 feet; therefore, the estimated project cost would be approximately \$3,200,000 to \$5,000,000 plus easement costs (*id.* at 3-2, 4-21 to 4-23, 4-33). There would be essentially no additional costs to operate and maintain the proposed project (*id.* at 3-14).

The Company estimated the capital costs of the New LNG Facility at approximately \$9,300,000, including construction and equipment costs but exclusive of site acquisition costs (*id.* at 3-9).¹⁷ The Company estimated that the capital cost of the compressors comprising the Compression Stations approach would be \$12,000,000 (*id.* at 3-11). The Company estimated the

¹⁷ The comparison presented by the Company excludes fuel price differences between pipeline gas and LNG; however, the Company indicated that fuel price differences would be small relative to the difference in capital costs (Exh. KEY-1, at 3-14; Tr. at 70).

capital cost of the Newtown-Santuit Connector at approximately \$3,700,000 (*id.* at 3-4).

The Company indicated that operating costs would be lowest for the proposed project and highest for the New LNG Facility (*id.*). A cost breakout is provided below in Table 1.

Table 1. Cost Comparison Among Three Project Approaches

Approach	Capital Cost	Annual Operations & Maintenance¹
Proposed Project²	\$3,200,000 - \$5,000,000	\$0
New LNG Facility³	\$9,300,000	\$100,000
Compression Stations	\$12,000,000	\$18,000
Newtown-Santuit Connector	\$3,700,000	NA

¹. Does not include differential fuel costs.

². Range for proposed project along preferred route and noticed alternative.

³. Cost excludes cost of land.

NA. Not available

Source: Exh. KEY-1, at 3-14.

b. Analysis

The Company's cost estimates indicate that the proposed project would cost \$4,000,000 to \$9,000,000 less than the other project approaches (the New LNG Facility and the Compression Stations) that meet need through 2005-06. The Newtown-Santuit Connector, standing alone, is comparable in cost to the proposed project. Consequently, the Siting Board finds that the proposed project would be comparable to the Newtown-Santuit Connector approach and superior to the New LNG Facility approach and the Compression Stations approach with respect to cost.

6. Project Capacity

Because the proposed project may provide adequate pressures to the Falmouth area only through 2005-06, the Siting Board also considered an alternative approach involving the construction of the proposed project with a larger diameter pipe. KeySpan indicated that the project, with a 12-inch diameter as proposed, would provide a pressure of 114 psig at the upstream side of the Route 151 regulator (Exh. RR-EFSB-5(1)). With use of 16-inch pipe, the

project would provide a pressure of 125 psig (Exh. RR-EFSB-5(2)). According to the Company, this pressure difference would be sufficient to maintain adequate pressures in the Falmouth area for only one additional year (Tr. at 75-77). However, the Company did not provide projections of sendout or system pressure beyond 2005-06 in support of its contention.

The Company acknowledged that measures other than the proposed project could be required to enhance gas flow in the foreseeable future (Tr. at 78). The Company indicated that its longer term options for maintaining adequate service in the Falmouth area include raising the operating pressure of the Bourne Line, using the 60 psig distribution system as a supplement to the Bourne Line for moving gas into the Falmouth area, and replacing Bourne Line sections north of Barlow's Landing Road with larger diameter pipe (*id.* at 75-77). The Company indicated that, with these enhancements, it expected that the system would be adequate to provide customers with gas, and a diameter larger than 12 inches would not be necessary within the next 15 years (*id.* at 81-82).

The Company noted that, to facilitate the uprating of the Bourne Line, it plans to certify at 270 psig the pipe to be installed as part of the proposed project (Exh. PO-G-10). The Company stated that in order to obtain a Maximum Allowable Operating Pressure ("MAOP") of 270 psig for the Bourne Line, it also would need to review existing pipeline components and pipeline operating and maintenance history, replace components as needed, analyze system operation at 270 psig, prepare a written uprating procedure, hold operations department meetings, and implement the uprating procedure (Exh. PO-PA-2).

Given the minimal benefit apparently provided by installing the proposed project with a larger diameter pipe, the Siting Board concludes that the Company's decision to use 12-inch diameter pipe is reasonable.

7. Conclusions

In the sections above, the Siting Board considered the six project approaches presented by the Company. The Siting Board dismissed the South Yarmouth LNG Expansion approach because it would not directly address pressure concerns in the Falmouth area. The Siting Board dismissed the New Propane/Air Facility approach, because it is generally similar to the New

LNG Facility approach but had additional disadvantages. The Siting Board focused on the remaining four approaches – the proposed project, the New LNG Facility approach, the Compression Stations approach, and the Newtown-Santuit Connector approach. The Siting Board found that: (1) the proposed project would be comparable to the Compression Stations, and superior to the New LNG Facility and the Newtown-Santuit Connector, with respect to reliability; (2) the proposed project would be superior to the Newtown-Santuit Connector, the New LNG Facility, and the Compression Stations with respect to environmental impacts; and (3) the proposed project would be comparable to the Newtown-Santuit Connector, and superior to the New LNG Facility and the Compression Stations with respect to cost. The proposed project is superior to each alternative with respect to one or more criteria, and distinctly inferior to none with respect to any criteria. Accordingly, the Siting Board finds that the proposed project would be superior to the New LNG Facility approach, the Compression Stations approach, and the Newtown-Santuit Connector approach with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

III. ANALYSIS OF THE PREFERRED AND ALTERNATIVE ROUTES

A. Site Selection

1. Standard of Review

G.L. c. 164, § 69J provides that a petition to construct a proposed facility must include “a description of alternatives to [the applicant’s] planned action” including “other site locations.” G.L. c. 164, § 69J. In past reviews of alternative site locations identified by an applicant, the Siting Board has required the applicant to demonstrate that it examined a reasonable range of practical siting alternatives. See CELCo Decision, 12 DOMSB at 323; MMWEC Decision, 12 DOMSB at 119; 1998 NEPCo Decision, 7 DOMSB 333, at 374. In order to determine whether an applicant has considered a reasonable range of practical alternatives, the Siting Board has required the applicant to meet a two-pronged test. First, the applicant must establish that it developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner which ensures that it has not overlooked or eliminated any routes which, on balance, are clearly superior to the proposed route. CELCo Decision, 12 DOMSB at 323;

MMWEC Decision, 12 DOMSB at 119; 1998 NEPCo Decision, 7 DOMSB 333, at 374. Second, the applicant must establish that it identified at least two noticed sites or routes with some measure of geographic diversity. CELCo Decision, 12 DOMSB at 323; MMWEC Decision, 12 DOMSB at 119; 1998 NEPCo Decision, 7 DOMSB 333, at 374.

2. Site Selection Process

a. Identification and Screening of Routes

The Company indicated that its site selection process included the development of route selection guidelines, identification of a study area, characterization of the study area, initial route selection, development of route evaluation criteria and scoring methods, and a scoring of the alternative routes based on the route evaluation criteria (Exh. KEY-1, at 4-8 to 4-31).

The Company developed the following route selection guidelines:

- Use direct routes, as opposed to more circuitous routes;
- Use existing ROWs and easements where possible;
- Avoid crossing cemeteries, war memorials, and similar public or quasi-public lands;
- Avoid crossing public lands that have been acquired for purposes of wildlife conservation, public recreation or other uses subject to Article 97 of the Massachusetts Constitution;
- Avoid significant residential areas or densely developed mixed use areas;
- Avoid routes that would require significant disruption of rare/endangered species habitat;
- Avoid mapped wetlands and significant water resources (id. at 4-8 to 4-9).

KeySpan then looked at the principal land uses between the starting and ending points of the pipeline (i.e., Barlow's Landing Road at Route 28 to the north and the Route 151 regulator station to the south). The Company noted that the predominant intervening land use is the 22,000-acre MMR (Exh. KEY-1, at 4-9). It identified other major land uses as: (1) the 1,824-acre Massachusetts Division of Fisheries & Wildlife's Frances A. Crane Wildlife Management

Area (“CWMA”); (2) a national veterans cemetery; (3) Routes 28, 28A, and 151; (4) a residential area between Sandwich and Currier Roads; and (5) several large ponds to the south and southeast of the MMR and CWMA (*id.* at 4-10; Figs. 1-2 and 4-5).

The Company stated that it determined its study area based on the route endpoints, the general nature of the intervening land uses, and an effort to provide a measure of geographic diversity (Exh. KEY-1, at 4-9). The Company delineated a study area shaped roughly like a truncated parallelogram with corners encompassing the pipeline’s starting point on Barlow’s Landing Road, the intersection of Routes 28A and 151 to the southwest, and the pipeline’s endpoint at the Route 151 regulator station; the northeast boundary of the study area extends across the MMR (*id.* at Fig. 4-6). The Company stated that, at its widest, the study area is approximately five miles across from west to east (*id.* at 4-10).

The Company next identified four potential routes from the Barlow’s Landing Road starting point to the Route 151 regulator station:

- *Optimized Existing route:* From the starting point, this route would follow the existing KeySpan ROW south along Route 28 and across Otis Circle into the MMR. Within the MMR, the route would proceed southeast along Connery Avenue, West Truck Road, South Inner Road, Guenther Road and South Truck Road (Exh. PO-RS-1), exiting the MMR on Simpkins Road. It would then continue south onto Sandwich Road to the regulator station on Route 151.
- *Route 28A/Route 151 route:* From the starting point, this route would follow the existing KeySpan ROW along Route 28 to Otis Circle, where it would continue south along Route 28A to its intersection with Route 151, then east to the regulator station.
- *The Transmission Line/Distribution Line route:* From the starting point, this route would cross beneath Route 28 and follow an NSTAR Electric Company (“NSTAR”) 115 kilovolt transmission line ROW in a generally southerly direction along or near Route 28, which it crosses twice more. Just south of the Bourne/Sandwich town line, the route would follow the transmission line ROW to the southeast, cross Route 151, and continue eastward along an NSTAR ROW that parallels Route 151 the rest of the way to the regulator station.

- *The Distribution Line route:* From the starting point, this route would cross beneath Route 28 and join an electric distribution line ROW owned by MMR that runs in a southeasterly direction to Connery Road. At Connery Road, the route would continue to the southeast in a distribution line ROW owned by NSTAR. This ROW continues south through the MMR, through the CWMA, and across Route 151. The route would continue in the NSTAR ROW along Route 151 to the regulator station (Exh. KEY-1, at 4-18 to 4-23).

The Company stated that it undertook a comparison of these four routes based on their environmental, cost and reliability attributes (Exh. KEY-1, at 4-23). To compare the routes' environmental attributes, the Company developed a series of evaluation criteria for ten environmental factors, grouped into the three categories of water resources, land resources, and community resources (*id.* at 4-23), as follows (*id.* at 4-24 to 4-29):

- **Water Resources**
 - Wetlands and vernal pools
 - Surface water resources
 - Groundwater resources/existing contamination
- **Land Resources**
 - Significant habitat
 - Tree clearing
 - Protected lands
- **Community Resources**
 - Residential lands
 - Sensitive land uses
 - Traffic
 - Easements

The Company explained that to evaluate the routes, it used a three-level ranking scale with a score of "1" representing the lowest potential impact and "3" representing the greatest impact (Exh. KEY-1, at 4-23). The Company described generically the types of impacts that would warrant each score for each factor (*id.* at 4-24 to 4-29). The following table presents the

Company’s scoring of the four routes based on its environmental criteria:

Potential Routes -- Environmental Evaluation

Factor	Optimized Existing	Route 28A/ Route 151	Transmission/ Distribution	Distribution
Wetlands & Vernal Pools	2	2	3	3
Surface Water & ORW ¹	1	1	2	1
Groundwater Resources	2	3	1	2
Rare Species/Significant Habitat	1	1	3	3
Protected & Managed Lands	1	1	3	3
Tree Clearing	1	1	2	3
Residential Lands	2	3	2	1
Sensitive Land Use	1	2	1	1
Traffic	2	3	1	1
Historic & Cultural Resources	1	1	2	2
Easements	2	1	3	3
Total	16	19	23	23

¹ Outstanding Resource Water
Source: Exhs. KEY-1, at 4-31; PO-E-5

Based on this analysis, the Company concluded that the “Optimized Existing” route had the best environmental score overall (*id.* at 4-31).

For purposes of route selection, the Company stated that there would be no major differences in reliability¹⁸ among the four options under consideration (Exh. KEY-1, at 4-30). The Company explained that, regardless of route, the pipeline would be constructed of the same material, would be buried to the same depth, and would operate at the same pressure (*id.*). The Company also stated that the route alternatives were comparable in length (6.6 to 8.1 miles) and

¹⁸ The Company’s assessment of relative reliability of the alternative routes focused on “physical reliability once the line was constructed” (Exh. PO-RS-2); the Company did not consider potential differences in the time required for permitting, securing easements, or construction as reliability issues (*id.*).

that all would be accessible for periodic inspection (id.). The Company noted that the routes using existing transmission line and distribution line ROWs might be less subject to risk of disruption due to utility installation or repair than routes along streets or highways, but that this would be offset by their somewhat lower accessibility (id. at 4-31). The Company also stated that the routes that are primarily across the MMR would benefit from the base's security measures and "a more controlled environment" with respect to construction and repair work (id.). Nonetheless, the Company concluded that the four alternative routes present no quantifiable differences in reliability (id.).

The Company derived cost estimates for the four routes based primarily on unit costs per foot of installation for each type of roadway or easement location (Exh. KEY-1, at 4-30). The highest unit-cost segments were those along Route 28A or in NSTAR transmission easements (id.). The Company stated that the principal factors accounting for higher unit costs along Route 28A, as compared to other roadways, were the need for traffic management and the presence of existing utilities (Exh. PO-E-41). The Company adjusted the construction cost estimates to account for its internal project costs, such as engineering, environmental, legal, community relations, procurement, construction oversight, accounting and insurance expenses (Exh. KEY-1, at 4-30). Not included in the Company's estimates were any payments to NSTAR for the use of its easements, or costs associated with obtaining other easements (id.). The Company estimated the total project costs for the four routes as follows (id. at 4-32):

- Existing Optimized \$3,200,000
- Route 28A/Route 151 \$5,000,000
- Transmission/Distribution \$5,000,000, plus easement-related costs
- Distribution \$4,300,000, plus easement-related costs

The Company noted that the Existing Optimized route had both the best environmental score and the lowest cost (Exh. KEY-1, at 4-32 to 4-33), and therefore chose it as its preferred route.

To select a route to serve as the noticed alternative, the Company first noted that the Route 28A/Route 151 route had the second best environmental score (Exh. KEY-1, at 4-38). KeySpan then introduced another factor: the certainty of securing all necessary easements and

approvals (id.).¹⁹ It determined that the Route 28A/Route 151 alternative has a high degree of certainty with respect to obtaining easements because it is located entirely within existing roadway layouts (id.). The Company stated that the Distribution Line alternative would require a road opening permit from MHD to cross Route 28; permission from NSTAR, the Commonwealth of Massachusetts, and the AFNG to use parts of existing NSTAR easements across MMR; and, to cross the CWMA, permission from NSTAR and perhaps both a new easement from Commonwealth of Massachusetts and approval under Article 97 of the Massachusetts Constitution to use lands acquired for conservation and recreation purposes (id. at 103-105). To use the Transmission Line/Distribution Line route, the Company stated that in addition to permission from NSTAR for use of its easements, it would need a permit from MHD to cross Route 28 in three locations; permission from the Veterans Administration to cross a portion of the national veterans cemetery; and approval from the Town of Falmouth to run along Route 151. Further, KeySpan noted that this route may require approvals from the Commonwealth to use NSTAR's easement through MMR and the CWMA, as well as approval under Article 97 to cross the CWMA, and easements from private landowners (id. at 105-107).

The Company stated that while there are "no obvious reasons" that necessary easements could not be secured for any of these routes, some degree of uncertainty is associated with that process (Exh. KEY-1, at 4-38). In addition, the Company stated that it would be likely to incur additional costs to obtain the easements (id.).²⁰ The Company therefore selected the Route 28A/Route 151 route for its noticed alternative (id.).

¹⁹ The Company noted that the following authorizations would be required for the preferred route: (1) a road opening permit from the Massachusetts Highway Department ("MHD") for the sections of pipeline along Route 28 and crossing Otis Circle; (2) easements from the Commonwealth of Massachusetts and consent from the AFNG and Army National Guard for work along roads in the MMR; and (3) a street opening permit from the Town of Falmouth for sections of Sandwich Road and Route 151 (Exh. PO-RS-13; Tr. at 100-102). The Company stated that it did not foresee difficulty in obtaining any of these permits or easements, and noted that the processes for obtaining them were already underway (id.).

²⁰ KeySpan stated that it did not discuss with NSTAR the cost of obtaining easements, and that the Company did not have any recent experience from which to make estimates of such costs (Exh. PO-RS-5).

b. Analysis

KeySpan has developed a set of route selection guidelines and a set of environmental criteria that address environmental impacts, land use concerns, and community issues – types of criteria that the Siting Board has found to be appropriate for the siting of energy facilities. See NSTAR Decision, 13 DOMSB at 177; MMWEC Decision, 12 DOMSB at 125; 9 DOMSB at 43-44; New England Power Company, 4 DOMSB 109, at 167 (1995).

To develop route options for further evaluation, the Company identified an area that would encompass the starting and ending points for the pipeline and a variety of land ownerships and uses. The Company then created four possible routes, each of which made use of existing roadways and/or utility easements (not necessarily the Company's own) within the study area. KeySpan next rated each of the four routes based on its environmental criteria, giving equal weight to each criterion. The Company presented both the total environmental score and the estimated cost for each route. Noting that the "Optimized Existing" route had both the best environmental score and the lowest cost, KeySpan selected it as its preferred route. The Siting Board observes that the Company did not explain how it would have balanced any conflicts between cost and environmental factors; however, the particular circumstances of this case did not necessitate such balancing. Overall, the Siting Board finds that the Company has developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner that ensures that it has not overlooked or eliminated any routes that are, on balance, clearly superior to the proposed route.

With respect to selection of a noticed alternative route, the Company's analysis showed that the Route 28A/Route 151 route received the best environmental score of the remaining three options. The Company also considered an additional criterion: the uncertainty associated with obtaining new easements. The Company judged the Route 28A/151 route superior on this criterion. With regard to cost, the Company estimated the Route 28A/151 route to be no more expensive than the Transmission/Distribution route, though initially more expensive than the Distribution route (depending on the ultimate cost, if any, for the latter's easements). Because the Company did not quantify the potential costs related to obtaining easements for either the Distribution or Transmission/Distribution routes, the Company did not attempt to balance cost

with the other factors in its choice of a noticed alternative.²¹ Nonetheless, based on superior rankings for environmental and easement factors, and an indeterminate ranking on cost, the Siting Board finds that the Company made a reasonable selection for the noticed alternative route.

3. Geographic Diversity

KeySpan considered four routes between the starting point at Barlow's Landing Road and the endpoint at the regulator station on Route 151. Broadly speaking, the four routes consist of two that pass through the MMR (the Optimized Existing and Distribution Line routes), and two that skirt the southwest corner of the study area, then extend east along Route 151 for at least 2.75 miles (the Transmission/Distribution Line and Route 28A/Route 151 routes). However, the routes use a variety of paths, including existing gas line, electric line, highway and/or roadway easements or ROWs, and are adjacent to a variety of land uses. Except for an overlap of approximately 2.75 miles between the Transmission/Distribution Line and Route 28A/Route 151 routes, the routes are quite distinct, and offer different sets of constraints and advantages with respect to many environmental factors, as well as the difficulty and cost of ROW acquisition.²² From the four identified options, the Company has selected two practical routes. These two routes overlap for only about 2/3 mile along Route 28 as they leave the starting point, and about 2/3 mile along Route 151 as they approach the endpoint. Consequently, the Siting Board finds that the Company has identified a range of practical pipeline routes with some measure of geographic diversity.

4. Conclusions on Site Selection

The Siting Board has found that the Company has developed and applied a reasonable set

²¹ The Company's route selection process also did not provide for an explicit balancing of the uncertainty associated with obtaining new easements in its selection of the preferred route. However, the Company provided adequate evidence that this factor would not have affected its selection of the Optimized Existing route as the preferred route.

²² As noted above, the Company determined that all routes were equivalent in terms of reliability.

of criteria for identifying and evaluating alternative routes in a manner that ensures that it has not overlooked or eliminated any routes that are clearly superior to the proposed route. In addition, the Siting Board has identified a range of practical pipeline routes with some measure of geographic diversity. Consequently, the Siting Board finds that KeySpan examined a reasonable range of practical siting alternatives.

B. Description of the Preferred and Alternative Routes

1. Preferred Route

The Company stated that the preferred route is 40,200 feet in length, of which 32,600 feet would be constructed for this project (Exh. PO-G-5).²³ The preferred route runs through Bourne, Sandwich, and Falmouth (Exh. KEY-1, at Fig. 4-12). The route begins in the existing KeySpan ROW near the intersection of Barlow's Landing Road and Route 28 (*id.* at 4-18). The route proceeds south along the west side of Route 28, then crosses beneath Route 28 and the Otis Circle to Connery Avenue, where the pipeline would enter MMR property (*id.* at 4-20). The preferred route continues southeast along Connery Avenue, south on West Truck Road, east on South Inner Road, south on Guenther Road, and east on South Truck Road (Exh. PO-RS-1). The preferred route next follows Simpkins Road to the exit of the MMR, then continues south on Sandwich Road and east on Route 151 to the regulator station (Exh. KEY-1, at 4-20). KeySpan stated that if this route were selected, the pipeline could be constructed in increments over three years (*id.* at 4-30; Exh. PO-C-3).²⁴

2. Noticed Alternative Route

The Company selected the "Route 28A/Route 151" route as its noticed alternative. From the Barlow's Landing Road starting point, this route follows Route 28 south past Otis Circle and

²³ KeySpan explained that the total length of the preferred route from starting point to ending point is 40,200 feet, but that it already has installed pipeline along two portions of this length, leaving 32,600 feet to complete the project along this route (Exh. PO-G-5).

²⁴ The Company explained that construction in phases would be possible because the preferred route is adjacent to the existing line in places, allowing the new pipeline to be tied back into the existing pipeline at various points (Tr. at 52).

then along Route 28A all the way to the intersection with Route 151 (Exh. KEY-1, at 4-20). The route then turns east to run along the south side of Route 151 about 18,700 feet until reaching Fordham Road, at which point it crosses beneath Route 151 to continue the final 1,900 feet to the regulator station on the north side of Route 151 (*id.* at 4-21). The Company stated that the total length of this route would be 42,900 feet (*id.*). KeySpan stated that, if this route were selected, the pipeline would have to be completed within one construction season (*id.* at 4-30).

C. Environmental Impacts, Cost, and Reliability of the Preferred and Alternative Routes

1. Standard of Review

In implementing its statutory mandate to ensure a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, the Siting Board requires a petitioner to show that its proposed facility is sited at a location that minimizes costs and environmental impacts while ensuring a reliable energy supply. To determine whether such a showing is made, the Siting Board requires a petitioner to demonstrate that the proposed site for the facility is superior to the noticed alternatives on the basis of balancing cost, environmental impact, and reliability of supply. NSTAR Decision, 13 DOMSB at 181; MMWEC Decision, 12 DOMSB at 127; 1997 BECo Decision, 6 DOMSB at 287.

An assessment of all impacts of a proposed facility is necessary to determine whether an appropriate balance is achieved both among conflicting environmental concerns as well as among environmental impacts, cost, and reliability. A facility which achieves that appropriate balance thereby meets the Siting Board's statutory requirement to minimize environmental impacts at the lowest possible cost. NSTAR Decision, 13 DOMSB at 181; MMWEC Decision, 12 DOMSB at 128; 1997 BECo Decision, 6 DOMSB at 287.

The Siting Board recognizes that an evaluation of the environmental, cost, and reliability trade-offs associated with a particular proposal must be clearly described and consistently applied from one case to the next. Therefore, in order to determine if a petitioner has achieved the proper balance among environmental impacts and among environmental impacts, cost, and reliability, the Siting Board must first determine if the petitioner has provided sufficient information regarding environmental impacts and potential mitigation measures. The Siting Board then can

determine whether environmental impacts would be minimized. Similarly, the Siting Board must find that the petitioner has provided sufficient cost information in order to determine if the appropriate balance among environmental impacts, cost, and reliability would be achieved. NSTAR Decision, 13 DOMSB at 181; MMWEC Decision, 12 DOMSB at 128; Commonwealth Electric Company, 5 DOMSB 273, at 337 (1997).

Accordingly, in the sections below, the Siting Board examines the environmental impacts, reliability, and cost of the proposed facilities along KeySpan's preferred and noticed alternative routes to determine: (1) whether environmental impacts would be minimized; and (2) whether an appropriate balance would be achieved among conflicting environmental impacts as well as among environmental impacts, cost, and reliability. In this examination, the Siting Board compares the preferred and alternative routes to determine which is superior with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

2. Environmental Impacts

In this section, the Siting Board compares the environmental impacts of the proposed facilities along the preferred and alternative routes, the proposed mitigation for such impacts, and any options for additional mitigation. The Siting Board then determines whether the environmental impacts along the preferred route have been minimized. The subsections below consider impacts to adjacent water resources, land resources, land uses, noise, and traffic disruption.

a. Water Resources

i. Surface Waters/Outstanding Resource Waters

KeySpan stated that neither the preferred route nor the noticed alternative would pass within 100 feet of any outstanding resource water or other surface water (Exh. KEY-1, at 5-18, 5-20). The Company noted that the preferred route would pass approximately 300 feet from an unnamed pond east of Otis Circle, and that the noticed alternative would pass approximately 250 feet from an unnamed pond on the south side of Route 151 near the intersection of Routes 151

and 28 (id.). The Company asserted that its use of “stovepipe” construction methods²⁵ and erosion and sedimentation control practices would prevent impacts to surface waters (id. at 5-43; Tr. at 120).

ii. Wetlands and Vernal Pools

The Company stated that the preferred route would pass within 100 feet of one isolated wetland that is a potential vernal pool (Exh. KEY-1, at 5-9). According to the Company, a number of other wetland areas are located at distances between 100 and 500 feet from the preferred route (id.). These include one certified vernal pool, four potential vernal pools, two wetlands associated with unnamed ponds, and one isolated wetland; in addition, a second certified vernal pool is located within 500 feet of the alignment along Sandwich Road where work already has been completed (id.).

The Company stated that the noticed alternative route, by contrast, would pass within 100 feet of wetland resources in five locations, one of which is the same location that is within 100 feet of the preferred route (Exh. KEY-1, at 5-13). The remaining four wetlands include a small forested wetland, a series of active commercial cranberry bogs, a vegetated wetland bordering an intermittent stream, and a wetland with emergent and scrub/shrub vegetation (id.). In addition, the Company noted several wetland resources that would be between 100 and 500 feet of the alternative route: three certified vernal pools, four potential vernal pools, a cranberry bog complex, a wooded swamp, and a shallow marsh/scrub shrub complex associated with a small pond (id. at 5-18).

The Company stated that neither route crosses any wetland resource areas, and that the implementation of erosion and sedimentation control best management practices would minimize any temporary effects on nearby wetlands (Exh. KEY-1, at 5-43).

²⁵ KeySpan described stovepipe pipeline construction as an approach that limits the length of open trench: only one or two pipe sections are installed at a time, including associated welding, radiography, and coating activities, so that the newly installed section can be backfilled at the end of each day (Exhs. KEY-1, at 5-2; PO-E-43).

iii. Groundwater

KeySpan stated that both the preferred route and the noticed alternative would be located entirely within Cape Cod's U.S. Environmental Protection Agency-designated sole source aquifer (Exh. KEY-1, at 5-20, 5-23). The Company stated that the average depth to groundwater in the area of the preferred route is approximately 60 feet (Exh. PO-E-8). The Company stated that the noticed alternative would pass through the Zone I water supply protection area of the Town of Bourne's Well #2 and provided a map showing that the route also would pass in close proximity to the Zone I areas for Bourne's Well #5 and a transient non-community well (Exh. PO-RS-8 and Fig. PO-RS-8). The Company also provided a map showing that significant portions of both routes are within the Zone II protection areas for multiple public water supply wells (including active, closed, and proposed new wells) (Exh. KEY-1, at Fig. 5.3-9, 5-20 and 5-26). The Company stated that 26,000 feet of the preferred route would be within Zone II areas, while 14,000 feet of the noticed alternative would be within such areas (*id.* at 5-43).

Massachusetts Department of Environmental Protection regulations state, in part, that "land uses within the Zone I shall be limited to those land uses directly related to the provision of the public water system or to other land uses which the public water system has demonstrated have no significant impact on water quality." 310 CMR 22.21(3)(b). The Company provided a copy of Bourne's wellhead protection regulations, which are part of the Town's zoning bylaws (Exh. PO-E-17, Att.). Among the provisions of the Bourne regulations is a prohibition against "motor vehicle service, washing, or repair" within a water resource district (*id.*). According to the Company, the Towns of Sandwich and Falmouth do not have additional wellhead protection regulations (Exh. PO-E-17).

The Company asserted that the limited duration of pipeline construction activities and the relatively shallow depth of trenching – no greater than six feet – would preclude impact to groundwater resources (Exh. KEY-1, at 5-43 and 5-44). The Company also stated that it would protect groundwater resources during construction by implementing a spill prevention and containment plan (Exh. PO-E-13). The Company asserted that the application of best management practices during construction would ensure that new sources of groundwater contamination are not introduced to underlying aquifers, including Zone II or interim wellhead

protection areas (Exh. KEY-1, at 5-44). In its comments on the Environmental Notification Form (“ENF”) for this project, the Cape Cod Commission recommended (and the Secretary’s Certificate on the ENF reiterated) that “all refueling and equipment-maintenance activities be conducted outside wellhead protection areas” (Exh. PO-G-1-S, Att. D at 3, and Att. E at 4). The Cape Cod Commission also recommended that KeySpan “limit equipment maintenance activities in the field to the minimum necessary to keep equipment functioning... [and that] major maintenance should be performed elsewhere, on an impervious surface, with containment and under cover” (Exh. PO-G-1-S, Att. D at 3).

The Company noted that both the preferred and noticed alternative routes cross above multiple groundwater contamination plumes (Exh. KEY-1, Fig. 5.3-11). However, the Company indicated that the depth of known plumes of contamination is in excess of 50 feet (*id.* at 5-44). KeySpan explained that the MMR has installed extensive groundwater withdrawal and treatment facilities in the project area and that piping for the groundwater remediation system lies four feet below ground surface (*id.* at 5-23; Exh. PO-E-18). The Company stated that the preferred route would parallel the treatment system piping for approximately 1900 linear feet, and cross the piping in three locations (Exh. KEY-1, at 5-23). KeySpan acknowledged the need to consult with MMR personnel when working in these areas (*id.* at 5-44).

In addition to contaminated groundwater, the Company indicated that the preferred route would pass adjacent to six identified hazardous waste sites on the MMR, of which four have been designated as Tier 1A sites by the Massachusetts Department of Environmental Protection, in accordance with 310 CMR 40.0500 (*id.* at 5-23 and Fig. 5.3-10). The Company stated that the noticed alternative route would pass near a Tier 1B hazardous waste site near Route 28A (*id.* at 5-26 and Fig. 5.3-10).

KeySpan asserted that construction of the pipeline along the preferred route would have no effect on the areas of groundwater contamination nor on the remediation systems (*id.* at 5-26). In addition, the Company stated that it would try to avoid working in the immediate vicinity of any area of contamination on the MMR that has not been remediated prior to the start of pipeline construction (*id.* at 5-23). If avoidance is not possible, the Company stated it would follow established protocols for the safe removal and proper disposal of any contaminated materials

encountered during trenching operations (id.). With respect to the noticed alternative, KeySpan stated that pipeline construction would not affect underlying groundwater resources (id. at 5-26).

iv. Analysis of Water Resource Impacts

The record shows that the noticed alternative would pass close to more wetland resources than would the preferred route. Conscientious application of best management practices to minimize erosion and sedimentation should prevent adverse impacts to any of these resources. However, given the difference in the numbers of resource areas proximate to the two routes, the Siting Board finds that the preferred route is superior to the noticed alternative with respect to impacts on wetlands and vernal pools.

The record shows that surface water resources along the two routes are comparable, and the Siting Board agrees with the Company that appropriate construction methods and erosion and sedimentation control practices will minimize impacts to surface waters along either route. Accordingly, the Siting Board finds that the two routes are comparable with respect to impacts on surface waters.

The record shows that both the preferred and noticed alternative routes pass through designated wellhead protection zones. While the preferred route is within the Zone II of drinking water wells for greater distances, the noticed alternative passes closer to some wells – through the Zone I of one well and close to the Zone I of two others. The Company has stated that it would implement a spill prevention and containment plan. While such a plan will be important in minimizing any impacts to groundwater, the Siting Board agrees with the Cape Cod Commission that certain activities should be avoided entirely in Zone I and II areas. Therefore, the Siting Board directs the Company to refrain from all refueling and equipment-maintenance activities that have the potential for fluid spills when vehicles are in the field in Zone I or II areas.

The record shows that both the preferred route and noticed alternative would be constructed in areas that lie over groundwater contamination plumes. Given that the depth of these plumes is significantly greater than the depth of excavation for the gas pipeline, the construction should not have any impact on groundwater movement. Unlike the contamination plumes, however, piping for the groundwater remediation systems on the MMR is at a depth

similar to that of the proposed gas pipeline. Although coordination with MMR personnel should prevent accidental damage to these systems, construction activities have the potential to damage the shallow piping. This risk somewhat offsets the risks posed by construction in or near the Zone I areas associated with drinking water wells along the alternative route. On balance, the Siting Board finds that the two routes are comparable with respect to groundwater resources.

Overall, the Siting Board finds that the preferred route is superior to the alternative route with respect to impacts on water resources. Further, with the sedimentation controls, erosion controls, spill prevention and containment plan, and the condition described above, the Siting Board finds that impacts to water resources will be minimized.

b. Land Resources

i. Significant Habitat and Wildlife

The Company explained that the Massachusetts Natural Heritage and Endangered Species Program (“NHESP”) has designated the entire 22,000-acre MMR complex as “priority habitat” for state-protected rare species (Exh. KEY-1, at 5-7 and 5-27). Consequently, the preferred route would use roads that either pass through or are immediately adjacent to designated priority habitat for most of its length (*id.* at 5-27 and Fig. 5.3-13). In addition to the 25,000 linear feet of priority habitat that the preferred route would cross within the MMR, the Company stated that the preferred route would pass adjacent to approximately 3600 linear feet of priority habitat associated with the CWMA along the west side of Sandwich Road; and adjacent to approximately 3000 linear feet of priority habitat associated with the CWMA along the south (opposite) side of Route 151 (*id.* at 5-27). In addition, the Company stated that approximately 850 linear feet of the preferred route would pass through an area designated as “estimated habitat” of rare wildlife in an area associated with the unnamed pond located east of the Otis Circle (*id.*).²⁶

According to NHESP, 20 state-protected rare species are known to occur within 1000 feet

²⁶ Although the Company also stated that a portion of the route would skirt areas of estimated and priority habitat associated with Ashumet Pond (Exh. KEY-1, at 5-27), it appears that all of this portion of the route was previously constructed (Exh. PO-E-52).

of the preferred route (Exh. PO-E-25, Att. B at 1). However, the Company described the preferred habitat of each of these species and determined that the preferred route does not pass through any such habitat (Exhs. PO-G-1, Att. at Appendix 5-1; PO-E-51). KeySpan also stated that in all cases, the pipeline would be located along the edge of existing pavement and asserted that the pipeline would not affect the estimated or priority habitat areas (Exh. KEY-1, at 5-27).

The Company stated that the noticed alternative route would be located just south of approximately 21,500 linear feet of priority habitat along Route 151 from the intersection with Route 28 to the intersection with Sandwich Road (*id.*). The Company noted that within this length, the route would also cross approximately 1500 linear feet designated both as priority habitat and as estimated habitat associated with an unnamed pond north of the highway (*id.* at 5-27 to 5-28). KeySpan stated that the noticed alternative also would pass adjacent to the same 3000 linear feet of priority habitat as the final segment of the preferred route. According to NHESP, 20 state-protected rare species are known to occur within 1000 feet of the noticed alternative route (Exh. PO-E-25, Att. B at 2). As with the preferred route, the Company stated that the pipeline would be located along the edge of existing pavement and would not affect the estimated or priority habitat areas (Exh. KEY-1, at 5-28). The Company also stated that the noticed alternative route does not pass through habitat that is suitable for any of the 20 state-protected rare species known to occur within 1000 feet of this route (Exh. PO-E-51, at 2).

The Company stated that all construction activity along either the preferred or noticed alternative route would occur either within existing roadways or within 15 feet of the edge of pavement (Exh. PO-E-22). The Company noted that it may need to remove some small trees or shrubs, or trim branches that would interfere with construction equipment, but that it would not need to remove any trees of six inches or more in diameter at breast height (*id.*; Exh. KEY-1, at 5-29 and 5-32).

Regarding wildlife in general, KeySpan stated that since construction would be primarily near the edges of paved roads or beneath the pavement of existing roads, the areas disturbed would not be those that provide any value to wildlife (Exh. PO-E-26). The Company acknowledged that noise from construction could disturb wildlife in areas immediately adjacent to the work areas, but asserted that any effects would be temporary (*id.*). In the Company's view,

there is no significant difference between the two routes with respect to potential impacts on rare species or other wildlife (Exh. PO-E-27; Tr. at 115).

ii. Protected and Managed Lands/Areas of Critical Environmental Concern

KeySpan stated that neither the preferred route nor the noticed alternative passes through or near any area designated as an Area of Critical Environmental Concern (Exh. KEY-1, at 5-32). However, the Company noted that both routes pass near or adjacent to several protected or specially managed areas. Specifically, the preferred route is adjacent to the northern edge of the national veterans cemetery for approximately 9000 linear feet and adjacent to a portion of the MMR under the jurisdiction of its Environmental Management Commission for approximately 4400 linear feet (*id.* at 5-32 and Fig. 5.3-17; Exh. PO-E-23).²⁷ In addition, the preferred route is adjacent to two separate portions of the CWMA for approximately 6000 linear feet (Exh. KEY-1, at 5-32 and Fig. 5.3-17).

The Company indicated that the noticed alternative route is adjacent to the CWMA in two locations along Route 151, for a total of 11,650 linear feet (Exh. PO-E-24).

iii. Historical and Cultural Resources

KeySpan stated that there are no known historical resources along the preferred route (Exh. KEY-1, at 5-42). The Company stated that one cultural resource area was identified along this route, but that the Massachusetts Historical Commission (“MHC”) determined that this site is not significant (*id.*). The Company provided documentation from MHC stating that the project is unlikely to affect significant historical or archaeological resources (Exh. PO-E-31). KeySpan stated that no known historical or cultural resources are located along the noticed alternative route (Exh. KEY-1, at 5-42).

²⁷ These lengths may each include up to 2,800 feet along Connery Avenue where pipeline was previously installed (Exh. PO-G-5).

iv. Analysis of Land Resource Impacts

The record shows that both the preferred route and noticed alternative pass through or adjacent to areas designated for habitat protection for significant portions of their length. However, the record shows that construction activities would take place either within or close to the paved areas of existing roadways – areas that are unlikely to provide great value to wildlife. Any adverse effects would be limited to temporary noise and dust. Any impacts on the national veterans cemetery would be similarly limited. Therefore, the Siting Board finds that the two routes are comparable with regard to potential impacts on land resources, and that the land resource impacts of the proposed project along the preferred route would be minimized.

c. Land Use and Noise

The Company stated that the preferred route would pass close to residential land uses in four areas that range in density from low to high (Exh. KEY-1, at 5-35). KeySpan stated that there are no housing units within 50 feet of the preferred route alignment, but it identified one house at the intersection of Fordham Road and Route 151 that would be slightly more than 50 feet from the pipeline construction area (Exh. PO-E-28). The Company stated that approximately 18 homes are located along Sandwich Road from Currier Road to Route 151 (Exh. KEY-1, at 4-20); according to an aerial photograph provided by the Company, approximately nine of these houses are between 75 and 100 feet from the preferred route alignment (Exh. PO-E-28).

For the noticed alternative route, KeySpan identified eight houses along Route 28A that would be approximately 50 feet from the pipeline, and another that would be 75 feet from the pipeline (Exh. PO-E-28). In addition, this route would pass slightly more than 50 feet from the house at the intersection of Fordham Road and Route 151 that is also adjacent to the preferred route (id.; Tr. at 116-117).

The Company noted the presence of several commercial establishments along the Route 28A portion of the noticed alternative route (Exh. PO-E-28; Tr. at 122). With regard to access to these establishments, KeySpan stated that it would typically block only one entrance at a time at a two-driveway property, and would have steel plates available to maintain access to all

properties (Tr. at 123).

The Company stated that the principal sources of noise during construction would be pavement saws, jackhammers, backhoes, and excavators (Exh. PO-E-30). The Company estimated that noise from the excavator, the piece of equipment in most frequent use, would be approximately 76 decibels, A-weighted (“dBA”) at 50 feet, and 66 dBA at 150 feet (Exh. PO-E-55). The Company acknowledged that jackhammers and pavement saws likely would be louder, but noted that their use would be sporadic (Tr. at 119). The Company estimated that a given residence would not experience significant construction noise for more than two or three working days (Exh. PO-E-30).

The Company stated that the typical work hours would be on weekdays between 7 a.m. and 5 p.m., and that noise would be limited to portions of each workday (Exh. PO-E-30; Tr. at 117). The Company did not preclude the possibility of working on Saturdays to keep the project on schedule (Tr. at 117). It stated that the most probable reasons for working on a Saturday would be a period of bad weather or the work crew’s discovery of unexpected underground utilities (*id.* at 117-118). The Company indicated that a six-day-per-week work schedule would be more likely if the noticed alternative route were selected, which would require finishing the entire project within one year, than if the pipeline were to be constructed along the preferred route (*id.* at 118).

KeySpan stated that the preferred route would not pass near any sensitive land uses (Exh. KEY-1, at 5-37). It noted that the noticed alternative would pass two child-care facilities along Route 28A, each between 100 and 200 feet from the west edge of the road (Exh. PO-E-29). The Company stated that these facilities may experience temporary traffic, noise, and dust impacts (Exh. KEY-1, at 5-46).

The record shows that both routes would pass residential areas and that the principal type of disturbance to residents would be noise. In the case of the preferred route, more houses are close enough to the road to be disturbed by construction noise than along the noticed alternative. However, the houses along the noticed alternative tend to be a little closer to the road, and the possibility of Saturday construction is higher along the alternative. In addition, the record shows that a number of commercial establishments and two child-care facilities are located along the

alternative route. On balance, the Siting Board finds that the preferred route would be superior to the noticed alternative with respect to land use and noise, and that the land use and noise impacts of the proposed project along the preferred route would be minimized.

d. Traffic

Both the preferred route and noticed alternative are located almost entirely along existing roadways (Exhs. KEY-1, at 5-45; PO-RS-9) and would be constructed primarily at the edge of the pavement (Exh. KEY-1, at 5-47). The Company has proposed to use a construction method that would place most excavation beyond the pavement, although it notes that equipment may need to be located on the pavement (Tr. at 120). The Company explained that it would cover any street openings with steel plates at the end of the day, and that it would protect and barricade openings in the shoulder to ensure traffic and pedestrian safety (Exh. KEY-1, at 5-2 to 5-3). KeySpan stated that it would limit construction along highways to the off-season (id. at 5-47). The Company estimated that it would take approximately 165 work days to construct the pipeline along the preferred route, and 215 work days to construct the pipeline along the noticed alternative (Exh. PO-E-34).

The Company explained that construction of the first segments of both the preferred and noticed alternative routes, from Barlow's Landing Road to Otis Circle, would take place in unpaved areas on the west side of Route 28 (Exh. PO-E-37). According to KeySpan, this segment experiences both daily and seasonal fluctuations in traffic volume (Exh. KEY-1, at 5-41). The Company stated that it would be necessary to occupy a portion of the western-most lane of Route 28 for limited lengths as the work progresses south, potentially constricting traffic to one lane in the immediate area of construction (Exh. PO-E-37). However, the Company said it could minimize traffic impacts by limiting construction along highways to the off-season (Exh. KEY-1, at 5-47).

Use of the preferred route would entail crossing Otis Circle, a traffic rotary along Route 28 (Exh. PO-E-37). The Company stated that this crossing would be accomplished using either directional drilling or jacking, thus affecting traffic only when construction equipment must access or leave the immediate work areas (id.). KeySpan stated that it would manage traffic at

Otis Circle in consultation with MHD and would use police details to direct traffic during construction (*id.*). The remainder of the preferred route is located on the MMR, Sandwich Road, and Route 151 (Exh. KEY-1, Fig. 4-13). While the Company provided information showing traffic flows along Route 151 comparable to or higher than counts for Route 28A, the Company explained that over 80% of the preferred route is on the MMR or Sandwich Road, where traffic flows are more moderate and do not exhibit strong seasonal fluctuations (*id.* at 5-41 and 5-42).

The Company stated that the roads used along the noticed alternative route, namely Routes 28A and 151, experience greater traffic flow than the roads used along the preferred route (Exh. KEY-1, at 5-47). Although the noticed alternative crosses Route 151 twice, the Company stated it would jack the pipeline in those locations, thereby maintaining two-way traffic during construction (Tr. at 116).

The record shows that both the preferred and noticed alternative routes would be constructed almost entirely within existing roadway ROWs, and therefore pose the likelihood of traffic impacts. Although the preferred route must cross Otis Circle, the Company has proposed measures to minimize traffic disruption at this location. Further, the preferred route is shorter than the noticed alternative, and uses roads that are substantially less travelled than the alternative. For these reasons, the Siting Board finds that the preferred route is superior to the noticed alternative with respect to traffic impacts, and that the traffic impacts of the proposed project along the preferred route would be minimized.

e. Overall Environmental Impact

In the sections above, the Siting Board has reviewed the evidence presented regarding the environmental impacts of the proposed project along the preferred and noticed alternative routes. The Siting Board finds that KeySpan has provided sufficient information on the environmental impacts of the proposed project, including information on the potential for mitigation, for the Siting Board to determine whether the environmental impacts would be minimized.

The principal differences between the environmental impacts of the preferred and noticed alternative routes stem from the length of the routes, proximity to noise receptors, and disruption to traffic. The Siting Board has found that the two routes are comparable with respect to impacts

on land resources. The Siting Board has found that the preferred route is superior to the noticed alternative with respect to water resources, land use and noise, and traffic. Accordingly, the Siting Board finds that the preferred route is superior to the alternative route with respect to environmental impacts.

The Siting Board has found that impacts to water resources would be minimized by KeySpan's use of stovepipe construction methods, in addition to implementation of the conditions on vehicle refueling and maintenance, described above. The Siting Board has found that the land resource, land use, noise, and traffic impacts of the project along the preferred route would be minimized. Consequently, the Siting Board finds that the environmental impacts of the proposed project along the preferred route would be minimized.

3. Facility Cost

KeySpan estimated that the cost of constructing the project along the noticed alternative route would be \$5,000,000, based on 2002 unit costs (Exhs. KEY-1, at 4-32; PO-C-3). The Company estimated that the cost of constructing the project along the preferred route would be \$3,200,000, based on 2002 unit costs (Exh. PO-C-3). However, the Company noted that the project along the preferred route could be constructed in segments over three years, in which case the present value cost of the project would be approximately \$2,965,000 (*id.*). The Company also noted that the cost of the construction that already has taken place along the preferred route (not included in the above estimates) was in excess of \$181,200 (Exh. PO-C-2).²⁸

Based on the lower cost of constructing the preferred route rather than the alternative route, the Siting Board finds that the preferred route is superior to the noticed alternative with respect to cost.

4. Reliability

As discussed under Route Selection, above, the Company determined that the two routes

²⁸ The Company stated that the cost of constructing 6,000 feet of 12-inch diameter pipeline along Simpkins and Sandwich Roads in 2000 was \$181,217.25; the Company did not provide a cost for the 2800-foot segment of 12-inch pipe it installed in Connery Avenue in 1992 (Exh. PO-C-2).

were indistinguishable in terms of reliability (Exh. KEY-1, at 4-31). The Company described the project, constructed along either route, as delivering the needed gas with a high degree of reliability (*id.* at 3-3). Because the choice between the two routes does not affect the reliability of the project, the Siting Board finds that the two routes are comparable with respect to reliability.

5. Conclusions on Facility Routing

The Siting Board has found that the preferred route would be superior to the noticed alternative with respect to environmental impacts and cost, and that the two routes would be comparable with respect to reliability. Accordingly, the Siting Board finds that the preferred route would be superior to the noticed alternative route with respect to providing a reliable energy supply to the Commonwealth with a minimum impact on the environment at the lowest possible cost. The Siting Board also finds that the proposed project along the preferred route would achieve an appropriate balance among conflicting environmental concerns, as well as among environmental impacts, reliability and cost.

IV. DECISION

The Siting Board's enabling statute directs the Siting Board to implement the energy policies contained in G.L. c. 164, §§ 69H to 69Q, to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, § 69H. In addition, the statute requires that the Siting Board determine whether plans for the construction of energy facilities are consistent with current health, environmental protection, and resource use and development policies as adopted by the Commonwealth. G.L. c. 164, § 69J.

In Section II.A, above, the Siting Board found that there is a need for additional energy resources to maintain reliable gas service to customers in the Falmouth area and throughout Cape Cod. Further, in Section II.A, above, the Siting Board found that the proposed project is consistent with the Company's most recently approved long-range forecast.

In Section II.B, above, the Siting Board found that the proposed project would be superior to a New LNG Facility, the Compression Stations, and the Newtown-Santuit Connector with

respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

In Section III.A, above, the Siting Board found that the Company has examined a reasonable range of practical siting alternatives.

In Section III.B, above, the Siting Board found that the proposed project would be superior to the alternative route with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. The Siting Board also found that, with the implementation of the condition addressing refueling and equipment maintenance activities, and compliance with all applicable local, state and federal requirements, the environmental impacts of the proposed project along the preferred route would achieve an appropriate balance among conflicting environmental concerns as well as among environmental impacts, reliability and cost.

In Section III, above, the Siting Board reviewed the environmental impacts of the proposed project in light of related regulatory or other programs of the Commonwealth, including programs related to wetlands protection, groundwater protection, rare and endangered species' habitat, protected and managed lands and historic preservation. As evidenced by the above discussions and analyses, the proposed project along the preferred route would be generally consistent with the identified requirements of all such programs. Consequently, the Siting Board finds that the construction of the proposed project is consistent with current health, environmental protection, and resource use and development policies as adopted by the Commonwealth.

Accordingly, the Siting Board APPROVES the proposal of Colonial Gas Company, d/b/a KeySpan Energy Delivery New England to construct an approximately six-mile, 12-inch diameter gas pipeline in the Towns of Bourne, Sandwich and Falmouth using the preferred route, subject to the following condition:

The Siting Board directs the Company to refrain from all refueling and equipment-maintenance activities that have the potential for fluid spills when vehicles are in the field in Zone I or II areas.

Because the issues addressed in this decision are subject to change over time,

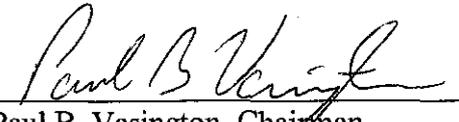
construction of the proposed pipeline must commence within three years of the date of the decision.

In addition, the Siting Board notes that the findings in this Decision are based upon the record in this case. A project proponent has an absolute obligation to construct and operate its facility in conformance with all aspects of its proposal as presented to the Siting Board. Therefore, the Siting Board requires KeySpan to notify the Siting Board of any changes other than minor variations to the proposal so that the Siting Board may decide whether to inquire further into a particular issue. KeySpan is obligated to provide the Siting Board with sufficient information on changes to the proposed project to enable the Siting Board to make these determinations.


Selma Urman
Presiding Officer

Dated this 9th day of May, 2003

APPROVED by the Energy Facilities Siting Board at its meeting of May 8, 2003, by the members and designees present and voting: Paul B. Vasington (Chairman, DTE/EFBSB); Deirdre K. Manning (Commissioner, DTE); David L. O'Connor (Commissioner, Division of Energy Resources); Stephen Pritchard (for Ellen Roy Herzfelder, Secretary of Environmental Affairs); and Joseph Donovan (for Barbara B. Berke, Director of Economic Development).


Paul B. Vasington, Chairman
Energy Facilities Siting Board

Dated this 8th day of May, 2003.

Appeal as to matters of law from any final decision, order or ruling of the Siting Board may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the order of the Siting Board be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Siting Board within twenty days after the date of service of the decision, order or ruling of the Siting Board, or within such further time as the Siting Board may allow upon request filed prior to the expiration of the twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the clerk of said court. (Massachusetts General Laws, Chapter 25, Sec. 5; Chapter 164, Sec. 69P).

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Southern Energy Kendall, LLC)
Motion for Further Extension)
to Comply with Condition E)
EFSB 99-4A)

May 22, 2003

ACTION BY CONSENT

I. INTRODUCTION

This "Action by Consent" is made pursuant to 980 CMR 2.06, which provides the Energy Facilities Siting Board ("Siting Board") with the authority to render a decision via Action by Consent when the Board "determines that expeditious action is necessary." 980 CMR 2.06(1).

On December 15, 2000, the Siting Board conditionally approved the petition of Mirant Kendall, LLC ("Mirant Kendall" or "Company"), formerly known as Southern Energy Kendall, LLC, to upgrade generating facilities at the existing Kendall Square Station ("Kendall Station") in Cambridge, Massachusetts. Southern Energy Kendall, LLC, 11 DOMSB 255 (2000) ("Final Decision"). In the Final Decision, the Siting Board imposed three conditions, Conditions D, E, and F, for Mirant Kendall to meet prior to the commencement of operation. On November 15, 2002, the Siting Board found the Mirant Kendall has complied with Condition D. Final Decision on Compliance and Request to Amend Condition E, 13 DOMSB 279 (2002) ("Compliance Decision"). At that time, the Siting Board also amended Conditions E and F. Id. Specifically, Condition E was amended directing the Company to negotiate a mutually acceptable emergency water agreement with the City of Cambridge and to provide a copy to the Siting Board on the earlier of: (a) March 1, 2003 or (b) that time when Mirant begins taking water from the Broad Canal/Charles River for process and steam purposes, relying upon the City only for sanitary purposes and for emergency process and steam use. Mirant Kendall was also directed to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes. Id. Since that time, Mirant Kendall has filed two requests to extend the time in which it is required to file a copy of its emergency water agreement with the City of Cambridge.¹ On each occasion, the Siting Board issued an Action by Consent granting Mirant Kendall's request and amending Condition E accordingly.² As a result of the April 10, 2003 Action by Consent, Condition E

¹ Mirant Kendall Request for Extension dated February 25, 2003, and Mirant Kendall Request for Extension dated March 31, 2003.

² Siting Board Action by Consent dated March 10, 2003, and Siting Board Action by
(continued...)

establishes May 1, 2003 as the date for Mirant Kendall to comply with Condition E (“Amended Condition E”). On April 29, 2003, Mirant Kendall filed a motion requesting an additional one month extension from May 1, 2003 to June 2, 2003 to comply with Amended Condition E (“Request for Further Extension”). The Request for Further Extension is the only subject of this Action By Consent.

II. REQUEST FOR FURTHER EXTENSION

In support of its Request for Further Extension, the Company states that Mirant Kendall and the City of Cambridge (“City”) have reached a verbal agreement on emergency water use for the Kendall Station facility (Request for Further Extension at 2). Mirant Kendall also states that the Company and the City continue to exchange written drafts of the emergency water agreement and that it expects to provide a finalized agreement by June 2, 2003 (*id.*).

III. RULING ON REQUEST FOR FURTHER EXTENSION

In evaluating Mirant’s request, the Siting Board notes that the purpose of granting the initial amendment to Condition E was to allow Mirant Kendall to operate the upgraded Kendall Station facility while allowing the Company and the City the time needed to reach an emergency water agreement. Compliance Decision at 288. In that decision, the Siting Board placed considerable weight on the fact that the City was amenable to such an amendment provided that restrictions were placed on Mirant Kendall’s consumption, so that the City’s water supply was not overburdened in the interim.³ *Id.* Because Mirant Kendall did not expect to receive a modified National Pollutant Discharge Elimination System (“NPDES”) permit for Kendall station until early 2003, and given the agreement by the City and the Company, the Siting Board permitted Mirant Kendall to commence operations without an emergency water agreement. *Id.* However, the Siting Board also stated that, given the importance of the emergency water supply agreement, it was important to impose a deadline for contract negotiations and set a deadline of March 1, 2003. *Id.* In granting Mirant Kendall the extension from March 1, 2003, to April 1, 2003, the Siting Board took into consideration that both Mirant Kendall and the City indicated optimism that the additional time would allow them to bring this matter to closure (Action by Consent, March 10, 2003, at 2-3). In granting the extension from April 1, 2003 to May 1, 2003, the Siting Board recognized that the parties were making progress in bringing this matter to closure and in light of such progress, it would be counterproductive not to allow the parties

² (...continued)
Consent dated April 10, 2003.

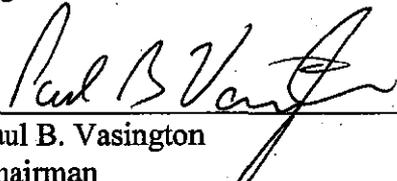
³ All amendments to Condition E have retained the provision in original Condition E directing Mirant Kendall to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes.

further extension to execute a written agreement (Action by Consent, April 10, 2003, at 2-3).

Based on the information most recently presented by the Company, the extension from April 1, 2003 to May 1, 2003 has resulted in Mirant Kendall and the City exchanging written drafts of the emergency water agreement and an expectation by the Company that a final agreement will be executed by June 2, 2003. The Siting Board recognizes that the parties are continuing to make process toward finalizing an agreement and notes that the City did not oppose the Company's Request for Further Extension. Therefore, the Siting Board concludes that the requested one-month extension is reasonable and amends Condition E to read as follows:

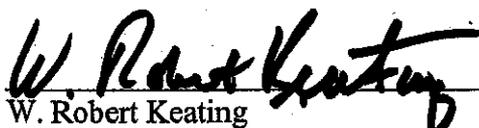
In order to minimize water impacts, the Siting Board directs the Company to negotiate a mutually acceptable emergency water agreement with the City of Cambridge and to provide a copy to the Siting Board on the earlier of: (a) June 2, 2003 or (b) that time when Mirant begins taking water from the Broad Canal/Charles River for process and steam purposes, and relying upon the City water only for sanitary purposes and for emergency process and steam use. The Siting Board also directs Mirant to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes.

Signed:



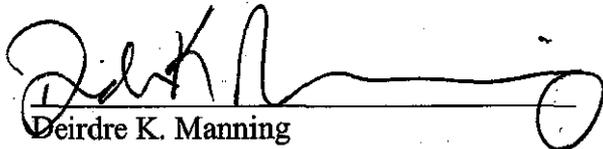
Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

5/16/03
Date



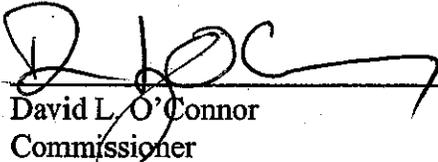
W. Robert Keating
Commissioner
Department of Telecommunications and Energy

05/21/03
Date



Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

5/16/2003
Date



David L. O'Connor
Commissioner
Division of Energy Resources

5/16/03
Date

Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date

Stephen R. Pritchard
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

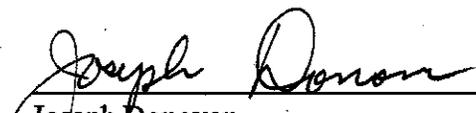
Date

Louis A. Mandarini, Jr.
Public Member

Date

David L. O'Connor
Commissioner
Division of Energy Resources

Date



Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

May 22, 2003

Date

Stephen R. Pritchard
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

Date

David L. O'Connor
Commissioner
Division of Energy Resources

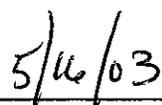
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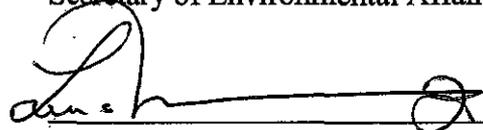
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Secretary of Environmental Affairs

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5/19/03

Date

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Southern Energy Kendall, LLC)
Motion for Further Extension)
to Comply with Condition E) EFSB 99-4A
EFSB 99-4A)
_____)

SITING BOARD RULING ON REQUEST FOR
FURTHER AMENDMENT TO CONDITION E

Jolette A. Westbrook
Hearing Officer
June 13, 2003

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I. INTRODUCTION

On December 15, 2000, the Siting Board conditionally approved the petition of Mirant Kendall, LLC (“Mirant Kendall” or “Company”), formerly known as Southern Energy Kendall, LLC, to upgrade generating facilities at the existing Kendall Square Station (“Kendall Station”) in Cambridge, Massachusetts. Southern Energy Kendall, LLC, 11 DOMSB 255 (2000) (“Final Decision”). In the Final Decision, the Siting Board imposed three conditions, Conditions D, E, and F, for Mirant Kendall to meet prior to the commencement of operation. In the Final Decision, Condition E stated that “[i]n order to minimize water impacts, the Siting Board directs the Company to negotiate a mutually acceptable emergency water use agreement with Cambridge and to provide a copy to the Siting Board prior to the commencement of operation.” On November 15, 2002, the Siting Board amended Condition E. Final Decision on Compliance and Request to Amend Condition E, 13 DOMSB 279 (2002) (“Compliance Decision”).¹ Specifically, Condition E was amended directing the Company to negotiate a mutually acceptable emergency water agreement with the City of Cambridge and to provide a copy to the Siting Board on the earlier of: (a) March 1, 2003 or (b) that time when Mirant begins taking water from the Broad Canal/Charles River for process and steam purposes, relying upon the City only for sanitary purposes and for emergency process and steam use. Mirant Kendall also was directed to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes. Id. at 292. Since that time, Mirant Kendall has filed three requests to extend the time in which it is required to file a copy of its emergency water agreement with the City of Cambridge.² On each occasion, the Siting Board issued an Action by Consent granting Mirant Kendall separate one-

¹ In the Compliance Decision, the Siting Board also amended Condition F and found that Mirant Kendall had complied with Condition D.

² Mirant Kendall Request for Extension dated February 25, 2003, Mirant Kendall Request for Extension dated March 31, 2003 and Mirant Kendall Request for Extension dated April 29, 2003.

month extensions and amended Condition E accordingly.³ As a result of the May 22nd Action by Consent, Condition E establishes June 2, 2003 as the date for Mirant Kendall to comply with Condition E (“Amended Condition E”). On May 30, 2003, Mirant Kendall filed a motion requesting an additional one-month extension from June 2, 2003 to July 1, 2003 to comply with Amended Condition E (“Request for Further Extension”). The Request for Further Extension is the only subject of this decision.

II. REQUEST FOR FURTHER EXTENSION

In support of its Request for Further Extension, the Company states that Mirant Kendall and the City of Cambridge (“City”) were exchanging written drafts of an agreement but that the written draft received from the City does not appear to be consistent with the verbal agreement the Company believed the parties had reached (Request for Further Extension at 2). Mirant Kendall states that, as a result, it needs additional time to attempt to negotiate a written agreement (*id.*). Mirant Kendall also states that it will continue to negotiate in good faith but that it is possible that no agreement will be reached (*id.*). In that case, Mirant Kendall stated that it may file a notice of project change seeking relief from Amended Condition E (*id.*).

In evaluating Mirant Kendall’s request, the Siting Board notes that the purpose of granting the initial amendment to Condition E was to allow Mirant Kendall to operate the upgraded Kendall Station facility while allowing the Company and the City the time needed to reach an emergency water agreement. Compliance Decision at 288. In that decision, the Siting Board placed considerable weight on the fact that the City was amenable to such an amendment provided that restrictions were placed on Mirant Kendall’s consumption, so that the City’s water supply was not overburdened in the interim.⁴ *Id.* Because Mirant Kendall did not expect to

³ Mirant Kendall, LLC Action by Consent dated March 10, 2003, Mirant Kendall, LLC Action by Consent dated April 10, 2003 and Mirant Kendall, LLC Action By Consent dated May 22, 2003 (“May 22nd Action by Consent”).

⁴ All amendments to Condition E have retained the provision in original Condition E directing Mirant Kendall to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on
(continued...)

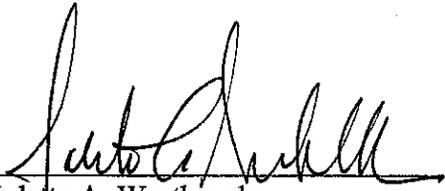
receive a modified National Pollutant Discharge Elimination System (“NPDES”) permit for Kendall Station until early 2003, and given the agreement by the City and the Company, the Siting Board permitted Mirant Kendall to commence operations without an emergency water agreement. Id. However, the Siting Board also stated that, given the importance of the emergency water supply agreement, it was important to impose a deadline for contract negotiations and set a deadline of March 1, 2003. Id. In granting Mirant Kendall the extension from March 1, 2003, to April 1, 2003, the Siting Board took into consideration that both Mirant Kendall and the City indicated optimism that the additional time would allow them to bring this matter to closure (Action by Consent, March 10, 2003, at 2-3). In granting the extension from April 1, 2003 to May 1, 2003, the Siting Board recognized that the parties were making progress in bringing this matter to closure and in light of such progress, it would be counterproductive not to allow the parties further extension to execute a written agreement (Action by Consent, April 10, 2003, at 2-3). In granting the extension from May 1, 2003 to June 2, 2003, the Siting Board recognized that the parties were continuing to make progress toward finalizing an agreement and noted that the City did not oppose the Company’s request for extension (May 22nd Action by Consent, at 3).

Based on the information most recently presented by the Company, the extension from May 1, 2003 to June 2, 2003 has resulted in Mirant Kendall and the City exchanging written drafts of the emergency water agreement to memorialize their verbal agreement. Although the Company questions whether the written draft accurately reflects the verbal agreement the Company believed it had reached with the City, the Company states that it is willing to continue to engage in good faith negotiations with the City to execute a written emergency water agreement. The Siting Board recognizes that since March 1, 2003, Mirant Kendall and the City have made progress toward reaching an agreement. The additional time period that Mirant Kendall is now requesting to attempt to reach an agreement is relatively short and could result in compliance with Condition E. Therefore, the Siting Board concludes that the requested one-month extension is reasonable and amends Condition E to read as follows:

(...continued)

City water for process and steam purposes.

In order to minimize water impacts, the Siting Board directs the Company to negotiate a mutually acceptable emergency water agreement with the City of Cambridge and to provide a copy to the Siting Board on the earlier of: (a) July 1, 2003 or (b) that time when Mirant begins taking water from the Broad Canal/Charles River for process and steam purposes, and relying upon the City water only for sanitary purposes and for emergency process and steam use. The Siting Board also directs Mirant to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes.



Jollette A. Westbrook
Hearing Officer

Dated this 13th day of June 2003.

GRANTED by the Energy Facilities Siting Board at its meeting of June 12, 2003, by the members and designees present and voting: Paul B. Vasington (Chairman, DTE/EFSB); W. Robert Keating (Commissioner, DTE); Deirdre K. Manning (Commissioner, DTE); Robert Sydney (for David L. O'Connor, Commissioner, Division of Energy Resources); and Stephen Pritchard (for Ellen Roy Herzfelder, Secretary of Environmental Affairs).



Paul B. Vasington, Chairman
Energy Facilities Siting Board

Dated this 12th day of June, 2003.

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Notice of Inquiry on Adoption of an Alternative)
Process to Exempt Electric Companies from the)
Provisions of G.L. c. 164, § 69I)

EFSB 98-5

FINAL DECISION

Selma Urman
Presiding Officer
June 13, 2003

On the Decision:
Diedre Shupp Matthews
William Febiger
Amy Barad

LIST OF ABBREVIATIONS

Agencies	Energy Facilities Siting Board and Department of Telecommunications and Energy
Department	Massachusetts Department of Telecommunications and Energy
DSM	demand-side management
D.T.E. 98-84	<u>Order Commencing a Notice of Inquiry and Rulemaking into (1) rescinding 220 C.M.R. §§ 10.00 et seq. and (2) exempting electric companies from any or all of the provisions of G.L. c. 164, § 69I (2003)</u>
FG&E	Fitchburg Gas and Electric Light Company
G.L.	Massachusetts General Laws
ISO-NE	Independent System Operator - New England
Joint Request	August 19, 2002 Request of the Energy Facilities Siting Board and Department of Telecommunications and Energy for additional comments
kV	kilovolt
National Grid	Massachusetts Electric Company, Nantucket Electric Company and New England Power Company
NOI	Notice of Inquiry
NSTAR	NSTAR Electric
<u>NSTAR Decision</u>	<u>NSTAR Gas Company, 13 DOMSB 143 (2001)</u>
Restructuring Act	Electric Industry Restructuring Act, Chapter 164 of the Acts of 1997
Siting Board	Massachusetts Energy Facilities Siting Board
2002 System Planning Orders	<u>NSTAR Electric, D.T.E. 01-65 (2002); Western Massachusetts Electric Company, D.T.E. 01-66 (2002); Fitchburg Gas and Electric Light Company, D.T.E. 01-67 (2002); Massachusetts Electric Company & Nantucket Electric Company, D.T.E. 01-68 (2002)</u>
WMECo	Western Massachusetts Electric Company

The Energy Facilities Siting Board adopts an alternative process approved by the Department of Telecommunications and Energy in Order Commencing Notice of Inquiry and Rulemaking into (1) rescinding 220 C.M.R. § 10.00 et seq. and (2) exempting electric companies from any or all of the provisions of G.L. c. 164, § 69I, D.T.E. 98-84 (2003) (“D.T.E. 98-84”) that would exempt investor-owned electric companies from the provisions of G.L. c. 164, § 69I.

I. INTRODUCTION

A. Background

G.L. c. 164, §69I requires each Massachusetts investor-owned electric company to file with the Department of Telecommunications and Energy (“Department”) biennial forecasts of the electric power needs and requirements of its market area for the ensuing ten-year period. In the early 1990s, the Department implemented this long-range forecast requirement through a comprehensive integrated resource planning framework governing the procurement and cost recovery associated with resources to meet electric customers’ electricity needs. 220 C.M.R. 10.00 et seq. This framework provided for a regular, two-year planning cycle for all electric companies, encompassing several distinct phases including forecasting, need determination, negotiation, competitive solicitation, and contract approval.

On November 25, 1997, the Governor signed into law Chapter 164 of the Acts of 1997, entitled, “An Act Relative to Restructuring the Electric Industry in the Commonwealth, Regulating the Provision of Electricity and Other Services, and Promoting Enhanced Consumer Protection Therein” (“Restructuring Act”). The Restructuring Act introduced retail competition to the generation sector of the electric industry and relieved electric companies of their obligation to plan for and serve the generation needs of its customers, except for those customers with standard offer or default service. In accordance with G.L. c. 164, § 69I of the Restructuring Act, the Department is authorized “to exempt any electric ... company from any or all provisions of [G.L. 164, § 69I] upon a determination of the [D]epartment and the [Energy Facilities] [S]iting [B]oard that an alternative process is in the public interest....”

B. Procedural History

On August 13, 1998, the Siting Board, pursuant to G.L. c. 164, §§ 69H and 69I, issued a Notice of Inquiry (“NOI”) requesting public comment on the Department’s proposal to exempt electric companies from any or all of the provisions of G.L. c.164, § 69I. That matter was docketed as EFSB 98-5. The Siting Board requested comments to help develop an alternative process, or a set of alternative processes, that would allow the Siting Board and the Department (collectively, the “Agencies”) to fulfill their duties under the Restructuring Act without conducting the detailed biennial review of electric utility forecast and supply plans currently required under G.L. c. 164, § 69I. The Department issued a similar notice on August 10, 1998 and docketed this proceeding as D.T.E. 98-84.¹

On September 14, 1998, the Agencies jointly conducted a public hearing on the issues raised in the NOIs. The Agencies received written or oral comments from Representatives Dennis M. Murphy and Marie J. Parente, the Division of Energy Resources, Boston Edison Company, Commonwealth Energy Company, Eastern Edison Company, Western Massachusetts Electric Company (“WMECo”), Sithe New England Holdings, LLC and Independent System Operator - New England (“ISO-NE”). The Agencies conducted two technical sessions, one with ISO-NE on October 22, 1998, and one with Massachusetts electric companies on November 3, 1998.

On August 19, 2002, the Agencies issued a request for additional comments on a specific proposal for an alternative process (“Joint Request”). The Agencies proposed that the core of the alternative process be the annual planning reports the Department directed the four investor-owned electric distribution companies to submit, beginning January 1, 2003. See NSTAR Electric, D.T.E. 01-65 (2002); Western Massachusetts Electric Company, D.T.E. 01-66 (2002);

¹ As part of D.T.E. 98-84, the Department also initiated a rulemaking proceeding to rescind 220 C.M.R. 10.00 et seq., the Department’s regulations governing electric utility long-range forecast filings. Since G.L. c. 164, § 69I requires both the Department and the Siting Board to determine that an alternative process is in the public interest, the Department cannot make a final determination on the exemption from the requirements of Section 69I or the rescission of 220 C.M.R. 10.00 et seq. until the Siting Board makes a determination that the alternative process is in the public interest.

Id. at 25.

The second component of the alternative process, a transmission project report to be filed annually by any investor-owned electric company that owns or operates transmission within Massachusetts, must include:

1. a map of transmission facilities;
2. a list of existing 69 kV or higher transmission facilities, indicating electrical characteristics and ratings;
3. a list of existing transmission substations with a voltage rating of 69 kV or higher, indicating electrical characteristics and ratings; and
4. a description of all transmission system need identified within the ten-year planning horizon and, where information is available, all transmission-level projects that are being developed to meet these needs.

Id.

For purposes of this requirement, the Department determined that transmission projects shall include the construction of any new transmission line (including any line with a voltage of 69 kV or greater), regardless of the purpose of the project. Id.

The Department reserved its right to clarify the scope and level of detail required in the annual planning report. Id. In addition, the Department stated that, consistent with its responsibility to ensure distribution system reliability and to oversee transmission system planning and reliability, it may, on its own motion, determine whether an investigation of either report is necessary. Id. at 26.

II. ANALYSIS

G.L. c. 164, § 69I requires certain Massachusetts electric companies to file biennially with the Department "... a long-range forecast with respect to the electric power needs and requirements of its market area ... for the ensuing ten-year period." However, G.L. c. 164, § 69I also authorizes the Department "...to exempt any electric or gas company from any or all provisions of this section upon a determination by the [D]epartment and the [S]iting [B]oard, after notice and hearing, that an alternative process is in the public interest." In D.T.E. 98-84, the Department adopted an alternative process and found that this process is in the public interest. Consequently, the Siting Board here considers whether the alternative process put forth by the

Department in D.T.E. 98-84 is in the public interest.

In considering this question, the Siting Board considers its statutory mandate, which is “to implement the provisions contained in sections 69H to 69Q, inclusive, to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.” G.L. c. 164, § 69H. Prior to 1992, the Siting Board fulfilled this responsibility in part by reviewing the long-range forecasts of electric and gas utilities pursuant to G.L. c. 164, § 69I.² This review encompassed a review of the reliability of a utility’s demand forecast, the adequacy of resources available to meet such demand, and the cost-effectiveness of various supply contracts, as well as approval of a utility’s plans to construct new energy facilities to serve its customers. The 1992 legislation transferred the review of long-range forecasts from the Siting Board to the Department; however, the Siting Board retained responsibility for reviewing plans to construct energy facilities. When such facilities are proposed by an electric or gas company that is required to file a long-range forecast, the Siting Board must determine that the facility is consistent with the company’s most recently-approved long-range forecast. G.L. c. 164, § 69J. Thus, in evaluating the Department’s alternative process, the Siting Board must consider whether that process aids the Siting Board in its review of facility proposals offered by electric utilities – primarily, proposals to construct electric transmission lines pursuant to G.L. c. 164, § 69J.

In reviewing petitions to construct facilities such as electric transmission lines, the Siting Board must consider “the need for, cost of, and environmental impacts of” such lines. G.L. c. 164, § 69H. In addition, G.L. c. 164, § 69J requires a petitioner to present alternatives to its planned action. The Department’s alternative process supports the Siting Board’s review of such transmission lines, and in fact is superior to the Section 69I long-range forecast in a number of ways.

First, the alternative process requires each electric utility to conduct a systematic annual review of the reliability of its distribution infrastructure. This systematic review of infrastructure needs, which goes well beyond that required under G.L. c. 164, § 69J, increases the probability

² Prior to September 1, 1992, the Siting Board’s functions were effected by the Energy Facilities Siting Council (“Siting Council”). See St. 1992, c. 141.

that an electric utility will identify the need for jurisdictional distribution upgrades³ in advance of the time they are needed to ensure reliability. Advance notice of developing needs should facilitate the early exploration of alternative solutions, either by the electric company itself or by others. In addition, early identification of potential projects should enable companies to file more timely petitions for approval of construction, and to include thorough presentations regarding the need for the projects and alternatives to them. Timely filing of petitions will ensure that distribution system reliability is not compromised by delays in constructing critical infrastructure, and that the Siting Board has adequate time for a thorough review of proposed projects and project alternatives.

The alternative process also requires all investor-owned electric companies that own or operate transmission within Massachusetts to file an annual transmission project report identifying transmission system needs, and, where that information is available, transmission-level projects that are being developed to meet these needs, within a ten-year planning horizon. This report serves a similar purpose in that it provides advance notice of developing transmission needs, facilitates the exploration of alternative solutions, and helps ensure the timely review and construction of critical energy infrastructure. Taken together, the annual planning report and the transmission project report form an alternative process that provides the Siting Board with information that it needs to fulfill its statutory responsibilities. Consequently, the Siting Board finds that the alternative process set forth by the Department in D.T.E. 98-84 is in the public interest.

As part of this proceeding, the Siting Board issued a series of questions about transmission system planning that were designed to assist it in planning an upcoming rulemaking on transmission line siting. In response to these questions, many commenters provided a

³ Many of the transmission facilities reviewed by the Siting Board are proposed to provide localized distribution support. See New England Power Company, 7 DOMSB 333 (1998); Boston Edison Company, 6 DOMSB 208 (1997); Commonwealth Electric Company, 5 DOMSB 273 (1997). The Siting Board reminds all investor-owned electric companies that any electric line meeting the length and voltage thresholds set forth in G.L. c. 164, § 69G must be approved by the Siting Board prior to construction, regardless of the role that the line will play in the company's transmission or distribution system.

comprehensive discussion of transmission planning in New England, the relative roles of the ISO-NE, transmission companies, and distribution companies, and the nature and sources of transmission planning data that could be provided to the Agencies. The Siting Board appreciates these comments, and hopes to open its rulemaking within the next twelve months. Our decision in EFSB 98-5 does not alter the Siting Board's review of petitions to construct electric transmission lines in any way. However, the Siting Board expects that, shortly after the issuance of this decision, the Department will formally exempt electric companies from the requirements of G.L. c. 164, § 69I. Once this exemption is in place, electric companies seeking Siting Board authority to construct transmission lines no longer will be required to show that proposed facilities are consistent with their most recently-approved long range forecasts.

III. DECISION

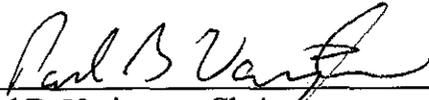
The Siting Board's enabling statute directs the Siting Board to implement the energy policies contained in G.L. c. 164, §§ 69H to 69Q, to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, § 69H. In accordance with G.L. c. 164, § 69I, of the Restructuring Act, the Department of Telecommunications and Energy may exempt any electric company from any or all provisions of G.L. c. 164, § 69I upon a determination of the Department and the Siting Board that an alternative process is in the public interest.

In Section II., above, the Siting Board found that the alternative process set forth by the Department of Telecommunications and Energy in D.T.E. 98-84, is in the public interest. Accordingly, the Siting Board adopts the alternative process that would exempt investor-owned electric companies from the provisions of G.L. c. 164, § 69I, as set forth in Section I.C., above.


Selma Urman
Presiding Officer

Dated this 13th day of June, 2003.

APPROVED by the Energy Facilities Siting Board at its meeting of June 12, 2003, by the members and designees present and voting: Paul B. Vasington (Chairman, DTE/EFSB); W. Robert Keating (Commissioner, DTE); Deirdre K. Manning (Commissioner, DTE); Robert Sydney (for David L. O'Connor, Commissioner, Division of Energy Resources); and Stephen Pritchard (for Ellen Roy Herzfelder, Secretary of Environmental Affairs).



Paul B. Vasington, Chairman
Energy Facilities Siting Board

Dated this 12th day of June, 2003.

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Southern Energy Kendall, LLC)
Motion for Further Extension)
to Comply with Condition E)
EFSB 99-4A)

July 14, 2003

ACTION BY CONSENT

I. INTRODUCTION

This "Action by Consent" is made pursuant to 980 CMR 2.06, which provides the Energy Facilities Siting Board ("Siting Board") with the authority to render a decision via Action by Consent when the Board "determines that expeditious action is necessary." 980 CMR 2.06(1).

On December 15, 2000, the Siting Board conditionally approved the petition of Mirant Kendall, LLC ("Mirant Kendall" or "Company"), formerly known as Southern Energy Kendall, LLC, to upgrade generating facilities at the existing Kendall Square Station ("Kendall Station") in Cambridge, Massachusetts. Southern Energy Kendall, LLC, 11 DOMSB 255 (2000) ("Final Decision"). In the Final Decision, the Siting Board imposed three conditions, Conditions D, E, and F, for Mirant Kendall to meet prior to the commencement of operation. On November 15, 2002, the Siting Board found the Mirant Kendall has complied with Condition D. Final Decision on Compliance and Request to Amend Condition E, 13 DOMSB 279 (2002) ("Compliance Decision"). At that time, the Siting Board also amended Conditions E and F. Id. Specifically, Condition E was amended directing the Company to negotiate a mutually acceptable emergency water agreement with the City of Cambridge and to provide a copy to the Siting Board on the earlier of: (a) March 1, 2003 or (b) that time when Mirant begins taking water from the Broad Canal/Charles River for process and steam purposes, relying upon the City only for sanitary purposes and for emergency process and steam use. Mirant Kendall was also directed to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes. Id. Since that time, Mirant Kendall has filed four requests to extend the time in which it is required to file a copy of its emergency water agreement with the City of Cambridge.¹ On each occasion, the Siting Board granted Mirant Kendall's request and amended Condition E accordingly.² As a

¹ Mirant Kendall Request for Extension dated February 25, 2003, Mirant Kendall Request for Extension dated March 31, 2003, Mirant Kendall Request for Extension dated April 29, 2003, and Mirant Request for Extension dated May 30, 2003.

² The Siting Board granted Mirant Kendall's requests via the following documents: Siting
(continued...)

result of the June 13, 2003 Siting Board Ruling, Condition E establishes July 1, 2003 as the date for Mirant Kendall to comply with Condition E (“Amended Condition E”). On July 1, 2003, Mirant Kendall filed a motion requesting an additional one-month extension from July 1, 2003 to August 1, 2003 to comply with Amended Condition E (“Request for Further Extension”). The Request for Further Extension is the only subject of this Action by Consent.

II. REQUEST FOR FURTHER EXTENSION

In support of its Request for Further Extension, the Company states that Mirant Kendall will make a final attempt to reach agreement with the City of Cambridge (“City”) on a draft agreement that appropriately reflects the verbal understanding the Company believes it reached with the City in March 2003 (Request for Further Extension at 2). Mirant Kendall states that it will continue to negotiate in good faith but that it is possible that no agreement will be reached (*id.* at 2). In that case, Mirant Kendall states that it may file a notice of project change seeking relief from Amended Condition E (*id.*).

The City states that it has no objection to the Request for Further Extension and that it will continue to negotiate in good faith (City Comments at 1-2). The City also states that counsel for Mirant Kendall and the City have “tried to identify the principal issues and work toward a resolution before tackling the entire agreement” (*id.* at 1).

III. RULING ON REQUEST FOR FURTHER EXTENSION

In evaluating Mirant Kendall’s request, the Siting Board notes that the purpose of granting the initial amendment to Condition E was to allow Mirant Kendall to operate the upgraded Kendall Station facility while allowing the Company and the City the time needed to reach an emergency water agreement. Compliance Decision at 288. In that decision, the Siting Board placed considerable weight on the fact that the City was amenable to such an amendment provided that restrictions were placed on Mirant Kendall’s consumption, so that the City’s water supply was not overburdened in the interim.³ *Id.* Because Mirant Kendall did not expect to receive a modified National Pollutant Discharge Elimination System (“NPDES”) permit for Kendall Station until early 2003, and given the agreement by the City and the Company, the

² (...continued)
Board Ruling in EFSB 99-4A dated June 13, 2003, Siting Board Action by Consent dated May 22, 2003, Siting Board Action by Consent dated March 10, 2003, and Siting Board Action by Consent dated April 10, 2003.

³ All amendments to Condition E have retained the provision in original Condition E directing Mirant Kendall to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes.

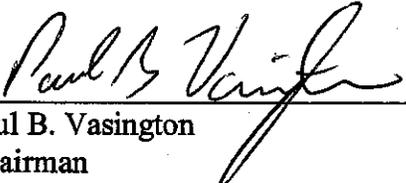
Siting Board permitted Mirant Kendall to commence operations without an emergency water agreement. Id. However, the Siting Board also stated that, given the importance of the emergency water supply agreement, it was important to impose a deadline for contract negotiations and set a deadline of March 1, 2003. Id.

The Siting Board has, to date, granted four separate extensions to the original March 1, 2003 deadline for reaching such an agreement. It is apparent from the parties' comments that, while Mirant Kendall and the City both are willing to continue to negotiate in good faith, they have differing opinions of the probability that a mutually acceptable agreement can be reached. The Siting Board is not a party to the negotiations, and does not have independent information about the status of the negotiations. However, based on both sets of comments, it is reasonable to infer that additional discussion needs to take place on a range of issues if a mutually acceptable agreement is to be reached. It seems possible that such discussion could take more than a month, particularly since the individuals involved in the negotiations may already have scheduled summer vacations. Based on the stated willingness of both parties to continue negotiations, and the apparent breadth of unresolved issues, the Siting Board concludes that it is reasonable to grant a two-month extension to the current deadline for filing the emergency water agreement with the Siting Board. During this time, the Siting Board expects both parties to engage in intensive negotiations aimed at executing a mutually acceptable agreement and filing that agreement with the Siting Board by September 2, 2003. If negotiations extend into August, Mirant Kendall shall file status reports with the Siting Board on August 1 and August 15 indicating the steps that have been taken (e.g. meetings held, drafts exchanged, telephone conferences) to advance the negotiations. The City may file companion status reports, if it so chooses. Accordingly, the Siting Board amends Condition E to read as follows:

In order to minimize water impacts, the Siting Board directs the Company to negotiate a mutually acceptable emergency water agreement with the City of Cambridge and to provide a copy to the Siting Board on the earlier of: (a) September 2, 2003 or (b) that time when Mirant begins taking water from the Broad Canal/Charles River for process and steam purposes, and relying upon the City water only for sanitary purposes and for emergency process and steam use. The Siting Board also directs Mirant to limit its use of City water to historical levels, or obtain City consent to use City water at higher levels, until such time as it ceases to rely regularly on City water for process and steam purposes.

The Siting Board regards September 2, 2003 as the final deadline for negotiations between Mirant Kendall and the City with respect to an emergency water agreement. We anticipate that Mirant Kendall may explore other procedural options if a mutually acceptable agreement has not been executed by that date.

Signed:



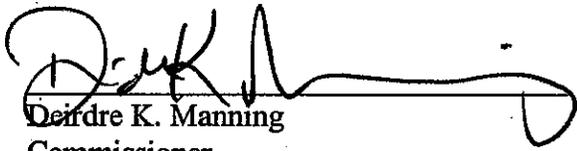
Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

July 14, 2003
Date



W. Robert Keating
Commissioner
Department of Telecommunications and Energy

7-14-03
Date



Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

7/14/2003
Date

David L. O'Connor
Commissioner
Division of Energy Resources

Date

Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date

Stephen R. Pritchard
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

Date

Southern Energy Kendall LLC - EFSB 99-4A
Action by Consent

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

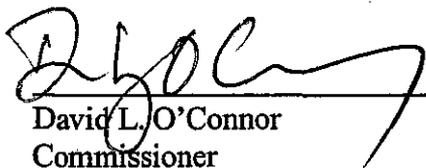
Date

W. Robert Keating
Commissioner
Department of Telecommunications and Energy

Date

Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

Date



David L. O'Connor
Commissioner
Division of Energy Resources

Date 7/10/03

Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date

Stephen R. Pritchard
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

Date

**Southern Energy Kendall LLC - EFSB 99-4A
Action by Consent**

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

Date

W. Robert Keating
Commissioner
Department of Telecommunications and Energy

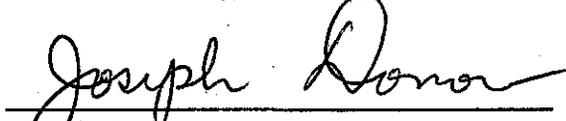
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Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

Date

David L. O'Connor
Commissioner
Division of Energy Resources

Date



Joseph Donovan
for Barbara B. Berke, Director
Department of Economic Development

Date *July 14, 2003*

Stephen R. Pritchard
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

Date

Southern Energy Kendall LLC - EFSB 99-4A
Action by Consent

Signed:

Paul B. Vasington
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

Date

W. Robert Keating
Commissioner
Department of Telecommunications and Energy

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Deirdre K. Manning
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Stephen R. Pritchard
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

7/14/03
Date

Louis A. Mandarini, Jr.
Public Member

Date

Southern Energy Kendall LLC - EFSB 99-4A
Action by Consent

Page 4

Signed:

Paul B. Vasington
Chairman
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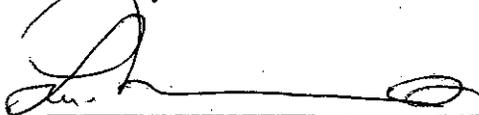
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for Barbara B. Berke, Director
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Secretary of Environmental Affairs

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7-10-03

Date

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

In the Matter of the Petition of Brockton Power,)
LLC for Approval to Construct a Bulk Generating)
Facility in the City of Brockton, Massachusetts)

EFSB 99-1A

FINAL DECISION ON
REQUEST FOR EXTENSION OF APPROVAL

Denise L. Desautels
Presiding Officer
August 18 , 2003

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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Explanation</u>
<u>Action by Consent</u>	Action by Consent, <u>Brockton Power LLC</u> , EFSB 99-1A, March 10, 2003
AWRF	City of Brockton's Advanced Water Reclamation Facility
Brockton	City of Brockton
Brockton Power	Brockton Power, LLC
<u>Brockton Power Decision</u>	<u>Brockton Power, LLC</u> , 10 DOMSB 157 (2000)
Brockton Power Project	Brockton Power, LLC's proposed 270 MW electric generating facility
BTu	British thermal unit
<u>Cabot Power Procedural Order</u>	<u>Cabot Power Corporation</u> , EFSB 91-101A, December 23, 1997 Procedural Order
Company	Brockton Power, LLC
Company Brief	Brockton Power, LLC's brief
CPA	Comprehensive Plan Approval
dBA	Decibel
DPW	Brockton Department of Public Works
EPA	The United States Environmental Protection Agency
ERP	Emergency Response Plan
EUA	Eastern Utilities Associates Service Corporation
kV	Kilovolt
L ₉₀	The level of noise that is exceeded 90 percent of the time
L _{dn}	A-weighted noise levels averaged over a 24 hour period with a 10 dBA penalty for noise during nighttime hours
L _{eq}	A-weighted noise levels averaged over a specified period
MBTA	Massachusetts Bay Transportation Authority
MEPA	Massachusetts Environmental Policy Act
MDEP	Massachusetts Department of Environmental Protection
MW	Megawatt

National Grid	National Grid USA Service Company, Inc.
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides
PM _{2.5}	Particulate matter smaller than 2.5 microns
ppm	Parts per million
PSD	Prevention of significant deterioration
Request for Extension	February 25, 2003 Request to Extend Siting Board approval in <u>Brockton Power, LLC</u> , 10 DOMSB 157 (2000)
SILs	Significant Impact Levels
SPCC	Spill Prevention Control and Countermeasure
Siting Board	Energy Facilities Siting Board

The Energy Facilities Siting Board (“Siting Board”) hereby APPROVES subject to a condition the request of Brockton Power, LLC for an extension of the Siting Board’s approval granted in Brockton Power, LLC, 10 DOMSB 157 (2000), to construct a 270-megawatt natural gas-fired combined-cycle generating facility at a site in Brockton, Massachusetts.

I. INTRODUCTION AND PROCEDURAL HISTORY

A. Description of Proposed Project, Site, and Interconnections

Brockton Power, LLC (“Company” or “Brockton Power”) has proposed to construct a nominal 270 megawatt (“MW”), gas-fired, combined-cycle, electric generating facility in the City of Brockton, Massachusetts (“Brockton Power Project”) (Exh. BP-1, at 1-1). The project would be located on a 13.2 acre parcel of land adjacent to the City of Brockton’s Advanced Water Reclamation Facility (“AWRF”) (id.). Both the project site and the AWRF are within the 70-acre Oak Hill Industrial Park in the southeastern corner of the City of Brockton (“Brockton”) (id.). The project site is bounded by the Salisbury Plain River to the west and the AWRF property to the south (id. at 1-11). To the north and east, the site is surrounded by commercially and industrially zoned properties which are currently occupied by warehouses and manufacturing facilities (id. at 1-12, 4.2-1).

The primary components of the Brockton Power project are based on Asea Brown Boveri GT-24 generation technology and include a gas combustion turbine, a heat recovery steam generator, a steam turbine, and a single electrical generator which would be driven by both the combustion turbine and the steam turbine (id. at 1-18). The Company stated that to maintain reliability during potential gas supply contingencies, the project would also have the ability to burn low-sulfur No. 2 distillate fuel oil for up to 720 hours (30 days) per year (id. at 1-1, 1-19). Cooling for the Brockton Power project would be provided by a six-cell wet mechanical cooling tower (id. at 1-1). The project would use approximately 1.6 million gallons per day of water for cooling tower makeup and for process water. The Company proposes to use treated effluent obtained from the AWRF to meet the cooling and process water needs of the project (id. at 1-1, 1-18, 1-22). Additional facilities associated with the project include a 115 kilovolt (“kV”) switchyard, water treatment facilities, water storage tanks, and a fully-diked 500,000 gallon fuel

oil storage tank, as well as offsite gas and electrical interconnections (id.).

Natural gas for the project would be transported to the site via a new 1800-foot lateral pipeline from Algonquin Gas Transmission Company's pipeline (id. at 1-24). The lateral pipeline would run north from the project site along Industrial Boulevard to interconnect near the intersection of Oak Hill Way near Sargents Way. For electrical transmission, the project would connect with a National Grid USA Service Company, Inc. ("National Grid") 115 kV transmission line to the southeast of the project site via a new 3500-foot 115 kV line (Exhs. HO-RR-20 (a) and (b) Att.; EFSB-EL-11; Tr. 1, at 126). The interconnection route would run easterly from the project site to Oak Hill Way; at Oak Hill Way, the line would turn south and proceed for approximately 1000 feet along the street. At the southern end of the UPS complex, the line would turn easterly and run along the southern edge of the UPS property to the Massachusetts Bay Transit Authority ("MBTA") right-of-way, which it would follow to the National Grid transmission line (Exh. EFSB-EL-11; Tr. 99-1A at 25).

B. Procedural History

1. EFSB 99-1

On January 11, 1999, Brockton Power filed with the Siting Board a petition to construct and operate a gas-fired, combined-cycle electric generating facility with a net nominal capacity of approximately 270 MW in the City of Brockton, Massachusetts. On March 10, 2000, the Siting Board conditionally approved the petition of Brockton Power to construct this facility. Brockton Power, LLC, 10 DOMSB 157 (2000) ("Brockton Power Decision"). Pursuant to the Brockton Power Decision, the Siting Board's approval of the proposed facility would have expired on March 10, 2003.

2. EFSB 99-1A

On February 25, 2003, Brockton Power filed with the Siting Board a request for an extension of the Siting Board's approval of the facility until July 1, 2004 ("Request for Extension"). On March 10, 2003, the Siting Board issued an Action by Consent in which the Siting Board deferred final action on the Company's Request for Extension. Action by Consent,

Brockton Power, LLC, March 10, 2003 (“Action by Consent”). The Siting Board, however, granted an extension of its approval until such time as it ruled on the Company’s Request for Extension and docketed it as EFSB 99-1A. Id.

The Siting Board conducted an evidentiary hearing on May 22, 2003. Brockton Power presented the testimony of Theodore A. Barten, P.E., Managing Principal of Epsilon Associates, Inc., who testified as to the nature of the project, changes in background conditions, environmental issues, mitigation measures, and environmental policies.

On June 3, 2003, Brockton Power submitted its brief (“Company Brief”). The record consists of 15 exhibits consisting primarily of information request responses and record request responses. Also, on June 3, 2003, the Presiding Officer granted Brockton Power’s motion to take official notice of the Brockton Power Decision and the underlying evidentiary record, pursuant to 980 CMR § 1.06(7)(b).

C. Standard of Review

In order to determine whether good cause exists to grant the Company’s Request for Extension as presented, the Siting Board must determine, inter alia: (1) whether there have been changes either in background conditions (e.g., land use surrounding the site) or applicable regulations sufficient to alter the underlying assumptions upon which the Siting Board based its approval; and (2) whether the length of the requested extension is reasonable. See Cabot Power Corporation, EFSB 91-101A, December 23, 1997 Procedural Order (“Cabot Power Procedural Order”); see also Action by Consent.

In Section II, below, the Siting Board considers any changes to background environmental conditions and applicable regulations sufficient to alter the underlying assumptions upon which the Siting Board based its approval. In Section III, below, the Siting Board considers the reasonableness of the requested extension period.

II. CHANGES TO BACKGROUND CONDITIONS AND REGULATORY CONTEXT

A. Land Use

1. Description

Brockton Power stated that there have been few changes to the project area since the Siting Board issued the Brockton Power Decision in March 2000 (Exh. EXT-1, at 1). The Company stated that the Brockton Department of Public Works (“DPW”) has constructed new facilities just to the southeast of the project site, including a salt storage dome, a parking area, and a maintenance/garage building that is within about 1000 feet of the site (id.). In addition, the Company reported that seven new houses are under construction approximately 1400 feet from the eastern boundary of the project site, near the intersection of Plain Street and Ninth Avenue (id.).

2. Analysis

In its original review of the land use impacts of the project, the Siting Board considered the extent to which the facility would be consistent with existing land uses, state and local requirements, and policies or plans relating to land use. Brockton Power Decision at 249-250. The Siting Board also considered the potential impacts of the project on terrestrial resources, including vegetative cover and habitat. Id. at 250. The record shows that although new DPW facilities have been built on property adjacent to the power plant site, this use is consistent with the industrial character of the area and would not be adversely affected by the construction of the power plant. The record also shows that although new houses are being constructed to the northeast of the site, they will be separated from the plant by existing commercial facilities, vegetated areas, and the MBTA right-of-way (Exh. EXT-1(a)).¹ Therefore, the Siting Board finds that the changes in land use are not sufficient to alter the underlying assumptions upon which it based its approval.

¹ Potential noise impacts of the plant at the new housing location are discussed in Section II. B., below.

B. Noise

1. Description

The Company performed its original analysis of noise impacts based upon short-term (20-minute) monitoring data collected in 1998 at the property line and at five nearby residential locations (Exhs. HO-RR-4S Att. at 7-11; EXT-1(b) at 7-5 to 7-15, 7-25). The Company stated that measurements were taken during times of the day and night that were thought to be “quiet periods” (Exh. EXT-1(b) at 7-5). For the daytime samples, this meant during periods of off-peak traffic; for the nighttime samples, it meant the period between midnight and 5 a.m. (*id.*). The Company reported that the nighttime ambient L_{90} sound levels² measured at the residential locations near the site were in the range of 40 to 45 decibels (“dBA”) (*id.* at Tables 7.1-1 to 7.1-4, 7.1-6). The Company detected daytime L_{90} levels at these locations in the range of 46 to 53 dBA (*id.*).

The Company stated that in May 2000, it conducted additional background ambient sound level monitoring in response to a request from the Massachusetts Department of Environmental Protection (“MDEP”) (Exh. EXT-1).³ This exercise consisted of approximately 74 hours of continuous monitoring at the two closest residential locations to the east and west of the project site (Exh. EXT-1(b) at 7-15). The monitoring period started at noon on Friday, May 5 and ended at approximately 2:00 p.m. on Monday, May 8 (*id.*). Therefore, the monitoring period included weekday, weekend, daytime and nighttime periods.

The Company indicated that the lowest nighttime ambient levels measured in 2000 were significantly lower than the original short-term sound levels measured in 1998 (*id.* at 7-25). However, in the Company’s opinion, the data from the continuous monitoring in 2000 compared “reasonably well” to the data from the 1998 short-term monitoring for those times of night at

² The L_{90} sound level is the level of noise that is exceeded 90 percent of the time.

³ According to the Company, MDEP was considering a change to its noise policy to require continuous sound level monitoring to characterize background noise (Tr. 99-1A at 10). The Company stated that MDEP requested Brockton Power to conduct some continuous monitoring as part of its application for air plan approval while it was seeking comment on its proposed policy change (*id.*). According to the Company, the policy change has not been formally issued (*id.* at 11).

which measurements were taken in 1998 (id.).⁴ The Company explained that the continuous monitoring in 2000 provided information from additional times of the night during the weekend that were not monitored in 1998 (id.). In particular, the continuous monitoring captured a period with less activity in the adjacent industrial park than at other times of the week (id.; Tr. 99-1A at 13). According to the Company, these factors led to the quietest sound levels observed in 2000 that were lower than those identified in 1998 (Exh. EXT-1(b), at 7-25).

The new monitoring showed quietest nighttime ambient L_{90} sound levels of 34.5 dBA and 34.0 dBA at Hayward Street and Appleby Street, respectively (id. at 7-24). To be conservative, the Company used the 34.0 dBA figure as the assumed nighttime baseline for modeling impacts at the remaining residential locations in the vicinity of the project site (id. at 7-25). The measured and assumed levels are 6 to 9.5 dBA lower than the corresponding values obtained in 1998 (id. at Table 7.1-10; Exh. HO-RR-4S Att., Table 7.1-8). With respect to daytime periods, the new monitoring showed quietest L_{90} sound levels of 49.5 dBA and 35 dBA at Hayward Street and Appleby Street, respectively (Exh. EXT-1(b) at 7-26). The Company used a figure halfway between the two measured levels, or 42 dBA, as the assumed daytime baseline for modeling noise impacts at the remaining residential locations (id.).

In recognition of the lower measured background sound levels, the Company stated that it has incorporated additional noise control measures into the design of the cooling tower and turbine air inlets (Exh. EXT-1, at 2). With these modifications, the Company provided updated calculations of expected facility noise levels of 34 to 42 dBA at residential receptor locations (Exh. EXT-1(b), Table 7.1-10), which are lower than the range of 38 to 47 dBA associated with the original design (Exh. HO-RR-4S Att., Table 7.1-8). The Company then recalculated

⁴ For times of night comparable to those during which the 1998 monitoring took place, the 2000 L_{90} sound levels range from 1.5 to 8.5 dBA below the 1998 levels (Exh. EXT-1(b) at Tables 7.1-2, 7.1-4, 7.1-7, 7.1-8).

expected total noise levels using the new figures for ambient and plant noise. The following table presents results from the updated monitoring and modeling:

Increases to Ambient Baseline at Brockton Power Receptor Sites (Modeling Based on 2000 Data)

Receptor Location	Nighttime Ambient, L ₉₀ , dBA	Daytime Ambient, L ₉₀ , dBA	Expected Plant Noise, Leq, dBA	Nighttime Total, dBA	Nighttime Increment dBA	Daytime Total, dBA	Daytime Increment dBA
R-1, S	34	42	34	37	3	43	1
R-2, W	34.5	49.5	42	43	8	50	1
R-3, NE	34	42	39	40	6	44	2
R-4, E	34	35	39	40	6	40	5
R-5, N	34	42	36	38	4	43	1

Source: Exh. EXT-1(b), Table 7.1-10

As the table above shows, the expected nighttime increment (i.e., the difference between ambient and total noise) now ranges from 3 to 8 dBA. This represents an increase over the original nighttime increments, which ranged from 2 to 5 dBA based on the 1998 data and original plant design (Exh. HO-RR-4S Att., Table 7.1-8). The recalculated daytime increments range from 1 to 5 dBA, as compared to 0 to 2 dBA based on the 1998 data (*id.*). However, the total noise levels, which ranged from 42 to 49 dBA at night and 48 to 54 dBA during the day based on the 1998 data (Exh. HO-RR-4S Att., Table 7.1-8), are now lowered to a range of 37 to 43 dBA at night and 40 to 50 dBA during the day based on the 2000 data (Exh. EXT-1(b), Table 7.1-10). Overall, both daytime and nighttime total L₉₀ noise levels are lower (by 4 to 8 dBA) at every residential location, as compared to the analysis based on the 1998 data (*id.*; Exh. HO-RR-4S Att., Table 7.1-8).

The Company also provided 24-hour day-night noise levels for the two residential receptor locations that it re-monitored in 2000 (Exh. RR-EXT-2).⁵ At one location (Hayward Street or "R-2"), the existing L_{dn} is approximately 67.2 dBA; with the addition of facility noise,

⁵ The L_{dn} is defined as the equivalent A-weighted sound level during a 24-hour time period with a 10 decibel weighting applied to the equivalent sound level (L_{eq}) during the nighttime hours of 10:00 p.m. to 7:00 a.m. (Exh. RR-EXT-2).

the L_{dn} would be 67.3 dBA (*id.*). At the other residential location (Appleby Street or "R-4"), the existing L_{dn} is approximately 53.5 dBA, and the expected L_{dn} with operation of the facility is about 54.3 dBA (*id.*).

The Company stated that at the new homes under construction in the vicinity of Plain Street and Ninth Avenue, it expects sound levels to be similar to those at Appleby Street (Tr. 99-1A at 17).

The Company noted that despite the additional noise mitigation it has proposed, noise increments of 10 dBA would still occur at non-residential locations slightly beyond the plant site boundary to both the north and south (Exh. EXT-1(b) at Figs. 7.1-9, 7.1-10; Tr. 99-1A at 14-15). The Company stated that it would need to obtain noise easements from two property owners (Tr. 99-1A at 14), to comply with MDEP's policy limiting noise at the property line to 10 dBA over the background L_{90} . The Company stated that it has held discussions with both property owners, one of which is the City of Brockton, and that both have indicated a willingness to grant such easements (*id.* at 14-15).

2. Analysis

The record shows that the short-term noise monitoring conducted in 1998 and the continuous noise monitoring conducted in 2000 yielded different measured ambient sound levels. However, because different monitoring methodologies were used, the record does not demonstrate definitively that background noise conditions changed between 1998 and 2000.⁶ As the Company noted, the times of night during which noise was monitored during 1998, while relatively quiet, were not necessarily the absolutely quietest periods. Further, only minor changes in land use occurred near the facility from 1998 to 2000. Therefore, it is unclear whether ambient sound levels actually changed from 1998 to 2000.

Lower ambient sound levels in the community would make noise from the facility more noticeable. Therefore, Brockton Power has proposed design changes to reduce operational noise

⁶ The Siting Board notes that it would be improper to re-adjudicate, in a Request for Extension, data-gathering methodologies accepted in the underlying case. Box Pond Ass'n v. Energy Facilities Siting Bd., 435 Mass. 408, 419-420 (2001).

from the plant. Despite these noise mitigation measures, however, the record shows that, for the quietest nighttime hours, the Company's calculation of the increment in total L_{90} noise above ambient noise with operation of the project remained larger than in the original analysis based on the 1998 data and original plant design. On the other hand, the combination of lower measured ambient noise levels and improved noise mitigation design resulted in calculated ambient, facility, and total noise at residential receptor locations that are lower than those in the original analysis. In the original analysis, the maximum calculated nighttime increments above ambient at the nearest residential receptors – 4 to 5 dBA – were well below the increments of up to 8 dBA allowed in previous cases that the Siting Board cited for comparison. Brockton Power Decision at 224. The Company's updated analysis of potential noise impacts on residential receptors from operation of the proposed facility shows that nighttime increments above ambient levels, although greater than in the original analysis, are a maximum of 8 dBA at the nearest receptor, with increments ranging from 3 to 6 dBA at the other modeled locations. Thus, the calculated nighttime increments remain consistent with past cases in which the Siting Board has allowed noise increments at residential receptors of up to 8 dBA. Berkshire Power Development, Inc., 4 DOMSB 221, at 442-443 (1996); ANP Bellingham Energy Company, 7 DOMSB 39, at 193-194 (1998).

The revised analysis also shows that, as in the original decision, the maximum residential L_{90} increase would occur in an area with existing L_{dn} noise levels well above the United States Environmental Protection Agency ("EPA") guideline of 55 dBA.⁷ In the present case, however, the facility's contribution to L_{dn} noise levels in the Hayward Street area would be only 48 dBA, well below both the 55 dBA guideline and the background L_{dn} of approximately 67 dBA, and would result in an increase in L_{dn} noise of only 0.1 dBA at this location.

In summary, it is not clear from the record whether background noise conditions have changed since the Siting Board issued its original approval. Regardless of whether background noise conditions have actually changed, the Company has proposed additional noise mitigation

⁷ In two past cases, the Siting Board has cited high L_{dn} noise levels as a consideration in holding L_{90} increases to lower limits than 8 dBA. U.S. Generating Company, 6 DOMSB 1, at 164-166 (1997); Boston Edison Company, 1 DOMSB 1, at 112-115 (1993).

which will result in (1) lower total noise levels at residential receptor locations, as compared to the analysis originally presented, and (2) noise increments that are within ranges previously found to be acceptable. Consequently, the Siting Board finds that there have not been changes to background conditions sufficient to alter the underlying assumptions upon which the Siting Board based its approval.

C. Air Quality

1. Description

On October 3, 2000, MDEP informed the Company that it had substantively completed its review of Brockton Power's Comprehensive Plan Approval ("CPA") application and had prepared a draft Plan Approval and draft Prevention of Significant Deterioration ("PSD") permit (Exh. EXT-4 Att.). According to a letter from MDEP, the Company had not, at that time, demonstrated that it held a sufficient amount of nitrogen oxides ("NO_x") emission reduction credits or other emissions reductions to meet state NO_x offset requirements at the time of plant startup (*id.*). In May 2002, Brockton Power requested an extension of the technical review period for the CPA application to June 30, 2004 (*id.*). MDEP granted this extension on June 10, 2002, reminding the Company that the pending NO_x offset issue still required resolution (*id.*).

The Company noted that as of March 3, 2003, MDEP had relinquished regulatory authority of the PSD program back to the EPA (Exh. EXT-4). The Company explained that if air approvals for the project were to be finalized, it would have to reapply to EPA for a PSD permit (*id.*, Tr. 99-1A at 8). The Company expects that this would entail submitting the same documents to EPA that it previously submitted to MDEP, along with MDEP's draft PSD permit and PSD Determination of Applicability; EPA Region I would then decide whether to propose the same permit as MDEP's prepared draft (Exh. EXT-4). The Company stated that it did not anticipate that any new modeling would be required when final air permits are sought for the project (Tr. 99-1A at 30).

The Company noted that EPA has issued two new National Ambient Air Quality Standards since the original decision: a new, stricter 8-hour ozone standard of 0.08 ppm, and a new standard for particulate matter smaller than 2.5 microns ("PM_{2.5}") (*id.*). With regard to

ozone, the Company provided updated monitoring data from 1998 through 2001, as reported by MDEP for the closest monitoring station, located in Easton, Massachusetts (Exh. EXT-1, at 1). These data show compliance with the 1-hour ozone standard, but exceedances of the new 8-hour standard (*id.* at 2). According to the Company, EPA has not yet designated 8-hour ozone nonattainment areas; however, Massachusetts is expected to be in nonattainment for this standard (Exh. EXT-4, at 2). With respect to the new PM_{2.5} standard, the Company stated that MDEP is unsure whether the state will be in attainment, although early data from a monitoring station in Brockton are within the standard (*id.*; Exh. EXT-1, at 2). The Company also provided updated nitrogen dioxide (“NO₂”) monitoring data from the Easton monitoring station, and stated that background air quality met the (unchanged) annual NO₂ standard (Exh. EXT-1, at 2).

Finally, the Company indicated that, consistent with expectations at the time of the original decision, the draft permit for the project would allow it to burn oil for up to 30 days per year (Tr. 99-1-A at 30). However, the Company noted that MDEP has been moving toward requiring ultra-low-sulfur oil in such instances (*id.*). The Company indicated that such a condition is likely to be written into the final permit, which would have the effect of reducing considerably the sulfur dioxide emissions when the plant is firing oil (*id.*).

In its discussion of the new noise mitigation measures planned for the project, the Company acknowledged that the proposed muffling of the combustion turbine air intake could result in a minor impact on the plant’s heat rate, which could change emissions on a pounds-per-megawatt-hour basis (Tr. 99-1A at 29). The Company indicated that there is a tradeoff between the capital costs of the muffling system and the extent of any incremental pressure drop through the air intake, such that a change in the heat rate could be virtually eliminated through adequate investment in the muffling upgrades (*id.* at 29-30). However, the Company stated that any loss of plant efficiency due to the muffling would not affect the emission limits that are written into the draft MDEP permit, which are expressed in terms of total tonnage and on a pounds-per-million Btu basis (*id.*).

2. Analysis

In the Brockton Power Decision, the Siting Board noted that the Company’s modeling

demonstrated that the emissions from the proposed facility would be less than the Significant Impact Levels (“SILs”) for all criteria pollutants, and that the Company therefore was not required to conduct interactive emissions analysis. Brockton Power Decision at 22. Like other generation projects, however, the Brockton Power project would require offsets for precursors of ozone based on the classification of Massachusetts as a non-attainment region.

Although the Company does not anticipate that any new modeling would be required when final air permits are sought for the project, the record shows changes to the regulatory environment since the original decision, including the addition of a new criteria pollutant, PM_{2.5}, and the recent re-assumption of PSD permitting by EPA. These factors could affect the earlier conclusion that emissions would be less than SILs, and thus whether interactive emissions analysis would be required. Therefore, the Siting Board directs the Company to inform it of any changes in the expectation that the project’s emissions would be below SILs for all pollutants. Absent such changes, however, the Siting Board finds that there have been no changes to background air quality conditions that alter the assumptions upon which its earlier decision was based.

D. Traffic

1. Description

In its original analysis of traffic impacts of the project, the Company examined traffic conditions at the intersection of Sargents Way and Route 28 (Main Street), the closest major intersection to the site (Exh. BP-1, at 4.12-2 to 4.12-4). The Company determined that the existing traffic conditions qualified as “level of service ‘F’,” the lowest grade on a widely used rating scale (id. at 4.12-2). Although the Company proposed to mitigate adverse traffic impacts during construction of the project through such measures as police officer control during peak traffic periods (id. at 4.12-4), it indicated that signalization of the intersection would be the best approach to the problem (Tr. 2, at 343). In its 2003 filing, the Company reported that the City of Brockton has since added both a traffic signal and a turn lane to the intersection (Exh. EXT-1, at 3). The Company asserted that this has significantly improved traffic flow, particularly for traffic turning south on Main Street from Sargents Way (id.).

2. Analysis

In its original decision, the Siting Board included the following Conditions regarding traffic:

Condition H:

“In order to minimize traffic impacts, until such time as the Route 28-Sargents Way intersection is improved, the Siting Board directs the Company to limit oil deliveries and other commercial delivery traffic to off-peak hours except where emergency conditions exist.”

Condition I:

“In order to minimize traffic impacts, the Siting Board directs the Company to work with the City of Brockton Department of Public Works and with the management of other commercial or industrial facilities within the Oak Hill Industrial Park to identify and if appropriate promote implementation of plans to improve the Route 28-Sargents Way intersection.”

Brockton Power Decision at 269.

The record shows that significant improvements have since been made to this intersection with the addition of both a signal and turning lane. Given these improvements, the Siting Board finds that Condition H and I are moot and no longer requires Brockton Power to limit oil deliveries and other commercial delivery traffic to off-peak hours or to work to further improve the intersection.

E. Interconnection

1. Description

Brockton Power initially proposed to connect its project to the electrical grid via a new 115 kV single-circuit line that would run from the plant through the industrial park, then along the existing MBTA right-of-way to the existing transmission line corridor (Exh. EXT-RR-3; Tr. 1, at 22). This corridor contains two 115 kV circuits, one of which was to be tapped by the

line from the new plant (*id.*). In August 1999, EUA Service Corporation (“EUA”), then the owner of the transmission line, issued a System Impact Study for the proposed project which recommended a double-circuit line to extend the existing 115 kV circuit from the MBTA right-of-way to a three-breaker ring at the plant site (Exh. EXT-RR-3; Tr. 1 at 23).⁸ Due to the uncertainty about the ultimate design of the interconnection, and the lack of information regarding the potential environmental impacts of the design recommended by EUA, the Brockton Power Decision required Brockton Power to inform the Siting Board of any change in the interconnect line, including the possible change of using a double-circuit configuration for the interconnection, so that the Siting Board might determine whether to inquire further into the matter. Brockton Power Decision, at 209, 216, 246.

The Company stated that after the underlying decision was issued, National Grid acquired EUA, including its transmission assets (Exh. EXT-RR-3). Although the Company asserted that “the project will proceed based on the [interconnect] design recommended by EAU” (*id.*), the Company also asserted it is likely that the System Impact Study of August 1999 will be reviewed and updated by National Grid based upon the new generating capacity in southeastern Massachusetts and Rhode Island as well as any plant retirements or de-ratings and transmission system upgrades (Exh. EXT-3; Tr. 99-1A at 24). Brockton Power indicated that it would apprise the Siting Board of any changes to the project approved in the Brockton Power Decision that result from an updated System Impact Study, if and when that information becomes available (Exh. EXT-RR-3).

2. Analysis

In EFSB 99-1, the Company presented information about the impacts of the single-circuit interconnect originally proposed, and the Siting Board granted approval of the project based on its analysis of that information. In the present case, the Company has indicated that the project would instead proceed based upon a double-circuit design recommended by EUA, but the

⁸ This study was made available to the Siting Board after the close of evidentiary hearings and prior to the issuance of the Brockton Power Decision at 250, n.85. The study is part of the evidentiary record of this proceeding (Exh. EXT-9).

Company has not presented information about the impacts of that configuration. Moreover, the record shows that the design of the interconnection to the electrical grid is still uncertain, pending review by National Grid. If the Brockton Power proposes a design other than that which the Siting Board reviewed in EFSB 99-1, the Company will need to provide additional information sufficient for the Board to determine whether further inquiry of the change is warranted.

F. Conclusions on Background Conditions and Regulatory Context

The Siting Board has reviewed information regarding actual or potential changes to background conditions or regulatory context relevant to the extension of its approval to construct a generating facility in Brockton, Massachusetts. With respect to land use, noise, and air quality, the Siting Board has found that there have been no changes in background conditions or applicable regulations sufficient to alter the underlying assumptions upon which the Siting Board based its approval. With respect to traffic, the Siting Board has found that improved conditions have rendered Conditions H and I of the original decision moot and therefore, the Company is no longer required to comply with Conditions H and I. With respect to the interconnection to the electrical grid, the Siting Board has found no changes to background conditions or applicable regulations if construction of the originally proposed, single-circuit design proceeds, but reminds the Company that any change to this design, and associated impacts, must be presented to the Siting Board so it can determine whether further inquiry is warranted.

III. REASONABLENESS OF THE EXTENSION PERIOD

A. Standard of Review

In order to determine whether good cause exists to grant Brockton Power's request for an extension of its approval, the Siting Board must determine whether the length of the requested extension is reasonable. Cabot Power Procedural Order; see also Action by Consent.

B. Analysis

Brockton Power attributed its need for an extension of the approval to a combination of factors (Tr. 99-1A at 31). The Company stated that appeals of the underlying case and the

Massachusetts Environmental Protection Act (“MEPA”) Certificate, as well as significant changes in the electricity market, cooled investor interest and resulted in the cancellation or delay of many energy projects (*id.* at 31-32; Exh. BPX-1, at 2; Company Brief at 2). The Company advised that it is seeking to transfer the development rights of the Brockton Power Project to a qualified energy company (Exh. BPX-1, at 1-2). Specifically, the Company asserted that its requested 16-month extension is reasonable and appropriate under the circumstances and that such an extension will allow Brockton Power to complete its discussions with prospective purchasers of the Brockton Power Project, secure commitments from equipment suppliers, and allow for finalization of arrangements with power purchasers, gas suppliers, and financiers (*id.* at 2-3; Tr. 99-1A at 35-36).

Moreover, the Company argued that the requested extension would achieve general consistency between the expiration dates of the project’s Siting Board approval, its MEPA Certificate, and its MDEP Air Permit. The Company stated that the MEPA Certificate and approval expire on July 16, 2004 (Exh. BPX-1, at 2). The Company also stated that MDEP granted an extension of the technical review period for the draft MDEP Air Permit to June 30, 2004 (Exh. EXT-4, Att.).

The Brockton Power Project was delayed, in part, by the appeal of the Brockton Power Decision. While an appeal does not automatically toll a Siting Board approval, it does create an argument for the need for an extension. Moreover, because the requested 16-month extension would achieve general consistency among the tolling of the Brockton Power Project’s MEPA Certificate, MDEP Air Permit, and the Siting Board’s approval and allow for the transfer of development rights, it is not unduly lengthy. Therefore, the Siting Board finds that the request for a 16-month extension of the Siting Board’s approval is reasonable.

IV. DECISION

In Section II, above, the Siting Board has found that with respect to land use, noise, and air quality that there have been no changes in background conditions or applicable regulations sufficient to alter the underlying assumptions upon which the Siting Board based its approval. With respect to traffic, the Siting Board has found that improved conditions have rendered

Conditions H and I of the original decision moot and therefore, the Company is no longer required to comply with Conditions H and I. With respect to the interconnection to the electrical grid, the Siting Board has found no changes to background conditions or applicable regulations if construction of the originally proposed, single-circuit design proceeds, but reminds Brockton Power that any change to this design, and associated impacts, must be presented to the Siting Board so it can determine whether further inquiry is warranted.

In Section III, above, the Siting Board has found that the request for a 16-month extension of the Siting Board's approval is reasonable.

Accordingly, the Siting Board APPROVES the Request for Extension of Brockton Power subject to the following conditions:

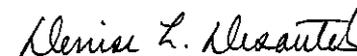
- A. In order to minimize air quality impacts, the Siting Board directs the Company to make a monetary contribution to cost effective CO₂ mitigation programs of an amount that reflects the proposed facility's annual CO₂ emissions of 952,209 tpy over 20 years of operation.
- B. In order to minimize water resources impacts, the Siting Board directs the Company to incorporate ground water protection measures such as impermeable bases into the design of bulk chemical storage containment systems to the containment system.
- C. To minimize solid waste impacts, the Siting Board directs the Company to develop and implement a plan for segregating and recycling wood, metal, and other recyclable debris during the construction phase of the proposed project. In the event that the Company determines that recycling of selected construction debris is impractical or burdensome, the Siting Board directs the Company to submit a detailed evaluation of the factors that contributed to the determination, including an analysis of the waste stream, an analysis of costs associated with disposal and recycling, and a comparison of recycling costs to potential

environmental benefits of recycling at the proposed facility.

- D. In order to minimize visual impacts, the Siting Board directs the Company to provide reasonable off-site mitigation of visual impacts at affected residential properties and at roadways and other locations within one mile of the proposed facility, as requested by individual property owners or appropriate municipal officials. For this decision, reasonable offsite mitigation could include shrubs, trees, or other mutually-agreeable measures, such as window awnings, that would screen views of the proposed generating facility and including the proposed electrical interconnection line.
- E. In order to minimize safety impacts, the Siting Board directs the Company to provide for facility security and to limit access to the proposed site during construction and operation of the proposed facility.
- F. In order to minimize safety impacts, the Siting Board directs the Company to prepare the SPCC plan and the ERP in consultation with both the City of Brockton and the Town of West Bridgewater.
- G. In order to minimize safety impacts, the Siting Board directs the Company to develop and implement a plan for mitigating hazardous roadway and walkway conditions that could result from icing associated with the cooling towers.
- J. In order to minimize EMF impacts, the Siting Board directs the Company to provide the Siting Board with an update on: (1) the extent and design of required transmission upgrades; (2) the measures incorporated into the transmission upgrade designs to minimize magnetic field impacts; and (3) the resulting magnetic field levels at the edge of the EUA ROW based upon the transmission upgrade design and most likely load flow scenario.

- K. In order to minimize air quality impacts, the Siting Board directs the Company to inform it of any changes in the expectation that the project's emissions would be below SILs for all pollutants.

Because issues addressed in this Decision and in Brockton Power, LLC, 10 DOMSB 157 (2000) are subject to change over time, construction of the proposed generating facility must be commenced by July 1, 2004. In addition, the Siting Board notes that the findings in this Decision and in Brockton Power, LLC, 10 DOMSB 157 (2000) are based upon the record developed for each respective case. A project proponent has an absolute obligation to construct and operate its facility in conformance with all aspects of its proposal as presented to the Siting Board. Therefore, the Siting Board requires Brockton Power to notify the Siting Board of any changes other than minor variations to the proposal, so that the Siting Board may decide whether to inquire further into a particular issue. Brockton Power is obligated to provide the Siting Board with sufficient information on changes to the proposed project to enable the Siting Board to make these determinations.



Denise L. Desautels
Presiding Officer

Dated this 14th day of August, 2003.

APPROVED by the Energy Facilities Siting Board at its meeting of August 14, 2003, by the members and designees present and voting: Stephen R. Pritchard (Acting Chairman, for Ellen Roy Herzfelder, Secretary of Environmental Affairs); W. Robert Keating (Commissioner, DTE); Deirdre K. Manning (Commissioner, DTE); and James Connelly (Commissioner, DTE).


Stephen R. Pritchard
Acting Chairman, EFSB

Dated this 14th day of August, 2003.

Appeal as to matters of law from any final decision, order, or ruling of the Siting Board may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the order of the Siting Board be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Siting Board within twenty days after the date of service of the decision, order, or ruling of the Siting Board, or within such further time as the Siting Board may allow upon request filed prior to the expiration of the twenty days after the date of service of said decision, order, or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the clerk of said court. (Massachusetts General Laws, Chapter 25, Sec. 5; Chapter 164, Sec. 69P).

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

KeySpan Energy Delivery New England
Investigation

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EFSB 02-3

DECISION CLOSING INVESTIGATION

Jollette A. Westbrook
Presiding Officer
October 10, 2003

On the Decision:
Amy Barad

I. INTRODUCTION

On January 8, 2003, the Massachusetts Energy Facilities Siting Board (“Siting Board”) opened an investigation regarding the circumstances under which Colonial Gas Company d/b/a/ KeySpan Energy Delivery New England (“KeySpan” or “Company”) replaced approximately 6000 feet of 8-inch diameter pipeline with 12-inch diameter pipeline between January and May 2000 (“pipeline project”)¹. KeySpan constructed the pipeline project without prior Siting Board approval. The Siting Board opened the investigation: (1) to examine the circumstances under which the approximately 6000 feet of pipeline were constructed; (2) to determine whether the approximately 6000 feet of pipeline were constructed in violation of G.L. c. 164, § 69J; (3) to determine whether KeySpan failed to seek other state permits for the upgrade project; (4) to assess whether any damage to the environment or harm to KeySpan’s customers occurred due to the Company’s failure to obtain Siting Board approval; and (5) to determine whether any redress is warranted. Action by Consent, KeySpan Energy Delivery New England, Order Opening Investigation, January 8, 2003, at 1-2. The Siting Board directed KeySpan to cooperate fully with this investigation and required KeySpan, inter alia, to provide all information requested by Siting Board staff and to present oral testimony, if requested to do so. Id. at 3. The Siting Board stated that at the conclusion of its investigation, it would take such further action as it deemed necessary. Id. During the course of the investigation, KeySpan provided written responses to questions posed by Siting Board staff and met with staff to provide further clarification regarding circumstances surrounding the construction of the pipeline project.²

II. INVESTIGATION

KeySpan stated that since 1956, the Company has operated and maintained a high-

¹ The investigation opened by the Siting Board was not adjudicatory in nature.

² KeySpan has provided the following information to the Siting Board: (1) a letter dated October 4, 2002 and attached map addressed to Selma Urman and signed by David S. Rosenzweig (“October Letter”); (2) responses to information requests designated as Exhs. INV-1 through INV-12; and (3) a letter dated February 14, 2003 addressed to Jolette Westbrook and signed by Richard A. Visconti (“February Letter”). In addition, on June 30, 2003, Siting Board staff met with KeySpan representatives to obtain further clarification regarding the pipeline project.

pressure natural gas pipeline on Cape Cod that runs from Bourne through North Falmouth (February Letter at 2). The Company stated that, in 2000, it replaced 6058 feet of 8-inch pipe with 12-inch pipe and that the Company constructed the project in order to maintain a minimum operating pressure of 86 psig at its Route 151 regulator station (Exh. INV- 1; February Letter at 2). The Company stated that, absent the pipeline project, the Route 151 regulator station in Falmouth would not have been able to provide an adequate supply of gas at peak periods during the winter of 2000-2001 (Exh. INV-4). The Company stated that by upgrading the existing pipeline, the Company has been able to ensure a minimum pressure of 89 psig at the Route 151 regulator station (February Letter at 2). The Company also stated that the upgraded 12-inch pipeline is along the same public roadway and military-base easement as the pre-existing 8-inch pipeline (*id.* at 2).

The upgraded pipeline travels through the Towns of Sandwich and Falmouth along Simpkins and Sandwich Roads (October Letter and map). The Company stated that: (1) there are no sensitive receptors along the route of the pipeline project; (2) at its closest point the route passes within about 300 feet of the nearest body of water; and (3) the nearest vernal pool is approximately 350 feet to the east of the route of the pipeline project (Exh. INV-8). In addition, the Company stated that approximately 300 feet of the pipeline project is "just within" an area mapped both for state protected and rare species and for estimated habitat for rare wetland species (*id.*). The Company also asserted that, although much of the upgrade was in areas mapped as "groundwater contamination plumes," the 4 to 5 foot deep trench that was used for the pipeline project did not raise issues since the groundwater contamination plumes are generally at depths of approximately 40 feet (*id.*). KeySpan stated that construction of the pipeline project began on January 31, 2000 and was completed on May 30, 2000 (Exh. INV-2). The total cost of construction, according to the Company, was \$181,217.25 (Exh. INV-3).

The Company stated that, prior to constructing the pipeline project, it received oral permission from both the Air Force National Guard³ and the Town of Falmouth (Exh. INV-5). The Company also stated that it notified the Department of Telecommunications and Energy's

³ Approximately 4800 feet of the pipeline project is located on or adjacent to the Massachusetts Military Reservation (Exh. INV-8, at 2).

Division of Pipeline Safety and Engineering prior to construction of the pipeline project and again in March 2000 (*id.*). KeySpan also represented that letters were sent to residences and businesses along the route before any construction was undertaken (Exhs. INV-7; INV-10).

KeySpan stated that even though the pipeline project was over a mile in length, the Company did not seek Siting Board approval prior to construction because it believed that the project fell under the exclusions outlined in the Siting Board's regulations at 980 CMR 7.07(8)(c) and (d) (February Letter at 1-2). Specifically, KeySpan asserted that 980 CMR 7.07(8)(c) excludes from Siting Board review the "upgrading of an existing pipeline, which has been in existence for at least 24 months and which is capable of operating at pressures in excess of 100 psig", and 980 CMR 7.07(8)(d) excludes "construction of a pipeline which at least for the first two years of service will be used at a pressure of less than 100 psi gauge or which involves the rebuilding, relaying, minor relocation or restructuring of all or part of an existing line which traverses essentially the same route" (*id.*). KeySpan stated that the pipeline project was exempt from review pursuant to 980 CMR 7.07(8)(c), in that the construction was considered to be an upgrade to a system that had been in existence well over 24 months and was already functioning at a normal operating pressure in excess of 100 psig (*id.*). Further, the Company argued that the pipeline project was exempt from review pursuant to 980 CMR 7.07(8)(d), because the upgrade occurred along an existing pipeline route (*id.*). KeySpan also stated that the pipeline project was not intended to increase capacity (*id.* at 2).

III. ANALYSIS

Pursuant to G.L. c. 164, § 69J, construction of a facility at a site shall not occur unless a petition for approval of construction of that facility has been approved by the Siting Board. For purposes of this investigation, the relevant definition of facility is "a new pipeline for the transmission of gas having a normal operating pressure in excess of 100 pounds per square inch gauge which is greater than one mile in length except restructuring, rebuilding, or relaying of existing transmission lines of the same capacity." G.L. c. 164, § 69G. The statute does not provide a definition for "new pipeline", "restructuring", "rebuilding", "relaying" or "capacity". Further, there does not appear to be a single industry-wide definition for such terms. Therefore, for additional guidance, the Siting Board turns to its regulations.

The Siting Board's current regulations do not directly address the jurisdictional issues described above. However, 980 CMR 7.07, which governs the filing of supply plans by gas companies, enumerates certain activities that are deemed not to constitute the construction of facilities. Specifically, 980 CMR 7.07(8)(c) excludes "the upgrading of an existing pipeline, which has been in existence for at least 24 months and which is capable of operating at a pressure in excess of 100 psi gauge" and 980 CMR 7.07(8)(d) excludes "construction of a pipeline which for at least the first two years of service will be used at a pressure of less than 100 psi gauge or which involves the rebuilding, relaying, minor relocation, or restructuring of all or part of an existing line which traverses essentially the same route...."

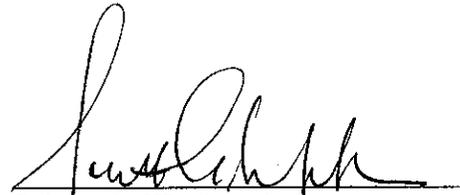
Historically, Massachusetts gas companies and the Siting Board have relied on 980 CMR 7.07(8) to determine whether or not it is necessary to file a petition to construct natural gas facilities. Here, KeySpan has argued that the pipeline project is exempt under both 7.07(8)(c) and (d). KeySpan has presented information demonstrating that the pipeline project replaced, along the same route, certain portions of a pipeline that had been operating for over 45 years and that said pipeline had been operating at 200 psi gauge for well over two years. Therefore, we determine that it was reasonable for Colonial Gas Company, now owned by KeySpan, to rely on 980 CMR 7.07(8)(c) to construct the pipeline project without obtaining prior Siting Board approval.⁴ Consequently, the Siting Board determines that Colonial Gas Company was not required to obtain Siting Board approval before constructing the pipeline project.

Having made this determination, we also note that the Siting Board is in the process of promulgating new regulations that directly address the siting of natural gas pipelines. Promulgation of Rules Governing Siting of Natural Gas Pipelines, Final Order Opening Rulemaking, 13 DOMSB 296 (2002) ("Rulemaking"). In this Rulemaking, the Siting Board will assess and clarify the limits of its jurisdiction over natural gas pipelines.

⁴ Because of this determination, the Siting Board does not examine whether the pipeline project would have been excluded from the definition of construction of a facility under 980 CMR 7.07(8)(d).

IV. DECISION

The Siting Board has determined, above, that it was reasonable for Colonial Gas Company, now owned by KeySpan, to rely on 980 CMR 7.07(8)(c) to construct the pipeline project without prior Siting Board approval. Accordingly, the Siting Board hereby closes its investigation of Colonial Gas Company's 6058 feet pipeline project constructed in the Towns of Sandwich and Falmouth along Simpkins and Sandwich Roads between January and May 2000.



Jollette A. Westbrook
Presiding Officer

Dated this 10th day of October, 2003

APPROVED by the Energy Facilities Siting Board at its meeting of October 9, 2003, by the members and designees present and voting: Paul G. Afonso (Chairman, DTE/EFSB); W. Robert Keating (Commissioner, DTE); Deirdre K. Manning (Commissioner, DTE); Robert Sydnay (for David L. O'Connor, Commissioner, Division of Energy Resources); and Stephen R. Pritchard (for Ellen Roy Herzfelder, Secretary of Environmental Affairs).



Paul G. Afonso
Chairman, DTE/EFSB

Dated this 9th day of October, 2003.

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

_____)
In the Matter of the Petition of)
The Berkshire Gas Company for Approval)
To Construct a Liquefied Natural Gas) EFSB 99-2A
Storage and Vaporization Facility in)
Whately, Massachusetts)
_____)

_____)
The Petition of The Berkshire Gas Company)
for an Exemption from the Zoning Bylaws)
of The Town of Whately in Connection) D.T.E. 99-17A
with the Construction and Operation of a)
Liquefied Natural Gas Storage and)
Vaporization Facility)
_____)

FINAL DECISION ON COMPLIANCE AND
ON MOTION FOR PROTECTIVE TREATMENT

M. Kathryn Sedor
Presiding Officer
October 10, 2003

On the Decision:
Christopher Bourne

APPEARANCES:

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FOR: Berkshire Gas Company
Petitioner

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Intervenor

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FOR: Town of Deerfield and Deerfield Planning Board
Intervenor

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FOR: Town of Whately
Intervenor

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FOR: Cabot LNG Corporation
Interested Person

Theodore F. Cycz
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South Deerfield, Massachusetts 01373
Interested Person

The Energy Facilities Siting Board hereby APPROVES, with conditions, the plan prepared by The Berkshire Gas Company for remote operation of its liquified natural gas storage and vaporization facility in Whately, Massachusetts. The Siting Board also GRANTS the Company's motion for protective treatment with respect to the remote operation plan.

I INTRODUCTION

On September 13, 1999, the Energy Facilities Siting Board ("Siting Board") issued a Final Decision in the above-referenced proceeding ("underlying proceeding"), approving the petition of The Berkshire Gas Company ("Berkshire" or "Company") to construct a new liquified natural gas ("LNG") storage and vaporization facility ("facility") in the Town of Whately, Massachusetts. Berkshire Gas Company, 9 DOMSB 1 (1999) ("Berkshire Gas Decision" or "Decision").¹

In the underlying proceeding, Berkshire indicated its intent to operate the LNG facility manually for one to two years, and then to operate it remotely from the Company's Dispatch Center in Pittsfield, Massachusetts (Berkshire Gas Decision at 78; Exh. BG-C-1, at 2). However, the Berkshire Gas Decision did not authorize the Company to operate the LNG facility remotely. Rather, in a Condition to the Decision, the Siting Board required Berkshire to submit a remote operation plan ("plan") for review and approval by the Siting Board and the Department of Telecommunications and Energy's Pipeline Safety and Engineering Division ("Pipeline Safety Division") before commencing remote operations. Berkshire Gas Decision at 94-95, Condition 4 ("Condition 4").

The LNG facility has been constructed, and has been operating manually for over three years (Exh. BG-C-1, at 2). On March 4, 2003, in accordance with Condition 4 of the Berkshire Gas Decision, the Company filed a remote operation plan for review by the Siting Board and the Pipeline Safety Division. The Company also has filed a motion seeking confidential treatment

¹ The Siting Board also granted Berkshire's petition to the Department of Telecommunications and Energy for certain exemptions from the Town of Whately Zoning Bylaw. That petition was docketed as D.T.E. 99-17, and was consolidated for hearing with the Company's Siting Board petition, docketed as EFSB 99-2.

for the plan (“Motion”).

In Section II, below, the Siting Board addresses whether the Company’s remote operation plan satisfies Condition 4 of the Berkshire Gas Decision. In Section III, below, the Siting Board addresses the Company’s motion for confidential treatment of the plan.

II. REMOTE OPERATION PLAN

A. Condition 4

Condition 4 of the Berkshire Gas Decision provides that, prior to commencement of remote operation, Berkshire

“shall file with the Siting Board for review and approval in consultation with the Department’s Pipeline Engineering and Safety Division a Remote Operation Plan. The Remote Operation Plan shall include, at a minimum, the following: (1) a comprehensive set of proposed standard operating procedures (“SOP’s”) for remote operation of the facility; (2) a proposed SOP for use by dispatchers at the Company’s Pittsfield facility in determining the circumstances in which additional personnel are needed to operate the facility remotely; (3) a summary of changes to the facility’s emergency response system as a result of remote operation, including a summary of all changes requested by the Whately or Deerfield Fire Departments and the Company’s response to such requests; (4) a proposal to install on the facility site a CCTV system suitable for operational, emergency and security uses; a detailed plan for protection of the facility with a remotely operated firefighting system. The plan should identify which area(s) of the facility could be protected with remotely operated firefighting equipment, and the type of equipment that would be best suited to that area. The plan should be developed with the assistance of a qualified fire protection engineer familiar with LNG facilities; and (5) a plan regarding use of the facility’s existing alarm system under remote operation. The plan should include the results of a false alarm study performed during the first year(s) of local operation of the facility. The plan should indicate which detectors were most likely to give false alarms; how the Company proposes to minimize false alarms; and to what extent components of the remotely operated firefighting system could be connected to the alarm system.”

Berkshire Gas Decision at 94.

B. The Company’s Proposed Remote Operation Plan

1. Comprehensive Standard Operating Procedures

As noted above, Condition 4(1) of the Berkshire Gas Decision requires Berkshire to

include in its remote operation plan “a comprehensive set of proposed standard operating procedures” for remote operation of the Whately facility.

The standard operating procedures for the LNG facility are set out in Section 3.0 of the Company’s plan. This section contains detailed procedures to be followed by Company personnel when starting, operating, and closing down the facility. In some cases, the specified procedures apply to both local and remote operation. Where differences exist between local and remote operation, Section 3.0 sets forth the applicable procedures for each. Operating procedures of general applicability include: procedures for inspection and preparation of the facility for operation; the unloading of LNG transport tankers; and LNG tank pressure control (Exh. BG-C-2, at 3.1- 3.5). In contrast, the procedures which govern the send-out of vaporized LNG depend on whether the facility is under local or remote operation (*id.* at 3.6, 3.7). Pursuant to the remote operation plan, an updated copy of the operating procedures must be maintained at all times in the facility control room, at the Company’s offices in Greenfield and Pittsfield, and at the Company’s Pittsfield Dispatch Center (*id.* at 3.0). Berkshire intends to install an electronic logbook for facility record keeping, and has stated that it will not operate the facility remotely until the installation has been completed (Exh. EFSB-C1-4).

The Siting Board, in consultation with the Pipeline Safety Division, has reviewed the Company’s remote operation plan, particularly Section 3.0 of the plan, which sets forth the standard operating procedures for the Whately LNG facility. The Siting Board concludes that the plan satisfies the requirement of Condition 4(1) that a comprehensive set of operating procedures be developed for operation of the facility. In reaching this conclusion, we note that detailed operating procedures have been developed for the various phases of plant operation, including start-up, vaporization, and shut-down. The Siting Board also notes that the remote operation procedures have been incorporated into the facility’s general operating procedures, rather than set apart in a separate operational plan. The Siting Board views this integration as beneficial, because many of the general operating procedures also apply to remote operations, and because it provides Company personnel with a more comprehensive guide to plant operation than would a plan focused on remote operations only. Finally, we also note that updated copies of the remote operation plan will be available at all of the Company’s facilities and offices, which we view as

another component in the development of a comprehensive set of operating procedures. Accordingly, the Siting Board finds that the Company's standard operating procedures, as set forth in Section 3.0 of the remote operation plan, is a comprehensive set of operating procedures for the Whately LNG facility under remote operation and, as such, satisfies Condition 4(1) of the Berkshire Gas Decision.

2. SOP for Additional Personnel

Condition 4(2) requires Berkshire to include in its remote operation plan "a proposed SOP for use by dispatchers at the Company's Pittsfield dispatch center in determining the circumstances in which additional personnel are needed to operate the facility remotely." Berkshire Gas Decision at 94-95.

In its plan, the Company states that two dispatchers must be present in the Pittsfield Dispatch Center during normal working hours (Exh. BG-C-2, at 3.7.1). The plan further provides that, if the LNG facility is to be operated remotely before or after normal working hours, and only one dispatcher or authorized operator is present in the Dispatch Center, "additional qualified personnel shall be called in" (*id.*).

The Siting Board, in consultation with the Pipeline Safety Division, has reviewed the Company's remote operation plan. The Siting Board finds that the Company's standard operating procedure for determining when additional personnel are required for remote operation of the LNG facility satisfies Condition 4(2) of the Berkshire Gas Decision.

3. Summary of Changes to Emergency Response System

Condition 4(3) of the Decision requires Berkshire to include in its remote operation plan "a summary of changes to the facility's emergency response system as a result of remote operation, including a summary of all changes requested by the Whately or Deerfield Fire Departments and the Company's response to such requests."

Berkshire stated that the Company has made several changes to the LNG facility's emergency response system to allow for remote operation (Exh. BG-C-1, at 4). Berkshire stated that several of the changes resulted from conversations between the Company and local fire

officials, including the practice of making initial telephone contact in an emergency with the regional 911 dispatch center in Shelburne Falls, Massachusetts, rather than with local emergency officials (*id.*; Exhs. BG-C-2, at 5.12; BG-C-3, att.).

The Siting Board, in consultation with the Pipeline Safety Division, has reviewed the Company's remote operation plan. The Siting Board finds that the Company's remote operation plan provides a summary of changes to the facility's emergency response system as a result of remote operation and, consequently, satisfies Condition 4(3) of the Berkshire Gas Decision.

4. Proposals for CCTV System and Remote Firefighting

a. Proposal for a CCTV System

Condition 4(4) of the Berkshire Gas Decision requires Berkshire to include in its remote operation plan "a proposal to install on the facility site a CCTV system suitable for operational, emergency and security uses."

The remote operation plan states that a CCTV system has been installed on the facility site, and that this system may be operated both manually from the facility's control room in Whately, and remotely from the Pittsfield Dispatch Center (Exh. BG-C-2, at 7.1). The plan states that a CCTV system with three video cameras has been installed, and that each camera is capable of providing a 360-degree view of the facility (*id.*). The Company has stated that it intends to upgrade the CCTV system before beginning remote operations, to add remote pan, tilt, and zoom functions that can be operated remotely from the Dispatch Center (*id.*; Exh. EFSB-C1-1). The Company stated its video monitoring strategy is consistent with the recommendations of its fire safety consultant, FIREPRO, Inc. ("FIREPRO") (Exh. BG-C-1, at 5).²

The Siting Board, in consultation with the Pipeline Safety Division, has reviewed the Company's remote operation plan, in particular those sections of the plan and supporting documentation pertaining to the installation of the CCTV system at the Whately facility. Based on our review, the Siting Board finds that the Company has satisfied the requirements of

² See "Fire Safety Analysis Report," prepared by FIREPRO Inc. for Northstar Industries, dated March 19, 2002, and incorporated as Section 2.0 to the Company's remote operation plan ("Fire Safety Report").

Condition 4(4) of the Berkshire Gas Decision.

b. Proposal for Remote Firefighting

Condition 4(4) also requires Berkshire to include in its remote operation plan a detailed plan for protection of the facility with a remotely operated firefighting system. The plan should identify which area(s) of the facility could be protected with remotely operated firefighting equipment, and the type of equipment that would be best suited to that area. The plan should be developed with the assistance of a qualified fire protection engineer familiar with LNG facilities.

The Company stated that the design of the LNG facility incorporates both active and passive fire protection systems (Exh. BG-C-2, at 6.9-6.10). Components of the facility's active fire suppression system include flame detectors, heat detectors, a smoke detector in the control room, manual pull stations and horn-strobes (id. at 2.0-3.0). The Company stated that the facility also is equipped with an Emergency Shutdown ("ESD") System, which is automatically activated by the fire alarm system and by high-level combustible gas signals (id.). The Company stated that remote operation of the facility was considered in the preliminary design phase for the facility and consequently "several passive [fire]-protection features are incorporated into the facility's design, including the design of the facility's control room, its vapor fence, and impoundment pits" (id. at 1-2).

Sections 6.17.2 and 6.18.2 of the Fire Safety Report specifically address the responsibilities of a facility operator in the event of a fire while the facility is under remote operation, stating that if a fire is discovered before the facility's fire alarm system activates, "it is the responsibility of the dispatcher or authorized operator to initiate ESD and/or Emergency Procedures" (id.). The Company intends to install a system by which fire alarms will be transmitted to a UL-listed central service provider, as backup to the transmission of alarms from the facility control room (Exh. EFSB-C1-2). The Company stated that this backup will ensure that a fire alarm is transmitted to the fire department if the Company experiences a loss in transmission signal (id.). The Company stated that it will not operate the facility remotely until installation of this backup transmission capability has been completed (id.).

With respect to the installation of remotely operated firefighting equipment, Berkshire stated that FIREPRO has determined that the “existing fire suppression equipment at the Facility [is] adequate for remote operations” and that “the best course of action in case of emergencies during remote operation [is] prompt and complete notification of fire department officials” (Exh. BG-C-1, at 5). Berkshire stated that it has implemented FIREPRO’s recommendations regarding specific equipment and communications measures for optimizing fire department notification, and has pursued training and coordination of fire department officials (*id.*). Based on FIREPRO’s study, the Company does not plan to install remotely operated firefighting equipment at the Whately facility (*id.*).

The Siting Board, in consultation with the Pipeline Safety Division, has reviewed the Company’s remote operation plan, including the Fire Safety Report prepared by FIREPRO, Inc. which is included in Section 2.0 of the plan. The Fire Safety Report specifically, and exclusively, addresses fire safety in connection with remote operation of the LNG facility. The Report is detailed, and contains four recommendations “designed to maximize public safety by reducing the probability of fire impacting the facility” (Exh. BG-C-2, at 2.0, p.10). These recommendations included: (1) updating of the Company’s emergency plans and coordination with local emergency agencies; (2) directing personnel to notify the local fire department in all cases, rather than determining first if the fire is “controllable;” (3) use of a UL-Listed Central Station to receive fire alarm signals from the facility; and (4) ensuring a means of direct communication between the Dispatch Center and the fire department. The Company has stated that it would implement each of these recommendations (Exh. EFSB-C1-3).

Because the Company, on the advice of its consultants, does not intend to develop a remote firefighting system for the Whately facility, literal compliance with the requirements of Condition 4(4) is not possible. The Siting Board notes that, of necessity, the Berkshire Gas Decision, including Condition 4(4), was issued well before the conduct and issuance by FIREPRO of its fire safety analysis and recommendations for the Whately facility. Since issuance of the Decision, the Company has retained consultants with specific expertise in fire safety assessment, and these consultants have indicated that the addition of remote firefighting capabilities at the Whately facility is not warranted. There is nothing in the record of this

proceeding, or the underlying proceeding, that leads us to question the technical decision by Berkshire and its consultants that the addition of remotely operated firefighting equipment to the Company's fire-protection strategy for the LNG facility is not necessary to protect public safety. For these reasons, the Siting Board waives the requirement in Condition 4(4) that Berkshire install remote firefighting capability for the Whately LNG facility.

5. Plan for Remote Operation of the Facility Alarm System

Condition 4(5) requires Berkshire to include in its remote operation plan

“a plan regarding the facility's existing alarm system under remote operation. The plan should include the results of a fire alarm study performed during the first year(s) of local operation of the facility. The plan should indicate which detectors were most likely to give false alarms; how the Company proposes to minimize false alarms; and to what extent components of the remotely operated firefighting system could be connected to the alarm system.”

Berkshire stated that it conducted two alarm studies at the Whately facility (Exh. EFSB-C2-2). The first study was conducted between July 6, 2002 and October 4, 2002, when the facility was not in operation (Exh. BG-C-1, att.). The second study was conducted between December 2002 and February 2003, while the facility was in operation (Exh. EFSB-C2-2). The Company stated that the alarm system installed at the Whately facility is a “substantial and sensitive” alarm system (Exh. BG-C-1, at 5) and that, based on the alarm studies, the “system is functioning as intended and the Company has not experienced any significant concerns with false alarms” (Exh. EFSB-C2-2).

The Siting Board and the Division of Pipeline Safety have compared the Company's remote operation plan with the requirements of Condition 4(5) of the Berkshire Gas Decision. The Siting Board notes that Berkshire has conducted two alarm studies at the Whately facility and, based on those studies, has concluded that the number of documented false alarms at the facility is insignificant. Having completed alarm studies showing insignificant numbers of false alarms, the Company did not address potential methods for minimizing false alarms, as directed by Condition 4(5). As noted in Section II.B. 4.b, above, Berkshire, on the advice of its consultants, does not intend to install a remote firefighting system at the Whately facility.

Consequently, the Company did not address the extent to which a remote firefighting system might be connected to the facility's alarm system, as required by Condition 4(5).

The Siting Board finds that Berkshire has satisfied the central requirement of Condition 4(5), which is to assess whether the alarm system in place at the Whately facility is producing false alarms in such numbers that modification of the alarm system may be in order. The record does not indicate such modification is warranted. Accordingly, we waive the requirement of Condition 4(5) requiring Berkshire to address methods for reducing false alarms. We likewise waive the Company's obligation to consider combining a remote firefighting system with the facility's alarm system, since we have waived Berkshire's obligation to install a remote firefighting system. Accordingly, the Siting Board finds that the Company has satisfied Condition 4(5) of the Decision.

C. Conclusions With Respect to the Remote Operation Plan

In Section II.A., above, the Siting Board found that Berkshire's remote operation plan had satisfied each of the five requirements of Condition 4 to the Berkshire Gas Decision. However, as also discussed in Section II. A, some of the steps needed to fully implement the plan have not yet been completed. The Siting Board concludes that the Company should be required to complete the items set forth in Condition A, below, before receiving authorization to operate the LNG facility remotely.

III. MOTION FOR PROTECTIVE TREATMENT

The protection of confidential information in a Siting Board proceeding is addressed in the Siting Board's regulations at 980 CMR § 4.00 et seq. The purpose of Section 4.00 is two-fold: to provide public access to Siting Board records, and "to provide protection for certain trade secrets, where such protection is both appropriate and provided for by law." 980 CMR § 4.01(1).

In its Motion, Berkshire asserts that protected or confidential treatment of the Company's remote operation plan "is appropriate given the greater need for security in the natural gas industry" (Motion at 3). Berkshire asserts that Massachusetts law specifically recognizes the

merit of protecting materials such as the remote operation plan from public disclosure, citing G.L. c. 4, § 7(26)(n), which contains the following exemption from the definition of “public records”:

“(n) records, including, but not limited to, blueprints, plans, policies, procedures and schematic drawings, which relate to internal layout and structural elements, security measures, emergency preparedness, threat or vulnerability assessments, or any other records relating to the security or safety of persons or buildings, structures, facilities, utilities, transportation or other infrastructure located within the commonwealth, the disclosure of which ... is likely to jeopardize public safety.”³

Citing this exemption, and the events of September 11, 2001, Berkshire asserts that it would be “highly inappropriate” for the remote operation plan to be made publicly available, given that the plan relates directly to the safety and security of the LNG facility (Motion at 4). Berkshire further asserts that because the LNG facility is necessary to protect the public health and safety of Berkshire’s customers during peak demand, added security measures such as confidential treatment for the remote operation plan are necessary and appropriate to protect public health and safety (Motion at 4-5). Berkshire notes that the Company has reviewed the remote operation plan with local public safety officials, and has incorporated the suggestions of these officials into the plan (*id.*). Accordingly, Berkshire states, the requested protective treatment would not adversely affect public safety.

Based on our review of the Company’s remote operation plan, we find that the plan as a whole consists of information relating to security measures, emergency response measures, and other information related to the security or safety of both persons and buildings within the meaning of G.L. c. 4, § 7(26)(n). We further find that, with the exception of local public safety officials, any interest that would be served by public disclosure of this information would be outweighed by the possibility that such disclosure could jeopardize public security or safety.

Based on the representations by the Company in its Motion, we conclude that the information contained in Berkshire’s remote operation plan is proprietary information that should

³ G.L. c. 4, § 7 was amended in 2002 to add the exemption to the definition of “public records” contained in subsection (n). St. 2002, c. 313, § 1, effective September 5, 2002.

be accorded confidential treatment pursuant to G.L. c. 4, § 7(26)(n) and 980 CMR § 4.01.

Accordingly, Berkshire's Motion for Protective Treatment is granted.

IV. DECISION

A. Remote Operation Plan

The Siting Board hereby APPROVES the remote operation plan of The Berkshire Gas Company, subject to compliance with Condition A, below.

1. Condition A

Berkshire shall complete the following prior to commencing remote operation of the Whately facility:

1. Installation and successful testing of the remote pan, tilt, zoom capability of the CCTV cameras from the Company's Pittsfield Dispatch Center;
2. Installation and successful testing of a backup system for fire alarm signal transmission to the fire department;
3. Connection to a UL-listed central station for alarms; and
4. Installation and successful testing of the electronic logbook for the Whately facility and the Pittsfield Dispatch Center.

Berkshire shall notify the Siting Board and the Pipeline Safety Division when the items listed in Condition A (1) through (4) have been completed. Upon receipt and review of the notifications, the Siting Board will issue written confirmation of the Company's authorization to operate the Whately facility remotely.

B. Motion for Protective Treatment

The Siting Board grants the Motion by the Berkshire Gas Company for protective treatment of the Company's remote operation plan, as identified in this proceeding. To help ensure confidentiality of the plan, the Siting Board and the Pipeline Safety Division will return all unredacted copies of this document to the Company. Neither the Siting Board nor the Pipeline Safety Division has a compelling need to retain the remote operation plan, particularly

in light of the Company's representations that it has reviewed the remote operations plan with local public safety officials, and that the Company remains willing to provide copies of the remote operation plan "to appropriate parties upon the execution of a non-disclosure agreement" (Motion at 5). The Siting Board concludes that the interests of public safety and security, on which our decision to grant the motion for protective treatment is based, are best served in this instance by granting the motion for protective treatment and also by minimizing to the extent feasible the number of copies of the remote operation plan that are publicly available.



M. Kathryn Sedor
Presiding Officer

Dated this 10th day of October, 2003

APPROVED by the Energy Facilities Siting Board at its meeting of October 9, 2003, by the members and designees present and voting: Paul G. Afonso (Chairman, DTE/EFSB); W. Robert Keating (Commissioner, DTE); Deirdre K. Manning (Commissioner, DTE); Robert Sydney (for David L. O'Connor, Commissioner, Division of Energy Resources); and Stephen R. Pritchard (for Ellen Roy Herzfelder, Secretary of Environmental Affairs).



Paul G. Afonso
Chairman, DTE/EFSB

Dated this 9th day of October, 2003.

Appeal as to matters of law from any final decision, order or ruling of the Siting Board may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the order of the Siting Board be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Siting Board within twenty days after the date of service of the decision, order or ruling of the Siting Board, or within such further time as the Siting Board may allow upon request filed prior to the expiration of the twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the clerk of said court. (Massachusetts General Laws, Chapter 25, Sec. 5; Chapter 164, Sec. 69P).

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Motion to Withdraw the Petition of IDC)
Bellingham LLC, for Approval to Construct)
and Operate a 700-MW Bulk Generation Facility in)
Bellingham, Massachusetts and the Application of)
IDC Bellingham LLC for a Certificate of)
Environmental Impact and Public Interest)
_____)

November 13, 2003

ACTION BY CONSENT

I. INTRODUCTION

This “Action by Consent” is made pursuant to 980 CMR § 2.06, which provides the Energy Facilities Siting Board (“Siting Board”) with the authority to render a decision via Action by Consent when the Board “determines that expeditious action is necessary.” 980 CMR § 2.06(1).

II. BACKGROUND

On June 19, 2003, Maurice Durand et al. and the Box Pond Association, Inc. et al. (“Petitioners”) filed with the Siting Board a motion (“Motion”) to withdraw the certificate of environmental impact and public interest (“Certificate”) issued by the Siting Board in IDC Bellingham, LLC, 13 DOMSB 1 (2001) (“Certificate Decision”), and the decision issued by the Siting Board in IDC Bellingham, LLC, 9 DOMSB 225 (1999) (“Final Decision”). IDC Bellingham, LLC, the company that obtained the Certificate and Final Decision from the Siting Board, filed no response to the Motion.

III. PROCEDURAL HISTORY

On December 21, 1999, the Siting Board conditionally approved the petition of IDC Bellingham, LLC (“IDC” or “Company”) to construct a natural gas-fired combined-cycle electric generating facility with a net nominal electrical output of 700 MW. Final Decision. On September 12, 2000, the Siting Board approved the Company’s Compliance Filing, approving

the proposed reconfigured facility with a net nominal output of 500 MW. IDC Bellingham, LLC - Compliance, 11 DOMSB 27 (2000) (“IDC Compliance Decision”).¹ On September 24, 2001, the Siting Board approved with conditions a project change filed by the Company on June 6, 2001. IDC Bellingham, LLC, 12 DOMSB 372 (2001) (“IDC Project Change Decision”).² Thereafter, on October 12, 2001, the Siting Board granted the Company’s Application for a Certificate with respect to five special permits granted by the Bellingham Board of Appeals. Certificate Decision.³

IV. POSITION OF THE PETITIONERS

The Petitioners claim that the Siting Board should withdraw both the Final Decision and the Certificate Decision, asserting that IDC has decided not to build the generating facility which is the subject of the Certificate Decision and Final Decision (Motion at 1). In support, the Petitioners state that, in March 2003, the Petitioners filed a motion jointly with IDC and the Massachusetts Department of Environmental Protection (“DEP”) to withdraw the air quality permit DEP had issued for the IDC facility (id.). As grounds for that motion, IDC stated that it “no longer intends to build the power plant” (id.).⁴ The Petitioners contend that the statement made by IDC in the motion filed at DEP also may serve as grounds for the Siting Board to withdraw the Final Decision and the Certificate Decision (id.).

¹ The Petitioners are not seeking to withdraw the IDC Compliance Decision.

² The Petitioners are not seeking to withdraw the IDC Project Change Decision.

³ Box Pond Association, Inc. appealed the Final Decision and Maurice Durand et al. appealed the Certificate Decision. On appeal, the Supreme Judicial Court upheld the Final Decision; the appeal of the Certificate Decision is still pending. Box Pond Ass’n v. Energy Facilities Siting Bd., 435 Mass. 408 (2001); Maurice Durand et.al. v. Energy Facilities Siting Bd., SJ-2001-0504.

⁴ On March 14, 2003, DEP issued a decision vacating the air quality plan for the IDC facility and granting the joint motion to withdraw filed by the Petitioners, IDC and DEP (Motion, Att. DEP Final Decision In the Matter of IDC Bellingham, Docket No. 2001-133, March 14, 2003).

V. ANALYSIS

The Petitioners have filed a motion to “withdraw” the Final Decision and the Certificate Decision. However, IDC, and not the Petitioners, is the entity that petitioned for and received both the Final Decision and the Certificate Decision. The Petitioners cannot withdraw petitions which they never filed; consequently, we interpret the Petitioners’ request as a motion to vacate the Final Decision and the Certificate Decision.

With respect to the Final Decision, the Petitioners’ Motion is moot. In the Final Decision issued on December 21, 1999, the Siting Board stated that “[b]ecause issues addressed in this Decision relative to this facility are subject to change over time, construction of the proposed generating facility must be commenced within three years of the date of the decision.” Final Decision at 362. At no point in the subsequent proceedings on this matter did the Siting Board extend the three-year time limit for commencement of construction; further, IDC did not seek an extension of this deadline prior to its expiration. Consequently, the approval granted by the Siting Board in the Final Decision has lapsed. Should IDC wish to construct the Bellingham facility at some future date, it would have to submit a new petition to the Siting Board for review pursuant to G.L. c. 164, § 69J¼. Petitioners’ Motion with respect to the Final Decision is denied because it is moot.

With respect to the Certificate Decision, the Siting Board relies on its precedent for guidance. Previously, the Siting Board considered a motion to vacate a decision filed by persons who had properly intervened in the Siting Board proceeding. As in the case before us, the motion to vacate was filed while the decision was on appeal. In its ruling, the Siting Board stated, inter alia, that “[l]ogically, no person other than [the holder of the approval] is capable of determining or authorized to determine when [the holder of the approval] no longer retains any interest in the project. If [the holder of the approval] ever determines that it has no remaining interest in the Final Decision, it may, if it chooses, withdraw its petition to construct.” Nickel Hill Energy, LLC, Ruling on Motion to Vacate, 12 DOMSB 277, at 281 (2001) (“Nickel Hill

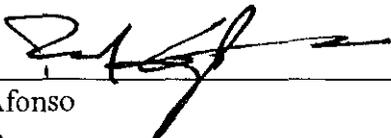
Decision”).⁵ We are of the opinion that the logic used in that case is applicable here. The Petitioners have provided no argument to convince us that we should reach a different decision. Accordingly, the Siting Board denies the Petitioners’ Motion with respect to the Certificate Decision.⁶

This Action by Consent shall be deemed to have been taken when the document and copies bearing the signatures of all Board members are returned to the Chairman. 980 CMR § 2.06(2).

⁵ See Silver City Energy Limited Partnership (Action by Consent), 4 DOMSB 445 (1994); Eastern Energy Corporation (Action by Consent), 4 DOMSB 213 (1996); Altresco Lynn, Inc. (Action by Consent), 4 DOMSB 459 (1993).

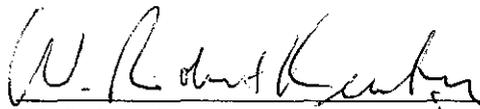
⁶ We also note that there may be procedural deficiencies regarding the motion brought by the Petitioners. See Nickel Hill Decision at 5. However, because we have denied the Motion on other grounds, we need not address those procedural issues here.

Signed:



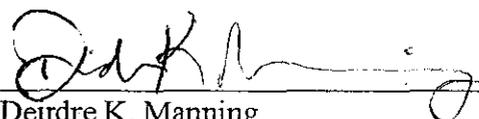
Paul G. Afonso
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

11/13/03
Date



W. Robert Keating
Commissioner
Department of Telecommunications and Energy

11/13/03
Date



Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

11/13/03
Date

David L. O'Connor
Commissioner
Division of Energy Resources

Date

Joseph Donovan
for Barbara B. Berke, Director
Department of Business and Technology

Date

James Stergios
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

Date

Signed:

Paul G. Afonso
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

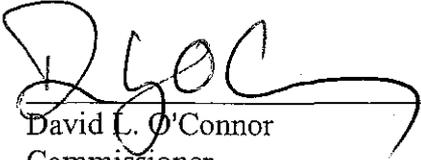
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W. Robert Keating
Commissioner
Department of Telecommunications and Energy

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Deirdre K. Manning
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Department of Telecommunications and Energy

Date



David L. O'Connor
Commissioner
Division of Energy Resources

Date

11/3/03

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for Barbara B. Berke, Director
Department of Business and Technology

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for Ellen Roy Herzfelder
Secretary of Environmental Affairs

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Public Member

Date

Signed:

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Chairman
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Department of Telecommunications and Energy

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W. Robert Keating
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Department of Telecommunications and Energy

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Deirdre K. Manning
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Department of Telecommunications and Energy

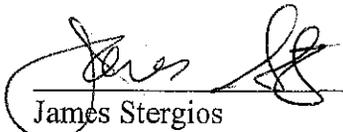
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David L. O'Connor
Commissioner
Division of Energy Resources

Date

Joseph Donovan
for Barbara B. Berke, Director
Department of Business and Technology

Date



James Stergios
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

11/3/03
Date

Louis A. Mandarini, Jr.
Public Member

Date

IDC Bellingham LLC, EFSB 01-1 and EFSB 97-5
Motion to Withdraw Certificate and Final Decision

Signed:

Paul G. Afonso
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

Date

W. Robert Keating
Commissioner
Department of Telecommunications and Energy

Date

Deirdre K. Manning
Commissioner
Department of Telecommunications and Energy

Date

David L. O'Connor
Commissioner
Division of Energy Resources

Date

Joseph Donovan
for Barbara B. Berke, Director
Department of Business and Technology

Date

James Stergios
for Ellen Roy Herzfelder
Secretary of Environmental Affairs

Date



Louis A. Mandarinini, Jr.
Public Member

Date

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Request of Peabody Power, LLC to
License and Develop a 99 megawatt
Peaking Generator in Peabody,
Massachusetts

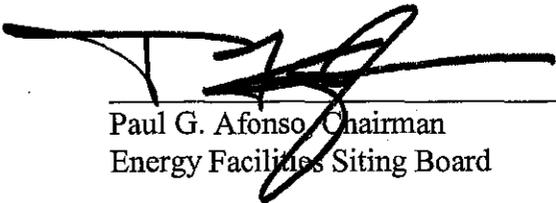
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NOTICE OF INTENTION TO ISSUE ADVISORY RULING

On January 12, 2004, Peabody Power, LLC filed a request for an advisory opinion from the Energy Facilities Siting Board ("Siting Board") regarding a proposed 99 megawatt peaking generator in Peabody, Massachusetts. Pursuant to 980 CMR 2.07, the Siting Board shall "within 60 days after receipt of the request, notify the applicant that the request is either denied or that the Board will render an advisory ruling."

The Siting Board hereby notifies Peabody Power, LLC that the Board intends to render an advisory ruling regarding the proposed peaking generator in Peabody.¹ If the advisory ruling is issued, the Siting Board, in accordance with 980 CMR 2.07, will send a copy its ruling to Peabody Power, LLC.

APPROVED by the Energy Facilities Siting Board at its meeting of March 2, 2004, by the members and designees present and voting: Paul G. Afonso (Chairman, DTE/EFSB); Robert Sydney (for David L. O'Connor, Commissioner, Division of Energy Resources); Joseph Donovan (for Barbara B. Berke, Director, Department of Business and Technology); and Stephen R. Pritchard (for Ellen Roy Herzfelder, Secretary of Environmental Affairs). ABSTAINING: W. Robert Keating (Commissioner, DTE)



Paul G. Afonso, Chairman
Energy Facilities Siting Board

Dated this 2nd day of March, 2004.

¹ The Siting Board notes that its regulations allow the Board to rescind its decision to render an advisory ruling at any time before issuance of such ruling. 980 CMR 2.07.

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Motion for Extension of Time to Commence)
Noise Monitoring at the Fore River Generating)
Facility in Weymouth, Massachusetts)

EFSB 98-7B

FINAL DECISION

Selma Urman
Hearing Officer
March 3, 2004

APPEARANCES: John A. DeTore, Esq.
Robert D. Shapiro, Esq.
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FOR: Sithe Edgar Development LLC
Petitioner

Neven Rabadjija, Esq.
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FOR: Boston Edison Company
Intervenor

Michael Lang
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FOR: Fore River Watershed Association
Intervenor

Peter S. Lapolla, Director
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Interested Person

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Interested Person

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FOR: USGen New England, Inc.
Interested Person

Robert L. Dewees, Jr., Esq.

Nixon Peabody LLP

101 Federal Street

Boston, Massachusetts 02110

FOR: New England Power Company and Massachusetts

Electric Company

Interested Persons

J. Gary Peters

34 Bluff Road

Weymouth, Massachusetts 02191

Interested Person

The Energy Facilities Siting Board hereby amends Condition J of the Final Decision by granting Exelon Fore River Development, LLC a five-month extension relative to the commencement of noise monitoring at the Fore River Generating Facility in Weymouth, Massachusetts.

I. INTRODUCTION

On February 11, 2000, the Siting Board issued a final decision approving, subject to conditions, the petition of Sithe Edgar Development LLC to construct a 775 MW generating facility in the Town of Weymouth.¹ Sithe Edgar Development LLC, 10 DOMSB 1 (2000) (“Sithe Edgar Decision”). Pursuant to the Sithe Edgar Decision, the Siting Board found that, with implementation of certain conditions, noise impacts of the proposed facility would be minimized. Sithe Edgar Decision at 96. Condition J of the decision requires that:

In order to minimize noise impacts, the Siting Board directs the Company, in consultation with Weymouth and MDEP, to develop a noise monitoring protocol and baseline noise measurements, taken on a schedule chosen in consultation with MDEP and Weymouth, that allows for the implementation of an ongoing periodic noise monitoring program to begin within six months of the commencement of commercial operation, and a reporting procedure that provides for dissemination of monitoring results to Weymouth and/or the community areas that are affected by L_{90} noise increases from the facility of 3 dBA or more.

Sithe Edgar Decision at 149.

On July 29, 2003, Exelon Fore River submitted to the Siting Board a statement of its compliance with Condition J and its associated directives as well as a copy of the July 2003 noise control monitoring protocol (“NCMP”). The NCMP provides that initial noise monitoring will be conducted within six months of commercial operation of the Fore River Generating Facility (“Fore River Facility”) and establishes a reporting procedure for disseminating monitoring results in accordance with Condition J.²

¹ On or about November 1, 2002, Exelon Fore River became the owner of the facility.

² By letter dated September 30, 2003, the Siting Board Staff acknowledged receipt of information showing that Exelon Fore River had complied with the requirements of Condition J of the Sithe Edgar Decision relating to development of a noise monitoring protocol and baseline noise measurements, and had complied with the consultation and
(continued...)

II. REQUEST FOR EXTENSION

On January 28, 2004, Exelon Fore River requested a five-month extension of the requirement in Condition J relative to the commencement of noise monitoring at the Fore River Facility (“January 28th Letter”) (EFSB-Amend-1, at 1).³ The Company states that the reasons for its request to the Siting Board for a five-month extension to begin noise monitoring are the same reasons that serve as the basis for the Company’s January 22, 2004 extension request to the Massachusetts Department of Environmental Protection (“MDEP”) (*id.* at 3).⁴ Specifically, according to Exelon Fore River, weather conditions and operational limitations have delayed noise mitigation and noise monitoring activities at the facility site (*id.*). The Company asserts that ambient temperatures below approximately 40 degrees Fahrenheit, “do not allow the Company to operate all of the fans in the air-cooled condenser, the facility’s Fin Fan Cooler, or the supply and exhaust fans for building HVAC system components which together could comprise a significant noise source” (*id.*). The Company states that the Fore River Facility commenced commercial operation on August 4, 2003 (*id.* at 2) and that any extension granted by the Siting Board would not affect the Company’s commitment to at least two years of noise testing at the Fore River Facility (*id.* at 3).

² (...continued)
notification requirements set forth in Condition J and the associated directives (September 30, 2003, Letter at 2).

³ In support of its request for extension, Exelon Fore River submitted the January 28th Letter and a letter dated February 13, 2004 (“February 13th Letter”). The January 28th Letter, including all attachments, and the February 13th Letter, including all attachments, are hereby moved into evidence as Exhibits EFSB-Amend-1 and EFSB-Amend-2, respectively.

⁴ Under MDEP’s Air Plan Approval for the Fore River Facility, Exelon Fore River was required to begin noise monitoring of the facility within 180 days from facility startup (EFSB-Amend-1, n.5). On February 4, 2004, MDEP granted a five-month extension to this 180-day requirement (Exh. EFSB-Amend-2, at 1 and Att.). As a result, MDEP is now requiring the Company to conduct a noise survey by June 30, 2004 and to provide MDEP with a written report of the results by August 29, 2004 (*id.* at 1 and Att.).

III. ANALYSIS

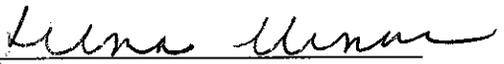
In imposing Condition J, the Siting Board stated that “[g]iven the proximity and extent of the residential neighborhood to the east of the proposed facility, and the extent of noise mitigation necessary to attain the Company’s noise target, additional verification of the facility’s compliance with identified noise targets over time is appropriate.” Sithe Edgar Decision at 94-95. In support of its request for extension, Exelon Fore River has provided the Siting Board with information stating that several components at the Fore River Facility cannot be operated due to weather conditions. The information provided suggests that such components could significantly affect the noise readings taken at or near the Fore River Facility site. To require the Company to go forward with noise monitoring at this time, knowing that several noise sources would not be captured, would be counter to the verification that Condition J seeks to obtain. Therefore, the Siting Board hereby grants the Company’s five-month request for extension and amends Condition J accordingly.

The Siting Board notes, however, that a delay in the commencement of formal periodic noise monitoring should not result in delayed implementation of noise mitigation measures that could be of immediate benefit to the local community. Therefore, the Siting Board directs Exelon Fore River to proceed without delay to implement all planned noise mitigation, including the installation of any noise mitigation equipment that has not already been installed.

IV. DECISION

The Siting Board amends Condition J of the Final Decision as follows:

In order to minimize noise impacts, the Siting Board directs the Company, in consultation with Weymouth and MDEP, to develop a noise monitoring protocol and baseline noise measurements, taken on a schedule chosen in consultation with MDEP and Weymouth, that allows for the implementation of an ongoing periodic noise monitoring program to begin within 11 months of the commencement of commercial operation, and a reporting procedure that provides for dissemination of monitoring results to Weymouth and/or the community areas that are affected by L_{90} noise increases from the facility of 3 dBA or more.



Selma Urman
Hearing Officer

Dated this 3rd day of March, 2004.

APPROVED by the Energy Facilities Siting Board at its meeting of March 2, 2004, by the members and designees present and voting: Paul G. Afonso (Chairman, DTE/EFSB); W. Robert Keating (Commissioner, DTE); Robert Sydney (for David L. O'Connor, Commissioner, Division of Energy Resources); Joseph Donovan (for Barbara B. Berke, Director, Department of Business and Technology); and Stephen R. Pritchard (for Ellen Roy Herzfelder, Secretary of Environmental Affairs).



Paul G. Afonso
Chairman, DTE/EFSB

Dated this 2nd day of March, 2004.

Appeal as to matters of law from any final decision, order or ruling of the Siting Board may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the order of the Siting Board be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Siting Board within twenty days after the date of service of the decision, order or ruling of the Siting Board, or within such further time as the Siting Board may allow upon request filed prior to the expiration of the twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the clerk of said court. (Massachusetts General Laws, Chapter 25, § 5; Chapter 164, § 69P).

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Peabody Power, LLC)
Advisory Ruling)
_____)

July 30, 2004

ACTION BY CONSENT

This “Action by Consent” is made pursuant to 980 CMR § 2.06, which provides the Energy Facilities Siting Board (“Siting Board”) with the authority to render a decision via Action by Consent when the Board “determines that expeditious action is necessary.” 980 CMR § 2.06(1).

On January 12, 2004, Peabody Power LLC (“Peabody Power” or “Company”),¹ filed with the Siting Board a request for an advisory opinion (“Request”) as to whether a simple cycle combustion turbine peaking generator that would be limited to a 99 megawatt (“MW”) gross output through use of an active control system is a generating facility subject to the Siting Board’s jurisdiction under G.L. c. 164, § 69H. The request for an advisory ruling was made pursuant to 980 CMR § 2.07. On March 2, 2004, the Siting Board notified Peabody Power of its intent to issue an advisory ruling on this issue.

I. DESCRIPTION OF PROPOSED POWER PLANT

Peabody Power proposes to construct a simple cycle combustion turbine generator (“generator”) on an approximately four-acre parcel of land adjacent to the existing Peabody Municipal Light Plant (“PMLP”), in Peabody, Massachusetts (Request at 1).² The generator would be fueled primarily by natural gas, but would use low-sulfur oil as a back-up fuel. Emissions of nitrogen oxides (“NO_x”) would be controlled using a selective catalytic reduction system; carbon monoxide and volatile organic compounds would be controlled with efficient combustion control; and sulfur emissions would be limited through the use of low sulfur fuels (*id.*). The generator would interconnect with the regional transmission system by connecting to one of the two 115 kV New England Power circuits that cross the site (*id.*).

¹ Peabody Power informed the Siting Board that effective April 29th, Peabody Power had assigned its rights to the proposed project to Fortistar Peabody, LLC, which is owned by Fortistar, a New York independent power producer (May 6, 2004 Letter at 1).

² Peabody Power states that there is no physical, operational or corporate relationship between PMLP and Peabody Power (IR-1; IR-2). Peabody Power has discussed with PMLP the use of PMLP’s natural gas lateral to supply the Peabody Power project; however, no agreement is in place (IR-1).

The generator would be based on the ALSTOM GT-11N2 combustion turbine, which has an unencumbered gross output of between 100.3 and 124.5 MW, depending on the ambient temperature (May 6, 2004 Letter).³ However, Peabody Power proposes to use an active control system to control the fuel supply to the generator so that gross output of the Alstom turbine would not exceed 99 MW (January 12, 2004 Letter at 2). Specifically, a certified and sealed load measurement system would continuously measure the turbine's output; if output exceeded 99 MW, the active control system would automatically reduce the flow of fuel to limit output to 99 MW (IR-5). Peabody Power proposes that the active control system be located in a separate building from the main turbine control system and sealed from entry by plant operators, to prevent operator bypass of the control system (IR-8).

Peabody Power states that the manufacturer will warrant the performance of the active control system (IR-7). The Company notes that the active control system has been successfully used on projects constructed in New York State.⁴ In addition, in a March 5, 2004 meeting with staff, the Company represented that it would be willing to provide the Siting Board with computer-generated reports documenting the actual output of the generator. Peabody Power states that it would seek Siting Board approval if it were to operate the generator above 99 MW on either a temporary or a permanent basis (IR-11; IR-12).

II. ANALYSIS

Pursuant to G.L. c. 164, § 69G, a "generating facility" subject to the Siting Board's jurisdiction is "any generating unit designed or capable of operating at a gross capacity of 100 Megawatts or more, including associated buildings, ancillary structures, transmission and pipeline interconnections that are not otherwise facilities, and fuel storage facilities." Therefore, in order to determine whether the generator is a generating facility subject to the Siting Board's jurisdiction, the Siting Board must determine whether the generator is "designed for or capable of" operating at 100 MW or more.

As an initial matter, the Siting Board notes that the term "generating unit" encompasses not just a turbine or turbines, but the integrated system of equipment required for the production of electricity, including, but not limited to, turbines, boilers, and emissions control equipment. Each part of this integrated system may affect the output of the generating unit. Thus, the gross capacity of a generating unit may differ from that of the turbine on which it is based.

³ The unencumbered gross output of the generator would be 124.5 MW at an ambient temperature of -10° F, 114.4 MW at 51° F, and 100.3 MW at 90° F (May 6, 2004 Letter).

⁴ Siting Board staff spoke with personnel at the New York State Department of Public Service ("DPS"), who stated that the control limiters used on facilities in that state have worked as expected to limit output to below the jurisdictional threshold of the DPS.

Here, Peabody Power argues that, while the ALSTOM GT-11N2 turbine has an unencumbered gross output of between 100.3 and 124.5 MW, the capacity of the generator would be limited to 99 MW by an active control system that limits flow of fuel to power the turbines. Therefore, in order to determine whether the generator is a generating facility subject to the Siting Board's jurisdiction, the Siting Board must determine whether the active control system provides sufficient assurance that the gross capacity of the generator would be under 100 MW. Peabody Power has adequately described the proposed functioning of the active control system, and has undertaken to secure the active control system from tampering by operators. In addition, Peabody Power states that the manufacturer will warrant the performance of the active control system. Finally, similar active control systems have been used successfully in New York state. The Siting Board concludes that, if the active control system is installed and operated as described, the generator would not be "designed or capable of" operating at more than 99 MW, and therefore would not be subject to Siting Board jurisdiction.⁵

However, the Siting Board notes that it is theoretically possible that an operator could gain access to the active control system and seek to override it. It is not clear whether the active control system could be placed offline with the flick of a switch, or whether significant rewiring and reconfiguration would be required to bypass it. In addition, we note that the active control system could be subject to mechanical failure; it is not clear whether, following such a failure, the Peabody Power generator would shut down, or remain up and operate at 100 MW or more. In order to address these and other concerns, Peabody Power has offered to provide to the Siting Board computer-generated load reports that document the output of the Peabody Power generator. The Siting Board is of the opinion that such reports are necessary to provide assurance that the active control system is performing as designed. The Siting Board therefore requires Peabody Power, if it builds the Peabody Power generator without first obtaining Siting Board approval, to file with the Siting Board computer-generated reports documenting the output of the Peabody Power generator at least once every three months for the first two years of commercial operation.

III. ADVISORY RULING

Accordingly, after due consideration of the averments of fact and argument presented by Peabody Power, the Siting Board hereby advises that Peabody Power's proposed simple cycle combustion turbine peaking generator that would be limited to a 99 MW gross output through use of an active control system would not be jurisdictional to the Siting Board under G.L. c. 164, § 69J¼. However, if Peabody Power constructs this generator without first obtaining Siting

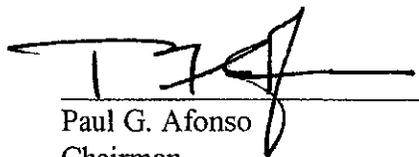
⁵ In addition, the Siting Board notes that peaking units such as the Peabody Power generator are dispatched most frequently during periods of high electric demand, which typically occur on hot summer days. At such times, the unencumbered gross output of the ALSTOM GT-11N2 turbine is approximately 100.3 MW; the encumbered output therefore is unlikely to exceed 99 MW in any case.

Board approval, it must file with the Siting Board computer-generated reports documenting the output of the Peabody Power generator at least once every three months for the first two years of commercial operation. Additionally, if Peabody Power seeks in the future to modify or disable the active control system or other elements of the generator in order to increase its capacity to 100 MW or more, it must first seek Siting Board approval of the entire project pursuant to G.L. c. 164, § 69J¼.

Finally, the Siting Board notes that, since filing its request for an advisory ruling, Peabody Power has assigned its rights in the proposed project to another entity. This assignment, as well as any other that may occur, does not obviate the fact that this ruling is based on the information and representations provided to the Siting Board by Peabody Power project. Therefore, to ensure that the Peabody Power generator is operated as currently contemplated for the life of the power plant, the Siting Board requires Peabody Power to provide written notification to the Siting Board of any change in the ownership of the Peabody Power project and provide the name and telephone number of a contact person for the new owner(s). At the time of transfer, Peabody Power must also provide written certification to the Siting Board that Peabody Power has notified the new owner(s) of the restrictions and requirements in this advisory ruling.

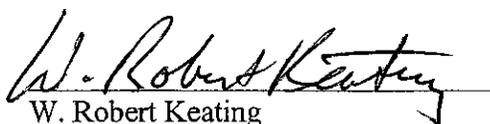
This Action by Consent may be executed in any number of counterparts, each of which shall be an original, but all of which constitute one agreement, and shall be dated and become effective when the copies bearing all of the signatures of the Siting Board members are received by the Chairman. 980 CMR § 2.06(2).

Signed:



Paul G. Afonso
Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

Stephen Pritchard
For Ellen Roy Herzfelder
Secretary of Environmental Affairs



W. Robert Keating
Commissioner
Department of Telecommunications and Energy



Beirdre K. Manning
Commissioner
Department of Telecommunications and Energy

Joseph Donovan
For Barbara B. Berke, Director
Department of Business and
Technology

Robert Sydney
For David L. O'Connor
Commissioner
Division of Energy Resources

Louis A. Mandarini, Jr.
Public Member

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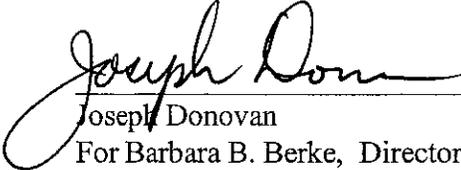
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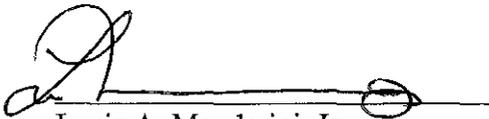
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Louis A. Mandarini, Jr.
Public Member

COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

Sithe Edgar Development LLC)
Ruling on Project Change and Compliance)
_____)

November 18, 2004

ACTION BY CONSENT

This "Action by Consent" is made pursuant to 980 CMR § 2.06, which provides the Energy Facilities Siting Board ("Siting Board") with the authority to render a decision via Action by Consent when the Board "determines that expeditious action is necessary." 980 CMR § 2.06(1).

On February 11, 2000, the Energy Facilities Siting Board ("Siting Board") issued a final decision approving, subject to conditions, the petition of Sithe Edgar Development LLC ("the Company") to construct a 775 MW generating facility in the Town of Weymouth ("Fore River project"). Sithe Edgar Development LLC, 10 DOMSB 1 (2000) ("Final Decision"). In that decision, the Siting Board reviewed the visual impacts of the Fore River project, including the landscaping plans for the site, and imposed a number of conditions to minimize visual impacts of the Fore River project. Final Decision, 10 DOMSB 1, at 71-87.

On April 25, 2003, Exelon Fore River LLC¹ ("Fore River") provided the Siting Board with the first in a series of filings documenting its evolving plans for landscaping and public access at the Fore River site and its compliance with certain conditions of the Final Decision ("April 25 Letter"). Fore River made further filings on July 2, 2003 ("July 2 Compliance Filing"), September 12, 2003 ("September 12 Responses"), January 30, 2004 ("January 30 Responses"), and September 29, 2004 ("September 2004 Affidavit"). Fore River met with Siting Board staff to discuss its plans on May 6, 2003. In addition, the Siting Board staff visited the Fore River station on November 13, 2003 to view the site.

I. PROJECT CHANGES

In the Final Decision, the Siting Board required Fore River to notify it of any changes other than minor variations to the proposal as presented to the Siting Board, so that it might decide whether to inquire further into such issues. Final Decision at 140. In order to determine whether further inquiry is necessary, the Siting Board considers whether the change alters in any substantive way either the assumptions or conclusions reached in its analysis in the underlying proceeding. IDC Bellingham, LLC, 12 DOMSB 372, at 378 (2001); Berkshire Power Decision

¹ The Fore River project was owned by Exelon Fore River LLC in April 2003, and is currently owned by Fore River LLC. The term "Fore River" is used to refer to each of these companies, as appropriate.

on Compliance, 7 DOMSB 423, at 437 (1997).

In its various filings, Fore River has brought to the Siting Board's attention changes in the substance and timing of the landscaping and public access plans approved in the Final Decision. As discussed below, these changes result primarily from easements on portions of the Fore River site granted to, or taken by, the Massachusetts Water Resources Authority ("MWRA"), Algonquin Gas Transmission Company/Duke Energy ("Algonquin"), Boston Edison Company d/b/a/ NSTAR Electric ("NSTAR"), and the Massachusetts Highway Department ("MHD") subsequent to the Siting Board's proceedings.

A. Site Description and Easements

The Fore River project is located on a 57-acre, industrially-zoned site bordered on the north, south and west by the Fore River, and on the east by Mills Cove, King's Cove, and Monatiquot Street in Weymouth. Final Decision at 12. A residential neighborhood lies to the east of the site across Monatiquot Street. Id. The site is bisected by the Route 3A (Bridge Street) bridge. Id. The Fore River project is located on the 41 acre portion of the site to the south of the bridge ("South Parcel"); the 16 acre portion of the site to the north of Bridge Street ("North Parcel") was used for construction laydown and parking. Id. at 12-14. As part of its proposal, the Company agreed to landscape four main areas of the site, and to provide public access consistent with its obligations under G.L. c. 91: (1) along Monatiquot Street; (2) along the southwestern edge of the site; (3) along the eastern and northeastern edge of the North Parcel ("King's Cove"); and (4) in an area along the western shore of the site between Bridge Street and the main turbine buildings ("Lovell's Grove"). Id. at 77.

In its filings, the Company stated that its ability to landscape the site and provide public access as set forth in the Final Decision has been affected by various temporary and permanent easements held by other entities on the Fore River site (July 2 Compliance Filing at 3). The Company described temporary and permanent easements taken by the MWRA along the South Parcel roughly parallel to Monatiquot Street, and on much of the North Parcel, for the construction and operation of a pump station and sewage interceptor line on the Fore River site; temporary and permanent easements held by Algonquin to construct and operate natural gas pipelines serving both the Fore River project and Algonquin's Hubline project; permanent easements held by NSTAR Electric associated with its operation of a switchyard on the southeast portion of the site; and a 15 year easement to be taken by MHD to be used in connection with the construction, operation and maintenance of a temporary bridge over the Fore River (July 2 Compliance Filing; September 12 Responses at 5, Atts. 1A, 1B, 1C, and 1D). The Company also provided correspondence from the MHD indicating that MHD may need to take additional property interests in the Fore River site to provide for the eventual demolition of the temporary bridge and construction of a permanent crossing (September 12 Responses, Att. 4). The impact of these easements on each of the four areas to be landscaped is discussed below.

B. Monatiquot Street

During the Siting Board proceeding, the Company committed to planting a vegetated strip up to 300 feet wide alongside an existing oil tank and for another 120 to 150 feet south along Monatiquot Street, to serve as a buffer between the Fore River project and the adjoining residential neighborhood. Final Decision at 66. However, subsequent to the Final Decision, the MWRA decided to locate a sewer interceptor line on Fore River property just west of Monatiquot Street, rather than in Monatiquot Street itself (April 25 Letter at 4). The 60 foot-wide easement for the sewer interceptor line occupies much of the area originally intended as vegetated buffer (id. at Att. 1). Fore River planted trees and other vegetation in the area between Monatiquot Street and the MWRA easement (a long triangle stretching along Monatiquot Street, approximately 80 feet in width at its broadest point) in the fall of 2003 (id. at 2, Att. 3; January 30 Letter at 1).² A landscaping plan submitted as part of the July 2 Compliance Filing (“landscaping plan”) shows additional plantings on the far side of the MWRA easement; Fore River intends to install these plantings in the spring of 2005 (July 2 Compliance Filing, Att. 3; January 30 Letter at 2). In addition, Fore River states that MWRA has agreed to plant trees, bushes and shrubs along the half of its permanent easement facing the Monatiquot Street neighborhood after construction of the sewer interceptor line is complete (April 25 Letter at 4).

The Siting Board notes that the MWRA sewer easement occupies a significant portion of the area originally intended to serve as a vegetated buffer between the Fore River site and the neighborhood to the east. The extent to which visual screening of the facility is diminished by this change is as yet unclear; however, the impact is likely to be greatest in the area from about 50 feet south of Van Ness Street to Bluff Road, where the remaining area between Monatiquot Street and the MWRA easement is narrowest. The Siting Board notes that the Company plans significant plantings to the immediate west of the easement. In addition, the MWRA intends to plant trees, bushes and shrubs along a portion of the easement after construction of the sewer intercept line is complete. However, to be most effective in offsetting the project change, emphasis should be placed on allocating sufficient plantings, including a mix of taller trees, to the area from about 50 feet south of Van Ness Street to Bluff Road. Assuming such a distribution, the additional plantings west of and in the easement, taken together, should substantially meet the Company’s original objective of screening views of the facility from the Monatiquot Street neighborhood.

The Siting Board concludes that changes in the landscaping plans for the areas of the site along Monatiquot Street will accommodate construction work that serves the public interest, and do not alter in any substantive way either the assumptions or conclusions reached in its analysis in the underlying proceeding. However, in order to ensure that landscaping in this area is

² By letter dated May 8, 2003, Siting Board staff accepted the Company’s landscaping plans for this triangle, while requiring the Company to provide additional plantings on unencumbered land to the west side of the MWRA easement.

completed as currently anticipated, the Siting Board directs Fore River to file an “as planted” landscaping plan encompassing Areas 1, 7, and 7A of the Fore River site at such time both Fore River and the MWRA have completed landscaping of these areas.

C. Southwestern Edge of Site

During the Siting Board proceeding, the Company committed to plant a thirty-foot wide strip of trees and vegetation along the southwestern edge of the property, and plant only grass along the edge of the air-cooled condensers facing the Fore River. Final Decision at 78. The Company’s current plans for the southwestern area of the site are unaffected by easements, and are substantially similar to those described in the Final Decision. The Company intends to plant salt-tolerant ornamental grasses, juniper and flowering shrubs along the edge of the air-cooled condenser facing the river, and vegetation including white pine and rosa rugosa in other parts of this area (July 2 Compliance Filing at 7).³ The Company anticipates planting this area in spring or fall of 2004 (January 30 Letter at 2). The Siting Board concludes that current landscaping plans for the southwestern edge of the Fore River site will maintain or increase the level of plantings anticipated in the Final Decision, and do not alter in any substantive way either the assumptions or conclusions reached in the analysis in the underlying proceeding.

D. King’s Cove

During the Siting Board proceeding, the Company committed to providing public access for passive recreation in the King’s Cove area, and offered landscaping consistent with public access. Final Decision at 77-78. While enhancing this public use, the proposed landscaping in this area was not intended to provide significant visual screening of the facilities. Id. at 78-79. Currently, the Company intends to install a walking path, bicycle racks, picnic tables, and benches in the King’s Cove area, and plans to plant deciduous, evergreen and ornamental trees, shrubs, perennials, and grasses (July 2 Compliance Filing at 4). However, because MWRA holds construction easements on much of the North Parcel, and will not complete construction work in this area until mid-to-late 2004, Fore River will not begin landscaping and improvements until the fall of 2004 or spring of 2005 (January 30 Letter at 1). The Siting Board concludes that the delay in landscaping of the King’s Cove area would accommodate construction work that serves the public interest, and does not alter in any substantive way either the assumptions or conclusions reached in its analysis in the underlying proceeding.

³ The plantings in this area reflect the requirements of the Weymouth Conservation Commission; room for plantings beyond those described in the Final Decision was created by tearing down an old wooden dock and filling in a discharge flume (July 2, 2003 Letter at 7).

E. Lovell's Grove

During the Siting Board proceeding, the Company committed to providing public access for passive recreation in the Lovell's Grove area, and offered landscaping consistent with public access. Final Decision at 77-78. While enhancing this public use, the proposed landscaping in this area was not intended to provide significant visual screening of the facilities. Id. at 78-79. Fore River's current landscaping plan for the Lovell's Grove area, which lies on the shore of the Fore River between the turbine building and Route 3A, includes picnic tables and benches, a seatwall, parking spaces, and a variety of deciduous, evergreen and ornamental trees (July 2 Compliance Filing at 6). However, the MHD holds an easement on approximately half of the Lovell's Grove area through December 31, 2018, for purposes of constructing and operating a temporary bridge across the Fore River, and may seek to take additional portions of the Fore River site to demolish the temporary bridge and construct a new, permanent bridge (id.; September 12 Responses Att. 4). Fore River argues that it would be impractical, and potentially unsafe, to provide public access to the Lovell's Grove area before the bridge reconstruction project is completed (July 2 Compliance Filing at 6; September 12 Responses at 4-5). The Company states that it will work closely with the Town of Weymouth and other interests over time to determine the ultimate public access plan for Lovell's Grove (July 2 Compliance Filing at 6).

The Siting Board notes that, while the Company's current landscaping plans provide for public access and amenities in the Lovell's Grove area, this access and these amenities likely will not be available during the first fifteen years of project operation. This lengthy delay in the provision of public access represents a significant alteration in the assumptions upon which the Siting Board based its analysis in the underlying proceeding. The Siting Board recognizes that the Company has no control over the construction schedule for MHD's bridge replacement project, and agrees that considerations of public safety may make it inadvisable to provide interim public access to the small portion of the site remaining in the Company's control between the turbine building and the bridge replacement work area. However, there may be opportunities to provide interim public access elsewhere on the site. In addition, the Siting Board notes that the Waterways License for the Fore River project, issued by the Massachusetts Department of Environmental Protection ("MDEP") pursuant to G.L. c. 91, expressly contemplates public access at Lovell's Grove, and contains several conditions designed to encourage use of the public access areas. Moreover, the Waterways License requires that all work authorized therein, including the work at Lovell's Grove, be completed within five years of the date of license issuance. Fore River clearly will be unable to comply with this condition with respect to the improvements proposed for Lovell's Grove. The Siting Board therefore directs Fore River to formally notify MDEP of the delay in the provision of public access at Lovell's Grove, to identify to MDEP any areas where interim public access could reasonably be provided, and to consult with MDEP as to the desirability of providing interim public access at such locations.

In addition, the Siting Board is concerned that, in fifteen years' time, future owners of the

Fore River project may not recall their obligation to provide public access in the Lovell's Grove area. In order to ensure that the future use of the Lovell's Grove area receives immediate attention, and that the possibility of interim public access either at this location, or on another portion of the site, is addressed, the Siting Board directs the Company to begin discussions with the Town of Weymouth regarding the future use of the Lovell's Grove area as soon as possible, and to provide the Siting Board with an update on these discussions no later than December 31, 2004. If plans for the Lovell's Grove area evolve in a direction that limits future public access (for example, if a ramp for municipal fire boats is planned for the area), the Company must either provide public access in another portion of the site, or explain how it can meet any Chapter 91 obligations while providing for public access only in the King's Cove area.

II. COMPLIANCE WITH CONDITIONS

In the Final Decision, the Siting Board imposed five conditions relating to the landscaping and future use of the Fore River site. In this section, the Siting Board considers the extent to which Fore River has complied with each of these conditions.

A. Condition F

Condition F of the Final Decision requires the Company "to provide landscaping that will provide vegetative screening and shoreline improvements along the northwestern shoreline of the northern portion of the proposed site which would serve as a continuation of the proposed King's Cove area. This landscaping along the northwestern shoreline shall be designed to minimize the visual impacts of the proposed facility on residential areas to the northwest and north and recreationists on the Fore River and Town River Bay, consistent with maintaining the potential for future use of the northern portion of the site." Id. at 85.

In response, Fore River states that it intends to extend plantings that run alongside the MWRA pumping station in the King's Cover area to the beginning of existing tie-offs adjacent to the bulkhead on the north parcel, covering slightly more than 1/3 of the northwestern shoreline (July 2 Compliance Filing at 5, att 3). The Company argues that much of the remaining shoreline is a Designated Working Port that must remain open to accept cargo and passengers (id.). The Company also argues that landscaping the area immediately adjacent to the tie-offs is infeasible, since this area may be needed in the future to support the Designated Working Port (September 12 Responses at 4). The Company indicates that it intends to discuss future development plans for the North Parcel with the Town of Weymouth and the Fore River Watershed Association; however, these discussions will not begin until after the MWRA and Algonquin have completed construction on the North Parcel, likely in late 2004 (id.).

The Siting Board notes that, to date, the Company's response to Condition F has emphasized maintaining the potential for future use of the North Parcel, rather than minimizing visual impacts. This approach appears to reflect the significant remaining uncertainty regarding

the future use of the North Parcel. As noted below, discussions regarding future development of the North Parcel likely will not begin until fall of 2004 at the earliest. The Siting Board believes that it should be possible to integrate additional visual screening on the North Parcel with a future commercial or industrial use. However, we recognize that, in order to be effective, landscaping plans must be developed in conjunction with plans for the further development of the North Parcel and must take into account any new structures proposed in the near term for the North Parcel. The Siting Board therefore defers any finding as to the Company's compliance with Condition F pending upcoming discussions on the future of the North Parcel. The Siting Board directs the Company to make a filing regarding its compliance with Condition F at such time as these discussions have progressed sufficiently to report on the potential for additional landscaping on the North Parcel consistent with any agreed-upon future uses, as well as on any plans for additional public access on the North Parcel (see discussion of Condition L, below). The Siting Board also requests that the Company provide the Siting Board with status reports on these discussions at least once every six months, beginning no later than December 31, 2004.

B. Condition G

Condition G of the Final Decision requires the Company "to replant any existing trees in the area bounded approximately by Route 3A, the western edge of the existing 3.4 million gallon oil tank, Monatiquot Street, and the Town of Weymouth Water Tank, that are 16 feet or higher and removed for construction of the proposed facility, with trees that are between 16 and 20 feet high." Fore River indicated that a tree audit conducted approximately six years ago found 131 16 to 30 foot trees in the area described by Condition G, and asserted that at least half of these trees were unaffected by construction (July 2 Compliance Filing at 9; September 2004 Affidavit).⁴ The Company's landscaping plans call for the planting of 77 trees over 16 feet in this area (September 12 Responses at 2, 3). The Siting Board therefore finds that the Company has complied with Condition G.

C. Condition H

Condition H of the Final Decision requires that "the Company's tree plantings around the proposed site, especially plantings to the east, include a sufficient number of 20 foot trees to create some immediate screening of the facility after it is constructed." Final Decision at 83-84. As discussed above, the site is bordered on the east by a residential neighborhood on the opposite side of Monatiquot Street; Condition H thus is intended to provide some immediate screening of

⁴ In the July 2 Compliance Filing, the Company indicated that the tree audit found 131 18 to 30 foot trees in the area described by Condition G. However, in the September 2004 Affidavit, Marcia MacClary, former Director of Public Affairs for the Fore River project, corrected this number, attesting that she used the tree audit to count by hand the number of 16 to 30 foot trees situated in that area before construction began (September 2004 Affidavit at 2).

the Fore River project as seen from that neighborhood. Fore River plans to plant 11 trees at least 20 feet tall on portions of the site that it has designated Areas 1 and 7A, which together comprise most of the site area along Monatiquot Street (September 12 Responses at 3). In addition, Fore River intends to plant 26 trees at least 20 feet tall in Area 7; it appears that 13 of these trees will be planted just to the west of the MWRA easement, and thus will form a part of the Monatiquot Street buffer area (*id.* at 3 and Att. 3A). In addition, 12 evergreen trees between 18 and 20 feet tall have been planted in the area between Monatiquot street and the MWRA easement (*id.* at 3; January 30 Letter at 2, Plan L-2). The Siting Board concludes that these trees, taken together, should be sufficient to create some immediate screening of the Fore River facility. The Siting Board therefore finds that the Company has complied with Condition H.

D. Condition I

Condition I of the Final Decision requires the Company “to submit to the Siting Board prior to commercial operation an updated landscaping plan for the entire site, addressing all the directives and conditions noted above as well as opportunities for wetland restorations as encouraged in Section III.D.”⁵ On July 2, 2003, Fore River filed with Siting Board staff a landscaping plan for the entire Fore River site, and accompanying information addressing its compliance with Conditions F, G, H and L of the Final Decision. This filing was made in advance of commercial operations, which began on August 4, 2003. Consequently, the Siting Board finds that Fore River has complied with Condition I of the Final Decision.

E. Condition L

Condition L of the Final Decision requires the Company “to work with Weymouth, FRWA and appropriate state agencies to develop and coordinate plans for providing additional public access, if and where appropriate, in the area of the northern portion of the site that Sithe will improve as conditioned in Section III.F.2., and in other parts of the site as may be agreed.” As discussed above, the Company has indicated that it intends to discuss future development plans for the North Parcel with the Town of Weymouth and the Fore River Watershed Association after the MWRA and Algonquin have completed construction on the Northern Parcel. These discussions likely will not begin until fall of 2004 at the earliest. The Siting Board therefore finds that Fore River has not yet complied with Condition L of the Final Decision. The

⁵ In Section III.D, the Siting Board “encourage[d] the Company to pursue opportunities for wetland restoration on the site in conjunction with its landscaping plans ... with input from state, local and federal agencies, and consistent with objectives for minimizing visual impacts.” Final Decision, 10 DOMSB at 68. In its July 2 Filing, Fore River described ongoing discussions with the Weymouth Conservation Commission, the Massachusetts Historical Commission, and the Fore River Watershed Association regarding plantings and shoreline improvements along the western, southwestern, and southern river frontage areas (July 2 Filing at 7-8).

Siting Board directs the Company to make a filing regarding its compliance with Condition L at such time as these discussions have progressed sufficiently to report any plans for additional public access on the North Parcel, as well as the potential for additional landscaping on the North Parcel consistent with any agreed-upon future uses (see discussion of Condition F, above). As discussed in Section II.A, above, the Siting Board also requests that the Company provide the Siting Board with status reports on these discussions at least once every six months, beginning no later than December 31, 2004. Such reports should be filed even if no discussions have taken place in the preceding six months.

III. SUMMARY

In the Final Decision, the Siting Board required the Company to comply with eleven conditions during the construction and operation of the Fore River facility. Here, the Siting Board has found that the Company has complied with Conditions G, H, and I of the Final Decision. In addition, the Siting Board has deferred any finding as to the Company's compliance with Condition F pending upcoming discussions on the future of the North Parcel. Further, the Siting Board has found that Fore River has not yet complied with Condition L of the Final Decision, and has directed the Company to make a filing regarding its compliance with Condition L at such time as these discussions have progressed sufficiently to report any plans for additional public access on the North Parcel, as well as the potential for additional landscaping on the North Parcel consistent with any agreed-upon future uses.

In addition, the Siting Board has reviewed certain changes in the substance and timing of the landscaping and public access plans approved in the Final Decision, and has found that three of those changes do not alter in any substantive way either the assumptions or conclusions reached in its analysis in the underlying proceeding. The Siting Board found that the fourth change, an approximately fifteen year delay in the development of public access and amenities in the Lovell's Grove area, represents a significant alteration in the assumptions upon which the Siting Board based its analysis in the underlying proceeding, and directed the Company to begin discussions with the Town of Weymouth regarding the future use of the Lovell's Grove area as soon as possible, and to provide the Siting Board with an update on these discussions no later than December 31, 2004. In addition, because the change directly implicates a MDEP permit for the project, the Siting Board directed the Company to formally notify MDEP of the delay in the provision of public access at Lovell's Grove, to identify to MDEP any areas where interim public access could reasonably be provided, and to consult with MDEP as to the desirability of providing interim public access at such locations. Further, the Siting Board directed Fore River to file an "as planted" landscaping plan encompassing Areas 1, 7, and 7A of the Fore River site at such time both Fore River and the MWRA have completed landscaping of these areas.

This Action by Consent may be executed in any number of counterparts, each of which shall be an original, but all of which constitute one agreement, and shall be dated and become

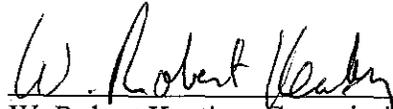
effective when the copies bearing all of the signatures of the Siting Board members are received by the Chairman. 980 CMR § 2.06(2).

Signed:



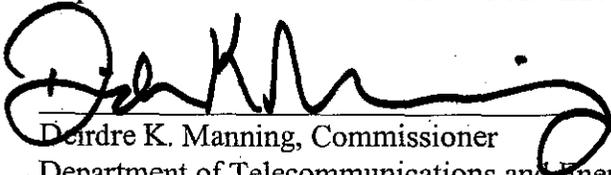
Paul G. Afonso, Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

10/27/04
Date



W. Robert Keating, Commissioner
Department of Telecommunications and Energy

11-01-04
Date



Deirdre K. Manning, Commissioner
Department of Telecommunications and Energy

10/26/04
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Joseph Donovan
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Date

David L. O'Connor, Commissioner
Division of Energy Resources

Date

Stephen Pritchard
For Ellen Roy Herzfelder, Secretary
Executive Office of Environmental Affairs

Date

Louis A. Mandarini, Jr.
Public Member

Date

effective when the copies bearing all of the signatures of the Siting Board members are received by the Chairman. 980 CMR § 2.06(2).

Signed:

Paul G. Afonso, Chairman
Energy Facilities Siting Board/
Department of Telecommunications and Energy

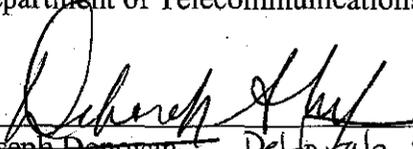
Date

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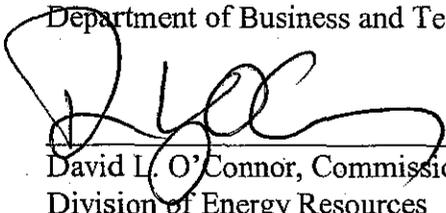
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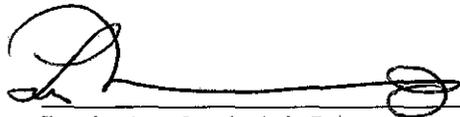
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COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

In the Matter of the Petition of Boston)
Edison Company, d/b/a NSTAR Electric,)
for Approval to Construct a Three-Circuit)
345 kV Transmission Line and Ancillary)
Facilities in the City of Boston and the)
Towns of Stoughton, Canton and Milton)

EFSB 04-1

The Petition of Boston Edison Company,)
d/b/a NSTAR Electric, for a Determination)
that the Proposed 345 kV Transmission Line)
Project is Necessary and Will Serve the)
Public Convenience and be Consistent with)
the Public Interest)

D.T.E. 04-5

The Petition of Boston Edison Company,)
d/b/a NSTAR Electric, for an Exemption)
from the Zoning By-Laws of the Town of)
Stoughton and the Zoning Code of the City)
of Boston in Connection with the)
Construction and Operation of the Proposed)
345 kV Transmission Line)

D.T.E. 04-7

FINAL DECISION

Selma Urman
Presiding Officer
January 14, 2005

On the Decision:

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Diedre S. Matthews
Barbara Shapiro

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ABBREVIATIONS

<u>1997 BECo Decision</u>	<u>Boston Edison Company</u> , 6 DOMSB 208 (1997)
1997 Restructuring Act	“the 1997 Electric Restructuring Act” (Chapter 164 of the Acts of 1997)
<u>1998 NEPCo Decision</u>	<u>New England Power Company</u> , 7 DOMSB 333 (1998)
ACEC	Area of Critical Environmental Concern
ACOE	Army Corps of Engineers
Algonquin	Algonquin Gas Transmission Company
<u>ANP Bellingham</u>	<u>ANP Bellingham Energy Company</u> , EFSB 97-1 (1998), 7 DOMSB 39
<u>ANP Blackstone</u>	<u>ANP Blackstone Energy Company</u> , EFSB 97-2/98-2 (1999), 8 DOMSB 1
BECO	Boston Edison Company, d/b/a NSTAR Electric
Boston	City of Boston
<u>Berkshire Power</u>	<u>Berkshire Power Development, Inc.</u> , D.P.U. 96-104, at 26-36 (1997)
<u>Boston Gas</u>	<u>Boston Gas Company</u> , D.T.E. 00-24 (2001)
Boston Surrounding Area	Area of communities surrounding downtown Boston
BRA	Boston Redevelopment Authority
<u>CELCo Decision</u>	<u>Cambridge Electric Light Company</u> , 12 DOMSB 305 (2001)
CELT	Capacity, Energy, Loads, & Transmission (yearly reports provided by NEPOOL)
City	City of Boston
cm	centimeter
<u>ComElec Decision</u>	<u>Commonwealth Electric Company</u> , 5 DOMSB 273 (1997)
Company	Boston Edison Company d/b/a NSTAR Electric
Conroy	Conroy Development Company
consolidated proceeding	EFSB 04-1; D.T.E. 04-5; D.T.E 04-7
CZM	Massachusetts Office of Coastal Zone Management
dB	decibels, unweighted

dBA	A-weighted decibels
DCR	Department of Conservation and Recreation
DEM	Massachusetts Department of Environmental Management
Department	Department of Telecommunications and Energy
DG	Distributed Generation
DOMSB	Decisions and Orders of Massachusetts Energy Facilities Siting Board
DOMSC	Decisions and Orders of Massachusetts Energy Facilities Siting Council
DRP	Independent System Operator of New England, Inc. Demand Response Program
DSM	Demand-Side Management
D.T.E.	Department of Telecommunications and Energy
ECMP	Environmental Construction Management Plan
EFSC	Energy Facilities Siting Council
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMF	electromagnetic field
EOEA	Executive Office of Environmental Affairs
EPA	U.S. Environmental Protection Agency
Epsilon	Epsilon Associates, Inc.
GIS	Gas-insulated switchgear
GWh	gigawatt-hours
HDD	horizontal directional drill
Hz	hertz (cycles per second)
I&M	installation and maintenance
ICAP	Installed Capacity
IPOD	South Boston Waterfront Interim Planning Overlay District
ISO-NE	Independent System Operator of New England, Inc.
kV	kilovolts

L ₉₀	sound level exceeded 90% of time
L _{dn}	day night sound levels
L _{eq}	time-averaged sound levels
L _{max}	maximum sound levels
LOLE	a one-day-in-ten-years loss-of-load expectation
LOS	level of service
LSP	Licensed Site Professional
LTE	Long-Term Emergency Ratings
Mass GIS	Massachusetts Geographic Information System
MBTA	Massachusetts Bay Transportation Authority
MCP	Massachusetts Contingency Plan
MDEP	Massachusetts Department of Environmental Protection
MDMF	Massachusetts Division of Marine Fisheries
MDOER	Massachusetts Division of Energy Resources
MDRP	Massachusetts Diesel Retrofit Program
<u>MECo/NEPCo Decision</u>	<u>Massachusetts Electric Company/New England Power Company, 18 DOMSC 383 (1989)</u>
MEPA	Massachusetts Environmental Protection Act
mG	milligauss
MHC	Massachusetts Historical Commission
MHD	Massachusetts Highway Department
<u>MMWEC Decision</u>	<u>Massachusetts Municipal Wholesale Electric Company, EFSB 12 DOMSB 18 (2001)</u>
Motion	Town of Stoughton Motion to Withdraw from proceeding filed 9/24/04
MPO	Boston Metropolitan Planning Organization
MVA	mega-volt-amperes
MVAR	mega-volt-amperes-reactive
MW	megawatts

MWRA	Massachusetts Water Resources Authority
<u>NEA Decision</u>	<u>Northeast Energy Associates</u> , 16 DOMSC 335 (1987)
NEP	New England Power Company
NEPOOL	New England Power Pool
<u>New York Central Railroad</u>	<u>New York Central Railroad v. Department of Public Utilities</u> , 365 Mass. 586 (1964)
<u>Nextel</u>	<u>Dispatch Communications of New England d/b/a Nextel Communications, Inc.</u> , D.P.U./D.T.E. 95-59-B/95-80/95-112/96-113, at 6 (1998)
NHESP	Massachusetts National Heritage Endangered Species Program
<u>1996 NEPCo Decision</u>	<u>New England Power Company</u> , 5 DOMSB 1 (1996)
NML	Noise Monitoring Location
<u>Norwood Decision</u>	<u>Norwood Municipal Light Department</u> , 5 DOMSB 109 (1997)
NPCC	Northeast Power Coordinating Council
NSTAR	Boston Edison Company, d/b/a NSTAR Electric
NSTAR Service Center	Service Center located at the southern boundary of the Hyde Park Substation
Phase I	Installation of cable for one circuit to K Street Substation and one circuit to Hyde Park Substation
Phase II	Installation of cable for second circuit to K Street Substation
PL	Property Line
PSC	Public Service Corporation
PTC	Pipe-type cable
PTI	Power Technologies, Inc.
RAO	Response Action Outcome
RMR	Reliability Must Run
Route 138 switching station	Switching station located at intersection of Route 138 and York St.
ROW	Right of way
RTEP	Regional Transmission Expansion Plan
RTN	Release Tracking Number

<u>Save the Bay</u>	<u>Save the Bay, Inc. v. Department of Public Utilities</u> , 366 Mass.667 (1975)
Section 72	G.L. c. 164, § 72
SEIR	Single Environmental Impact Report
SF ₆	Sulfur hexafluoride gas
Siting Board	Energy Facilities Siting Board
SCADA	Supervisory Control and Data Acquisition
SJC	Massachusetts Supreme Judicial Court
SRA	Stoughton Redevelopment Authority
SRA switching station	Alternative switching station site at Stoughton Technology Center
SWPPP	Stormwater Pollution Prevention Plan
Stoughton	Town of Stoughton
<u>Tennessee Gas (2002)</u>	<u>Tennessee Gas Pipeline Company, D.T.E. 01-57 (2002)</u>
TDR	Time-domain reflectography
TMP	Traffic Management Plan
URAM	Utility Release Abatement Measure
USFW	United States Fish and Wildlife
USGen NE	USGen New England, Inc.
USGS	United States Geological Service

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V. DECISION Page 164

Pursuant to G.L. c. 164, § 69J, the Energy Facilities Siting Board hereby approves, subject to the conditions set forth below, the petition of Boston Edison Company, d/b/a NSTAR Electric, for approval to construct a new three-circuit 345 kilovolt electric transmission line, approximately 17.5 miles in length, and ancillary facilities, for the purpose of connecting the existing 345 kilovolt transmission system located south of Boston with two substations in the City of Boston. Pursuant to G.L. c. 164, § 72, the Energy Facilities Siting Board hereby approves the petition of Boston Edison Company, d/b/a NSTAR Electric, for a determination that the proposed three-circuit 345 kilovolt electric transmission line is necessary, serves the public convenience and is consistent with the public interest. Pursuant to G.L. c. 40A, § 3, and Section 6 of Chapter 665 of the Acts of 1956, the Energy Facilities Siting Board hereby approves, in part, and denies, in part, the petition of Boston Edison Company, d/b/a NSTAR Electric, for exemption from the Zoning By-laws of the Town of Stoughton and the Boston Zoning Code in connection with the proposed transmission project.

I. INTRODUCTION

A. Summary of the Proposed Transmission Project

Boston Edison Company d/b/a NSTAR Electric (“NSTAR” or “Company”) is an electric company pursuant to G.L. c. 164, § 1. NSTAR proposes to construct an approximately 17.5 mile, three-circuit 345 kilovolt (“kV”) underground pipe-type transmission line, which will connect the existing 345 kV system located south of Route 128 with two key substations in the City of Boston (“Boston” or “City”) (Exhs. BECO-1, at 1-1; EFSB-G-1, at 2-4 to 2-7, Fig. 2.2-2). The proposed transmission line will originate at a new switching station to be constructed in the Town of Stoughton (“Stoughton”) adjacent to an existing 345 kV transmission line that runs from Walpole to Holbrook (*id.* at 1-1, 1-2). One of the three circuits will terminate at NSTAR’s existing Hyde Park Substation, while the remaining two circuits will terminate at NSTAR’s K Street Substation in South Boston (*id.* at 1-1). To support the new transmission line, NSTAR also proposes to expand facilities at the Hyde Park and K Street Substations and to install a new heat exchanger at the Baker Street Substation in West Roxbury (Exh. EFSB-G-1, at 2-1).

NSTAR stated that it would construct the proposed transmission project in two phases (Exh. BECO-1, at 13). The Company explained that it would complete the construction of the three underground steel pipes to house the transmission circuits in 2005 (*id.*). The Company would install one circuit of the two-circuit transmission line that terminates at the K Street Substation, and the single-circuit cable to the Hyde Park Substation, by June 2006 (“Phase I”) (*id.* at 1-3). The Company would install the second circuit to the K Street Substation in 2007 (“Phase II”) (*id.*).

NSTAR has noticed two routes for the proposed transmission project. The switching station for the primary route would be located at the intersection of Route 138 and York Street in Stoughton (“Route 138 switching station”) (Exh. BECO-1, at 1-2). The purpose of the switching station is to split the existing overhead 345kV transmission circuit between Walpole and Holbrook into two 345 kV transmission circuits and link them to the three proposed underground transmission circuits (Exh. EFSB-G-1, at 2-17). From the Route 138 switching station, the three circuits would travel north in a common trench along Route 138 through the Towns of Stoughton, Canton, and Milton, and then in Boston along Cummins Highway to American Legion Highway (*id.* at 2-11, Fig. 2-2.1). At this point the circuits would diverge, with a single circuit traveling less than 1 mile to the Hyde Park Substation and the two remaining circuits traveling, in one trench, approximately 6 miles to the K Street Substation (*id.* at Figs. 2.2-1, 2.2-2 and 2.2-3).

The switching station for the alternative route would be located south of Reebok Drive in the Stoughton Technology Center, at a site owned by the Stoughton Redevelopment Authority (“SRA”) (“SRA switching station”) (Exh. BECO-1, at 1-3). From the SRA switching station, the three-circuit transmission line would travel north in a common trench, along Technology Center Drive, West Street, Lafayette Street, High Street, Scanlon Drive, and Route 28 through Stoughton, Randolph, and Quincy into Milton (Exh. EFSB-1, at 1-3). At the intersection of Central Avenue and Reedsdale Avenue in Milton, the circuits would diverge and follow different routes into Boston, with a single circuit traveling approximately 3.2 miles to the Hyde Park Substation and the two remaining circuits traveling, in one trench, approximately 7.2 miles to the K Street Substation (Exh. BECO-1, at 1-10).

B. Procedural History

On January 16, 2004, NSTAR filed a petition with the Energy Facilities Siting Board (“Siting Board”) seeking approval, pursuant to G.L. c. 164, § 69J, to construct the proposed transmission project. This petition was docketed as EFSB 04-1 (“Siting Board petition”). In addition, the Company filed two related petitions with the Department of Telecommunications and Energy (“DTE” or “Department”): (1) a petition pursuant to G.L. c. 164, § 72, seeking a determination that the proposed transmission lines are necessary, would serve the public convenience, and would be consistent with the public interest (“Section 72 petition”) and (2) a petition pursuant to G.L.c. 40A, § 3 and for an exemption from the Zoning By-laws of the Towns of Stoughton and Canton and pursuant to Section 6 of Chapter 665 of the Acts of 1956 for an exemption from the Zoning Code of the City of Boston (“Zoning Exemption petition”).¹ The Section 72 petition was docketed as D.T.E. 04-5; the Zoning Exemption petition was docketed as D.T.E. 04-7.

On February 2, 2004, the Chairman of the Department issued a Consolidation Order which directed the Siting Board to render a final decision in the three cases (“consolidated proceeding”). The consolidated proceeding was docketed as EFSB 04-1/D.T.E. 04-5/D.T.E. 04-7. The Siting Board conducted a single adjudicatory proceeding and developed a single evidentiary record for the consolidated proceeding.

The Siting Board initially conducted public comment hearings on the consolidated petitions on March 1, 2004 in Boston, Massachusetts and on March 3, 2004 in Canton, Massachusetts. On March 23, 2004, the Company submitted a supplemental filing that described and evaluated three additional route variations for the primary route, all located within Boston. On May 6, 2004, the Siting Board conducted a public comment hearing on the supplemental filing in Boston, Massachusetts.

¹ By letter dated March 24, 2004, NSTAR notified the Siting Board that the Company is no longer pursuing its earlier proposal to site the switching station at the Canton Industrial Park; accordingly, the Company withdrew its original request for an exemption from the Zoning By-laws of the Town of Canton.

In accordance with the direction of the Presiding Officer, the Company provided notice of the three public comment hearings and adjudication. The Siting Board received timely petitions to intervene from Boston and Independent System Operator-New England, Inc. ("ISO-NE"). Timely petitions to participate as limited participants were received from USGen New England ("USGen NE"), New England Power Company ("NEP"), The Marr Companies, Corkery Tractor and Trailer and Sons, Ruth M. Slocum, and George V. Mileris.² The Siting Board received late-filed petitions to intervene from the Town of Stoughton ("Stoughton") and Nancy Munroe. The Presiding Officer granted the petitions to intervene filed by Boston, ISO-NE and Stoughton and the petitions for limited participant status filed by USGen NE³, NEP, the Marr Companies, Corkery Tractor and Trailer and Sons, Ruth M. Slocum, and George V. Mileris.

The Company presented the testimony of the following witnesses: Henry V. Oheim, Jr., Project Director for NSTAR, who testified concerning project overview, need, project alternatives, route selection, § 72 issues, and comparison of the preferred and noticed alternative routes; Charles P. Salamone, Director of System Planning for NSTAR, who testified concerning need, project alternatives and § 72 issues; Paul F. Barry, Lead Engineer, Transmission Lines Department for NSTAR, who testified concerning route selection, construction, cost and comparison of the preferred and noticed alternative routes; John Zicko, Principal Engineer, Substation Design for NSTAR, who testified concerning switching station design, construction, cost, and comparison of the preferred and alternative switching station sites and the zoning exemption petition; Stephen Carroll, Real Estate Manager for NSTAR, who testified concerning real estate and land acquisition, route selection cost, comparison of the preferred and alternative routes and the zoning exemption petition; Theodore A. Barten, P.E., Managing Principal of

² The following residents of Canton, Massachusetts also submitted timely petitions to participate as limited participants: Richard J. Dawson, William and Jean Gefteas, George E. Kalem, Jr., Jean Lambourne, and James Moran. However, based on NSTAR's withdrawal of its alternative proposal to site a switching station at Canton Industrial Park, the aforementioned individuals withdrew their petitions for limited participant status in the proceeding.

³ On January 7, 2005, the Presiding Officer granted the motion of Dominion Energy Salem Harbor, LLC to substitute for USGen NE as a limited participant in the proceeding.

Epsilon Associates, Inc. (“Epsilon”), who testified concerning project overview, project alternatives, route selection, cost, construction, environmental impacts, comparison of the preferred and alternative routes and the zoning exemption petition; Robert O’Neal, CCM, Principal at Epsilon, who testified concerning noise impacts; John K. Downing, Lead Senior Scientist at Shaw Group/Shaw Environmental, Inc., who testified concerning route selection, environmental impacts, traffic, hazardous materials and comparison of the preferred and alternative routes; Peter A. Valberg, Ph.D., Principal at Gradient Corporation, who testified concerning electric and magnetic fields (“EMF”); and Susan K. Haselhorst, Senior Analyst in NSTAR’s Policy and Evaluation Group, who testified concerning the Company’s energy efficiency programs.

ISO-NE presented the testimony of two witnesses: Stephen G. Whitley, Senior Vice President and Chief Operating Officer of ISO-NE, who testified concerning the need for the proposed transmission upgrades; and Richard Kowalski, Manager of Transmission Planning for ISO-NE, who testified concerning regional transmission planning.

The Town of Stoughton presented the testimony of two witnesses: James Byerley, a Principal Engineer with R. W. Beck, Inc., who testified concerning the Company’s site selection process; and Ivan Clark, Principal and Senior Director of R.W. Beck, Inc., who testified concerning certain environmental impacts of the primary route and alternative routes.

The Siting Board held seventeen days of evidentiary hearings, beginning on July 7, 2004, and concluding on September 4, 2004. Approximately 500 exhibits were entered into the evidentiary record. On September 24, 2004, Stoughton filed a motion to withdraw from the proceeding and to withdraw certain exhibits (“Motion”).⁴ On October 1, 2004, the Presiding Officer granted, in part, and denied, in part, the Motion, allowing Stoughton to withdraw from the case, but preserving all of the evidence in the record. Boston Edison Company, d/b/a NSTAR Electric, EFSB 04-1/ D.T.E. 04-5/ D.T.E. 04-7, Procedural Order at 1-2 (October 1, 2004)). On October 5, 2004, the Company, ISO-NE and Boston filed briefs. On October 12, 2004, the Company and USGen NE filed reply briefs. The evidentiary record was closed on

⁴ On September 27, 2004, Stoughton amended its Motion, seeking to withdraw additional exhibits.

December 22, 2004.

C. Jurisdiction and Scope of Review

The Company filed its Siting Board petition to construct the proposed transmission project in accordance with G.L. c. 164, § 69H, which requires the Siting Board to implement the energy policies in its statute to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, and pursuant to G.L. c. 164, § 69J, which requires a project applicant to obtain Siting Board approval for the construction of proposed energy facilities before a construction permit may be issued by another state agency.

As a new electric transmission line with a design rating of 69 kV or greater and a length in excess of one mile, the Company's proposed transmission project falls within the definition of "facility" set forth in G.L. c. 164, § G, which provides that a "facility" includes:

a new electric transmission line having a design rating of 69 kV or more and which is one mile or more in length on a new transmission corridor.

In addition, the structures that the Company proposes to construct and operate at the Route 138 switching station, and the Baker Street, K Street and Hyde Park Substations fall within the definition of "facility" set forth in G.L.c. 164, § G, which provides that "facility" also includes:

an ancillary structure which is an integral part of the operation of any transmission line which is a facility.

In accordance with G.L. c. 164, § 69J, before approving a petition to construct facilities, the Siting Board requires an applicant to justify its proposal in three phases. First, the Siting Board requires the applicant to show that additional energy resources are needed (see Section II.A, below). Next, the Siting Board requires the applicant to establish, on balance, its proposed transmission project is superior to alternative approaches in terms of cost, environmental impact, reliability, and ability to address the identified need (see Section II.B, below). Finally, the Board requires the applicant to show that it has considered a reasonable range of practical facility siting alternatives and that the proposed site for the facility is superior to a noticed alternative site in

terms of cost, environmental impact, and reliability of supply (see Section III.A, below).

II. ANALYSIS OF THE PROPOSED PROJECT

A. Need Analysis

1. Standard of Review

In accordance with G.L. c. 164, § 69J, the Siting Board is charged with the responsibility for implementing the energy policies in its statute to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. In carrying out its statutory mandate with respect to the construction of energy facilities such as NSTAR Electric's proposed transmission line, the Siting Board first evaluates whether there is a need for additional energy resources to meet reliability, economic efficiency, or environmental objectives. The Siting Board must find that additional energy resources are needed as a prerequisite to approving a proposed energy facility.⁵

In this instance, NSTAR has offered a need analysis that focuses on system reliability. In assessing reliability, the Siting Board first examines the reasonableness of the Company's system reliability criteria. The Siting Board then evaluates: (1) whether the Company uses reviewable and appropriate methods for assessing system reliability based on load flow analyses or other valid reliability indicators; (2) whether the transmission system meets these reliability criteria; under normal conditions and under certain contingencies, given existing and projected loads; and (3) whether acceleration of conservation and load management programs could eliminate the

⁵ The Siting Board's review of proposed transmission facilities is conducted pursuant to G.L. c. 164, § 69J. This section states, in part, that "[n]o applicant shall commence construction of a facility at a site unless . . . in the case of an electric or gas company which is required to file a long-range forecast pursuant to section sixty-nine I, that facility is consistent with the most recently approved long-range forecast for that company." The Siting Board notes that, pursuant to the Department's Order in D.T.E. 98-84A, Massachusetts electric companies, including NSTAR, are now exempt from the requirements of G.L. c. 164, § 69I. Thus, the Siting Board need not consider whether the proposed transmission facilities are consistent with a recently-approved long range forecast.

need for such additional energy resources.⁶

In cases where the Company's assessment of system reliability is driven by load projections, the Siting Board also reviews the underlying load forecast. The Siting Board requires that forecasts be based on substantially accurate historical information and reasonable statistical projection methods. See G.L. c. 164, § 69J. To ensure that this standard has been met, the Siting Board has consistently required forecasts to be reviewable, appropriate and reliable. Boston Edison Company, 6 DOMSB 208, at 232 (1997). A forecast is reviewable if it contains enough information to allow full understanding of the forecasting method. A forecast is appropriate if the method used to produce the forecast is technically suitable to the size and nature of the company that produced it. A forecast is reliable if the method provides a measure of confidence that its data, assumptions, and judgments produce a forecast of what is most likely to occur. Boston Edison Company, 6 DOMSB 208, at 232 (1997); Boston Edison Company, 24 DOMSC 125, 146 (1992); Commonwealth Electric Company/Cambridge Electric Company, 12 DOMSC 39, 42 (1985).

2. Description of the Existing System

NSTAR explained that the bulk power system serving customer load in the Greater Boston Area⁷ is composed of both generation and transmission elements (Exh. BECO-1, at 2-11).

⁶ The Siting Board notes that, pursuant to c. 249 of the Acts of 2004, applicants proposing a new transmission line are required to provide "... (3) a description of alternatives to the facility, such as other methods of transmitting or storing energy ... or a reduction of requirements through load management;" In addition, applicants are required to demonstrate that "projections of the demand for electric power ... include an adequate consideration of conservation and load management." G.L. c. 164, §69 J. However, c. 249 is not applicable here because it was enacted subsequent to the filing of NSTAR's petition. In future cases, the Siting Board may consider in its need analysis whether projections of the demand for electric power include an adequate consideration of conservation and load management. In addition, the Siting Board may consider load management as an alternative approach to meeting the demand for the proposed facility, if such consideration is appropriate in the context of the particular case.

⁷ According to NSTAR, the "Greater Boston Area," also known as the "Boston Import
(continued...)

The generation elements in the Greater Boston Area range in size from 10 MW to 800 MW (id.). The principal generators are Mystic Blocks 7, 8, and 9; New Boston 1; Salem Harbor Units 1-4; and Kendall Station (id.).⁸ These large generators are supplemented by many small units that total approximately 250 MW (id.). NSTAR stated that the generation facilities collectively provide a total of 3,546 MW of generation (id.).

NSTAR explained that 345 kV overhead lines form a nearly complete ring around the periphery of the Greater Boston Area (Exh. BECO-1, at 4-3). The Company stated that several 345 kV overhead circuits connect this ring to the regional New England transmission system through the Ward Hill, Tewksbury, and Golden Hills Substations to the north, and through substations in West Medway, Medway, Walpole, Ayer and Millbury to the south and west (id. at 2-12, 4-3, and Figs. 1-2, 2-3). NSTAR explained that existing 345 kV lines move bulk power from the northern part of the ring into the interior of the Greater Boston load center, but that from the southern portion of the ring, power must flow over a limited number of 115 kV and 230 kV circuits (Exh. BECO-1, at 4-3 and Fig. 1-2).⁹ The Company stated that the Greater Boston Area has an import capability of 3,600 to 3,800 MW (id. at 2-25; Tr. 1, at 21; Tr. 2, at 161).

NSTAR indicated that it has 38 substations within the Greater Boston Area (Exh. BECO-1, Table 2-2). These substations serve peak loads ranging from 10 MW to over 200 MW each (Exh. BECO-1, at Table 2-2). Ten of these substations are located in the Downtown Boston

⁷ (...continued)
Area,” is defined by constraints on transmission (Tr. 1, at 20); it consists of the area roughly bounded by Salisbury, Amesbury, Merrimac, Haverhill, Salem (NH), Methuen, Lawrence, Andover, Tewksbury, Wilmington, Burlington, Bedford, Carlisle, Acton, Maynard, Sudbury, Framingham, Ashland, Holliston, Sherborn, Medfield, Dover, Westwood, Dedham and Milton (Exh. EFSB-N-4).

⁸ According to the Company, the New Boston 1 generator is due to be retired prior to 2006 (Exh. BECO-1, at 2-18). According to ISO-NE, the owner of Kendall Station (170 MW) requested permission to deactivate in October, 2004; as of September 2, 2004, ISO-NE had not acted upon this request (id. at 2-19; Tr. 15, at 2047).

⁹ Within the Greater Boston Area, the transmission elements include 355 miles of 115 kV transmission lines, 59 miles of 230 kV lines and 91 miles of 345 kV lines (Exh. BECO-1, at 2-11). Of these, approximately 300 miles are overhead lines and 200 miles are underground (id.).

sub-area, ten in the “Surrounding Boston” sub-area,¹⁰ and the remainder in further outlying parts of Greater Boston (Exh. BECO-1, at Table 2-2). Additional substations within the Greater Boston Area are owned by other entities (*id.* at Fig. 1-2).

3. Reliability of Supply

The Company asserted that the proposed project is needed to maintain its transmission system in compliance with reliability standards of the Northeast Power Coordinating Council (“NPCC”), the New England Power Pool (“NEPOOL”), and ISO-NE (Exh. BECO-1, at 2-1). More specifically, NSTAR asserted that the 345 kV transmission line will alleviate transmission capacity constraints in critical load centers within its service territory (*id.*). The Company based this conclusion primarily on analyses of transmission overloads under single-contingency conditions (*id.* at 2-1, 2-16 to 2-22). The Company also asserted that the proposed facilities, in conjunction with other new facilities, are needed to mitigate voltage concerns in the Greater Boston Area (*id.* at 2-22 to 2-25; Tr. 1, at 44-45). In addition, ISO-NE asserted that the project is needed to address adequate reserve margins during contingencies (Exh. ISO-SGW at 3, 15).

a. Criteria and Methods for Reliability Analysis

NSTAR explained that it must adhere to reliability standards and criteria established by the NPCC and NEPOOL/ISO-NE, as well as to the Company’s own reliability standards (Exh. BECO-1, at 2-5). The standards and criteria describe a set of operating scenarios under which system performance should be analyzed, and the characteristics of that performance that are considered acceptable (*id.* at 2-5 to 2-9). A key test of the transmission system is a thermal analysis, *i.e.*, the determination of whether transmission elements become loaded beyond their capacity ratings under the load-flow conditions that would result from normal system operations

¹⁰ The “Surrounding Boston” sub-area appears to refer to the area roughly bounded by Chelsea, Everett, Somerville, Arlington, Belmont, Waltham, Weston, Wellesley, Needham, Dedham, and Milton (Exh. EFSB-N-8, Att.).

and various “N-1” contingency situations (*id.* at 2-8; ISO-SGW-3; ISO-SGW-4, at 7).¹¹ In addition, the Company analyzes the system’s voltage performance, stability, ability to respond to short circuits, and transfer capability (Exh. BECO-1, at 2-8 to 2-9).

NSTAR stated that, consistent with its own and NEPOOL/ISO-NE standards, it analyzed system performance for extreme weather conditions, *i.e.*, performance under peak demand that corresponds to an extreme-weather forecast (Tr. 1, at 94).¹² The Company stated that it used simulation software by Power Technologies, Inc. (“PTI”) to develop an analytical model that represents the Company’s physical system, then used the model to test the system under different operating scenarios (Exh. BECO-1, at 2-4, 2-7). The operating scenarios included a base case, in which all transmission elements are in service and the generating units exhibit a “typical” level of unavailability, as well as various contingency situations in which transmission elements are out of service, with or without the loss of additional generation (*id.* at 2-5 to 2-6).

With regard to generation unavailability, NSTAR stated that ISO-NE projected a typical level of generation unavailability of 279 MW for the Boston Import Area for the years 2005 and beyond, based on historical forced outage rates (Exhs. EFSB-N-2(a), at 24; EFSB-N-9; Tr. 1, at 24-25). However, NSTAR assumed an unavailability level of 350 MW, which is approximately equivalent to the output of one of the two Mystic Block 9 gas turbines plus the associated output from its steam turbine (Exh. EFSB-N-9; Tr. 1, at 27). The Company indicated that, given the sizes of the generators within the Greater Boston Area, this outage is the smallest single-unit outage that is at least as large as ISO-NE’s projected typical unavailability level (Exh. BECO-1, at 2-19). According to the Company, Mystic 9 would represent the worst location within the Greater Boston Area where a generator unavailability of this magnitude could occur (Tr. 1,

¹¹ According to the Company, an “N-1” contingency can be either the loss of one transmission element, or the loss of a transmission element in conjunction with the loss of a major generating unit (beyond the typical level of generator unavailability established by ISO-NE for the area) (Exh. BECO-1, at 2-6; Tr. 1, at 15-18).

¹² The 2003 Greater Boston peak demand forecast for extreme weather conditions was higher than the peak demand forecast for normal weather conditions by 325 MW or 5.9% for the Greater Boston Area, 148 MW or 5.9% for the Surrounding Boston Area, and 60 MW or 5.8% for the Downtown Boston Area (Exh. EFSB-RR-3).

at 27). To analyze those N-1 contingencies in which generation outages beyond the typical unavailability level are a factor, NSTAR explained that it developed generation dispatch scenarios to reflect the unavailability of additional generators (Exh. BECO-1, at 2-18).

In addition to the thermal analysis, the Company assessed voltage levels in the Greater Boston Area under projected peak-load condition (*id.* at 2-22 to 2-25). The Company stated that the criteria for voltage levels allow no more than a 5% deviation from the transmission element's voltage rating (*id.* at 2-23).

b. Load Forecasts

In conjunction with a model of the transmission system, a forecast of load levels is needed to conduct a reliability analysis. NSTAR explained that its process of forecasting load for its Greater Boston Area substations is linked to ISO-NE's forecasting process (Exh. BECO-1, at 2-13 to 2-16; Tr. 1, at 91-102). According to the Company and ISO-NE, ISO-NE uses regression models to relate historical electricity use to economic factors, electricity prices, weather, and other factors (Exhs. BECO-1, at 2-13; ISO-SWG at 22). NSTAR stated that ISO-NE develops long-term energy forecasts for each New England state from these models (Exhs. BECO-1, at 2-13; RR-EFSB-22). From the energy forecasts, ISO-NE then derives peak load projections for each state by applying "load factors" (ratios of historic peak loads to total energy use) (Exh. BECO-1, at 2-13; Tr. 1, at 92).¹³

The Company stated that ISO-NE apportions its statewide peak-load forecast to sub-areas within the state by considering forecasts of peak load developed by individual distribution companies for their territories, and allocating the statewide peak proportionately (Exh. RR-EFSB-22; Tr.1, at 101). NSTAR explained that the peak load forecasts it submits to ISO-NE for its Boston Edison and Cambridge Electric service territories are derived by applying load factors to the energy forecasts it develops for those subsidiaries (Exh. RR-EFSB-22). NSTAR stated that its underlying energy forecasts are prepared based upon econometric models for each sector

¹³ Energy forecasts pertain to total energy use over a period of time, expressed in units such as megawatt-hours; *peak load* forecasts address power consumption at a point in time, and are expressed in units such as megawatts.

(e.g., residential, commercial, industrial, Massachusetts Bay Transportation Authority (“MBTA”), Massachusetts Water Resources Authority (“MWRA”)), and that the models regress historical sales against economic, demographic and weather variables (id.; Exh. RR-EFSB-22 (S)). The Company explained that it evaluates the validity of each regression model through the use of statistical tests, data plots, and comparison of recent actual values with predicted values (Exh. RR-EFSB-22 (S); Tr. 17, at 2277-2278). The Company stated that it used forecasts by Global Insight/Data Resources, Inc. for future values of the driving variables (Exh. RR-EFSB-22; Tr. 17, at 2276).

Once ISO-NE allocates a share of the statewide peak load to NSTAR’s territories, NSTAR allocates that load to its own substations (Exh. BECO-1, at 2-14; Tr. 1, at 101). The Company explained that its allocation method employs software that identifies growth potential in the service areas of each of its substations (Exh. BECO-1, at 2-15). The Company stated that the software uses historical peak load data for the substations, as well as demographic data and information about zoning, land use, and infrastructure, to develop factors for allocating the ISO-NE area forecast to the individual substations (id.). NSTAR explained that it also takes into account peak loads for large customers that are expected to join or leave the system (Exh. EFSB-6; Tr. 1, at 104). The Company stated that the resultant substation peak load forecasts reflect extreme weather (“90/10”) assumptions, as opposed to normal weather (“50/50”) (Tr. 1, at 96).

The Company provided the following projections of peak load, including losses associated with transmission and substation elements, for Downtown Boston, the Surrounding Boston Area, and the Greater Boston Area:

Table 1: Greater Boston Sub-Area Load Forecast (Extreme Summer Peak in MW)

	2002	2006	2008
Greater Boston Area	5725	5861	6017
Surrounding Area	2611	3002	3141
Downtown Boston	1067	1294	1359

Note: 2002 figures reflect actual data expressed in extreme weather terms. “Surrounding Area” figures include “Downtown Boston” figures; “Greater Boston” figures include “Surrounding Area” figures.

Sources: Exhs. BECO-1, at 2-16; EFSB-N-8; RR-EFSB-3.

The projections show average annual growth rates from 2002 to 2006 of 4.94% in Downtown Boston, 3.55% in the Surrounding Boston Area (inclusive of Downtown), and 0.6% in Greater Boston overall. The Company noted that, when modeling the reliability of particular transmission elements, it used projections of peak load at its individual substations within the Greater Boston Area for the years 2006, 2008, and 2013 (Exh. BECO-1, at 2-14; Table 2-2; Tr. 1, at 95,101).

NSTAR indicated that it administers two demand-side management initiatives within its service territory: a series of energy efficiency programs, and an ISO-NE demand response program (“DRP”) (Exh. BECO-1, at 3-5 to 3-8). The Company stated that approximately 5% of its customers participated in its energy efficiency programs in 2002, resulting in a reduction in peak-load summer demand of approximately 21 MW (*id.* at 3-5).

As a “demand response service provider” for the ISO-NE DRP, NSTAR reported that by the end of 2003 it had approximately 110 participants with a total response capacity of 45 MW, although not all the participants are located within the Boston Import Area (*id.* at 3-7; Tr. 3, at 323). The Company noted that the total 2003 DRP enrollment for the Greater Boston Area amounts to 80 MW of response capacity (Exh. BECO-1, at 3-7; Tr. 3, at 322). NSTAR stated that it is actively engaged in marketing the DRP program (Tr. 3, at 325). The Company stated that it does not include any demand reduction achieved through the ISO-NE demand response program in its forecasted peak-load demands because the ISO-NE program is designed to address regional capacity constraints and is not generally available to address local area concerns (Exh. RR-EFSB-9).¹⁴

c. Equipment Loading and Voltage Analysis

Using the system model, load forecasts, and reliability criteria described above, NSTAR performed thermal analyses for 2006, 2008, and 2013, and voltage analyses for 2008. The results are presented below.

i. Thermal Analysis Results: 2006, No Project

The Company’s thermal analysis indicated that by 2006, without the Project, several

¹⁴ However, ISO-NE states that its forecasts “are adjusted to consider the moderating effect of demand-side management efforts” (Exh. ISO-NE-SWG at 23).

system elements would be loaded above their long-term emergency ratings (“LTEs”) during various contingencies (Exh. BECO-1, at 2-19 to 2-22). Losses of Kendall Unit 4, Mystic Block 8, or the remaining 50% of Mystic Block 9 would cause the worst thermal overloads (*id.* at 2-18 to 2-19). NSTAR’s model indicated that the most significant overloads within the Downtown Boston Area would occur on two 345 kV cables between the Mystic and Kingston Street Substations, two 345/115 kV transformers at the Kingston Street Substation, a 345/115 kV transformer at the Mystic Substation, two 115 kV cables between the Kingston Street and K Street Substations, and two 115 kV cables between the Mystic and K Street Substations (*id.* at 2-19 to 2-20). The model projected that these facilities would experience loadings at 108 to 130 % of their LTEs (*id.* at 2-20). For the Surrounding Boston Area, the Company identified additional elements, including the 115 kV cables between the Waltham and Watertown Substations, between the North Cambridge and Brighton Substations, between the Mystic and Brighton Substations and between the Baker Street and Brighton Substations among the facilities of greatest concern (*id.* at 2-20 to 2-21). These cables would experience loadings at 102 to 155 % of their LTEs (*id.* at 2-21). Finally, in the southern portion of the Greater Boston Area, the Company’s model indicated that 115 kV cables between the West Walpole and Baker Street Substations, a 115 kV line between Framingham and Baker Street, and two 345 to 115 kV transformers in Medway and Walpole would experience overloads of between 101 and 112 % of their LTEs (*id.*).

NSTAR stated that the overloads in the Downtown Boston and Hyde Park/West Roxbury areas are of the greatest concern due to the load requirements and system constraints in these areas (Exh. BECO-1, at 2-22). The Company explained that it currently uses various operational adjustments, including load transfers, system reconfigurations, phase-angle regulator adjustments and fast-response unit dispatch, to keep some facilities within normal ratings during non-contingency conditions, but that as loads increase such adjustments will become increasingly difficult to make without aggravating post-contingency conditions (*id.* at 3-4; Tr. 1, at 48-54).

The Company’s modeling assumed that generator New Boston 1 would be retired prior to 2006 (Exh. BECO-1, at 2-11, 2-18). In response to Siting Board inquiries, NSTAR re-ran its thermal analysis using the assumption that 350 MW from New Boston 1 would be available in

2006. The results indicated that this would alleviate many of the 2006 Downtown Boston overloads, but that significant overloads would persist in the remainder of Greater Boston Area (Exh. RR-EFSB-2, at 4).

ii. Thermal Analysis Results: 2006, Two Circuits

The Company's analysis of the transmission system with the addition of one 345 kV cable from Stoughton to the Hyde Park Substation and one 345 kV cable from Stoughton to the K Street Substation indicated that all the post-contingency loadings previously identified as exceeding elements' LTEs would be brought down to the LTE or lower (Exh. BECO-1, at 2-28). However, several of these loadings would remain above 95% of the LTE (id.).

iii. Thermal Analysis Results: 2008, Two Circuits

According to NSTAR's analysis, by 2008 overloads would re-emerge in the Downtown Boston and Waltham/Watertown areas, even with the first two cables in place (Exh. BECO-1, at 2-29). These overloads would range from 101% of LTE to 106% of LTE (id.).

iv. Thermal Analysis Results: 2008, Three Circuits

The Company stated that the installation of an additional circuit from Stoughton to the K Street Substation would successfully mitigate the contingency overloads that would emerge in 2008 with two circuits installed in 2006 (Exh. BECO-1, at 2-29). With this third circuit in place, the Company's analysis shows that no previously overloaded transmission element would be loaded higher than 95% of its LTE (id.).¹⁵ NSTAR states that these results indicate that three circuits are needed and that the third circuit should be in service for summer 2008 peak load conditions (id.).

¹⁵ According to the Company, within the 2006-2013 timeframe, there would be additional overloads in the Downtown Boston Area that are not mitigated by the proposed project (Tr. 2, at 191-192).

v. Thermal Analysis Results: 2013, Three Circuits

NSTAR stated that it carried its modeling through 2013 and found that even with all three circuits in place, contingency overloads would again emerge (Exh. BECO-1, at 2-30). The Company presented results of its analysis that show Downtown Boston transmission elements at 96 to 105% of their LTEs, and surrounding community area elements at 104 to 114% of their LTEs (*id.*). The Company attributed these overloads to projected load growth in the area (*id.*).¹⁶

vi. Voltage Analysis Results

The Company stated that it identified low voltage problems on the 115 kV system serving Downtown Boston and other parts of the Greater Boston Area on a pre-contingency basis by 2008 (Exh. BECO-1, at 2-23). The Company stated that based on these findings, it modified its model to assume the addition of several capacitor banks when analyzing contingencies in 2008 and 2013 (*id.*). NSTAR then provided results for 2008 showing several instances of voltage more than 5 % above or below the desired levels under the dispatch scenario in which all of Mystic Block 9 is out of service, but without the failure of any transmission elements (*id.* at 2-23 to 2-24). According to the Company, further analysis showed that without the proposed 345 kV transmission lines, contingency conditions would necessitate the installation of additional capacitor banks to mitigate low-voltage concerns, but that with the proposed project, these capacitors would not be needed (*id.* at 2-23). However, the Company noted that, under lower-than-projected load conditions, the capacitance provided by the new 345 kV lines would have the potential to cause high voltage conditions (*id.*). To regulate the voltage effects of the new transmission circuits, the Company stated that it would install shunt reactors at both the proposed Stoughton switching station and the K Street Substation (Exh. BECO-1, at 1-13 and 1-16).

¹⁶ The Company acknowledged that increased energy efficiency, demand response, and distributed generation in its system might defer the need for future upgrades to a time period beyond 2013 (Tr. 3, at 347-349). To do so, however, the Company asserted that the measures would need to target the load in the subareas served by the specific facilities that are expected to experience overloads (*id.*). For this reason, the Company stated that it is unable to speculate how these measures might affect reliability issues (Exh. COB-R-5).

d. Analysis

The Siting Board consistently has found that if the loss of any single major component of a supply system would cause thermal overloads on other system components, unacceptable voltage levels, or significant customer outages, then additional resources to maintain system reliability are justified. Boston Edison Company, 6 DOMSB 208, at 233 (1997); Norwood Municipal Light Department, 5 DOMSB 109, at 120-121 (1997); 1996 NEPCo Decision, 5 DOMSB 1, at 10 (1996). Here, the Company has shown that it has based the analysis of its system on widely applied standards established by NPCC and ISO-NE to ensure that the electric power systems serving New England and the NSTAR Electric service territory are designed to provide an adequate and reliable electric power delivery system. These standards include criteria pertaining to thermal loads and voltage levels during normal and contingency operations. Accordingly, the Siting Board finds that NSTAR's reliability criteria regarding equipment loadings and voltage levels are reasonable.

With regard to NSTAR's methods for assessing system reliability, the Siting Board examined the Company's assumptions regarding extreme versus normal weather loads and generator unavailability, and its use of modeling. With respect to weather-related load assumptions, the Siting Board has relied on analyses of need based on the use of a high load forecast, in order to reflect uncertainties inherent in system-coincident and peak-day weather. New England Power Company, 5 DOMSB 1, at 17 (1996); New England Power Company, 4 DOMSB 109, at 125 (1995). Similar to past transmission reviews, the Company based its system load assumptions on extreme weather conditions. The Siting Board notes that in this case, the supply area in which need is expected to arise encompasses much of the Greater Boston Area – an area supplied by generation as well as transmission. Although applied in a different context than in past Siting Board reviews, the Siting Board accepts as reasonable the Company's use of extreme weather load assumptions for determining the need for additional resources.¹⁷

¹⁷ For the Boston Surrounding Area, the difference between the 2003 extreme forecast and the 2003 normal forecast is 148 MW (Exh. RR-EFSB-3). This is comparable to the 139 MW of growth in extreme load forecast for the two years from 2006 to 2008 (Exh. BECO-1, at 2-16).

With regard to its assumptions about generation resources, the Siting Board notes that the Company's base-case level of "typical" generator unavailability was greater than that projected by ISO-NE for the years in question. Specifically, the Company represented ISO-NE's projected average unavailability of 279 MW of generation as the outage of 50% of Mystic Block 9, which has a capacity of approximately 350 MW. Thus, the output of this generator unit is 71 MW greater than ISO-NE's projected average unavailability level. The Siting Board notes that, compared to the projected 2006-2008 growth of 139 MW for the Boston Surrounding Area, the extra 71 MW of assumed unavailability of generation is equivalent to one year's worth of growth. The Company also stated that the Mystic Block 9 represents the most critical generation location with the Greater Boston Area, apparently compounding a conservative assumption about generator unavailability. On the other hand, 50% of Mystic Block 9 is the smallest unit in the Greater Boston Area that is at least as large as ISO-NE's projected unavailability level. Moreover, ISO-NE's projected level of generator unavailability does not account for the possible retirement of Kendall Station. On balance, the Siting Board accepts the Company's assumption concerning generator unavailability.

In addition to detailing its load and generation assumptions, NSTAR has explained how it uses a simulation program to model its system, and has shown how it uses load flow analyses to identify where thermal overloads would occur on the system under contingency conditions. Thus, in considering its assumptions about weather-related load levels and generator unavailability, and its use of modeling to simulate and test its system under a variety of scenarios, the Siting Board finds that the Company used reviewable, appropriate and reliable methods for assessing system reliability.

The record indicates that NSTAR's load forecasting method is a three-step process consisting of (1) an econometric-based system-level projection of energy use across its service areas; (2) an aggregated peak load forecast developed by ISO-NE for Massachusetts; and (3) a substation-level forecast derived by allocating ISO-NE's Massachusetts forecast to NSTAR's individual substations in accordance with local growth potential. The Company has provided enough information to permit a general understanding of its forecasting method and has provided evidence that it uses appropriate historical data, independent variables, and quantitative methods.

The Company also has provided evidence of close coordination with ISO-NE in the development of its forecast. Therefore, the Siting Board finds that NSTAR's load forecast is reviewable, appropriate, and reliable.

The Company has shown that its contingency load flow analyses project thermal overloads on various transmission elements in Downtown Boston and elsewhere in the Greater Boston Area as early as 2006. The Company has used the same approach to demonstrate that thermal problems would re-emerge in 2008 if only two of the proposed three 345 kV circuits were installed. Thus, the Company has demonstrated need for the proposed project to address violations of thermal criteria.

With respect to voltage levels, the Company described its additional assumptions regarding system upgrades and provided analyses that showed violations of its voltage criteria in 2008. However, the Company identified other means of addressing low-voltage problems that could be implemented without the proposed project. The record does not contain sufficient information to determine whether the project is needed to address voltage concerns alone. Consequently, the Siting Board does not rely on the Company's arguments regarding voltage problems in considering the need for this project. However, based on the violations of thermal criteria, discussed above, the Siting Board finds that additional energy resources are needed.

e. Conclusions on Reliability of Supply

The Siting Board has found that the Company used reasonable criteria and reviewable, appropriate, and reliable methods for evaluating system reliability. The Siting Board has also found that the Company used a reviewable, appropriate and reliable load forecast. Further, the Siting Board has found that the Company has demonstrated need for additional energy resources to address violations of thermal criteria. Finally, as further discussed in Section II.B, below, the Siting Board finds that acceleration of conservation and load management programs would not eliminate the need for additional energy resources.

Based on the foregoing, the Siting Board finds that NSTAR has demonstrated that the existing electric transmission system is inadequate to reliably serve projected loads in the Greater Boston Area under certain contingencies. Accordingly, the Siting Board finds that additional

energy resources are needed for reliability in the Greater Boston Area.

B. Comparison of the Proposed Project and Alternative Approaches

1. Standard of Review

G.L. c. 164, § 69H requires the Siting Board to evaluate proposed projects in terms of their consistency with providing a reliable energy supply to the Commonwealth with a minimum impact on the environment at the lowest possible cost. In addition, G.L. c. 164, § 69J requires a project proponent to present “alternatives to planned action” which may include: (a) other methods of generating, manufacturing, or storing electricity or natural gas; (b) other sources of electrical power or natural gas; and (c) no additional electric power or natural gas.¹⁸

In implementing this part of its statutory mandate, the Siting Board requires a petitioner to show that, on balance, its proposed project is superior to such alternative approaches in terms of cost, environmental impact, and ability to meet the identified need. CELCo Decision, 12 DOMSB 305, at 321; Boston Edison Company, 6 DOMSB 208, at 252 (1997) (“1997 BECo Decision”); Boston Edison Company, 13 DOMSB 63, at 67-68, 73-74 (1985). In addition, the Siting Board requires a petitioner to consider reliability of supply as part of its showing that the proposed project is superior to alternative project approaches. 1997 BECo Decision, 6 DOMSB 208, at 262-263; Commonwealth Electric Company, 5 DOMSB 273, at 300 (1997) (“ComElec Decision”); Massachusetts Electric Company, 18 DOMSB 383, at 404-405 (1989).

2. Identification of Project Approaches for Analysis

The Company considered seven approaches for meeting the identified needs in the Greater Boston Area, including: (1) the proposed underground 345 kV project; (2) a 115 kV transmission alternative; (3) a full or partial overhead 345 kV transmission alternative; (4) a transmission improvements alternative made up of a series of limited, localized reconductoring and expansion projects (“bundled improvements alternative”); (5) a new generation alternative;

¹⁸ G.L. c. 164, § 69J also requires a petitioner to provide a description of “other site locations.” The Siting Board reviews the Company’s primary route, as well as other possible routes, in Section III.A, below.

(6) a demand-side management alternative; and (7) a distributed generation alternative (Exh. BECO-1, at 3-2 to 3-17).¹⁹

a. Underground 345 kV Project

The proposed underground 345 kV project consists of installing three underground circuits, each extending from south of Boston to one of two Boston area delivery points (Exh. BECO-1, at 3-2 to 3-3). Under the Company's proposal, new underground circuits would originate from a point along the existing West Walpole-Holbrook 345 kV transmission line and supply additional power to the Hyde Park Substation in the Surrounding Boston Area and K Street Substation in downtown Boston (*id.* at 3-3). The Company confirmed that, with one new circuit on-line to each of these substations in 2006 and a second new circuit on-line to K Street Substation in 2008, the Greater Boston Area would receive reliable supplies consistent with applicable standards relating to thermal ratings and system voltages for 2006 to 2008 and beyond (*id.* at 2-27 to 2-31, 3-3). For purposes of project comparison, the Company estimated the cost of the underground 345 kV project at \$177 million (*id.* at 3-24).

b. 115 kV Transmission Alternative

The Company indicated the 115 kV transmission alternative would include installing eight or nine underground 115 kV transmission circuits, each extending from south of Boston to one of two Boston area delivery points (Exh. BECO-1, at 3-11). The Company stated that the capacity of this number of 115 kV underground circuits could match the capacity of the proposed 345 kV project (*id.* at 3-11). The Company noted that, to avoid overheating, no more than three circuits could be placed in the same trench; therefore, the trench miles of construction potentially would be three times greater than with implementation of the proposed underground 345 kV project, and routing of transmission lines could be required along more streets (*id.* at 3-11). The

¹⁹ The Company also considered a no-build alternative. The Company determined that this approach would prevent it from providing uninterrupted service to the Boston area consistent with its service obligation (Exh. BECO-1, at 3-4). Therefore, this approach was not considered further (*id.*).

Company concluded that the 115 kV transmission alternative could provide sufficient new capacity to meet identified needs (id. at 3-11). The Company estimated the cost of the 115 kV transmission alternative at \$270 million (id. at 3-29).

c. Overhead Transmission Alternative

The Company indicated that the overhead transmission alternative would involve either installing two overhead circuits extending in succession to two Boston area delivery points, or installing two overhead circuits to the first delivery point, then installing underground circuits from there to the second delivery point (Exh. BECO-1, at 3-10; Exh. EFSB-PA-4). The Company stated that the capacity of one overhead 345 kV circuit could match the capacity of three underground 345 kV circuits (Exh. BECo 1, at 3-10). The Company indicated, however, that the project would require at least two overhead circuits to provide mutual backup consistent with applicable reliability criteria (id. at 3-20).²⁰

The Company stated that it identified only two existing rights-of-way originating south of Boston that could accommodate overhead 345 kV transmission lines directly supplying Boston area delivery points from which identified needs could be met: (1) a railroad ROW extending to the Hyde Park Substation; and (2) a railroad ROW extending to the Baker Street Substation in West Roxbury (id. at 3-10 to 3-11). However, the Company rejected these routes on feasibility grounds, explaining that both rail corridors are too narrow and would entail other feasibility concerns, such as traversing densely developed areas, crossing extensive wetlands, or being subject to extensive work restrictions due to frequent train passage (id. at 3-11). The Company stated that the nearest ROW capable of feasibly accommodating 345 kV overhead transmission was a power line corridor which comes to within four miles of the most westerly possible

²⁰ While agreeing that this requirement would have the additional unintended result of generally providing added transmission capacity into the Boston area, relative to other alternatives, the Company maintained that such a capacity margin would provide no reliability advantage (Exh. EFSB-PA-4). The Company explained that no need for the higher capacity has been identified at project delivery points, and further, that the project already has been designed to maximize the amount of power delivery that can be absorbed by the Boston area 115 kV system (id.).

delivery point, Baker Street Substation (id.). The Company rejected this option on cost and practicality grounds, after determining that ROW acquisition needs to reach Baker Street Substation would amount to nearly 100 acres, and would involve areas of high property value, areas containing open space reservations, and areas of wetlands and flood plains associated with the Charles River (id.). Finally, the Company stated that even if overhead transmission could reasonably be extended to an initial delivery point in the Surrounding Boston Area, no potential overhead rights-of-way are available to continue to a second required delivery point in downtown Boston (id.).

d. Bundled Improvements Alternative

As part of the bundled improvements alternative, the Company identified a series of transmission system upgrade projects, including reconductorings of existing transmission lines, new transmission lines, and substation expansions, designed to alleviate thermal overloads at all system locations requiring additional capacity beginning in 2006 (Exh. BECO-1, at 3-12 to 3-16). The Company indicated that this alternative would include: (1) several underground transmission projects within the Surrounding Boston Area, including approximately 6-7 miles of new two-circuit 345 kV transmission, 9 miles of new two-circuit 115 kV transmission, 3 miles of new single-circuit 115 kV transmission, and 2.5 miles of reconducted single-circuit 115 kV transmission, together with associated substation improvements; (2) a new 10.5-mile single-circuit 115 kV transmission line traversing the southwest portion of the Greater Boston Area, parallel to an existing line, along a partial underground-overhead route from Walpole to Needham, together with associated substation improvements; and (3) 6 miles of reconducted two-circuit underground 345 kV transmission traversing the northern portion of the Greater Boston Area from Woburn to Mystic Station, together with added heat exchanger equipment at Mystic and Saugus Substations (id. at 3-12 to 3-17, 3-23 to 3-24, 3-29 to 3-30). While designed to meet the identified need, the Company asserted that the multiple projects would require a series of siting applications and approvals, and that given the lead times for such filings it was doubtful the Company could complete the siting process and construct all of the needed projects by 2006, or even 2008 (id. at 3-16 to 3-17). The Company estimated a cost of \$192 million for

the bundled improvements alternative (id. at 3-29).

e. New Generation Alternative

The Company stated that the transmission system in Downtown Boston has been configured around generation provided in the past by New Boston Unit 1, and stated that new generation consistent with this system has the potential to alleviate reliability concerns (id. at 3-10). However, citing its need analysis showing contingency transmission overloads by 2006 in two distinct areas – Downtown Boston and the Hyde Park/Baker Street area – the Company asserted that new generation would need to be installed in both of these areas to meet the identified need (id.). The Company stated that new generation takes approximately five years to permit and construct; given this lead time, and the need to add new generation facilities in two locations, it determined that new generation was not a viable alternative to meet the identified need in 2006 (id.).

f. Demand-side Management Alternative

To identify the demand-side management (“DSM”) alternative, the Company considered the ability of “maximum potential” implementation of energy efficiency programs and demand response programs in the Boston area to meet the identified need (Exh. BECO-1, at 3-5 to 3-7). The Company indicated that the identified need for added capacity amounts to 800 MW by 2006, and that of this amount 478 MW is to meet needs centered in the Hyde Park and Baker Street area and 327 MW is to meet needs centered in downtown Boston (id. at 3-5; Tr. 2, at 194-195). Addressing energy efficiency measures first, the Company indicated the Massachusetts Division of Energy Resources (“MDOER”) has estimated that the maximum potential cost-effective reduction in energy use in Massachusetts is 4% per year; however, netting out the projected annual load growth of 1.5%, NSTAR estimated that the maximum rate of reduction in the Boston area net of load growth is 2.5% per year (Exh. BECO-1, at 3-6; Tr. 2, at 205-206). The Company noted that currently funded energy efficiency program levels capture about one-third the maximum cost-effective implementation rate of 4% (Exh. BECO-1, at 3-6).

Turning to demand response programs, NSTAR cited a 2003 assessment it conducted

concluding that there is a demand response potential of approximately 200 MW in its service territory (id. at 3-7). The Company noted that reductions of 45 MW in NSTAR's service territory and 80 MW in the Greater Boston Area already were enrolled in ISO-NE's ongoing Demand Response Program as of October 2003 (id.). Taking together the maximum potential levels of implementation for energy efficiency programs and demand response programs, the Company concluded that it would take 7-8 years, or until 2011 or 2012, to meet the identified need (Exh. EFSB-PA-3). Therefore, the Company determined that it would not be feasible to rely on DSM to meet the identified need (Exh. BECO-1, at 3-6, 3-8).

The City of Boston argued that a balanced approach to system planning that includes a sustained and aggressive program of energy and load reduction through DSM is required to address both environmental and reliability concerns (Boston Brief at 4).

g. Distributed Generation Alternative

The Company indicated that the identified need theoretically could be met by the addition of distributed generation ("DG") capacity in the Boston area, but stated that hundreds of DG sites in a geographically confined area would be required for this purpose (id. at 3-9; Tr. 2, at 247-248). In support, the Company indicated that the need for added capacity amounts to 800 MW by 2006, and that with currently available technologies the largest DG units produce a maximum of 20 MW each (Exh. BECO-1, at 3-9). The Company noted that larger-sized units such as reciprocating engines and combustion turbines could be considered, reducing the number of units needed to produce the target capacity, but many units still would be required (id.). Addressing constraints for reliance on DG, the Company stated capacity requirements to supply the Boston area could not be satisfied by intermittent sources, such as solar and wind, and that for most other forms of DG, allowances for outage rates would be a factor in determining the required capacity for meeting the overall Boston-area need (Exh. BECO-1, at 3-9, 3-19). Further, the Company asserted that because DG capacity would need to be sited at specific locations to address identified Boston-area needs, siting and permitting constraints would be a potential difficulty for successfully implementing an appropriately configured DG alternative (id. at 3-19 to 3-20; Exh. EFSB-PA-5). Therefore, the Company determined that it would not be feasible to rely on DG to

meet the identified need (Exh. BECO-1, at 3-9, 3-20).

h. Analysis

The Company claimed that, with the exception of the 115 kV transmission alternative, all of the project approaches identified as alternatives to the proposed underground 345 kV project would fail to meet the identified need or be an impractical way to meet that need. The Siting Board agrees that, based on the likely lead time requirements for permitting and implementation, the new generation alternative and the overhead alternative would fail to meet the identified need. Based on requirements for new or expanded ROW in built-up and environmentally sensitive areas, with high land cost, the record reasonably establishes that the overhead alternative also would be an impractical approach based on both cost and environmental considerations.

The Siting Board further agrees with the Company that, in this case, the DSM alternative and the DG alternative do not provide reliable means of meeting the identified need. The Company's analysis establishes that maximum potential implementation of cost-effective DSM would provide net load reductions in the affected area falling well short of the target of 800 MW by 2006. The Company established that DG would pose substantial uncertainties for meeting that same 800 MW target by 2006, given that the approach would entail implementing multiple, relatively small DG projects, would require ensuring backup arrangements for the varied outage characteristics of those projects, would require ensuring a locational distribution of DG suitable to meet the wide array of system contingencies underlying the Company's Boston area need, and would require that the foregoing be accomplished for a set of prospective DG resources outside the Company's control.²¹

²¹ The Siting Board notes that, although the identified need in this case could not be met by DSM or DG either separately or in combination, it is important to acknowledge the benefits of incorporating DSM and DG into system planning. The Department has recognized the importance of DG as a resource option in the restructured electric industry. Investigation re: Distributed Generation, D.T.E. 02-38-B, at 40 (2004); Distributed Generation NOI, D.T.E. 02-38, at 1 (2002); Competitive Market Initiatives, D.T.E 01-54, at 11 (2001). Here, the record indicates that even with the construction of the three-

(continued...)

The Company has claimed that the bundled improvements alternative, like the overhead alternative and the new generation alternative, could not meet the identified need due to the lead time needed to permit and construct the many separate transmission projects that make up this approach. The Siting Board notes that, while the simultaneous permitting of the many elements of the bundled approach would be difficult, that difficulty should not preclude a further examination of a distinct alternative within NSTAR's control.

Accordingly, the Siting Board further reviews the proposed underground 345 kV project, the 115 kV transmission alternative and the bundled improvements alternative.

3. Reliability

The Company stated that, with the lower voltage alternative, the installation of a greater number of lines compared to the underground 345 kV project would lead to a higher level of exposure to contingency outages (Exh. EFSB-PA-6). At the same time, this presence of more lines would result in a smaller percentage of transmission capacity being unavailable under a given contingency, such as the loss of a single line (Exh. BECO-1, at 3-20).

With respect to the bundled improvements alternative, the Company asserted that the approach violates its "basic engineering construct" – to pursue transmission system upgrades and additions that address the greatest possible number of system requirements with a single project in order to minimize risks and disruptions associated with project construction (Exh. BECO-1, at 3-16). The Company further noted that, to construct two to four of the specific projects under this alternative, the Company would need to remove existing lines from service for extended periods of time, posing greater risk that overloads may occur during contingencies or that customers may lose service (*id.* at 3-17). Finally, the Company noted that the bundled improvements alternative would provide an increase in the Boston area import capability of only

²¹ (...continued)
circuit 345 kV transmission line, contingency overloads in the Greater Boston Area will recur in 2013. Given the long planning horizon between this Decision and 2013, it is conceivable that implementation of DSM programs combined with third-party efforts to develop DG could have an effect on the nature or timing of future transmission and distribution upgrades in the Greater Boston Area.

200 MW, compared to an increase of 800-1000 MW with the proposed 345 kV project (id.).

The record demonstrates that the proposed underground 345 kV project and the 115 kV transmission alternative would provide generally similar reliability. The lower voltage alternative has the potential to experience more contingency outages, but as an offsetting factor it would provide higher availability under certain such outages.

The record demonstrates that the bundled improvements alternative would provide sufficient capacity to meet identified needs related to thermal and voltage capabilities, and provide some increase in import capability. However, compared to the underground 345 kV project, the bundled improvements alternative has the disadvantages of requiring numerous regulatory filings that could complicate timely implementation, and requiring that some existing circuits be taken out of service during construction. In addition, although providing added import capability, the amount of increase under the bundled improvements alternative would be a quarter of that available with use of the underground 345 kV project.

Accordingly, the Siting Board finds that the 115 kV transmission alternative is comparable to the underground 345 kV project, and the underground 345 kV project is preferable to the bundled improvements alternative, with respect to reliability.

4. Environmental Impacts

The Company asserted that, compared to the underground 345 kV project, the 115 kV transmission alternative would require triple the miles of street excavation (Exh. BECO-1, at 3-23). The Company asserted that there is little difference in the short-term impacts of constructing 115 kV lines and 345 kV lines underground along streets, and concluded that there is no environmental reason to favor use of the 115 kV transmission alternative (id.).

Regarding the bundled improvements alternative, the Company first noted that the extent of new underground transmission construction required as part of the multiple projects included under that approach within the Greater Boston Area, and the associated environmental impact, would equal or exceed that of the new underground transmission construction required for the proposed underground 345 kV project (Exh. BECO-1, at 3-23 to 3-24). The Company then asserted that since the bundled improvements alternative would also include a new 10.5-mile

partial overhead-underground Walpole-Needham line and 8.5 miles of reconductoring of existing two-circuit lines, the overall project scale and associated environmental impact of the bundled improvements alternative would be greater than that of the proposed 345 kV project (*id.* at 3-24).

The record demonstrates that the 115 kV transmission alternative would entail substantially more lengthy in-street construction than the underground 345 kV project; additionally, this alternative would require siting lines along several routes, rather than one route, to each delivery point, and would require additional equipment at substations to accommodate additional circuits. Thus, while not addressing other possible differences such as the relative size or depth of underground transmission facilities, the record establishes that the overall scale of construction impact clearly would be greater with use of the 115 kV transmission alternative than the 345 kV underground project.

The Company has demonstrated that the scale of transmission construction impacts would be somewhat greater with the bundled improvements alternative as well, compared to the underground 345 kV project, although not to the same degree as with the 115 kV transmission alternative. The bundled improvements alternative also would entail more extensive installation of associated equipment at substations, since it would involve a greater number of transmission projects. As an offsetting consideration, there appears to be no need under the bundled improvements alternative to install a substation or similar facility at a new site, comparable to the new switching station facility required as part of most of the routing options for the underground 345 kV project. On balance, however, the incremental environmental impacts of a 10.5-mile partial overhead-underground transmission line, required as part of the bundled improvements alternative, outweigh the offsetting consideration of using a new switching station site under the 345 kV underground project.

Accordingly, the Siting Board finds that the underground 345 kV project is preferable to the 115 kV transmission alternative and the bundled improvements alternative with respect to environmental impacts.

5. Cost

The Company estimated that the total capital cost of the transmission project would be

\$177 million²² if the underground 345 kV project is used, \$270 million if the 115 kV transmission alternative is used, and \$192 million if the bundled improvements alternative is used (Exh. BECO-1, at 3-24 to 3-25, 3-28 to 3-30).

The record demonstrates that the capital cost of the underground 345 kV project would be \$93 million less than that of the 115 kV transmission alternative and \$15 million less than that of the bundled improvements alternative. In addition, because the bundled improvements alternative would provide a significantly smaller increase in import capability, some of the potential savings in generation costs that is anticipated with use of the underground 345 kV project would be foregone with use of the bundled improvements alternative (see Section III.C.5.b, below).

Accordingly, the Siting Board finds that the underground 345 kV project is preferable to the 115 kV transmission alternative and the bundled improvements alternative with respect to cost.

6. Conclusions: Weighing Need, Reliability, Environmental Impacts, and Cost

The Siting Board has found that the underground 345 kV project, the 115 kV transmission alternative and the bundled improvements alternative could meet the identified need for thermal and voltage capability. The Siting Board also has found that the 115 kV transmission alternative is comparable to the underground 345 kV project, and the underground 345 kV project is preferable to the bundled improvements alternative, with respect to reliability; and further found that the underground 345 kV project is preferable to the 115 kV transmission alternative and the bundled improvements alternative with respect to environmental impacts and cost. Accordingly, the Siting Board finds that the underground 345 kV project is preferable to both the 115 kV transmission alternative and the bundled improvements alternative with respect to providing a reliable energy supply for the Commonwealth, with a minimum impact on the

²² The Company's comparison of project approaches was based on initial cost estimates developed for the proposed underground 345 kV project. In Section III.C.5.a, below, the Siting Board reviews updated cost estimates for that approach, based on more detailed analysis of likely project cost.

environment at the lowest possible cost.

III. ANALYSIS OF THE PRIMARY, ALTERNATIVE AND HYBRID ROUTES

The Siting Board has a statutory mandate to implement the policies of G.L. c. 164, §§ 69J-69Q to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G.L. c. 164, §§ 69H and 69J. Further, G.L. c. 164, § 69J requires the Siting Board to review alternatives to planned projects, including “other site locations.” In implementing this statutory mandate, the Siting Board requires a petitioner to demonstrate that it examined a reasonable range of practical siting alternatives, and that its proposed facilities are sited at locations that minimize costs and environmental impacts while ensuring supply reliability. CELCo Decision, 12 DOMSB 305, at 326; MMWEC Decision, 12 DOMSB 18, at 89; New England Power Company, 21 DOMSC 325, at 376 (1991).

A. Route Selection

1. Standard of Review

G.L. c. 164, § 69J provides that a petition to construct a proposed facility must include “a description of alternatives to [the applicant’s] planned action” including “other site locations.” G.L. c. 164, § 69J. In past reviews of alternative site locations identified by an applicant, the Siting Board has required the applicant to demonstrate that it examined a reasonable range of practical siting alternatives. See CELCo Decision, 12 DOMSB at 323; MMWEC Decision, 12 DOMSB at 119; 1998 NEPCo Decision, 7 DOMSB 333, at 374. In order to determine whether an applicant has considered a reasonable range of practical alternatives, the Siting Board has required the applicant to meet a two-pronged test. First, the applicant must establish that it developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner which ensures that it has not overlooked or eliminated any routes which, on balance, are clearly superior to the proposed route. CELCo Decision, 12 DOMSB at 323; MMWEC Decision, 12 DOMSB at 119; 1998 NEPCo Decision, 7 DOMSB 333, at 374. Second, the applicant must establish that it identified at least two noticed sites or routes with some measure of geographic diversity. CELCo Decision, 12 DOMSB at 323; MMWEC Decision, 12

DOMSB at 119; 1998 NEPCo Decision, 7 DOMSB 333, at 374.

2. Route Selection Process

NSTAR stated that it conducted a systematic route selection study to select two potential transmission line routes that: (1) balanced impacts on the human and natural environment and cost; (2) provided a reliable technical solution to the identified needs; and (3) could be permitted, constructed, and placed into service by the summer of 2006 (Exh. BECO-1, at 4-1). In addition, after the route selection study was completed, NSTAR worked with affected communities to refine its primary and alternative routes. The route selection study and these consultations, which together make up the route selection process for this project, are discussed below.

a. Southern Terminus to Everett/Andrew Square

NSTAR began its route selection study by identifying a “study area” within which all potential routes would be located (Exh. BECO-1, at 4-2). The Company stated that the transmission project was designed to improve the reliability of the regional power grid by moving bulk power from the existing 345 kV transmission system into both NSTAR’s K Street Substation in South Boston, and the Hyde Park/West Roxbury area; consequently, the project would have termination points at the K Street Substation and at either the Hyde Park or West Roxbury Substations (id. at 4-2 to 4-3). The Company also stated that, while existing 345 kV lines serve the Greater Boston Area from the north via Tewksbury, there are no 345 kV lines serving Boston from the 345 kV system to the south of the city (id. at 4-3). The Company therefore concluded that the proposed 345 kV transmission project should originate from the existing 345 kV transmission system between NSTAR’s existing Holbrook and West Walpole Substations (id.). Given these points of origination and termination, the Company identified an approximately 235 square mile study area bounded on the south by the existing 345 kV line between Holbrook and Walpole, on the west by an existing 115 kV transmission line running from Walpole to Westwood, and on the north by a line extending roughly along Route 9 to the K Street Substation (id. at 4-4).

NSTAR stated that it next identified an “initial universe” of approximately 30 potential

routes and route variations within the study area (id.). The Company began by identifying potential switching station sites along the existing 345 kV line between the West Walpole and Holbrook Substations, seeking sites located at or near the intersection of the 345 kV line and other transmission rights-of-way, rail lines, highways, or streets (Exh. EFSB-SS-38, at 1). The Company stated that an ideal switching station site would be immediately adjacent to the existing 345 kV right-of-way; at least six acres; relatively level; without significant mapped wetlands or streams; vacant or currently in use for commercial or industrial purposes; zoned industrial; located in an area of compatible land use; and well-buffered from residential areas (id. at 2; Tr. 4, at 392). The Company also considered the existing Holbrook and West Walpole Substations as potential starting points for the transmission line (Exh. BECO-1, at 4-2). From the potential switching station sites, the Company developed potential routes north to Boston, using the following route selection guidelines:

- * Select direct, rather than more circuitous routes;
- * Use existing rights-of-way and easements where possible;
- * Avoid crossing cemeteries, war memorials, and similar lands;
- * Where possible, avoid crossing public land dedicated to wildlife conservation, public recreation, or other Article 97 uses;²³
- * Where possible, avoid significant residential and densely developed mixed-use areas;
- * Avoid roads or streets known to have a high density of underground utilities;
- * Where possible, avoid crossing mapped wetlands and disrupting significant water resources;
- * Where possible, avoid crossing mapped rare or endangered species habitats (id. at 4-4 to 4-5).

NSTAR grouped its initial universe of routes into ten basic route options, including eight underground routes, a partial submarine route, and a partial overhead route (id. at 4-5). The Company reviewed these ten routes to select a smaller number for detailed study and evaluation

²³ Lands acquired by the Commonwealth and protected under Article 97 of the Commonwealth's constitution may not be used for other purposes except by two-thirds vote of both houses of the state legislature. MA Const. art. 97.

(id. at 4-9). At this stage of its process, NSTAR consulted with right-of-way owners, including the Massachusetts Highway Department (“MHD”), Transit Realty/MBTA, and the Algonquin Gas Transmission Company (“Algonquin”), and with officials from Stoughton, Canton, Milton, Randolph, Quincy, and Boston (id.; Exh. EFSB-SS-3). The Company stated that the MHD strongly discouraged the use of Routes I-95 and 24, and indicated that it preferred the primary route, Route 138 to Route 28, in part because portions of Route 28 had recently been reconstructed (Exh. BECO-1, at 4-9). The Company learned that, in order to avoid interference with rail operations, Transit Realty/MBTA would permit NSTAR to construct along railroad ROWs between 1:00 a.m. and 4:00 a.m. only (id. at 4-9 to 4-10). Algonquin informed NSTAR that the terms of its pipeline easements did not permit the collocation of electric transmission lines within the ROW; based on this information, and the relatively narrow width of the pipeline ROW, NSTAR concluded that construction of the transmission line along an Algonquin ROW would require the negotiation of new or widened easements with many landowners, which would considerably extend the project timeline (id. at 4-10). Based on this information, NSTAR eliminated: (1) a route following Interstate 95 through Sharon, Norwood and Canton; (2) a route following the Red Line right-of-way through Braintree, Quincy, North Quincy, and Dorchester; (3) a route following the Amtrak Main Line through Canton, Dedham, Hyde Park, Roslindale, and Jamaica Plain; and (4) variations to the Route 28 alternative involving the use of Route 24 and the Algonquin ROW (id.). The Company also eliminated: (1) a partial submarine route running underground from the Holbrook Substation to the Weymouth Fore River, then for 11.5 miles in the Fore River, Quincy Bay, Boston Harbor, and the Reserved Channel, due primarily to permitting complexity and high initial cost estimates; and (2) a route following Route 37 through Braintree, Quincy and Dorchester, because it was comparable in length to two other highway-based options, but had significant disadvantages, including a minimum six-mile single-circuit run to the Hyde Park Substation, use of the main southeast commuting corridor to Boston, and space limitations at the existing Holbrook Substation (id. at 4-10 to 4-11).

NSTAR next assessed the environmental attributes and construction costs of the five

remaining candidate routes.²⁴ These routes included:

- (1) the Route 28 Alternative, which begins at a new 6.25 acre switchyard in Stoughton, runs along streets in Stoughton and Randolph to Route 28, continues in Route 28 through Randolph, Quincy and Milton, then runs in streets through parts of Milton and Dorchester to Everett Square;
- (2) the Route 138 Alternative, which begins at a new switchyard in Stoughton, runs along Route 138 in Canton and Milton, then along Blue Hill Avenue in Milton and Boston to Mattapan Square, then along Blue Hill Avenue and Columbia Road to Everett Square;
- (3) the Route 1 Alternative, which begins at a new switchyard off Route 1 in Sharon, runs along Route 1 through Sharon, Walpole, Norwood, Westwood and Dedham, then along Washington Street through West Roxbury, Roslindale, Jamaica Plain and Roxbury, then in streets to Andrew Square;
- (4) the Route 1A Alternative, which begins at NSTAR's existing West Walpole Substation, then runs along Route 1A through Walpole, Norwood, Westwood and Dedham, then along Route 109 into Boston, then in streets to Andrew Square; and
- (5) the Partial Overhead Alternative, which begins at NSTAR's existing West Walpole Substation, then follows an existing transmission corridor above-ground for 9.5 miles through Walpole, Medfield, Norwood, Dover, and Westwood, then proceeds underground in streets to Andrew Square (*id.* at 4-11 to 4-15).

NSTAR evaluated the potential environmental impacts of the five candidate routes using sixteen environmental criteria divided into two categories: human environment and natural environment (*id.* at 4-16). The human environment criteria included residential land use, commercial/industrial land use, sensitive land uses, historic resources, traffic volume, traffic congestion potential, public transportation facilities, and visual impacts (*id.* at 4-16 to 4-17). The

²⁴ The Company noted that each of these route options reaches either Everett Square or Andrew Square in Boston, and then proceeds across South Boston to the K Street Substation (Exh. BECO-1, at 4-11). The Company therefore compared the five candidate routes from the originating switchyard to Everett/Andrew Square, and separately evaluated potential routes across South Boston (*id.*). The Company's development of the Everett/Andrew Square to K Street route is described in Section III.A.2.c, below.

natural environment criteria included wetlands, protected habitat, surface waters, stream crossings, drinking water supply, Areas of Critical Environmental Concern (“ACEC”), potential subsurface contamination, and tree clearing/disturbance (*id.* at 4-17). The Company divided each of the potential routes into either three or four segments of roughly comparable land use²⁵, and rated each of the segments on each of the environmental criteria using a scale of 1 to 3, where 1 represented the lowest potential impact, and 3 represented the highest potential impact (*id.* at 4-17, 4-22).²⁶ The Company then “length-weighted” the score for each route segment by multiplying the score by the length of the route segment in miles (*id.* at 4-22).²⁷ The total route scores were the sums of the length-weighted segment scores (*id.*). The resulting scores are shown in Table 2, below.

The Company stated that it incorporated environmental impacts at the originating switching station site into its analysis of the first segment of each route alternative (Tr. 4, at 450,

²⁵ The Route 28 and Route 138 Alternatives each were divided into four segments, including one single-circuit segment running from Mattapan Square to the Hyde Park Substation (Exh. BECO-1, at Tables 4-2 and 4-3). The Route 1, Route 1A, and Partial Overhead Alternatives each were divided into three segments, including one single-circuit segment running from Mattapan Square to the Hyde Park Substation (*id.* at Tables 4-4, 4-5 and 4-6). The Company argued that the segmentation was necessary because it could not assign meaningful scores on criteria such as residential land use or commercial/industrial land use for the routes as a whole, since each route ran through both suburban and urban areas (Tr. 4, at 444-445).

²⁶ The Company stated that the team developing the rankings consulted three principle resources: a set of large-scale aerial photographs with geographic information system overlays, notes from on-ground observations of the routes, and a compilation of quantitative data such as traffic counts, linear footage of wetlands crossed, and information on historic districts (Tr. 4, at 432-433).

²⁷ The Company argued that length-weighting was needed to capture the distance and duration over which human and environmental impacts would be experienced (Company Brief at 51). The Company asserted that the length-weighting helped to compensate for the fact that some routes were divided into three segments, while others were divided into four segments (Tr. 4, at 488-489). The Company argued that length weighting was appropriate for the most important criteria being evaluated (*id.* at 502). It stated that, when evaluating other types of criteria, the team considered density per mile, so that a five-mile segment with three or four stream crossings would receive the same score as a ten-mile segment with ten stream crossings (*id.* at 501-502).

457-458). The Company indicated that certain types of switching station impacts (e.g., visual, wetlands and habitat impacts) were picked up explicitly by the relevant criteria (id. at 449). The Company also argued that its standards for selecting potential switching station sites, combined with appropriate facility design, would ensure that any impacts from switching station operation would be confined to the site and its very immediate surroundings (id. at 450-454).²⁸ The Company therefore concluded that a separate analysis of switching station impacts was not a necessary part of the route study, and that it was appropriate to focus the study primarily on the effects of transmission line construction (id. at 455, 465).²⁹

To evaluate the potential construction costs for the five candidate routes, NSTAR engineers developed conceptual level cost estimates for each route using unit pricing for standard pipe-type cable installation in streets and roads (id. at 4-23).³⁰ The Company indicated that costs common to all five routes (including construction of new switching facilities at the starting point of each route, new facilities at either Hyde Park or West Roxbury, and new facilities at the K Street Substation) were not included in the cost comparison (id.). The conceptual cost estimates also are included in Table 2, below.

²⁸ The Company noted that all four switching station sites under consideration at that time were zoned industrial, and that three of the four sites were proximate to residential areas (Exh. EFSB-SS-38, at 4).

²⁹ To test the sensitivity of the environmental scores to differing value judgements about the importance of certain criteria, the Company conducted two sensitivity analyses (Exh. BECO-1, at 4-26). In the first analysis, it assigned a double weight to three criteria: residential land use, traffic volume, and traffic congestion (id.). In the second analysis, it assigned a double weight to all of the human environment criteria (id. at 4-27). The rank ordering of the route scores did not change in either analysis (id. at 4-26 to 4-27).

³⁰ The Company used unit costs of \$7,130,00 per mile for those portions of the underground route where three electrical circuits would be installed; \$5,280,000 per mile for two circuits; and \$3,300,000 for a single circuit (Exh. BECO-1, at 4-23). It used a unit cost of \$2,700,000 per mile for the overhead portions of the Partial Overhead Alternative (id.). The resulting costs were adjusted to reflect incremental land acquisition costs for the switchyards (id. at Table 4-14).

Table 2: Environmental and Cost Scoring of Candidate Routes

Route Alternative	Length (miles)	Environmental Score	Conceptual Cost (millions)
Route 138	15.57	352	\$108.9
Route 28	17.02	377	\$110.3
Route 1	19.82	514	\$128.7
Route 1A	19.95	546	\$133.9
Partial Overhead	24.24	690	\$137.2

Sources: Exh. BECO-1, Tables 4-2 to 4-6, 4-14, 4-21, 4-28.

The Company noted that two of the five candidate routes – the Route 28 Alternative and the Route 138 Alternative – had considerably lower (better) environmental scores than the other three routes, as well as considerably lower conceptual costs (Exh. BECO-1, at 4-24 to 4-26). The Company therefore selected these two routes as the primary and alternative routes presented in the initial petition (*id.* at 4-26). The Company stated that it also considered whether there were any differences with respect to the reliability of the five candidate routes (*id.* at 4-28). It concluded that the Route 28 and Route 138 Alternatives might have a small reliability advantage over the Route 1 and 1A Alternatives, due simply to their shorter length (*id.*). The Company stated that the partial Overhead route would be marginally less reliable than the underground routes, both because it involved some above-ground line, and because it required a second transition facility; however, the Company noted that this minor difference in reliability was less important than the Partial Overhead route's higher costs and environmental impacts (Tr. 4, at 486).

The Company stated that, while its route selection study was sufficient to establish the two best routes, further environmental analysis was done to determine which of the two route alternatives should be the primary route (*id.* at 504). These more detailed analyses are discussed in Section III.C, below.

NSTAR indicated that, after filing its petition, it had a number of meetings with City of Boston officials regarding routing issues. These discussions resulted in certain amendments to

the Petition.³¹ In particular, officials expressed concern that the disruption caused by construction along Blue Hill Avenue could harm financially struggling businesses; the City suggested that by using American Legion Highway instead, the Company could minimize the disruption and avoid existing underground utilities in Blue Hill Avenue (*id.* at 674-675). Therefore, on March 24, 2004, the Company filed a supplement to the Siting Board Petition identifying a variation to the primary route that would avoid the 2.5 mile stretch of Blue Hill Avenue between the Boston city line and its intersection with Columbia Road (Exh. BECO-1, at E-1). Instead of using this portion of Blue Hill Avenue, the Company proposed to run all three circuits of the proposed transmission line west along Cummins Highway to American Legion Highway (*id.*). From this point, a single circuit would run south on American Legion Highway to the Hyde Park Substation, as originally proposed; the remaining two circuits would continue northeasterly along American Legion Highway to its intersection with Blue Hill Avenue, then return to the primary route as originally filed (*id.*). The Company stated that the cost of this route variation would be higher than the cost of constructing directly up Blue Hill Avenue from Mattapan Square, primarily because it requires the construction of an additional 7400 feet of circuit length (*id.* at E-11). However, the Company indicated that, given American Legion Highway's moderate level of traffic and the nature of adjoining land uses (primarily parkland, cemeteries, and municipal land), construction along American Legion Highway is likely to be less disruptive than construction along the more heavily traveled and populated Blue Hill Avenue (*id.* at E-4). Overall, the Company concluded that the primary route up to Everett Square, using the American Legion Highway alternative, was best able to provide a reliable supply of energy at the least cost, while minimizing environmental impacts (Company Brief at 76).

b. Everett/Andrew Square to K Street Substation

NSTAR stated that it used the methods described in Section III.A.2.a, above, to develop

³¹ The first set of amendments pertains to the primary route between its southern terminus and Everett/Andrew Square, and is discussed here. The second set pertains to the route between Everett/Andrew Square and the K Street Substation, and is discussed in Section III.A.2.b, below.

environmental scores and circuit cost estimates for three possible routes through South Boston: (1) Alternative 1, which runs along Boston Street north to Andrew Square, then along Dorchester Street, East 4th Street, I Street, East 3rd Street and K Street to the K Street Substation; (2) Alternative 2, which runs along Boston Street north to Andrew Square, then along Preeble Street, Columbia Road, I Street, East 3rd Street and K Street to the substation; and (3) Alternative 3, which runs east from Everett Square along Cottage Street, Crescent Avenue, Day Boulevard, I Street, East 3rd Street and K Street to the substation (Exh. BECO-1, at 4-16, 4-22, 4-23). The environmental scores and costs are shown in Table 3, below. Based on these scores and costs, the Company selected Alternative 1 as its primary route through South Boston to K Street. The Company noticed Alternatives 2 and 3 as alternative routes through South Boston, and additionally noticed sections of Columbia Road, Dorchester Street, and Old Colony Road as workarounds in South Boston (*id.* at Fig. B).

Table 3: Environmental and Cost Scoring of Boston Routes

Boston Route	Length (miles)	Environmental Score	Conceptual Cost (millions)
Alternative 1	2.03	51	\$10.760
Alternative 2	2.24	54	\$11.870
Alternative 3	2.36	57	\$12.510

Source: Exh. BECO-1, Tables 4-7, 4-13.

As noted previously, NSTAR had discussions with the City of Boston over routing issues after filing its Petition, and, on March 24, 2004, it filed a supplement to the Siting Board Petition identifying two additional route segments that could be used as part of the routing through South Boston: one along Columbia Road between Dorchester Avenue and Kosciuszko Circle, and another within Moakley Park parallel to Day Boulevard (Exh. BECO-1, at E-2 to E-3). These two route segments, combined with already-noticed route segments, created a fourth possible route through South Boston: from Everett Square along Columbia Road to Kosciuszko Circle, then north within Moakley Park paralleling Day Boulevard, then along I Street, East 3rd Street and K Street to the substation (*id.*). The Company indicated that use of the Moakley Park

variation would allow it to follow Day Boulevard while avoiding traffic disruptions associated with in-street work, and that if this route segment were used, construction would take place in the late fall or winter months (*id.* at E-3, E-4).

c. Other Potential Routes

During the proceeding, Siting Board staff and the parties examined two routing options that combined the use of the alternative route's switching station site with elements of the primary route. At staff's request, the Company analyzed a "hybrid route", which combines the southern portion of the alternative route and its single-circuit component (from the SRA switching station to Mattapan Square in Boston) with the northern portion of the primary route (from Mattapan Square to the Hyde Park and K Street Substations). Specifically, the hybrid route would begin at the SRA switching station site, run in Stoughton and Randolph streets to Route 28, then proceed along Route 28/Randolph Road/Randolph Street to Reedsdale Street, Brook Street, and Blue Hill Parkway, then follow Blue Hill Parkway to the Neponset River crossing in Mattapan Square (Exh. RR-EFSB-20, at 1). From this point, the hybrid and primary routes would be the same (*id.*). The Company indicated that the southern portion of the primary route is 9.1 miles long, while the southern portion of the hybrid route is 9.76 miles long (*id.*). The Company scored the southern portions of the primary and hybrid routes as described in Section III.A.2.a, above, using information available at the time of the evidentiary hearings; the southern portion of the primary route received a raw score of 43 and a length-weighted score of 196, while the hybrid route received a raw score of 47 and a length-weighted score of 230 (Exhs. RR-EFSB-20(a); Att.; RR-EFSB-20(b) Att.). The Company asserted that the key differences between the primary and hybrid routes included: fewer residences along the southern portion of the primary route; fewer sensitive land uses along the primary route; greater potential for nighttime construction along the primary route; and support for the primary route from the Town of Canton Selectmen, the Town of Milton Selectmen, and the Canton Association of Industries (Exh. EFSB-RR-20, at 3). The Company also stated that it preferred to construct on a major road, such as Route 138, rather than on the residential streets that make up a significant portion of the southern part of the hybrid route (Tr. 5, at 583-584). The Company indicated that the

hybrid route would cost approximately \$6.0 million more to construct than the primary route; this difference would be partially offset by the lower acquisition cost for the SRA switching station site, resulting in a net additional cost of \$2.4 million for the hybrid route (Exh. RR-EFSB-16, at 1).

In addition, the Company analyzed the "Monroe Route", which would begin at the SRA switching station site in Stoughton and run along Technology Center Drive, Page Street, York Street and Randolph Streets, ultimately joining the primary route at the intersection of Randolph Street and Route 138 (Exh. EFSB-SS-25). The Company indicated the Monroe Route would be approximately 4.3 miles long, while the corresponding segment of the primary route is approximately 2.9 miles long, and that use of the Monroe route would add approximately \$6,860,000 to the cost of the transmission project (*id.*; Exh. EFSB-SS-27, at 1-2). The Company also noted that the Monroe Route would travel on narrow roads through a residential area, and stated that, because of the area road layout and the width of the streets, people living on cul-de-sacs off the route might experience eight-to-ten mile detours during construction (Tr. 4, at 540-543).

d. Analysis

NSTAR has described a complex, multi-step route selection process designed to identify two potential transmission line routes (including substation sites and transmission corridors) that provide a reliable technical solution to the needs it has identified, balance environmental and human impacts and cost, and can be permitted, constructed, and placed into service by the summer of 2006. The criteria explicitly examined in the Company's formal environmental assessment address the environmental and human impacts of the construction and operation of the proposed transmission lines. These are types of criteria that the Siting Board previously has found to be appropriate for the siting of energy facilities. See NSTAR Decision, 13 DOMSB at 177; MMWEC Decision, 12 DOMSB at 125; 9 DOMSB at 43-44; New England Power Company, 4 DOMSB 109, at 167 (1995). In addition, at other stages of its route selection process, NSTAR has explicitly or implicitly considered criteria including project cost, reliability, proximity to a viable switching station site, ease of permitting, ease of construction (including

presence of underground utilities), impacts on local businesses, ability to mitigate construction impacts, and the preferences of right-of-way owners, affected state agencies, and municipal officials. These are also appropriate criteria to consider in selecting a route for a project that must provide “a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.”

In identifying potential routes into Boston, NSTAR initially cast a broad net, considering the major transportation and utility corridors that intersected the existing 345 kV line between the West Walpole and Holbrook Substations. The Company also considered a partial submarine route that approached the K Street Substation via Boston Harbor. This methodical approach, focused on existing corridors, ensured that the Company did not overlook any clearly superior route into Boston. The Company narrowed its initial universe of potential routes down to five candidate routes based in large part on proximity to viable switching station sites and on input from the right-of-way owners (including MHD, Algonquin, and the MBTA) regarding the desirability and ease of construction along potential routes. The partial submarine route was eliminated due to permitting complexities and high projected costs, and a route along Route 37 was eliminated because it appeared similar to two other highway-based options, but had significant disadvantages which those routes did not have. The record indicates that the Company did not eliminate any clearly superior routes in narrowing its initial universe of routes down to the five candidate routes into Boston.

NSTAR next developed environmental rankings and cost estimates for the five candidate routes, and qualitatively assessed any reliability differences among the routes. Based on these analyses, the Company divided the five candidate routes into three clusters: the Route 28 and Route 138 alternatives, which had relatively low costs and environmental impact scores; the Route 1 and Route 1A alternatives, which had somewhat higher costs and environmental impact scores; and the partial overhead alternative, which had the highest costs and environmental impact scores, and marginally lower reliability than the underground lines. The Company stated that it considered the cost estimates and environmental scores for the Route 138 and Route 28 alternatives to be indistinguishable at this level of analysis; it therefore carried both alternatives forward, one as the primary route and one as the alternative route.

During the proceeding, concerns were raised about two aspects of the Company's environmental assessment: the use of segmentation and length-weighting, and the level of consideration given to permanent impacts at the new switching station site. The Company has stated that it evaluated the routes in segments because it could not meaningfully rank the routes as a whole on most criteria, as the routes ran for considerable distances through diverse suburban and urban areas. The Siting Board agrees that it would be difficult to assign a single, meaningful score on a criterion such as residential land use to a 15 to 25 mile route that runs through both densely and sparsely developed residential and commercial areas. The decision to segment the routes was a thoughtful response to this problem. However, the division of the routes into a different number of segments of different lengths necessitated the use of length-weighting. Length-weighting is appropriate for certain of the criteria evaluated in the environmental assessment – for example, a five-mile stretch of right-of-way with a high potential for traffic congestion clearly has greater impacts than a similar three-mile stretch of right-of-way. However, many environmental criteria are best evaluated as a single number: total acres of disturbed wetlands, total number of streams crossed, total square footage of tree clearing or disturbance. Length-weighting the raw scores for these types of criteria could bias the environmental assessment in favor of the shorter routes. The Company stated that it attempted to compensate for this possibility by assigning scores based on density of impacts, so that a shorter segment with two or three stream crossings might get the same stream crossing score as a longer segment with five or six stream crossings. To the extent that the Company was able to accomplish this, the potential for bias in favor of the shorter routes might be reduced, but not eliminated. Given the potential for bias inherent in length-weighting, and additional analytical complexity that would be needed to fully overcome this bias, the Siting Board recommends that future applicants avoid this approach and seek a different means of comparing lengthy routes.

The record shows that the two shortest routes did indeed receive the lowest environmental scores, and that the longest route received by far the highest score. This is, on its face, a logical result – the construction of a longer route is likely to cause greater disruption than construction of a similar, shorter route. Moreover, the Partial Overhead route, which received the worst environmental score, also is the only route with a potential for extensive permanent

visual impacts resulting from the construction of a long stretch of overhead transmission line. There is no indication in the record that the Route 1, Route 1A, or Partial Overhead alternatives have significant environmental advantages that went unrecognized in the route selection process. The Siting Board therefore concludes that, while the use of length-weighting likely biased the environmental assessment toward shorter routes, it did not lead the Company to eliminate a clearly superior transmission line route.

Questions were also raised during the proceeding as to whether the Company should have separately evaluated environmental impacts at each of the substations and switching stations associated with the candidate routes. The Company has argued that impacts at the existing K Street, Hyde Park, and West Roxbury Substations are identical for all routes, and that each of the four potential switching station sites (one existing, three new) is sufficiently large and well-buffered to ensure that offsite impacts would be minimal. The Company also has argued that the visual, wetlands, and tree-clearing impacts associated with construction at each of the switching station sites were explicitly incorporated in the ranking of the first segment of each route alternative. Finally, the Company has noted that three of the four switching station sites associated with the five candidate routes had proximate residential areas.

The Siting Board is not persuaded by the Company's a priori assumption that the offsite impacts of the switching station would be minimal at all locations. This is a question that receives further analysis in Section III.C, below. However, the record does not suggest that the Company's decision to evaluate the switching station site as part of the first route segment led it to eliminate a clearly superior transmission line route. The record indicates that all of the switching station sites under consideration are industrially zoned, and that the switching station sites associated with the Route 1, Route 1A, and Partial Overhead alternatives are located in proximity to residential areas. Thus, in eliminating the Route 1, Route 1A, and Partial Overhead alternatives, the Company did not eliminate a clearly superior switching station site. The Siting Board concludes that the Company's decision not to separately rank the switching stations sites did not lead the Company to eliminate a clearly superior transmission line route.

With respect to the portions of the primary and alternative routes within Boston, the Siting Board notes that the potential paths through Boston to the Hyde Park and K Street

Substations are very numerous. Here, NSTAR has worked closely with the City, and after consultation has selected a route that, while somewhat longer and costlier than that originally proposed, minimizes the use of the heavily trafficked Blue Hill Avenue in favor of a wider, less developed road with fewer existing utilities. Similarly, after consultation with the City, NSTAR has offered a route through South Boston that minimizes work in congested streets.

Overall, the Siting Board finds that the Company has developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner which ensures that it has not overlooked or eliminated any routes which, on balance, are clearly superior to the proposed route. In making this finding, the Siting Board notes that the Company, throughout its route selection process, placed considerable emphasis on selecting a route that could be permitted, constructed, and placed in service by June 2006. The Company does not appear to have sacrificed a clearly superior routing option to reach this goal. However, it is apparent from the record that the Company did not allow sufficient time to complete its route selection process before filing with the Siting Board, as is evidenced by the continuing negotiations with the City of Boston over routing options during the proceeding. In fact, the Company had not identified major elements of its final primary route through Boston at the time it filed its Siting Board petition. As a consequence, this proceeding was renoticed several months after the Company's initial filing. The Siting Board urges NSTAR and other utilities to identify their approaching infrastructure needs and begin developing routing options well in advance of the date of need, so that similar situations can be avoided in the future.

3. Geographic Diversity

NSTAR began its site selection process by identifying an initial universe of approximately 30 potential routes and route variations within a 235 square mile study area encompassing all or part of 21 municipalities (Exh. BECO-1, at Fig. 4-1). This initial universe of route options was grouped into ten basic routes, ranging from a partial overhead route located in Walpole, Medfield, Dover, Needham, Dedham and Boston in the west, to a partial underwater route located in Braintree, Weymouth, the Fore River, Quincy Bay, Boston Harbor, and the Reserved Channel in the east (*id.* at Fig. 4-2). Potential southern switching station locations were

considered in Walpole, Sharon, Canton, Stoughton, Randolph, and Holbrook (*id.*).

From these ten basic routes, the Company has selected two practical routes which are geographically distinct from their beginning until they meet in Everett Square in Boston. The Company also has identified four distinct routes from Everett Square to the K Street Substation; while there is some overlap between the four routes, the only route segment common to all four is a short stretch along I Street, East 3rd Street and K Street leading to the K Street Substation. Consequently, the Siting Board finds that NSTAR has identified a range of practical transmission line routes with a considerable measure of geographic diversity.

4. Conclusions on Site Selection

The Siting Board has found that (1) NSTAR developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner that ensures that it has not overlooked or eliminated any routes that are clearly superior to the proposed route; and (2) NSTAR has identified a range of practical transmission line routes with a considerable measure of geographic diversity. Consequently, the Siting Board finds that NSTAR examined a reasonable range of practical siting alternatives.

In reaching this finding, the Siting Board notes that the Company has brought forward as its alternative route the Route 28 alternative, which received an environmental ranking very close to that of the primary route, and which has similar cost and reliability attributes. In addition, the Siting Board notes that elements of the Company's primary and alternative routes can be combined to create a "hybrid route" that combines certain positive aspects of both routes. Therefore, in Section III.C, below, the Siting Board reviews the environmental impacts, costs, and reliability of the primary, alternative, and hybrid routes to determine which route best meets the Siting Board's mandate to provide for a reliable energy supply for the Commonwealth, with a minimum impact on the environment, at the lowest possible cost.

B. Description of the Primary, Alternative, and Hybrid Routes

1. Primary Route

The primary route begins at a new switching station to be constructed on a 14-acre,

industrially-zoned parcel located at the intersection of Route 138 and York Street in Stoughton (Exh. BECO-1, at 4-28, Fig. 4-15). From the switching station, the primary route proceeds north for approximately 4.5 miles on Route 138 into Canton (Exh. EFSB-G-1, at 2-4). The primary route then crosses Route 128 using the existing bridge, and continues on Route 138 through the western portion of the Blue Hills Reservation and through Milton (Exhs. BECO-1, at 1-2; EFSB-G-1, at 2-5). The primary route then crosses the Neponset River Bridge to Mattapan Square in Boston, and then travels west from Mattapan Square along Cummins Highway to its intersection with American Legion Highway (Exh. BECO-1, at E-1). From this point, a single circuit runs south for approximately 0.65 miles on American Legion Highway to terminate at the Hyde Park Substation, while the remaining two circuits continue northeasterly along American Legion Highway for approximately 2.11 miles to its intersection with Blue Hill Avenue (*id.*). The primary route then continues north on Blue Hill Avenue to Old Road and the intersection with Columbia Road; it then follows Columbia Road northeast through Everett Square to Kosciuszko Circle (*id.* at E-11). From Kosciuszko Circle, the primary route travels along Day Boulevard, I Street, East 3rd Street, and K Street to the K Street Substation (Exhs. EFSB-G-1, at 4-60; BECO-1, at E-2).

The Company identified a number of variations to the primary route. First, as discussed in Section III.A, above, the Company originally proposed to travel north through Mattapan Square to Columbia Road on Blue Hill Avenue, rather than on Cummins Highway and American Legion Highway (Exh. BECO-1, at 1-2).³² In addition, north of American Legion Highway, the Company proposed a workaround that would use Glenway Street and Old Road to avoid the intersection of Blue Hill Avenue and Columbia Road (*id.* at 4-30 and Fig. 4-22). Near the Hyde Park Substation, the Company proposed a workaround that would avoid a hairpin intersection of Cummins Highway and American Legion Highway either by crossing an existing NSTAR distribution facility or by taking a short easement through a shopping center parcel (*id.* at 4-30

³² To avoid traffic and business impacts associated with the original routing through the Mattapan Square area, the Company also noticed “workarounds” using Cummins Highway and Woodhaven Road, and using River Street and Fremont Street (Exh. BECO-1, at 4-30 and Fig. 4-21).

and Fig. 4-23).

In South Boston, the Company initially proposed to travel from Everett Square to I Street along Boston Street and Dorchester Avenue, rather than along Columbia Road and Day Boulevard (Exh. BECO-1, at 1-2). In addition, the Company noticed segments of East Cottage Street, Crescent Avenue, Columbia Road, Dorchester Avenue, Day Boulevard, and Columbia Road as possible paths from Everett Square to the K Street Substation (id. at 4-26).

2. Alternative Route

The alternative route begins at a new switching station to be constructed on 6.25 acres of a former municipal landfill owned by the SRA, located off Route 24 and Technology Park Drive in Stoughton (Exh. BECO-1, at 4-28, Fig. 4-16). From the switching station, the alternative route travels north along Technology Center Drive and Kay Way in Stoughton, then along West Street and Lafayette Street to High Street in Randolph (id. at 1-3). The alternative route then proceeds north on High Street, east on Scanlon Drive, and north on Route 28 (id.). The alternative route passes immediately under the Route 128 bridges, then continues north on Route 28 through the Blue Hills Reservation in Quincy, and into Milton (id. at 1-3, 4-12). The alternative route continues on Route 28/Randolph Avenue and along Reedsdale Road until its intersection with Central Avenue and Brook Road (id. at 1-3). The length of the alternative route from the SRA switching station site to this intersection is 8.7 miles (id. at 1-10).

At the intersection of Reedsdale Road, Brook Road and Central Avenue, the alternative route splits into a single-circuit line and a double-circuit line. The single-circuit line travels northwest for approximately 3.2 miles along Brook Road, Blue Hill Parkway, Blue Hill Avenue, Cummins Highway, and American Legion Highway, to terminate at the Hyde Park Substation (Exh. BECO-1, at 1-3). The double-circuit line proceeds north on Central Avenue, crossing the Neponset River into Boston on the Central Avenue Bridge (id.) It turns east onto a short stretch of River Street, then proceeds generally north on Washington Street, Bowdoin Street, Hancock Street, Pleasant Street, and East Cottage Street to Everett Square (id.). From Everett Square, it follows the same path as the primary route to the K Street Substation (id.). The length of the

alternative route between the Reedsdale Road/Brook Road/Central Avenue intersection and the K Street Substation is approximately 7.2 miles (id. at 1-10).

3. Hybrid Route

At the request of Siting Board staff, the Company analyzed a hybrid route that combines the southern elements of the alternative route with the northern elements of the primary route (“hybrid route”). Specifically, the hybrid route would begin at the SRA Substation site and follow the path of the alternative route through Stoughton, Randolph and Milton to the Reedsdale Road/Brook Road/Central Avenue intersection. At this point, all three circuits would continue along Brook Road and Blue Hill Parkway, joining the primary route on Blue Hill Avenue just south of the Neponset River crossing. The hybrid route would then follow the path of the primary route within Boston.³³

C. Comparison of the Primary, Alternative and Hybrid Routes

1. Standard of Review

In implementing its statutory mandate to ensure a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, the Siting Board requires a petitioner to show that its proposed facility is sited at a location that minimizes costs and environmental impacts while ensuring a reliable energy supply. To determine whether such a showing is made, the Siting Board requires a petitioner to demonstrate that the proposed site for the facility is superior to the noticed alternatives on the basis of balancing cost, environmental impact, and reliability of supply. CELCo Decision, 12 DOMSB 305, at 334; MMWEC Decision, 12 DOMSB 1, at 127; 1997 BECo Decision,

³³ The Company also identified two other paths that could be used to connect the alternative route to the primary route south of Everett Square, to allow consideration of hybrid routing options: (1) from Central Avenue in Milton, following Standish Road to Hinkley Road to Brook Street to Blue Hill Avenue; and (2) from Washington Street in Boston, continuing north along that street to Columbia Road (Exh. BECO-1, at 4-30, Figs. 4-24, 4-25). While each of these paths could be used as a basis for a different hybrid route, the Siting Board considers in this decision only the hybrid route as described above.

6 DOMSB 208, at 287.

An assessment of all impacts of a proposed facility is necessary to determine whether an appropriate balance is achieved both among conflicting environmental concerns as well as among environmental impacts, cost, and reliability. A facility which achieves that appropriate balance thereby meets the Siting Board's statutory requirement to minimize environmental impacts at the lowest possible cost. CELCo Decision, 12 DOMSB 305, at 335; MMWEC Decision, 12 DOMSB 1, at 128; 1997 BECo Decision, 6 DOMSB 208, at 287.

The Siting Board recognizes that an evaluation of the environmental, cost and reliability trade-offs associated with a particular proposal must be clearly described and consistently applied from one case to the next. Therefore, in order to determine if a petitioner has achieved the proper balance among various environmental impacts and among environmental impacts, cost and reliability, the Siting Board must first determine if the petitioner has provided sufficient information regarding environmental impacts and potential mitigation measures to enable the Siting Board to make such a determination. The Siting Board then can determine whether environmental impacts would be minimized. Similarly, the Siting Board must find that the petitioner has provided sufficient cost and reliability information in order to determine if the appropriate balance among environmental impacts, cost, and reliability would be achieved. CELCo Decision, 12 DOMSB 305, at 336; MMWEC Decision, 12 DOMSB 1, at 128; Commonwealth Electric Company, 5 DOMSB 273, at 337 (1997) ("ComElec Decision").

Accordingly, in the sections below, the Siting Board examines the environmental impacts, reliability, and cost of the proposed facilities along NSTAR's primary, alternative and hybrid routes to determine: (1) whether environmental impacts would be minimized; and (2) whether an appropriate balance would be achieved among conflicting environmental impacts as well as among environmental impacts, cost and reliability. In this examination, the Siting Board compares the primary and alternative routes to determine which is superior with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

2. Construction Impacts

In this section, the Siting Board reviews the temporary environmental impacts associated with the construction of the proposed transmission line, switching station and substations, including land use and water resource impacts, traffic impacts, noise impacts, and impacts associated with hazardous materials.

In addition to these four categories of construction impacts, the Company noted that transmission line construction could result in temporary ambient air quality impacts arising from fugitive dust and emissions from generators and heavy-duty vehicles (Exh. EFSB-G-1, at 5-8). NSTAR stated that it would employ the following measures to control fugitive dust and its impacts: (1) loading excavated materials directly into trucks, rather than stockpiling it; (2) using covered trucks; (3) providing daily street cleaning during active excavation; (4) monitoring construction practices to minimize unnecessary transfer and mechanical disturbance of loose materials; and (5) conducting periodic street and sidewalk cleaning to minimize dust accumulation (*id.*). NSTAR also stated that it would participate in the Massachusetts Diesel Retrofit Program (“MDRP”) developed by MDEP, by requiring that backhoes and cranes be retrofitted (*id.*). The program consists of retrofitting diesel construction equipment with particulate filters and an oxidation catalyst (*id.*). In addition, contractors would be required to use low-sulfur diesel fuel in their off-road construction equipment and in the generators used during cable splicing (*id.* at 5-8 to 5-9).

NSTAR stated that it would use the same techniques to mitigate fugitive dust and equipment emissions at switching station and substation construction sites, except that soils would be stockpiled on-site, and the fugitive dust would be minimized through watering and temporary seeding of the stockpiled soils (Exhs. RR-EFSB-61; RR-EFSB-61(S)). In addition, street sweeping would be confined to the vicinity of the construction site entrance (Exhs. RR-EFSB-61; RR-EFSB-61(S)).

a. Land Use and Water Resources

In this section, the Siting Board considers the land use and water resource impacts associated with the construction of the proposed transmission project.

i. Primary Route

NSTAR stated that with, few exceptions, the proposed alignments for the primary route and the associated variations are within public highways, roads and streets (Exh. EFSB-L-8).³⁴ NSTAR asserted that since the transmission line would be located underground, and the disturbed areas along the route would be returned to pre-existing conditions, construction of the transmission line would not negatively affect or change the character or appearance of the land uses along the route (*id.*).

Traveling from the switching station, the primary route proceeds north on Route 138 into Canton, through approximately 2.5 miles of commercial and industrial development, followed by approximately 2 miles of light density residential areas and open space (Exh. EFSB-G-1, at 2-4). The primary route then crosses Route 128 and continues along Route 138, traveling through the western portion of the Blue Hills Reservation, and passing into Milton; at this point, the area surrounding Route 138 becomes residential, with the density of residential development increasing as the route travels north (*id.* at 2-5). The primary route crosses the Neponset River into Boston and then at Mattapan Square turns onto Cummins Highway; the first 0.3 miles of Cummins Highway is heavily developed with commercial and residential uses, but is less dense than the originally-proposed route along Blue Hill Avenue (Exh. EFSB-G-1, at 2-5 and 2-6, 4-59).³⁵ The primary route then splits at the approach to American Legion Highway, with a single

³⁴ The Company indicated that it would be required to obtain easements for the following areas: (1) the crossing of a corner of the Boston Police VFW parking lot off American Legion Highway at Morton Street; and (2) the crossing of the corner of a shopping center parking lot at the intersection of Cummins Highway and American Legion Highway (Exh. EFSB-L-8). Further, the Company may require construction permits for: (1) a Department of Conservation and Recreation (“DCR”) controlled parking lot along the west side of American Legion Highway south of the Morton Street bridge; and (2) a DCR-controlled grassed area north of Day Boulevard and Columbia Road, between Moakley Park and I Street (*id.*).

³⁵ The Company originally proposed that the primary route continue along Blue Hill Avenue (Exh. BECO-1, at 1-9). The Mattapan Square portion of Blue Hill Avenue is densely developed with commercial and residential properties, consisting of areas of street level store fronts with upper level residences, as well as areas that are either
(continued...)

circuit running south to the Hyde Park Substation, and the remaining two circuits traveling north on American Legion Highway (*id.*). American Legion Highway begins with a mix of residential and commercial development; however, most of the road passes through a mix of open space and municipal uses, finally approaching a small area of densely developed residential uses before rejoining Blue Hill Avenue (*id.* at 4-59). The primary route travels briefly along Blue Hill Avenue, passing Franklin Park, the Franklin Park Zoo, and an area of urban residential development, then passes through the predominantly commercial Columbia Road area, and arrives at Everett Square (*id.*).

From Everett Square, the primary route travels along Columbia Road to Kosciuszko Circle, along Day Boulevard, then north on I Street through a densely residential area of South Boston to the K Street Substation (Exhs. EFSB-G-1, at 4-60; BECO-1, at E-2). The Company stated that it preferred this routing alternative to the original routing along Boston Street/Dorchester Street (Exh. EFSB-G-1, at 4-60; Company Brief at 79).³⁶ NSTAR explained that the advantage of using the Day Boulevard Alternative is that the route would pass under the Southeast Expressway, thereby avoiding a bridge crossing over the Southeast Expressway (Tr. 5, at 676). Boston asserted that, in addition to avoiding the bridge crossing, this route meets the concerns of the residents of South Boston (Boston Brief at 4).

There are 63 homes along the route from the Route 138 switching station site to

³⁵ (...continued)
exclusively commercial or residential (Exh. EFSB-G-1, at 4-60). The Company explained that it undertook an examination of the American Legion Highway variation based on discussions with City of Boston officials, who noted that transmission line construction would have a severe impact on the Mattapan Square area's businesses (Tr. 5, at 674). The Company explained that the use of American Legion Highway would avoid work along 2.2 miles of Blue Hill Avenue between Mattapan Square and the intersection of American Legion Highway and Blue Hill Avenue (Exh. EFSB-G-1, at 2-1).

³⁶ The original routing along Boston Street/Dorchester Street travels from Everett Square to Boston Street, which is a densely developed residential area to Andrew Square, a predominantly commercial area, and then to Dorchester Avenue, a mix of commercial and residential uses (Exh. EFSB-G-1, at 4-60). The route then turns north onto I Street through to densely developed South Boston residential streets to the K Street Substation (*id.*).

Route 128, and 150 homes from Route 128 to Mattapan Square (Exh. RR-EFSB-33).

The Company indicated that it did not anticipate that tree clearing would be necessary during construction along the primary route (Exh. EFSB-L-1). In the event that tree branches are located in the work area, tree trimming will be conducted by an arborist, or if practical, the branches will be tied back or avoided in the course of construction (*id.*). The Company noted that while the transmission line may cross the median of American Legion Highway, the crossing will be situated to avoid any existing trees located in the median (Exh. EFSB-L-20).

The primary route is proximate to a number of designated habitat and critical environmental areas, including the Fowl Meadow and Ponkapoag Bog ACECs in Canton, Massachusetts Natural Heritage Priority Habitat in the Blue Hills Reservation, and Massachusetts Natural Heritage Priority and Estimated Habitat between mileposts 1 and 2 in Canton (Exhs. BECO-1, at Fig. 5-7; EFSB-G-1, at 4-16). NSTAR stated that it would restrict all construction activities through the Fowl Meadow and Ponkapoag Bog ACECs to the paved area of Route 138 (Exh. EFSB-G-1, at 9-13). According to the Massachusetts National Heritage Endangered Species Program (“NHESP”), only one state-protected species, the spotted turtle, is located within or in the vicinity of the primary route (Exhs. EFSB-L-12-d; RR-EFSB-29). According to the US Fish and Wildlife Service, there are no federally-listed or proposed, threatened or endangered species or critical habitat in the project area (Exh. EFSB-L-12-c). The Company stated that there would be no removal of any rare species or disturbance to its habitat since the proposed transmission line route is located entirely within paved road surfaces (Exh. EFSB-L-12). NSTAR noted that it would review construction plans with Mass Audubon, the manager of the Blue Hills Trailside Museum, since the primary route passes the museum’s parking areas (Exhs. EFSB-G-1, at 9-13).

NSTAR stated that construction of the proposed transmission lines would not result in any direct impacts to stream channels, as all stream channel crossings would go over or under existing culverts (Exh. EFSB-L-17). NSTAR noted that it has developed a detailed erosion and sedimentation control plan to confine sediments to the construction site, thereby preventing construction sediment from entering the streams (*id.*; Exh. BECO-1, at 5-41)

The primary route will cross the Neponset River via a narrow trench in the sidewalk of

the Neponset River Bridge (Exh. EFSB-G-1, at 8-15). The Neponset River Bridge is a National Register-listed stone faced concrete arch bridge constructed in 1901 and widened in 1946 (*id.*; Exh. EFSB-L-24). The Company indicated that construction of the proposed transmission line should not affect the structural integrity of the bridge, as the work would be done in the sidewalk and not in the concrete arch (Exh. EFSB-G-1, at 8-15). The Company stated that the Neponset River will be protected from the impacts of construction by appropriate construction and sedimentation controls, and that excavation in the vicinity of the river will be halted on windy days when fugitive dust cannot be controlled (*id.* at 9-33). In addition, NSTAR pointed out that the Neponset River Bridge has a four foot granite wall along the sidewalk, which will prevent soil from falling directly into the river during excavation (*id.*).

The Company asserted that impacts to historic resources would be limited to temporary alteration and restoration of the roadways and bridges (Exh. EFSB-L-24). Based on Geographic Information System mapping, the primary route passes by seven Massachusetts Historic Commission (“MHC”) listed historic sites, of which three are on the Everett Square to K Street portion, but does not pass any MHC historic districts (Exh. BECO-1, at 5-50). With regard to National Register listed properties and districts, the Company explained that in a few locations, the boundaries of historic districts include the roadway ROW, but the majority of the locations of the listed properties and districts abut the roadway or are set back from the road (Exh. EFSB-L-24).³⁷

The Company stated that it will submit filings under the Massachusetts Wetlands Protection Act to conservation commissions in the municipalities along the route (Exhs. EFSB-L-13; EFSB-G-1, at 1-8). The Company noted that the five small drainage ponds on the switching station site are associated with the present active gravel pit, and as such are not considered ponds under the Wetlands Protection Act (Exh. BECO-1, at 5-25).

The Company noted that a portion of the transmission line route along Day Boulevard and the K Street Substation site are in formerly filled tidelands; however, the Company indicated

³⁷ The National Register-listed properties that fall within the primary route ROW are the Blue Hills Reservation Multiple Resource Area and the Blue Hills Reservation District, and the Neponset River Bridge (Exh. EFSB-L-24).

the proposed project would cause no impact to flowed tidelands and no change in the existing non-water dependent use of the tidelands (Exh. EFSB-G-1, at 4-12). NSTAR will be required to obtain a Chapter 91 permit from MDEP with regard to the alterations to filled tidelands (*id.*; Tr. 13, at 1817). NSTAR submitted a draft Environmental Construction Management Plan (“ECMP”) which details the provisions of the sediment and control activities to be followed throughout the construction of the transmission project (Exh. EFSB-L-17). The Company indicated that all construction work will be subject to the NSTAR ECMP and to any further requirements set forth in MDEP or conservation commission permits (Exh. EFSB-G-1, at 5-25).

ii. Alternative and Hybrid Routes

The Company asserted that the primary, alternative, and hybrid routes are similar in land use character and traverse commercial, residential, and densely developed urban areas to a similar extent (Exh. EFSB-G-11). NSTAR stated that with few exceptions, the proposed alignments for all of the routes and their associated variations are within public highways, roads and streets (Exh. EFSB-L-8). NSTAR asserted that since the transmission lines would be located underground, and the disturbed areas along the route would be returned to pre-existing conditions, none of the routes would negatively affect or change the character or appearance of the land use (*id.*). The Company indicated that it did not anticipate that tree clearing would be necessary during construction along the alternative or hybrid route (Exh. EFSB-L-1).

The alternative route begins at the SRA switching station site and travels north into Milton (Exh. BECO-1, at 1-10). The first mile of the route travels along Technology Drive, passing a mixture of commercial, retail, warehouse, and office uses (*id.* at 5-20). The alternative route then travels for three miles in Randolph through predominantly residential areas; it then passes to the east of the southern portion of the Blue Hills Reservation, and passes through commercial uses on Route 28 (*id.*). The alternative route crosses Route 128, travels for approximately one mile through the Blue Hills Reservation, and then passes into Milton; at this point, the area surrounding Route 28 becomes single-family residential, with the density of residential development increasing as the alternative route travels north to the intersection of Route 28 and Reedsdale Road (*id.* at 5-21). Along Reedsdale Road, the alternative route passes

Milton Hospital and the Milton Center Historic District; the three-circuit segment of the alternative route ends at the residential area of Reedsdale Road, Brook Road and Central Avenue (id. at 5-21; Fig. 5-5).

From this intersection, the two-circuit segment of the alternative route travels north on Central Avenue, through a primarily single-family residential area, and crosses the Neponset River into Boston, where the uses are transportation and commercial (Exh. BECO-1, at 5-21). Continuing along Central Avenue, the alternative route traverses a densely developed commercial district; the alternative route then turns onto River Street, which has a combination of single-family and multi-family residential and commercial uses (id.). The alternative route then follows Washington Street through a densely developed mix of commercial and residential uses, and passes through Codman Square, which is entirely commercial (id.). The remaining portion of the route to Everett Square is densely developed, with residential uses along Bowdoin Street and Hancock Street, commercial uses at Bowdoin and Hancock Streets, and residential uses along Pleasant and East Cottage Streets (id. at Fig. 5-4).

The single-circuit segment of the alternative route continues west on Brook Road, a residential area of Milton, crosses the Blue Hill Parkway, and joins Route 138, crossing the Neponset River into Boston (Exh. BECO-1, at 5-21). The single-circuit segment of the alternative route passes Milton High School (id. at Fig. 5-5).

There are 157 homes along the route between the SRA site and Route 128 (Exh. RR-EFSB-33).

The hybrid route starts at the SRA switching station site and travels along the alternative route until it joins the primary route in Mattapan Square. Under the hybrid route, the three circuits extend northward to Reedsdale Road at Central Avenue in Milton, then proceed in common with the one-circuit segment of the alternative route to Route 138 where they join the primary route (Exh. EFSB-G-11). Specifically, from Reedsdale Road, the hybrid route would travel northwesterly for 1.1 miles on Brook Road/Route 28 and Blue Hill Parkway to join Route 138 south of Mattapan Square (Exhs. EFSB-G-11; RR-EFSB-20).

The alternative and hybrid routes are proximate to a number of designated habitat and critical environmental areas, including Massachusetts Natural Heritage Priority Habitat in the

Blue Hills Reservation, and Massachusetts Natural Heritage Priority and Estimated Habitat approximately 1/4 mile north of the SRA site to milepost 1 (Exhs. BECO-1, at Fig 5-7; EFSB-G-1, at 4-16). According to NHESP, a number of state-protected species, including the spotted turtle, the marbled salamander and the eastern box turtle, are located within or in the vicinity of the alternative and hybrid routes (Exhs. EFSB-L-12-d; EFSB-RR-29). NHESP noted that the alternative and hybrid routes have far greater ecological significance than the primary route, since they pass more recorded rare species observations along the alternative route, more areas of state-listed sightings on both sides of the road, and sensitive habitat found on the portion of the route that runs through the Blue Hills (Exhs. EFSB-L-29; EFSB-RR-29). However, the Company stated that there would be no removal of any rare species or disturbance to their habitat, since the transmission lines would be located entirely within paved road surfaces (Exhs. EFSB-L-12; EFSB-L-29).

The two-circuit segment of the alternative route crosses the Neponset River via the Central Avenue Bridge, where construction of the proposed transmission lines would involve hanging the pipe from the bridge and around the concrete abutments for the bridge (Exh. EFSB-L-18). The Company explained that installation would be accomplished by using barges in the Neponset River, and that NSTAR would submit detailed construction procedures to the Army Corps of Engineers (“ACOE”) for approval prior to construction (*id.*). NSTAR asserted that construction on the Central Avenue Bridge would have no direct effect on anadromous fish populations in the Neponset River (*id.*).

With regard to historic resources along the alternative and hybrid routes, the Company asserted that impacts would be limited to temporary alteration and restoration of the roadways and bridges (Exh. EFSB-L-24). Based on Geographic Information System mapping, the three- and two-circuit segments of the alternative route, south of Everett Square, pass by or through four MHC historic districts, but no specific historic sites; the single-circuit segment passes by no historic districts or sites (Exh. BECO-1, at 5-50, Fig. 5-5). The hybrid route includes the same four MHC historic districts prior to Everett Square as the alternative route (Exh. EFSB-G-11, at 8). Like the primary route, the alternative and hybrid routes pass through three MHC historic sites on the Everett Square to K Street portion (*id.*, at 5-51). The Company asserted that, based on

the currently available information, there would be no difference in the level of impact on historic resources among the primary, alternative and hybrid routes (id. at 5-50).

With respect to switching station construction impacts, the Company noted that there is a possible wetland resource, consisting of a small, isolated depression, on the east side of the SRA site near one of the existing transmission towers; however, there is little evidence of standing water in the depression (Exh. BECO-1, at 5-29). NSTAR stated that the proposed facilities and all construction would be limited to the buffer zone of this potential resource (id.; Exh. RR-EFSB-50).

iii. Analysis

The record indicates that the primary route would run through suburban and densely populated urban areas, and would pass through the Blue Hills Reservation and other open spaces, such as the Fowl Meadow and Ponkapoag Bog ACEC. Since the proposed transmission lines would be located under streets, there would be no permanent impacts on the use of recreational areas and other open space, species or their habitats, wetlands, or historic resources. In addition, at all stream channel crossings, the transmission lines would pass over or under the existing culverts. Further, the transmission lines would cross the Neponset River in an existing sidewalk, and construction and sedimentation controls would be implemented to avoid impacts to the river and culverted streams. Roadway construction may have temporary impacts to historic resources, although most of the historic sites abut the road or are set back from the road.

In Boston, the proposed use of the American Legion Highway variation in lieu of the originally proposed routing along Blue Hill Avenue would avoid construction impacts to most of the commercial area of Mattapan Square. The City of Boston has identified the Mattapan Square area as a commercial area that would be especially susceptible to the effect of construction on its ability to support successful small businesses. Further, the commercial and residential land uses along the American Legion Highway variation are less dense than those along the 2.2-mile stretch of Blue Hill Avenue contained in the primary route as originally proposed. Similarly, the Day Boulevard variation would bypass the originally proposed routing through the Andrew Square commercial area and dense residential development on Boston Street and Dorchester

Avenue, while also eliminating the need for a bridge crossing over the Southeast Expressway. However, with or without the use of the Day Boulevard variation, the primary route extends along narrow residential streets in South Boston that lead directly to the K Street Substation. Expansion of the K Street Substation, which is the terminus of all three routes, will be subject to further review under Chapter 91 because it would occur in historically filled tidelands.

The land use and water resource impacts associated with the proposed transmission lines, excluding the switching stations and substations, would be limited to temporary and minor impacts associated with construction activities. The record indicates that NSTAR will take appropriate measures to mitigate any temporary impacts. Accordingly, the Siting Board finds that the land use and water resource impacts associated with construction of the proposed transmission project along the primary route would be minimized.

As with the primary route, the record indicates that the alternative and hybrid routes would run through suburban and densely populated urban areas, and would pass through Blue Hills Reservation; however, it would not pass through any ACECs. Since the proposed transmission lines would be located under streets, there would be no permanent impacts on the use of recreational areas and other open space, species or their habitats, wetlands, or historic resources. In addition, at all stream channel crossings, the transmission lines will pass over or under the existing culverts. The crossing of the Neponset River would entail barge work in the Neponset River, subject to review by the ACOE. Construction and sedimentation controls would be used to avoid impacts to the river and to culverted streams. As with the primary route, although most of the historic sites abut the road or are near the road, any impacts to historic resources due to construction in the roadway would be temporary.

Accordingly, the Siting Board finds that the primary route would be comparable to the alternative and hybrid routes with respect to land use and water resource impacts associated with construction.

b. Traffic

i. Overview

NSTAR stated that installation of the proposed transmission lines would involve

constructing manholes, opening a trench, installing steel pipe, filling the trench back in with low-strength concrete and then repaving the street (Exh. BECO-1, at 5-4 to 5-7). Construction crews will pull the transmission cables through the buried steel pipes using the manholes, which are spaced 3,000 feet apart (*id.*).³⁸ The Company explained that roadway trenches typically would be confined to either a travel lane or a parking lane (Exh. EFSB-T-1). The Company noted that it expects to place trenches within a foot or two of the curb, except where existing utilities occupy that location (Exh. EFSB-T-5). NSTAR stated that it would do curb-to-curb repaving of all roads along the route, except on roads where there is a median strip; on these roads, repaving would be confined to the side of the road where construction has occurred (Tr. 10, at 1315).

NSTAR stated that the typical width of its construction corridor, including traffic barriers, would be 18 to 20 feet (Exh. EFSB-G-1, at 4-24). However, the Company stated that in constrained areas the construction corridor could be reduced to 16 feet (Tr. 7, at 980). The Company stated that the length of the work zone for pipe installation would vary from 500 feet to 750 feet, and that work within the zone would progress at an average rate of 100 feet per day (Exh. BECO-1, at 5-7; Tr. 6, at 901). However, the rate of progress at each location would depend on the density of underground utilities, number of circuits in the trench, and the work restrictions needed to maintain traffic flow (Exh. BECO-1, at 5-7).³⁹ NSTAR noted that construction crews would work simultaneously in different areas along the route, but be spaced apart in order to minimize construction impacts and maintain traffic flow (*id.* at 5-9, 5-52). NSTAR stated that to maintain traffic flow through a work area, the ideal width of a high speed traffic lane is 12 feet, whereas 10 feet is sufficient for slow-moving traffic (Tr. 7, at 974, 984).⁴⁰

³⁸ The Company stated that the primary route would have approximately 31 manholes (Exh. EFSB-G-1, at Fig. 2.5-1).

³⁹ The Company's rate of 100 feet per day is an average based on the standard eight-hour day; the Company noted that construction could progress as much as 150 feet per day in some sections, while in congested areas progress might average 75 feet per day (Tr. 10, at 1341).

⁴⁰ The Company stated that, in order to maintain through traffic, the MHD typically requires an 11-foot minimum width lane and Boston typically requires a 10-foot minimum width
(continued...)

NSTAR stated that parking prohibitions in work areas would be limited to the actual hours of construction in order to minimize disruption to residential and business parking (Exh. EFSB-T-6). This would be accomplished by covering the trench with steel plates and removing the construction equipment at the end of the construction shift (id.). The Company noted that, where necessary, alternative parking arrangements for residents could include paid reimbursement for the use of parking garages or parking lots (Exh. RR-EFSB-37; Tr. 14, at 1835-36).

NSTAR stated that construction would be scheduled to minimize disruptions to the extent possible; therefore, construction in residential areas would generally occur during the day (Exh. EFSB-T-14). The Company stated that nighttime construction would be proposed for all areas that are entirely commercial, so daytime businesses would not be affected (Exh. EFSB-T-6). The Company indicated that it would seek approval for a 12-hour workday from Boston and other affected municipalities; however, it acknowledged that such approval was uncertain, given municipal preferences to avoid construction during peak traffic hours (Tr. 10, at 1342). The Company stated that the minimum productive work day would be six hours, noting that it takes approximately an hour to set up a work area, and another hour to break down the work area and plate it (id. at 1346). NSTAR also acknowledged that if the work window at night were reduced to fewer hours than a municipality's standard daytime window,⁴¹ it would likely work the daytime hours (id. at 1433). In addition, NSTAR noted that the City of Boston has a moratorium on road construction in the winter; the Company stated that it would avoid the moratorium period to the extent possible, but acknowledged that it would seek a waiver allowing it to perform some winter construction (Exh. EFSB-NO-8; Tr. 10, at 1342, 1380).⁴²

NSTAR stated that it would develop a Traffic Management Plan ("TMP") as part of its

⁴⁰ (...continued)
lane (Exh. EFSB-G-1, at 5-6).

⁴¹ The Company noted that the standard City of Boston hours for work in streets are 9:00 a.m. to 4:00 p.m. (Tr. 10, at 1435).

⁴² The Company indicated that the moratorium was developed due to the potential for snowplows to hit and dislodge the metal plates in the streets (Tr. 10, at 1380).

request for the municipal street opening permits needed to construct the proposed transmission project (Exhs. ST-66; EFSB-G-1, at 5-1). NSTAR stated that it will prepare a draft TMP once it has selected a contractor, the construction corridor width has been identified, and a final set of drawings has been prepared detailing the location of the traffic lanes in which the corridor would be located (Exh. ST-66; Tr. 10, at 1378). The Company stated that the TMP is intended to ensure the safety of the public and construction workers in the vicinity of the work zone, and would detail how traffic would be handled during the course of construction (Tr. 10, at 1387). The TMP would be updated during construction whenever a need for changes in construction location, timing, or method was identified; any revision would be subject to approval by the appropriate authorities (Exh. EFSB-G-1, at 5-4). The Company identified 27 provisions that would be the governing principles of the TMP, including provisions for notification, access, allowable construction methods, traffic detours, mitigation, and restoration (*id.* at 5-4 to 5-7).⁴³

NSTAR indicated it is preparing a community relations plan that should be completed at the end of 2004, that would be shared with affected communities (Tr. 17, at 2322). The Company stated that it would provide a construction liaison who would notify all residents, businesses, and other special groups of the construction project schedule and when it would be located in a specific area (Exh. EFSB-T-3). The liaison would be the general public contact throughout the project (*id.*; Exh. EFSB-G-1, at 26). NSTAR stated that it would also have a dedicated phone line that would be staffed 24 hours a day; all residents and businesses would have direct contact with NSTAR through this line, and questions or complaints would be directed to the NSTAR staff responsible for investigating the matter (Exh. EFSB-G-1, at 26; Tr. 7, at 1024-1025).

⁴³ The 27 provisions are: authority and signature; field adjustments; compliance with standards; traffic detours; length of open trench; days and hours of construction; removal of striping; traffic control devices; pedestrian circulation; suspension of activities; notification to MBTA; notification to MA Commission for the Blind; notification to area businesses; minimum width of lanes; street closures; restoration of serviceable conditions; work, site clean-up; driveway access; interim lighting; restoration of sidewalks, trees, and vegetation, lighting and public conveniences; restoration of wire induction loops; worker and passer-by safety; jersey barriers; plating; transition between work crews; ombudsman; and prohibition on permanent barriers (Exh. EFSB-G-1, at 5-7).

ii. Primary Route

As discussed in Section II.B, above, the primary route begins at the proposed Route 138 switching station site, runs for approximately 9.1 miles along Route 138 to the Boston municipal boundary at the Neponset River in Mattapan Square, and continues for approximately 7.7 miles in Boston streets to the K Street Substation (single circuit is an additional .65 mile) (Exhs. BECO-1, at 1-9, Fig. 1-5; EFSB-G-1, at Figs. 2.2-2 and 2.2-4). Route 138 between Stoughton and the Neponset Bridge is a straight, two-lane roadway consisting of a paved travel surface, generally 35 to 44 feet wide, with no parking lanes, located within a ROW approximately 50 to 60 feet wide (Exh. EFSB-G-1, at 4-24, Fig. 4.6-1).⁴⁴ The route through Boston is generally wider, including Cummins Highway, which has a paved area and a ROW of 60 feet close to Mattapan Square, but which expands in a short distance to 60 to 70 feet of paved surface within an 80 foot ROW; American Legion Highway, which has four paved travel lanes with full parking lanes on each side separated from the travel lanes by a grassed median; and Columbia Road from Franklin Park north to Everett Square,⁴⁵ which has four paved travel lanes with full parking lanes on each side, a paved street width of over 80 feet, and a ROW width of over 100 feet (Exhs. EFSB-BECO-1, at 1-10; EFSB-G-1, at 4-24 and 4-26; BECO-1, at E-4).

After consulting with MHD and the City of Boston, NSTAR determined that full traffic flow must be maintained along Route 138 from Stoughton into Boston during the morning and evening peak traffic hours (approximately 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.) (Exh. EFSB-G-1, at 5-3). After the close of hearings, the Company provided updated construction mitigation plans indicating that: (1) construction along Route 138 may continue during peak-hour periods if construction is occurring opposite the predominant flow of traffic

⁴⁴ The Company explained that the road ROW is the entire width of the road, and includes sidewalks, planting strips, medians, parking lanes and travel lanes; the paved width is the portion of the road that has been designated for vehicular traffic, including the travel and parking lanes and any paved shoulder (Tr. 7, at 965). The ROW of Route 138 is the land owned in fee by MHD, including the grassed or un-sidewalked area and unpaved areas, as well as the paved roadway (*id.* at 966).

⁴⁵ Columbia Road from Everett Square to Kosciusko Circle ranges from four to six travel lanes (Exh. BECO-1, App. E, Fig. S-8).

and adequate traffic flow can be maintained; and (2) construction in Boston may continue during evening peak hour traffic periods along much of the primary route (Exh. RR-EFSB-61S(2)).

The Company characterized existing traffic volumes from Stoughton to Everett Square in Boston as heavy, especially during morning and afternoon peak hours (Exh. EFSB-G-1, at 4-26). NSTAR collected hourly traffic count data at one location in Stoughton, three locations each in Canton and Milton, and thirteen locations in Boston (*id.*; Exh. EFSB-T-2).⁴⁶ NSTAR reported that the data generally show a morning and afternoon peak at most locations during the weekdays, and a single, prolonged peak on the weekends (Exh. EFSB-G-1, at 4-26).

Based on these data, NSTAR developed a level of service (“LOS”) analysis which characterized traffic flow as good (LOS of A, B, or C), intermediate (LOS of D) or poor (LOS of E or F) (Exh. EFSB-G-1, at 4-27). The analysis indicates that Route 138 currently experiences poor traffic conditions in both directions from York Street to Royal Street during the 2:00 p.m. to 4:00 p.m. period, and from York Street to Brush Hill Road during the 4:00 p.m. to 7:00 p.m. period (*id.*, Table 4.6-5). The analysis indicated that: (1) for the 6:00 a.m. to 9:00 a.m. period, poor conditions exist from York Street to Dan Road, and from Randolph Street to Brush Hill Road; and (2) three of the five route segments along Route 138 between York Street and Brush Hill Road experience poor traffic conditions from 6:00 a.m. to 7:00 p.m.; and (3) along the remainder of the primary route, the only area with poor existing traffic conditions is along Blue Hill Avenue directly south of Columbia Road (*id.*; EFSB-RR-38).

The Company stated that it generally would seek to work when traffic conditions are good to intermediate (Exh. EFSB-G-1, at 27; Tr. 10, at 1318, 1320). The Company indicated that, if it were necessary to construct in the time periods where the LOS was poor, it would ensure that the impacts to the travel lanes were kept to a minimum, in terms of the width of the

⁴⁶ The Company indicated that it collected traffic counts along Route 138 in the following order, traveling north: north of York Street (Stoughton); north of Dan Road (Canton); north of Randolph Street (Canton); south of Royal Street (Canton); south of Brush Hill Road (Milton); south of Brook Street (Milton); and south of Mattapan Square (Milton) (Exh. EFSB-G-1, at 4-27). The Company reported the average weekday traffic counts including: Route 138 in Canton, 37,900; Blue Hill Avenue, 24,000; American Legion Highway 8,000 to 12,000; and Columbia Road, 20,000 to 24,000 (Exh. EFSB-SS-18A).

roadway affected and the duration of work (Tr. 10, at 1317). The Company indicated that it would work with the MHD, the City of Boston, and the Towns of Stoughton, Canton, and Milton to ascertain the preferred time of day for construction (*id.* at 1336).⁴⁷ The Company noted that these communities, through the issuance of street opening and access permits, have significant control over when construction would occur (*id.* at 1336). The Company also stated that it would work with local officials to ensure that appropriate traffic management measures, including warning signs, turn restrictions, speed restrictions, and police details, are arranged within the construction zone along Route 138 to ensure that existing congested travel conditions are not worsened during construction (Exh. EFSB-T-23).

NSTAR asserted that it could maintain two lanes of traffic on all portions of Route 138 during construction (Tr. 7, at 986). The Company indicated that, where the roadway ROW is 60 feet wide, 15 to 25 feet of unpaved land exists on one or both sides of the paved road (*id.* at 966). The Company noted that, in some areas, the unpaved land is not useable, due to the presence of wetlands, trees, drainage ditches, or side slopes (*id.* at 970). The Company stated that where the paved roadway is 35 feet wide and use of the unpaved area is constrained, it would narrow the construction corridor and use stovepipe⁴⁸ construction if necessary, which could slow down the construction process (*id.* at 972, 978-979).⁴⁹

In order to mitigate construction traffic impacts along Route 138, NSTAR proposed to use nighttime construction for the first 5.7 miles of the primary route (from the Route 138 switching station site to a point slightly north of the Blue Hills Trailside Museum in Milton), and stated that it was giving serious consideration to using nighttime construction for an additional 1.8 miles (from milepost 5.7 to 7.5, in the vicinity of Delphi Academy) (Exhs. EFSB-NO-10;

⁴⁷ NSTAR noted that the Town of Canton has expressed a preference for a longer work day in order to minimize the number of days of construction work in Canton (Tr. 10, at 1346-1347).

⁴⁸ The Company explained that stovepipe construction would involve opening a limited length of trench, and welding and laying one piece of pipe at a time into the open trench (Tr. 7, at 967).

⁴⁹ The Company noted that the areas along Route 138 that would be the most constrained fall between milepost 1.5 and milepost 3.0 (Tr. 7, at 974).

EFSB-T-14). The Company stated that, within these lengths of Route 138, there is an area of light-density residential development in Canton from approximately mileposts 2.6 to 4, and another one in Milton between mileposts 5.7 and 7.5 (Exh. RR-EFSB-40). The Canton area has approximately 58 residences within 100 feet of Route 138, and the Milton area has 24 residences within 100 feet (*id.*). After the close of hearings, the Company provided updated construction mitigation plans indicating that nighttime construction would end by 9:00 p.m. in these residential areas (Exh. RR-EFSB-61S(2)).

NSTAR also proposed limited use of nighttime construction within Boston, initially identifying the following as expected locations: Mattapan Square, Uphams Corner, Everett Square, and Columbia Road from the Route 93 ramp to Kosciusko Circle (Exh. EFSB-NO-8).⁵⁰ After the close of hearings, the Company provided updated construction mitigation plans indicating: (1) it would work a 12-hour day, from 9:00 a.m. to 9:00 p.m., for much of the primary route, including from Mattapan Square to the crossing of Route 93 on Columbia Road, except for Uphams Corner, and from the intersection of I Street and East Third Street in South Boston to the terminus at K Street Substation;⁵¹ and (2) it would work a 20 or 21 hour day, excluding morning peak traffic hours, along commercial portions of Cummins Highway and American Legion Highway, and along Day Boulevard (Exh. RR-EFSB-61S(2)). The Company also indicated that, along narrow roads in South Boston north of Day Boulevard, it may close the roads to traffic on a block-by-block basis and detour traffic (Tr. 7, at 981). The Company also indicated that it may use tight construction practices in South Boston, and for a small area on Cummins Highway approaching Mattapan Square (*id.* at 980-982).

NSTAR provided information showing there are 15 schools along the primary route, including public schools, Curry College and the Blue Hill School of Technology (Exh. EFSB-

⁵⁰ The Company indicated that land use in Mattapan Square, Uphams Corner and Everett Square is primarily commercial, with some second or third floor residential uses (Tr. 10, at 1430-1432). The Company did not identify any residences along Columbia Road between Route 93 and Kosciusko Circle (*id.* at 1432-1433).

⁵¹ On weekends, the Company would work this 12-hour day through Uphams Corner and from Route 93 to the intersection of Columbia Road and Day Boulevard, as well (Exh. RR-EFSB-61S(2)).

NO-28).⁵² NSTAR stated that, in order to minimize impacts on school activities and school bus schedules, it would prefer to complete all construction near each school either during the summer, or outside of the start and end of the school day (Exh. EFSB-T-8). The Company noted that, in the event that construction occurs when schools are in session, work at any one location would be in place for only one week (*id.*; Exh. EFSB-T-19). NSTAR stated that it would work with school administrations to establish work protocols (Exh. EFSB-T-19).

The Company stated that it would notify the MBTA on a weekly basis of the location of the construction crews for the following week (Tr. 10, at 1373). When construction approaches bus stops, the bus stops would be temporarily relocated outside of the 100 foot construction zone (*id.* at 1374). NSTAR noted that the primary route passes by the Mattapan MBTA station, but asserted that construction would not affect pedestrian or bus access, as the station is located to the east of the proposed construction (*id.* at 1371).

NSTAR noted that the Boston Public Works Department's "Rules and Specifications for Street Openings" protects newly paved streets for five years, and that the MHD has a policy which discourages excavation in any road that has been reconstructed in the last seven years (Exhs. EFSB-T-21; T-13). However, the Company noted that exceptions are made routinely for unplanned repairs and for construction of unplanned but necessary underground utility upgrades (Exh. EFSB-T-21; Tr. 10, at 1329-1330). The Company noted that there has been no recent road repair or construction along Route 138 in Stoughton or Milton, and that recent road work in Canton has been limited to the repaving of 2,000 feet of Route 138 just south of the Route 128 cloverleaf (Exh. EFSB-T-21). In Boston, Hyde Park Avenue has been completely reconstructed and portions of I Street, East 3rd Street, and K Street have been repaved within the last five years (Exhs. EFSB-T-13; EFSB-T-21).

The Company indicated that construction of the proposed transmission lines along the

⁵² The Company stated that the 15 schools include one school along the American Legion Highway variation segment and three schools along the Day Boulevard variation segment (Exh. EFSB-NO-28). By comparison, the Blue Hill Avenue variation has one school, and the Boston Street/Dorchester Street variation has six schools (*id.*). The Company indicated that the setbacks of the schools, as measured from the roadway centerline, range from 25 feet to 200 feet (*id.*).

primary route would be coordinated with the MHD, Canton, Milton, Stoughton, and the Boston Metropolitan Planning Organization (“MPO”) with regard to the Route 138 Corridor Planning Study (Exhs. EFSB-T-12; EFSB-T-25; Tr. 10 at 1324-1325).⁵³ In particular, the Company noted that the Town of Canton has plans for three projects along Route 138 – the reconstruction of the intersections of Route 138 with Randolph Road and Washington Street, and the reconstruction of Route 138 from Route 128 south to Dan Road, a distance of approximately 2.8 miles (Exh. EFSB-T-18; Tr. 10, at 1325). NSTAR explained that the Town of Canton would prefer that the construction and road improvement projects be addressed at the same time, so that Route 138 is under construction only once (Tr. 10, at 1369). The Company indicated that it has agreed to coordinate construction with the Town of Canton and its traffic consultants (*id.*).

The Company indicated that materials used for the construction of the Route 138 switching station would be delivered to the site via Route 138, and would not travel on York Street, Charles Avenue, or Ewing Drive (Exh. RR-EFSB-61). NSTAR indicated that it could place temporary signage on Route 138 notifying drivers that construction vehicles are entering the road, and place other visible markers and a police detail during periods of frequent deliveries or when large equipment is delivered (Exh. EFSB-T-23; Tr. 10, at 1370-1371). The Company stated that it would work with the Stoughton Police to ensure that construction traffic safely enters and exits the site (Tr. 10, at 1371).

iii. Alternative and Hybrid Routes

Beginning at the proposed SRA switching station site, the alternative and hybrid routes follow two narrow roadways: Kay Way, which is located approximately one mile into the route, and is a two-lane road 25 feet across with no marked shoulders or sidewalks; and West Street, a two-lane road approximately 22 feet across, including a narrow shoulder of one foot or less, and sidewalks (Exh. RR-EFSB-25). Kay Way and West Street account for approximately one-half

⁵³ The Route 138 Corridor Planning Study (July 2001) was prepared by the MPO’s Central Transportation Planning Staff, directed by the Boston Metropolitan Planning Organization for the MHD (Exh. EFSB-T-12, Bulk Att.). It identifies flaws in current road design and the traffic capacity of Route 138 (Exhs. EFSB-T-12, Bulk Att.; EFSB-T-25).

mile of the routes (Exh. RR-EFSB-25, Fig.(a)). The route continues for approximately $\frac{3}{4}$ of a mile along Lafayette Street, a two-lane road with a narrow shoulder, before heading north onto High Street, a two-lane road with a full shoulder, for a distance of approximately 2 miles (Exh. BECO-1, at 1-11, Fig. 1-7, Fig. 5-4). The alternative and hybrid routes then travel for approximately 3 miles on Route 28, which varies from a two-lane road with a wide shoulder to a four-lane road with a narrow shoulder (id. at 1-11, Fig. 5-4; Tr. 7, at 991-992). The route then turns onto Reedsdale Road, a four-lane road, and heads north onto Central Avenue, a two-lane road with a full shoulder (Exh. BECO-1, at Fig. 5-4). The Company asserted that the roads which make up the first 8 miles of the alternative and hybrid routes are slightly narrower than those which make up the primary route, and accordingly, that options for traffic mitigation may be limited by the narrower roads, and that fewer unoccupied spaces may be available for utilities (id. at 5-18).

From the intersection of Central Avenue and Reedsdale Road, the two-circuit segment of the alternative route proceeds north into Boston and travel 7.2 miles to the K Street Substation, while the single-circuit segment of the alternative route, and the hybrid route, proceed west to and then along the primary route to reach the Hyde Park Substation (Exh. BECO-1, at 1-10). The Company stated that the Washington Street to Pleasant Street portion of the two-circuit segment of the alternative route is much more congested than the corresponding portions of the primary route (Tr. 10, at 1360). The Company explained that the congestion is due to the winding streets and complicated intersections with more than two intersecting streets (id. at 1362). For example, the NSTAR noted that the intersections of Bowdoin Street and Hancock Street and Hancock Street and Pleasant Street would require the proposed transmission line to make relatively sharp turns (Exh. BECO-1, at 5-18). In addition, NSTAR noted that Codman Square has more upper-story residential development than portions of the primary route through Mattapan Square and Uphams Corner, which would make it difficult to mitigate traffic impacts by using nighttime construction work through the Codman Square intersection (Tr. 10, at 1437-1438). Overall, NSTAR asserted that along the northern portion of the routes, traffic impacts would be worse along the alternative route than along the primary route, even though the traffic counts might be lower (id. at 1362).

For the single-circuit segment of the alternative route, and the hybrid route, the Company stated that Brook Road between Reedsdale Road and Blue Hill Parkway is a four-lane, two-way road with no marked shoulders, and Blue Hill Parkway between Brook Road and Blue Hill Avenue is a six-lane divided highway (Exh. RR-EFSB-25).

NSTAR did not collect full traffic count data or conduct an LOS analysis for the alternative route (Tr. 10, at 1352). However, the Company indicated that counts taken on Route 28 north of the Milton/Quincy line found traffic levels of 15,000 to 17,000 vehicles per day, and counts taken at Randolph Avenue in Milton found approximately 7000 vehicles per day (Exh. EFSB-SS-18A; Tr. 10, at 1353-1354).⁵⁴ NSTAR expected that the traffic counts on High Street in Randolph would be less than 7000 vehicles per day (Tr. 10, at 1356).

NSTAR proposed to mitigate traffic impacts along the alternative and hybrid routes by using nighttime construction in two areas: (1) for the first 1.25 miles of the route along Technology Drive, continuing the short distance on Kay Way; and (2) for approximately 1.5 miles along Route 28, beginning south of the Route 128 interchange (milepost 4.5) and ending approximately at the Quincy/Milton border (milepost 6) (Exhs. EFSB-NO-10; EFSB-NO-3). The Company indicated that a large portion of the alternative and hybrid routes through Randolph is located in residential areas along High Street and Lafayette Street; consequently, the Company stated it did not expect that the Town of Randolph would allow nighttime construction along these streets (Tr. 10, at 1349, 1353).

NSTAR noted that a lengthy portion of the alternative and hybrid routes in Milton is presently being repaved, including approximately 1.8 miles of Route 28 from the Milton/Quincy line north to its intersection with Reedsdale Road, and an additional portion of Reedsdale Road to its intersection with Central Street, as well as some sections of Brook Street (Tr. 10, at 1331). In addition, the Company stated a portion of High Street in Randolph was rebuilt in 2002, and another portion in 2001 (Exh.EFSB-T-13).

The Company stated that the public transportation resources along the alternative and hybrid routes are similar to those along the primary route, as both routes pass near the Mattapan

⁵⁴ The distinction between the two traffic-count locations in Milton is unclear, as Randolph Avenue is Route 28 in Milton (Exh. EFSB-BECO, Fig. 1-8).

Square MBTA station and numerous bus routes; the alternative route includes one additional MBTA subway station, located on Central Avenue in Milton on the south side of the Neponset River (Exh. EFSB-T-16). NSTAR indicated that 12 schools are located along the alternative route (Exh. EFSB-NO-28).

iv. Analysis

The record demonstrates that construction of the proposed transmission lines would have temporary impacts on traffic traveling on the roads that make up the primary route. The degree of impact is related to three factors: (1) the existing level of traffic flow; (2) the number and width of travel lanes available during construction; and (3) the time of day that construction would occur.

The primary route first follows Route 138 from Stoughton to Mattapan Square, a predominantly two-lane roadway 35 to 40 feet wide with a paved shoulder, occupying a ROW 50 to 60 feet wide. The record shows that where possible, the Company would limit its work area to leave space for two 12-foot wide travel lanes on one side of the paved roadway. As its preferred work area in the ROW, the Company would use a 20-foot construction corridor made up of the remaining paved roadway, together with adjacent unpaved ROW. The Company's use of this corridor may be constrained in some areas by the location of utilities, or the presence of wetlands, slopes, ditches or other impediments in the adjoining unpaved ROW. In these locations, NSTAR would as feasible use stovepipe construction, or cross to the other side of the ROW and use the other shoulder. Due to the high volume of traffic on Route 138, LOS ratings in some areas are poor throughout the daytime periods, and in other areas are poor primarily during the morning and evening peaks. Thus, daytime construction work on portions of Route 138 has the potential to further degrade already poor traffic conditions, and may be unacceptable to local officials and the MHD.

In Boston, the primary route from Mattapan Square to Everett Square follows wider streets with more travel lanes and generally lower traffic volumes than Route 138. In South Boston the route is predominantly narrow, and the Company proposes to close portions of I Street, East 3rd Street, and K Street in segments and implement detours. Although existing traffic

conditions along the route in Boston do not show poor LOS ratings, the areas are heavily developed with both residential and commercial uses. In addition, public buses use the roads along the primary route, and there are numerous schools in close proximity to the route. Given the urban land use, the presence of a construction zone may pose safety issues for pedestrians and motorists.

To alleviate potential traffic impacts, the Company has proposed up to 7.5 miles of nighttime construction along Route 138, through Stoughton, Canton, and a portion of Milton. However, along residential portions of Route 138, including a 1.5-mile segment in Canton and a 2-mile segment in Milton, the Company's updated construction mitigation plans provide that any nighttime work would end by 9:00 p.m. The Company previously indicated that, in conducting nighttime construction, it expected it would need a continuous work period of at least six hours. Thus, to allow a six-hour shift, work hours on residential portions of Route 138 would need to overlap at least some daytime periods in which LOS ratings are poor. Further, while not precluding construction during the 4:00 to 6:00 p.m. peak traffic period, the Company's updated construction mitigation plans allow peak hour construction only if work is being conducted on the opposite side from the predominant traffic flow, and adequate traffic flow can be maintained.

In Boston, the Company's updated construction mitigation plans indicate that 12-hour or longer work days, overlapping evening peak hour traffic periods, will be used along much of the route, but that construction generally will not be conducted during morning peak hour traffic periods. Nighttime work would end by 9:00 p.m. along most of the route, generally including all areas with residential land use.

The record indicates that the Company would develop a TMP addressing issues such as the location of trenching and width of travel lanes, scheduled times and duration of work, arrangements for pedestrian traffic, mass transit operations, parking, and procedures for notifying residents and businesses of construction plans. The Siting Board notes that it is crucial that NSTAR, in consultation with the City of Boston and the Towns of Stoughton, Canton, and Milton, to develop a workable TMP in a time frame that allows for adequate notification to residents and businesses. Consequently, to ensure that all outstanding issues can be resolved in a timely fashion to the satisfaction of each community, the Siting Board directs NSTAR to submit

the draft TMP to appropriate officials in the City of Boston, and the Towns of Stoughton, Canton, and Milton, to school administrators in each of these communities, and to the MHD and the MBTA, at least two months prior to the commencement of construction affecting these entities.

The Siting Board notes that the Company has indicated that, as part of its TMP, it would address community outreach and notification to residents and business. Because the proposed transmission project requires approximately 18 miles of in-street construction through four communities, the TMP likely will be an extensive document. Community outreach and notification will be crucial to the success of this project. Consequently, the Siting Board directs NSTAR, in consultation with the City of Boston and the Towns of Stoughton, Canton, and Milton, to develop a comprehensive outreach plan for the proposed project. The outreach plan should lay out the procedures to be used to notify the public about: the scheduled start, duration, and hours of construction in particular areas; the methods of construction that will be used in particular areas (including any use of nighttime construction); and anticipated street closures and detours. The outreach plan also should include information on complaint and response procedures, contact information, the availability of web-based project information, and protocols for notifying the MBTA and schools of upcoming construction.

The Siting Board finds that, with the implementation of the above conditions, the traffic impacts associated with construction of the proposed transmission project along the primary route would be minimized.

The record indicates that the construction traffic impacts along the primary, alternative and hybrid routes would be temporary. Nonetheless, due to the configuration of the roadways used for each route, the traffic impacts would differ.

At the beginning of the alternative and hybrid routes, West Street and Lafayette Street are narrow roadways. While it appears that only one lane of traffic could remain open on each of these streets during construction, West Street is commercial and thus could accommodate nighttime construction. Further north, the alternative and hybrid routes follow Route 28 and Brook Road, which have four lanes each, rather than the two lanes with shoulders present on Route 138 along the primary route. In addition, the traffic counts along Route 28 are lower than

those of Route 138. However, there is less opportunity to mitigate traffic impacts through nighttime construction along Route 28 and Brook Road due to its more extensive residential development.

The hybrid route diverges from the alternative route just south of Boston, and joins the primary route. Within Boston, the alternative route is winding, with numerous turns, and a denser mix of residential development in commercial areas than along the primary route.

In summary, to the south of Boston, the primary route along Route 138 is shorter than the alternative and hybrid routes, and offers more opportunity to mitigate traffic impacts by using nighttime construction along Route 138. In Boston, the primary and hybrid routes follow wider streets than the alternative route, and provide the better opportunity for nighttime construction; therefore, they would better minimize traffic impacts. The Siting Board notes that, should the extent of nighttime construction along Route 138, or along the primary and hybrid routes in Boston, be significantly less than proposed as a result of possible additional reductions in its use, the route advantages identified above could be reduced or eliminated.

The routes also differ in terms of the degree to which construction is likely to be coordinated with other construction projects in the areas traversed. The record shows that the Route 138 segment of the primary route offers the possibility of coordinating construction with local improvement projects in the Town of Canton. In contrast, the record shows that several repaving and utility installation projects are ongoing or have been recently completed along the alternative route, including portions of Route 28 and Reedsdale Road in Milton.

Overall, the Siting Board finds that the primary route would be preferable to the alternative route and the hybrid route with respect to traffic impacts associated with construction.

c. Noise

i. Primary Route

(a) Transmission Lines

NSTAR explained that transmission line construction would take place in four distinct phases that would generate different levels of noise: manhole installation, trench

excavation/steel pipe installation, cable installation and cable splicing (Exh. EFSB-G-1, at 5-9).⁵⁵ The Company stated that the manhole installation and trench excavation/steel pipe installation phases would be the noisiest, while cable installation would be substantially quieter (Exhs. EFSB-G-1, at 5-13; EFSB-NO-4). NSTAR indicated that typical L_{10} sound levels from manhole installation, trenching, and pipe installation would range from 69 to 89 dBA at urban setbacks of 25 to 50 feet, and from 63 to 77 dBA at suburban setbacks of 100 feet; the Company noted that welding produces lower range sound levels and pavement sawing produces higher range sound levels (Exh. EFSB-G-1, at 5-13 to 5-14). NSTAR asserted that these estimates are conservative, based on the maximum, worst case scenarios (Tr. 10, at 1419).⁵⁶ The Company asserted that, due to the progressive nature of the construction project, no one activity would remain at any one location for very long (Exh. EFSB-G-1, at 5-12).

The Company indicated that certain construction activities would be conducted at night, including cable splicing and, perhaps, cable pulling in areas with manhole access constraints (Exhs. EFSB-G-1, at 5-12 to 5-13). The Company explained that, at any one manhole location, cable splicing would take 7 to 8 days, 24 hours a day (*id.* at 5-13). The noise associated with cable splicing would include contributions from the splicing van, air conditioner unit, and the generator (Exh. EFSB-NO-1). NSTAR estimated that the L_{10} sound levels from cable splicing would be 61 dBA at 50 feet, and 67 dBA at 25 feet (*id.*). The Company stated that it did not expect any residences to be closer than 25 feet to the source of the cable splicing noise (*id.*).

The Company conducted nighttime ambient short term sound level measurements during the spring at seven representative locations along the primary route, including two locations in Canton, one in Milton, and four in Boston (Exh. EFSB-G-1, at 4-41, 4-43 to 4-44). The Company conducted daytime ambient short term sound level measurements during the winter at

⁵⁵ The typical equipment to be used during the four phases of construction includes: pavement saws, backhoes or excavators, flatbed trucks, dump trucks, cranes, concrete delivery trucks, asphalt pavement delivery trucks, welders, cable reels, cable pullers/winders, splicing vans, generators, and air conditioning units (Exh. EFSB-G-1, at 5-9 to 5-10).

⁵⁶ NSTAR explained that it used construction noise estimates developed for the Big Dig, which were the maximum sound levels expected to never be exceeded (Tr. 10, at 1447).

four representative locations along the primary route, including one location in Canton, one in Milton, and two in Boston (id. at 4-41 to 4-42). The nighttime measurements show L_{10} levels ranging from 51 to 71 dBA, L_{eq} levels ranging from 50 to 68 dBA, and L_{90} levels ranging from 38 to 55 dBA (Exh. EFSB-NO-11). The Company's daytime measurements showed L_{10} levels ranging from 69 to 74 dBA, L_{eq} levels ranging from 65 to 71 dBA, and L_{90} levels ranging from 51 to 67 dBA (Exh. EFSB-NO-12).

The Company provided maps depicting the location of residences within a 100-foot setback of each side of Route 138 in Canton and Milton (Exh. RR-EFSB-40, Figs. 1 and 2). In Canton, the Company identified 31 such residences on the west side of the roadway and 27 residences on the east side of the roadway, and added that the residences to the east are concentrated in two areas – in the vicinity of the intersection with Randolph Road, and in an area north of the entrance to Ponkapoag Golf Course opposite the intersection with Washington Street (Exh. RR-EFSB-40).⁵⁷ In Milton, the Company identified 6 residences on the west side and 18 residences on the east side of the roadway (id.).

Both Boston and Canton regulate construction noise, while Milton does not have any noise regulations or restrictions (Exh. EFSB-G-1, at 5-14 to 5-15; EFSB-NO-4). With respect to construction noise, the Company indicated that Boston regulates L_{10} sound levels as measured from the lot lines of the affected property, based on the zoning of the property (Exhs. EFSB-NO-4; EFSB-NO-27). The Boston bylaws limits construction noise impacts to: an L_{10} of 75 dBA and a maximum noise of 86 dBA at residential or institutional properties; an L_{10} of 80 dBA at business or recreational properties; and an L_{10} of 85 dBA at industrial properties (Exhs. EFSB-G-1, at 5-14; EFSB-NO-4; EFSB-NO-27; Tr. 10, at 1417). The Company asserted that it does not expect the construction sound levels to exceed the residential L_{10} limit beyond a radius of approximately 100 feet, or to exceed the industrial zone limit at any time (Exh. EFSB-G-1, at

⁵⁷ The Company's map indicates that in these two areas, many of the residences on both sides of the roadway are located at less than the suburban setback of 100 feet (Exh. RR-EFSB-40, Fig. 1). The map indicates that, in the remainder of the Canton residential area, from northwest of the golf course to MP 4, and opposite the golf course south of Washington Street, residences are predominantly confined to the west side of the roadway and located at the full suburban setback of 100 feet (id.).

5-15). Canton prohibits the use of loud tools and machinery between the hours 10:00 p.m. to 7:00 a.m., except with written consent from the town (Exhs. EFSB-NO-4; EFSB-NO-27).⁵⁸ However, NSTAR indicated that if the Town of Canton agrees that the best solution to traffic impacts is to allow nighttime construction, it would seek such written consent (Tr. 10, at 1439).

The Company stated that it would mitigate construction noise impacts by ensuring that: (1) the diesel powered equipment has quality mufflers installed; (2) the equipment is well maintained; (3) properly sized equipment is used; (4) only the necessary equipment is operated at the job site; and (5) the idling time for construction vehicles is limited (Exh. EFSB-G-1, at 5-21). In addition, the Company asserted that diesel powered equipment would not be operated before 7:00 a.m. (Exh. RR-EFSB-61). Further, the welding of splice sleeves would be limited to daytime work hours in residential locations (Exh. EFSB-G-1, at 5-21). In areas where nighttime work is required, the Company suggested that it would try to concentrate the noisier work, such as pavement sawing and concrete pouring, toward the beginning of the shift, closer to the 7:00 p.m. or 8:00 p.m. time period, and lasting until no later than 11:00 p.m. (Tr. 10, at 1428). The Company also indicated that construction work in residential areas of Canton and Milton would end by 9:00 p.m. (Exh. EFSB-RR-61).

NSTAR asserted that the use of a sound attenuated generator that uses a well-built enclosure and muffler would minimize noise from the cable splicing operation (Exhs. EFSB-NO-1; EFSB-NO-2). The Company noted that it expects to use the quietest commercial portable generator available; the Company did not propose the use of noise barriers to mitigate noise from cable splicing, stating that it had conducted cable splicing in residential areas using the same quiet generator without creating noise problems (Exhs. EFSB-NO-2; RR-EFSB-39). NSTAR stated that portable noise barriers around the equipment could provide 5 to 10 dBA of sound level reduction when placed around all four sides of the noise generating equipment, with less

⁵⁸ “During the hours from 10:00 p.m. to 7:00 a.m., the Permit Holder or Contractor shall not use, unless otherwise specifically permitted, in writing, by the Awarding Authority or Awarding Authority Representative, any tool, appliance or equipment producing noise of sufficient volume to disturb the sleep or repose of occupants of the neighboring property” (Town of Canton General Bylaws, Section 12, Subsection 10) (Exhs. EFSB-G-1, at 5-15; EFSB-NO-27).

reduction for an upper story residence than for a ground or second floor residence (Exhs. EFSB-NO-2; RR-EFSB-39). The Company explained that the typical noise barrier is a maximum of 14 feet high (Exh. RR-EFSB-39). The Company stated that the use of the portable noise barrier could add up to six to eight feet to the width of the roadway construction zone, but noted that if the barriers could be placed on the sidewalk, no added impacts would result, although pedestrian access might be limited (id.).

NSTAR stated it would seek to avoid construction immediately adjacent to schools when the schools are in session; however, if construction work was necessary while a school was in session, the Company would work with the school administration to establish work protocols to minimize noise impacts (Exh. EFSB-NO-28). For example, the Company stated that construction activities that create the most noise, such as pavement sawing, pipe welding and concrete backfilling, would be shifted to the late afternoon and early evening periods to avoid school hours (id.).

(b) Route 138 Switching Station

The Company provided a project schedule that indicated construction of the Route 138 Switching Station would begin in January 2005 and be completed in June 2006 (Exh. RR-ST-5). Site preparation work and the foundation work would occur over the first six months of the schedule (id.). The Company stated that construction work at the site would involve the use of heavy diesel-powered equipment for grading, excavation, and placement of foundations (Exh. EFSB-G-1, at 5-18). NSTAR asserted that the noise from the grading and excavation phases would be similar to current daytime noise from the existing sand and gravel operation (id.). The Company noted that the foundation placement, which involves the use of concrete mixers, would likely generate noticeable noise levels for the brief period it takes to empty the loads (id.).

NSTAR stated that construction would generally take place during a daytime shift, within specific hours set by town bylaws (Exh. RR-EFSB-61). However, the Company stated that if additional shifts are necessary to maintain the overall project schedule, the standard day shift may be extended, or Saturday daytime shifts may be used (id.). NSTAR has entered into a Host Community Agreement with the Town of Stoughton to resolve issues concerning the design,

mitigation and siting of the Route 138 switching station (Exh. RR-EFSB-62). The Company indicated that its Host Community Agreement permits NSTAR to schedule daily shifts of up to twelve hours, five days a week, at the switching station site, subject only to a requirement that construction-related activities which generate noise cannot be undertaken after 7:00 p.m. (Exh. RR-EFSB-62). NSTAR noted that the Host Community Agreement also permits limited weekend and holiday construction subject to prior notice to, and coordination with, the town (id.).

With regard to mitigation concerning equipment noise at the switching station site, the Company stated that it would ensure that: (1) the diesel powered equipment has quality mufflers installed; (2) the equipment is well maintained; (3) properly sized equipment is used; (4) only the necessary equipment is operated at the job site; and (5) the idling time for construction vehicles is limited (Exh. EFSB-G-1, at 5-21; Tr. 17, at 2323). In addition, diesel powered equipment would not be started before 7:00 a.m. (Exh. RR-EFSB-61).

NSTAR noted that, prior to the circuits being placed in service, the cables and voltage compensators must be filled with dielectric fluid (Exhs. EFSB-G-1, at 2-30; RR-EFSB-61). The Company stated that it would use quiet generators to power the fluid pumps, which it would stage at the proposed switching station and at the Hyde Park and K Street Substations (Exhs. EFSB-G-1, at 2-30; RR-EFSB-61). The Company stated that to fill each cable is a one-time, continuous operation that would take at least 15 hours (Exh. EFSB-G-1, at 2-30). The Company explained that although this operation may continue into nighttime hours, the sound levels associated with the activity would not be significant (Exhs. EFSB-NO-15; RR-EFSB-61). NSTAR indicated that at the Stoughton and K Street locations, the pumps would not be near residential areas, and that at Hyde Park, it would not pump fluid late at night (Exh. EFSB-NO-15).

ii. Alternative and Hybrid Routes

(a) Transmission Lines

NSTAR asserted that the noise associated with the construction of the transmission line would be the same for the primary and alternative routes (Company Brief at 130).

(b) SRA Switching Station

NSTAR stated that construction of the SRA switching station would generally take place during a daytime shift, with specific hours set by town bylaws (Exh. RR-EFSB-61(S)). However, the Company stated that if additional shifts are necessary to maintain the overall project schedule, the standard day shift might be extended and/or Saturday daytime shifts might be used (id.). The Company stated that the mitigation proposed would be the same at either switching station site (Exh. RR-EFSB-61; RR-EFSB-61(S); Tr. 17, at 2323). NSTAR also stated that cable filling is the same at either switching station site (Exhs. RR-EFSB-61; RR-EFSB-61(S); EFSB-G-1, at 5-21).

(c) Substations

NSTAR stated that at the Hyde Park, K Street, and Baker Street Substations construction generally would take place between 7:00 a.m. and 7:00 p.m., Monday through Friday, with limited construction work as needed on Saturdays (Exh. RR-EFSB-61-S(2)). The Company also stated that diesel powered equipment would not be started before 7:00 a.m. (Exh. RR-EFSB-61).

NSTAR stated that the only night construction work that would occur at the K Street Substation would be the filling of the two voltage compensators and the transformers with insulating fluid, which would take place over a 48-hour period for each voltage compensator and transformer (Exhs. EFSB-G-1, at 5-21; EFSB-NO-14). The Company stated that noise levels are not considered significant since the pumps are housed in a trailer, and the only appreciable noise may come from a portable generator used to power the pumps, if use of a generator is required (Exh. EFSB-NO-14). The work location for filling the cables at the K Street Substation would not be near residential areas (Exh. EFSB-NO-15). NSTAR stated that it would not conduct late night filling of the cables at the Hyde Park Substation, as there are residences in close proximity to that work location (Exh. EFSB-NO-15).

iii. Analysis

NSTAR provided estimates of the maximum noise levels that would be generated by

construction of the proposed transmission line. These estimates ranged from 60 to 89 dBA in urban setback areas and from 63 to 77 dBA in suburban setback locations. The Company maintained that its noise impact estimates, which are based on a different type of project (excavation associated with the Big Dig), are conservative. The Company also emphasized that, due to the linear nature of the construction process, construction noise should affect any one location for only a short period of time. The Siting Board notes that, based on the expected rate of progress of 100 feet a day, any one home or business could be affected by several days of construction noise.

NSTAR stated that it would mitigate construction noise by: (1) using proper muffling on equipment; (2) ensuring equipment is well maintained; (3) using only properly sized and necessary equipment; (4) imposing idling limitations; and (5) prohibiting the use of diesel equipment before 7:00 a.m. The Company also indicated that it would limit the welding of splice sleeves to daytime hours. The Siting Board notes that these noise mitigation measures are consistent with approaches to mitigation relating to equipment that the Siting Board has accepted in the past.

Generally, construction noise impacts also would be minimized by confining work to daytime hours. However, two components of the transmission line construction process involve the potential for nighttime construction – cable splicing, and construction in areas of traffic congestion.

NSTAR has indicated that the cable splicing process would require around-the-clock work for seven to eight days at each of 31 manholes to be spaced 3,000 feet apart along the primary route. The Company's construction noise estimates indicate that cable splicing would generate L_{10} sound levels of 61 dBA at 50 feet, and 67 dBA at 25 feet. Existing nighttime L_{10} levels range from 51 to 71 dBA along the primary route, with the lowest levels being recorded late at night. A comparison of existing noise levels with noise levels likely to be generated by the cable splicing operation suggests that nighttime cable splicing could be disruptive in those residential areas where operations are in particularly close proximity to homes. The Siting Board therefore directs NSTAR to use portable noise barriers in nighttime periods to mitigate the noise impact of cable splicing wherever cable splicing operations are staged within 50 feet of a

residential structure.

NSTAR also is proposing nighttime construction for locations where daytime construction could result in traffic congestion, including much of Route 138 along the primary route and at discrete residential and commercial areas in Boston along all of the routes. Some of the nighttime construction would occur in commercial areas; however, the Company also has proposed evening (until 9:00 p.m.) construction in some areas of mixed or predominantly residential land use, including an approximately 1.5 mile route segment along Route 138 in Canton and an approximately 2.0 mile route segment along Route 138 in Milton. The estimated L_{10} sound levels resulting from construction activities – between 69 to 89 dBA at urban setbacks and 63 to 77 dBA at suburban setbacks – are slightly above evening and above late-night ambient late-night L_{10} levels measured along the primary route. The record also shows that setbacks of less than 100 feet are prevalent in some of the residential area along Route 138, including near the intersection with Randolph Road and the intersection with Washington Street, both in Canton. The record also shows that, while significant numbers of residences are located on both sides of Route 138 overall, residences are limited to the west side of the roadway along some segments of the route. The Company also intends to construct at night along portions of Cummins Highway, American Legion Highway, and Day Boulevard in Boston, and until 9:00 p.m. in a number of other commercial and residential areas within Boston.

NSTAR proposes to mitigate the noise impacts of nighttime construction by using low-noise equipment, by conducting noisier activities at the beginning of the night shift, and quieter activities later at night, and by ending construction by 9:00 p.m. in residential areas. The Company is not proposing to use physical mitigation, such as portable sound barriers, to reduce impacts of nighttime construction in residential areas.

The Siting Board recognizes that options for mitigating construction noise from a linear project such as a transmission line may be limited. However, the record shows that construction noise levels are likely to be significant at both urban and suburban setbacks. The record also shows that the Company may seek to install transmission lines using shifts extending into the evening along 3.5 miles of residential roadways – an effort that would involve approximately 180 standard work crew shifts. Further, the relationship of construction to residential receptors

would vary along the route, in that areas of residential development are located in different directions from the roadway, and at different setbacks. As a result of variation in the relationship of construction to residential development, the applicability of different mitigation approaches also could vary.

In Section III.C.2.b, above, the Siting Board directed NSTAR to develop an outreach program regarding traffic and property access for the entire route. Similarly, to address evening construction noise, the Company should develop noise mitigation plans in consultation with appropriate municipal officials and with the affected neighborhoods. Appropriate mitigation is likely to differ from neighborhood to neighborhood, based on residential density and setbacks and the level of background noise. However, if the Company's plans change, and late-night construction is scheduled in residential areas where other mitigation is infeasible or of limited effectiveness, possible measures could include:

- * Using portable noise barriers along the ROW edge in areas where residences are confined to one side of the roadway and construction is along the same side, or
- * Using portable noise barriers on both sides of the work area in locations where residences are on both sides of the roadway, and where less-than-suburban setbacks are prevalent (i.e., near the intersections of Route 138 with Randolph Road and Washington Street), if possible without undue interference with traffic; in the alternative, daytime construction could be used in these limited areas.
- * Offering temporary accommodations for residents interested in relocation during construction.

Accordingly, the Siting Board directs NSTAR to develop a noise mitigation plan covering each residential area where nighttime construction would take place. In developing the plans, NSTAR should work with appropriate officials to develop an initial noise mitigation plan, conduct public outreach in that area, and then, based on public input, develop a final noise mitigation plan in consultation with appropriate officials. The plan also should include a description of the Company's outreach plan. NSTAR shall provide copies of the final noise mitigation plans to the Siting Board for its information.

The Siting Board notes that the Company's construction noise estimates may be

conservative, as they are based on construction noise estimates for the Big Dig. Further, in assessing existing ambient noise along the route, the Company measured noise only during the evening hours along the southern portion of the route, and only during late-night hours along the northern portion of the route. To develop an accurate basis for determining final evening noise mitigation plans, we recommend that the Company monitor the actual noise impacts of nighttime construction work undertaken early in the construction period in non-residential areas along the route. The Company should evaluate noise impacts for several representative setbacks – perhaps 25, 50, 75, 100, and 150 feet – for construction that involves use of the noisiest equipment and operations as well as construction that involves only quieter equipment and operations. The Company should share this information with the local officials with whom the Company is developing its noise mitigation plans.

The record indicates that, as a threshold matter, the Company plans to minimize the noise impacts of switching station and substation construction work by confining such work to daytime hours. However, the Host Community Agreement appears to allow the Company to schedule daily shifts of up to twelve hours, five days a week, at the Route 138 switching station site, subject only to a requirement that construction-related activities that generate noise cannot be undertaken after 7:00 p.m. Similarly, the most recent information from NSTAR suggests that it intends to undertake construction work from 7:00 a.m. to 7:00 p.m., Monday through Friday, at all substation sites. The Siting Board notes that regular, lengthy construction shifts that extend into the early evening hours may be disruptive to the surrounding neighborhoods, especially in seasons when outdoor activities extend to the evening. The Siting Board therefore directs NSTAR to develop construction outreach plans tailored to the neighborhoods surrounding the Hyde Park, Baker Street and K Street Substations, and the Route 138 switching station site, that provide the neighborhoods with regular updates on the timing and progress of work at these locations, provide advance notice when noisier activities are to be undertaken, and provide the neighborhoods with an opportunity to request changes in the scheduling of evening work activities if certain activities prove unduly burdensome.

The Siting Board finds that with the implementation of the above conditions, the noise impacts associated with construction of the proposed transmission project along the primary

route would be minimized.

The record indicates that the Company would use essentially the same equipment and construction techniques along either the primary or the alternative route, resulting in essentially the same sound levels along either route. The record also indicates that the Company would employ the same mitigation measures (e.g. proper muffling, limited idling, proper sizing and equipment maintenance) for both routes. However, the routes differ in terms of the extent and distribution of residences and other sensitive land uses. In addition, as a result of differences in traffic volumes and congestion along the respective routes, the practicality and ease of construction during the day, the likely need for evening and nighttime construction, also differ.

Along its southern portion, up to the Boston line, the primary route passes fewer residences than either the alternative or the hybrid route - - an advantage for minimum construction noise impact. Over nearly 4 miles of this segment, the primary route passes no residences, compared to approximately 2.5 miles with no residences along the alternative and hybrid routes. However, because high traffic volumes and congestion are prevalent along much of Route 138, evening and possibly late-night construction may be undertaken along 5.7 miles in Canton and Milton and perhaps an additional 1.8 miles in Milton. Of this distance, 1.5 miles in Canton and 2 miles in Milton traverse primarily residential areas.

NSTAR also has proposed evening and nighttime construction in Boston affecting much of the in-common segments of the primary and hybrid routes. However, significant portions of the alternative route in Dorchester also are congested and traverse mixed use areas. Although not as long as the Boston portion of the primary and hybrid routes, the alternative route in Boston is disadvantageous for construction noise based on the prevalence of narrow streets and commercial segments, with the potential for conducting nighttime construction to minimize disruption to congested or commercial areas during the day.

As noted above, construction mitigation measures would be the same for both the SRA and Route 138 switching station sites. Construction at either switching station site is scheduled for approximately 18 months, although certain noisier phases of construction such as grading and foundation work would occur during the first six months. Because the SRA site is substantially smaller than the Route 138 site, construction noise levels at the site boundary would be higher for

the SRA site. However, the alternative switching station site is located in a commercial/industrial area, at a considerable distance from residences and sensitive receptors. Therefore, construction noise at the SRA site would affect fewer residents proximate to the site.

Overall, the primary route passes through fewer residential areas than either the alternative or the hybrid route, thus better minimizing noise impacts in residential areas. However, because of the existing traffic congestion along portions of Route 138, use of the primary route is likely to require evening construction in residential areas. In addition, construction of the new switching station at the Route 138 site is likely to be more disruptive than it would be at the SRA site. On balance, the Siting Board finds that the alternative and hybrid routes would be preferable to the primary route with respect to noise impacts associated with construction.

d. Hazardous Materials

i. Primary Route

(a) Transmission Lines

NSTAR noted that the transmission line would traverse areas in which natural soils are still present, but that much of the route would travel through areas where the soil consists primarily of urban fill and may contain oil or hazardous material (Exh. EFSB-G-1 at 4-3). The Company stated that it expects to remove all soil excavated from the cable trench from the site, most likely for use as landfill cover (Tr. 7, at 1043). The Company noted that a Licensed Site Professional (“LSP”) will oversee construction, including soil handling and disposal (Exh. EFSB-G-1, App. G at 10; Tr. 7, at 1044). The Company indicated that if the construction superintendents notice signs of possible soil or groundwater contamination during construction, the LSP could arrange for additional testing and removal of the material as appropriate (Tr. 7, at 1045-1053). The Company noted that the types of soil contamination it would expect to find along the route would be associated with oil or gasoline spills, and that the soil would be suitable for use as landfill cover after treatment (*id.* at 1061). The Company stated that it would not stockpile any soil along the route, regardless of its characterization (*id.* at 1043).

NSTAR explained that under the Massachusetts Contingency Plan (“MCP”), it is required

to conduct pre-construction soil sampling and submit to MDEP a Utility Related Abatement Measures Plan (“URAM”) for its proposed construction activities (Exh. EFSB-G-1, at 6-5 and App. G page 10). The Company indicated that the plan would include a review of existing conditions along the route, written plans for the handling and disposal of contaminated soil and/or groundwater, measures to limit the migration of any contamination, and provisions for the protection of construction workers and the public (*id.* at 6-5). The Company also noted that it has prepared a Construction Generated Soil Management Plan that details soil management procedures (Exh. EFSB-G-1, App. G, Att. G.3).

The Company stated that it reviewed MDEP records of “Tier Classified” oil or hazardous material sites⁵⁹ along the route and initially found 29 sites, including 3 from Everett Square to the K Street Substation (Exh. BECO-1, at 5-47, E-9). Upon more detailed investigation, however, the Company stated that within 100 feet of the proposed route, it found only 11 active hazardous waste sites north of the Neponset River, and none south of the river (Tr. 7, at 1040).⁶⁰ NSTAR explained that the remaining sites had either been closed or had been reclassified as Response Action Outcome, indicating that the sources of contamination had been abated and that a condition of no significant risk had been achieved (Exh. EFSB-G-1, at 4-7). Between Everett Square and the K Street Substation, the Company found three Tier-Classified sites (Exh. BECO-1, at 5-48).

The Company explained that it was further investigating the presence of contamination by collecting soil samples every 500 feet along the route in the approximate location where the trench will be built (Tr. 7, at 1040). NSTAR stated that the samples are being tested to determine whether the soil will meet standards for use as landfill cover material in Massachusetts (*id.* at 1040-1041).

(b) Route 138 Switching Station

The Company indicated that one Tier Classified site is located on the Route 138

⁵⁹ “Tier Classified” refers to categories of sites contaminated with oil or hazardous materials as defined under the Massachusetts Contingency Plan. 310 CMR § 40.00.

⁶⁰ The Company stated that the American Legion Highway portion of the route contains five known contaminated sites (Exh. EFSB-1-G-S, Bulk Att. at 4-7).

switching station site (Exh. EFSB-HM-5). NSTAR stated that this designation resulted from a diesel fuel spill but that the current MCP status of the spill site indicates that it should not affect construction or the use of the Route 138 site as a switching station (id.; Tr. 7, at 1070). Through an environmental site assessment of the property, the Company's consultant identified a number of potential "environmental conditions" that indicated "an existing release, a past release, or a material threat of release" of hazardous substances or petroleum products; in each case, the consultant designated the impacts of these conditions as either unknown or unlikely to be significant (Exh. ST-29, at 7-1 to 7-2). The Company noted that some of the site preparation work, such as the removal of two underground storage tanks, would be overseen by an LSP (Tr. 7, at 1064, 1067-1068). The Company stated that soils on the site have been sampled, that some additional sampling would occur, and that the Company would accomplish any necessary remediation (id. at 1068).

ii Alternative and Hybrid Routes

(a) Transmission Lines

In its initial review of MDEP records of Tier Classified sites along the alternative route, the Company identified 16 sites, including three identified between Everett Square and K Street (Exh. BECO-1, at 5-47 to 5-48). Based on the information provided for the primary and alternative routes, the hybrid route passes 27-Tier Classified sites, including three between Everett Square and K Street (id. at 5-47, 5-48, E-9). However, NSTAR did not present any information regarding how many sites along the alternative or hybrid routes remained active, as it did for the primary route.

(b) SRA Switching Station

NSTAR stated that approximately 80,000 cubic yards of municipal solid waste would have to be moved from a portion of the SRA's former landfill site to accommodate the proposed switching station (Tr. 5, at 601; Tr. 13, at 1734). The Company indicated that it did not know whether any of the waste included hazardous materials, but expected that it would find some hazardous materials since the landfill had been in operation prior to the mid-1970s (Exh. EFSB-

HM-6 Att. at 4; Tr. 5, at 601). However, the Company noted that Conroy Development Corporation (“Conroy”), which is constructing a new recycling facility on another portion of the SRA property, has not found anything but municipal solid waste while removing landfill material from one portion of the site and repositioning it at the north end of the property (Exh. EFSB-HM-6; Tr. 7, at 997).

According to the Company, NSTAR and Conroy had been negotiating an agreement in which Conroy would bear all the costs of removing the landfill waste from 6.25 acres of the site, preparing a footprint for NSTAR’s proposed switching station, and completing the associated permitting (Exh. ST-13; Tr 7, at 1002). The Company stated that the permitting necessary to excavate and move additional waste to accommodate the switching station would include the submission of a Notice of Project Change to MEPA and the modification of a permit from MDEP (Tr. 7, at 1005).⁶¹ The Company estimated that these activities, including the removal of the waste, could take about seven or eight months (Tr. 7, at 998).⁶²

iii. Analysis

The record is unclear regarding the precise number of contaminated soil locations the primary, alternative, or hybrid routes would traverse. However, the Company has detailed the

⁶¹ The Company stated that permits required from MDEP to prepare a portion of the site for the recycling facility included approval of a Corrective Action Design, an Authorization to Construct, and an Authorization to Operate (Exh. EFSB-HM-6 Att. at 5). In its comments on the Single Environmental Impact Report for the 345 kV transmission line project, MDEP stated that the landfill site “may not be used for non-landfill purposes (i.e., electrical substation) without the prior written approval of MDEP” (Exh. EFSB-G-1-S Bulk Att. at 9-8).

⁶² The Company indicated that NSTAR and Conroy made little progress on their negotiations between late April and late July, 2004, but that as of August 19, 2004, negotiations were scheduled to resume (Tr. 13, at 1731-1732). The Company expressed concern that if an agreement has not been reached before the Siting Board directs NSTAR to use the SRA site, NSTAR would have to initiate eminent domain proceedings to acquire the portion of the site needed for the switching station (Exh. ST-13). The Company suggested that this could introduce site preparation and permitting difficulties, additional truck traffic for removal of the waste, and schedule delays (Tr. 7, at 1001, 1008, 1013-1014, 1087-1088; Tr. 13, at 1733).

primary, alternative, or hybrid routes would traverse. However, the Company has detailed the measures it would take to identify contaminated sites before and during construction, and the procedures it would follow in those locations to minimize the migration of any hazardous materials encountered. The Company has indicated that such procedures would be performed under the supervision of an LSP. In addition, the record indicates that the project must be constructed in conformance with a URAM plan submitted to MDEP. These factors provide assurance that contaminated soils or groundwater encountered along the route would be handled appropriately, regardless of the number of instances of contamination. Thus, while there may be a cost differential associated with the number of contaminated sites encountered along each route, there does not appear to be a significant difference from an environmental standpoint.

Both potential switching station sites present possibilities that contamination will be encountered during site preparation. In neither case, however, does it appear that an appropriate level of remediation could not be achieved. As with the transmission lines, any differences in remediation necessary are more likely to translate into a cost differential, rather than environmental impacts associated with residual levels of contamination.

The Siting Board finds that the hazardous materials impacts associated with construction of the proposed transmission project along the primary route would be minimized. In addition, the Siting Board finds that the primary, alternative and hybrid routes are comparable with respect to hazardous materials impacts associated with construction.

e. Conclusions on Construction Impacts

The Siting Board has found that, with the implementation of certain conditions and mitigation, the land use, water resource, traffic, noise, and hazardous materials impacts arising from the construction of the proposed transmission project would be minimized. In comparing construction impacts along the three routes, the Siting Board has found that the primary route is preferable to the hybrid and alternative routes with respect to traffic impacts, that the hybrid and alternative routes are preferable to the primary route with respect to noise impacts, and that the three routes are comparable with respect to impacts to land use, water resources, and hazardous materials.

In comparing the three routes overall, the Siting Board notes that the noise impacts of construction along the primary route are amenable to mitigation, as evidenced by the conditions placed on this project in Section III.C.2.c, above. In contrast, the use of either the hybrid or the alternative route would require reopening significant stretches of Route 28 that have recently been rebuilt, while construction along the primary route could be coordinated with other planned road reconstruction projects along Route 138. The benefits of coordinated construction would be foregone if either the hybrid or the alternative route is chosen. Accordingly, the Siting Board finds that the primary route is preferable to the hybrid and alternative routes with respect to construction impacts.

3. Permanent Environmental Impacts

In this section, the Siting Board reviews the permanent environmental impacts associated with the proposed transmission lines, switching station and substations, including land use and water resource impacts, noise impacts, visual impacts, EMF impacts and impacts associated with hazardous materials.

a. Land Use and Water Resources

In this section, the Siting Board considers the permanent land use and water resource impacts of the proposed transmission project. Because the land use and water resource impacts of the transmission lines are limited to temporary construction impacts (see Section III.C.2.a, above), this analysis addresses only impacts at the proposed switching stations and substation sites associated with the project.

i. Primary Route - Route 138 Switching Station

As part of the proposed transmission project, NSTAR intends to construct a new switching station at a site along Route 138 in Stoughton that currently is occupied by a working sand and gravel operation, a mulching operation, and a retail nursery supply operation (Exh. BECO-1, at 5-18; Tr. 5, at 722). NSTAR stated that the switching station would occupy approximately four acres of the 14-acre parcel (Exh. BECO-1, at 1-12). The Route 138 site is

adjacent to and north of an existing 345 kV overhead line ROW (id.) A Town of Stoughton sewage pump station is located at the northeast portion of the site, at York Street (id. at 5-18).

The Company stated that the Route 138 site is zoned “Industrial”, and that the proposed switching station is an allowed use at this site (Exh. BECO-3, at 9). The Company provided a map showing that the land to the west, northwest and southwest of the site is zoned “General Business”, land to the south of the site is zoned “Residential Urban”, and land to the southeast and northeast is zoned “Residential Suburban” (Exh. EFSB-G-8). A small wooded area to the east of the site (conservation land owned by the Town of Stoughton) is zoned “Industrial”, and the area beyond the conservation land is Residential Suburban zoning (id.; Tr. 13, at 1706-1707).

NSTAR indicated that the nearest residence to the proposed facility, as measured from the southeast voltage compensator, is located 250 feet to the south of the voltage compensator, on Charles Avenue (Exh. EFSB-N-17).⁶³ The Company reported that there are approximately 175 to 180 residences within 1,700 feet of the fence line of the proposed facility, and noted that the majority are located south of the existing 345 kV transmission line ROW (Exh. ST-11). The Company identified as other sensitive receptors the New England Sinai Rehabilitation Hospital, located 790 feet from the closest substation equipment, and the Dawes Elementary School, located 2,230 feet away from the closest substation equipment (Exh. EFSB-L-32).

NSTAR described the Route 138 site as highly disturbed (Exh. BECO-1, at 5-18). The Company noted that the site currently is in industrial use, and that the Company’s use also would qualify as industrial (Tr. 13, at 1745). The Company asserted that the switching station would have fewer impacts than the existing businesses at the site, which generate noise and fugitive dust from industrial and commercial traffic, and provide views of sand, gravel and mulching facilities (Tr. 5, at 713, 722-723).

NSTAR stated that the Route 138 site currently contains five centrally located drainage ponds, which are used as catch basins to wash gravel and move groundwater from the upland slope on the south side of the site to runoff basins on the north side (Exh. G-1, at 4-11). The

⁶³ The southeast voltage compensator is located in the southeast corner of the facility footprint, approximately 50 feet from the southern fence (Exh. EFSB-BECO-1, Fig. 1-10).

Company stated that it will develop and implement a drainage plan to control drainage and sedimentation on the site, and would install erosion controls to improve groundwater and sediment runoff (RR-EFSB-62).⁶⁴ The Company also indicated that it would construct a retaining wall south of the proposed facilities (Exh. EFSB-G-1, at 5-25). The Company noted that in addition to the drainage ponds, a small intermittent stream is located at the east end of the site (*id.* at 4-11). NSTAR stated that it would construct a new settling pond to slow the rate of flow from the stream and allow silt to settle before the stream exits the site (*id.* at 5-26).

The Route 138 site is located in the southeast corner of a Massachusetts Natural Heritage Priority Habitat area and Estimated Habitat area (Exh. BECO-1, at 5-34). NSTAR stated that, because the site and surrounding areas already are highly disturbed, the construction and operation of the switchyard would be unlikely to negatively affect the availability of any important species habitat (*id.*).

NSTAR stated that it will grant to the Town of Stoughton a conservation easement on a 1.9 acre parcel located on the eastern end of the site that would prohibit further development (Exh. RR-EFSB-62). The Company also agreed to convey to the Town of Stoughton a minimum of 10,000 square feet of property adjacent to the pump station (*id.*). NSTAR has agreed not to develop either an electric generating facility or a distribution substation on the site without prior Town approval (*id.*). However, NSTAR may expand the switching station facilities if a new transmission line is added to the site (*id.*).

ii Alternative and Hybrid Routes - SRA Switching Station

If the alternative or hybrid route for the transmission lines were used, NSTAR would construct a new switching station at the SRA site at the end of Technology Drive in Stoughton (Exh. BECO-1, at 5-20). NSTAR stated that the SRA site is adjacent to an existing 345 kV overhead line ROW off Technology Drive and near Route 24 (*id.* at 1-12). The SRA site was

⁶⁴ The Stormwater Pollution Prevention Plan (“SWPPP”) will govern all work that is undertaken at the site (Exh. EFSB-G-1, at 5-24). The Company indicated that the purpose of a SWPP is to demonstrate compliance with the requirements of the National Pollution Discharge Elimination System in consideration for the issuance of a Storm Water Construction General Permit (*id.* at App. G, att. G-1).

formerly operated as a municipal landfill and is being developed for other uses (Exhs. EFSB-L-23; BECO-1, at 5-20). The Company stated that the site is under a 99-year lease to Conroy (Exh. BECO-1, at 1-10, 1-12). The Company stated that construction is currently underway for a construction-debris recycling center on the parcel adjacent to the potential switching station site (Tr. 7, at 997)

The Company provided information showing that the SRA site is zoned Highway Business, and that the proposed switching station is an allowed use on the site (Exh. BECO-3, at 14). The area immediately surrounding the site also is zoned Highway Business, and that an extensive area of industrial zoning lies to the north and west (*id.* at App. A (att.)). NSTAR stated that the SRA site is surrounded by commercial and industrial land uses and that the site is in close proximity to commercial and retail uses, including a BJ's Wholesale Club and a Reebok Outlet (Exhs. BECO-1, at 5-23; EFSB-N-6; Tr. 5, at 616). Route 24, which is a heavily traveled divided highway, is approximately 450 feet west of the site, and the commercial and industrial development continues to the west of Route 24 (Exh. EFSB-N-6). NSTAR stated that the nearest residence is 1,700 feet away, located to the southeast on Paige Street in the Town of Avon (*id.*).

The Company stated that there are no ACEC's, estimated or priority habitat areas, or surface water bodies in the immediate vicinity of the SRA site (Exh. BECO-1, at 5-37; 5-42).

iii. Substations

(a) Hyde Park Substation

To accommodate the addition of the single-circuit 345 kV transmission line, NSTAR intends to add facilities to its existing Hyde Park Substation, and expand the substation site to the north using land currently owned by the MWRA as part of a pumping-station (Exh. BECO-1, at 1-15). The expansion of the Hyde Park Substation would increase the existing $\frac{2}{3}$ acre substation development to 1 acre; the Company asserted that the new substation facilities would be generally consistent with existing facilities (Exh. EFSB-L-3). The Company indicated that the Hyde Park Substation site is industrially zoned; the surrounding zoning is industrial to the north and south, residential to the east along the opposite side of Hyde Park Avenue, and residential to

the west on the far side of an MBTA ROW (Exh. BECO-3, at 26, Att. C).⁶⁵ Along the southern boundary of the existing substation is a service center dedicated to NSTAR use (“NSTAR Service Center”), which is used for lay-down and storage of materials, but does not consist of any structures (Tr. 8, at 1205). The Service Center is located immediately to the south of the existing substation and is approximately 200 x 50 feet (Exhs. EFSB-G-1, Fig. 5.7-3; EFSB-L-14).

NSTAR stated that land uses around the Hyde Park Substation include the MWRA pump station to the north; transportation (MBTA tracks) along the western edge; residences along Hyde Park Avenue to the south, on the opposite side of Hyde Park Avenue to the east, and beyond the MBTA tracks to the west; and commercial uses to the north (Exh. EFSB-G-1, at 4-61) (see Section III.C.3.c, below for a further discussion of specific surrounding uses). The nearest residences are located directly across Hyde Park Avenue, and approximately 75 feet from the south property line, where there is a row of four triple-decker homes (*id.* at Fig. 5.7-3).

The Company stated that the Hyde Park Substation and the adjacent MWRA site both are highly disturbed sites surrounded by densely developed residential and commercial properties with essentially no wildlife habitat except for typical urban birds, and no wetlands (Exh. EFSB-G-1, at 4-20).

The Company stated that the MWRA pump station is listed in the Massachusetts Inventory of Historic and Archeological Assets of the Commonwealth, but not the National Register (Exh. EFSB-G-1, at 4-63). However, there is no transmission project-related work proposed for the pump station (*id.*). NSTAR indicated that construction lay down will be provided either offsite or at the NSTAR Service Center parking area located to the south of the Service Center, behind the triple decker residences (*id.* at 5-25).

(b) K Street Substation

To accommodate the addition of the two-circuit 345 kV transmission line, NSTAR stated it intends to add new substation facilities on four vacant acres of its existing K Street Substation

⁶⁵ The site is located in an M-1 District, Restricted Manufacturing (Exh. BECO-3, at 26). The zoning district to the east and west is S-5, Single Family Residential (*id.*, App. A (att.)).

site (Exh. BECO-1, at 1-16). NSTAR stated that the K Street Substation is bordered by K Street to the east, East First Street to the south, a Federal Express facility to the northeast, an environmental services facility to the northwest, a truck storage facility to the south, and the Reserved Channel to the west and north (Exh. EFSB-G-1, at 4-56, 4-61). The Company asserted that the proposed expansion would not be inconsistent with the industrial character of the site and the surrounding area (*id.* at 5-43). The site is located in a Waterfront Industrial zoning district, and the surrounding zoning is the same to east and west; to the south is Restricted Manufacturing (Exh. BECO-3, at 29 and App. A(att.)). The Company stated the site also is located within the South Boston Waterfront Interim Planning Overlay District (“IPOD”) (*id.* at 29).

NSTAR described the K Street Substation site as highly disturbed, and surrounded by densely developed residential and commercial properties with essentially no terrestrial wildlife habitat (Exh. EFSB-G-1, at 4-20). A portion of the site is formerly filled tidelands; however, the Company indicated the proposed project would not have an impact on flowed tidelands, and would not change the existing non-water dependent use of the tidelands (*id.* at 4-12). NSTAR indicated that it would be required to obtain a Chapter 91 permit from MDEP for the proposed alterations to filled tidelands on the site (*id.*; Tr. 13, at 1817). Further, the Company indicated that all construction work would be subject to the NSTAR EMCP and to any requirements contained in the Order of Conditions to be issued by the Boston Conservation Commission (Exh. EFSB-G-1, at 5-25).

(c) Baker Street Substation

To increase the capacity of the 115 kV pipe-type cables operating between the Baker Street Substation and the Hyde Park Substation, NSTAR stated that it intends to add a new heat exchanger at its existing Baker Street Substation (Exh. BECO-1, at 1-15). NSTAR stated that the Baker Street Substation is located in an urban area of Boston, across the street from a park and playing fields (Exh. EFSB-G-1, at 4-2). NSTAR stated that the new heat exchanger would be located approximately 275 feet from residences to the northeast (Exh. BECO-1, at Fig. 4-19). NSTAR further indicated that the site is located in a Community Commercial subdistrict, and the surrounding zoning is the same to south of the site, with zoning that is Local Industrial to the

west, Open Space Recreation to the east across Baker Street, and residential to the north and northeast (Exh. BECO-3, at 25, App. C).⁶⁶

NSTAR indicated that the Baker Street Substation is a pre-existing non-conforming use and that the addition of the heat exchanger on this site would be an expansion of the pre-existing use (Tr. 13, at 1804). The Company indicated that, absent a zoning exemption from the Department, it would be required to come before the City of Boston Zoning Board to obtain a conditional use permit to install the new heat exchanger (Exh. BECO-3, at 25).

The Company noted that the Baker Street Substation is a highly disturbed and developed site with essentially no wildlife habitat or wetlands (Exh. EFSB-G-1, at 4-20).

iv. Analysis

As discussed in Section III.C.2.a, above, the land use and water resource impacts associated with the transmission lines are limited to temporary construction impacts. Consequently, the permanent land use and water resource impacts of the proposed project are limited to those resulting from the construction of the switching station or expansion of the station and substations.

The Route 138 site is zoned Industrial and the proposed switching station is an allowed use at that site under the Town of Stoughton Zoning Bylaws. The record indicates that the areas surrounding the Route 138 site are a mix of commercial and residential land uses, with commercial uses to the west, southwest and northwest, and residential uses to the northeast, east, southeast and south. Similarly, the surrounding zoning is a mix of commercial, industrial and residential. The Company has noted that the proposed switching station would have fewer impacts on nearby residences and businesses than the sand and gravel, mulching, and retail nursery supply businesses currently located on the site. However, the proposed switching station, while compatible with the existing transmission towers, would be of a different use and scale

⁶⁶ The site is located in an Community Commercial district (CC) (Exh. BECO-3, at 26). The zoning district to the west is Local Industrial (LI); to the east is Open Space Recreation (OS-RC); and to the northeast is 1F-6000, One Family Residential, 6000 square foot lot minimum (id., App. C).

from the residential and open space uses in the vicinity of the site that would remain when the sand and gravel business closes. With regard to water resources, the record indicates that the five existing drainage ponds, as well as the new settling pond, would be incorporated into a drainage plan that would control drainage and sedimentation on the entire site.

The record indicates that the Hyde Park and K Street Substations are located in industrial zoning districts, while the Baker Street Substation is located in a commercial district. The land uses across from the Hyde Park and Baker Street Substations are residential and recreational, while the K Street Substation is located along an intensively developed waterfront industrial area of Boston with nearby residential uses. The K Street Substation expansion will be subject to review under Chapter 91 because it crosses historically filled tidelands; however, the expansion would have no impact on flowed tidelands and would cause no change to the existing non-water dependent use of the tidelands.

Accordingly, the Siting Board finds that the permanent land use and water resource impacts of the proposed transmission project along the primary route would be minimized.

The SRA switching station site is located in an industrial/commercial area and zoning district; the surrounding land uses are industrial and large scale commercial. The nearest development would be a recycling facility on SRA property that also is being developed by Conroy. There are no residential developments within $\frac{1}{3}$ of a mile of the site. The site is a former landfill that to date has not been found to contain hazardous materials. The site is not located in an ACEC, and there are no Estimated or Priority habitat areas on the site; however, there is a small potential wetland resource on the eastern edge of the site.

In comparing the land use impacts of the two switching station sites, the Siting Board notes that both sites are industrially zoned and are currently used for industrial purposes, and that the proposed switching station would be an allowed use at either site. However, the SRA site is surrounded by other commercial and industrial uses, while there are low density residential areas to the northeast, east, southeast and south of the Route 138 site. In addition, there is an Estimated and Priority habitat area on the Route 138 site, while there is no similar area on the SRA site. In comparing the water resource impacts on the two switching station sites, the Siting Board notes that the Company intends to remediate existing drainage problems at the Route 138

site. There is a small potential wetland on the SRA site, but it likely would be unaffected by construction. Overall, the Siting Board finds that land use and water resource impacts would be slightly greater at the Route 138 site than at the SRA site; consequently, the Siting Board finds that the alternative and hybrid routes would be slightly preferable to the primary route with respect to permanent land use and water resource impacts.

b. Noise

In this section, the Siting Board considers the noise impacts associated with the operation of the proposed transmission project. Because the transmission lines, once in place, do not emit noise, this analysis focuses on the noise impacts at the switching stations and substations associated with the project.

i. Route 138 Switching Station

To estimate the noise impacts of the proposed Route 138 Switching Station, NSTAR analyzed noise levels in the vicinity of the proposed site and the expected changes in noise levels resulting from operation of the switching station equipment (Exhs. EFSB-G-1, at 4-45, 5-17; EFSB-NO-17). The Company stated that the only noise source at the new switching station would be the voltage compensator, which would contribute 66 dBA at 1 meter (Exh. EFSB-NO-17; Tr. 8, at 1118).

The Company measured background noise levels at four noise monitoring locations (“NML”), and calculated the lowest ambient sound levels based on the quietest hour from 96 hours of continuous measurements (Exhs. EFSB-NO-17; EFSB-G-1, at Fig. 4.8-3). The Company determined that existing nighttime L_{90} levels near the Route 138 site range from 33 to 35 dBA (Exh. EFSB-NO-17). At the nearest residence, located on Charles Avenue 250 feet south of the nearest voltage compensator, the quietest nighttime L_{90} level was 33 dBA (*id.*; Exh. EFSB-G-1, at Fig. 4.8-3). The Company also provided day-night sound levels (“ L_{dn} ”)⁶⁷ at four

⁶⁷ The L_{dn} noise is the 24-hour A-weighted equivalent sound level, with a 10 dBA penalty added to measured sound levels during the hours between 10:00 p.m. and 7:00 a.m. (Tr. (continued...))

property line (“PL”) locations: (1) 49.8 dBA at the southeast property line closest to Charles Street; (2) 50.4 dBA at the east property line at the Town of Stoughton-owned land; (3) 53.7 dBA at the northeast property line closest to York Street; and (4) 65.6 dBA at the southwest property line closest to Route 138 (Exhs. RR-EFSB-45; EFSB-G-1, at Fig. 4.8-3).

NSTAR then modeled future noise levels at four residential receptors and four PL receptors (Exh. EFSB-NO-17). The Company estimated that, in the absence of additional mitigation, nighttime L_{90} noise increases at residential receptors would range from 1 to 6 dBA, including: (1) an increase of 6 dBA to a level of 39 dBA to the south at the Charles Avenue residential receptor; (2) an increase of 1 dBA to a level of 36 dBA to the southwest at the Ewing Drive residential receptor; (3) an increase of 5 dBA to a level of 38 dBA to the north at the York Street residential receptor; and (4) an increase of 1 dBA to a level of 36 dBA to the east at the Darling Avenue residential receptor (*id.*). The Company indicated that nighttime L_{90} noise increases at the PL locations would range from 1 to 8 dBA, including: (1) an increase of 6 dBA to a level of 40 dBA at the southwest site boundary; (2) an increase of 8 dBA to a level of 41 dBA at the southern site boundary; (3) an increase of 1 dBA to a level of 36 dBA at the eastern site boundary; and (4) an increase of 7 dBA to a level of 40 dBA at the northern site boundary (*id.*).⁶⁸

NSTAR agreed to construct a three-sided sound attenuation wall around the voltage compensator located closest to the residences to the south of the proposed facility (Exhs. RR-

⁶⁷ (...continued)
11, at 1186). The Company stated that the U.S. Environmental Protection Agency (“EPA”) recommends an outdoor L_{dn} level of 55 dBA or less for residential areas (*id.*).

⁶⁸ NSTAR stated that these estimates are conservative because its modeling assumed the operation of all four voltage compensators at full load, and no terrain shielding (Exh. EFSB-G-1, at 5-17). NSTAR noted that, while the four voltage compensators are likely to operate simultaneously, the amount of noise generated varies with load; thus, the voltage compensators would be quieter than modeled whenever they operate at less than full load (Tr. 11, at 1515). The Company also noted that the York Street residences are at a lower elevation than the switchyard; therefore the noise impacts for that area are likely overstated (*id.* at 1516).

EFSB-28(S); RR-EFSB-62).⁶⁹ The sound wall would be approximately 20 feet tall and 150 to 175 feet long, and would cost approximately \$100,000 to \$120,000 (Tr. 14, at 1902). The Company asserted that the sound attenuation wall would reduce the modeled noise at the closest residential receptors to 3 dBA or less above ambient noise levels (Exhs. RR-EFSB-28(S); RR-EFSB-62; Tr. 14, at 1901). NSTAR noted that, if after additional modeling, it appears that the Charles Avenue area would not achieve a noise increase of 3 dBA or less, it may be necessary to add a one- or two-sided sound wall to the next nearest voltage compensator to the south (Tr. 14, at 1904).

The Company stated that the estimated increases in L_{90} noise with operation of the switching station would be within the 10 dBA limit allowed by MDEP (Exh. EFSB-G-1, at 5-17).⁷⁰ NSTAR stated that the Town of Stoughton noise ordinance sets forth project noise limits by octave, equivalent to an A-weighted level of 45 dBA, and concluded that the voltage compensators would meet the Town of Stoughton noise requirements both at the nearest property line and at the nearest residence (Tr. 11, at 1521, 1524).

ii. SRA Switching Station

NSTAR stated that the only noise source at the SRA switching station would be the voltage compensators, which contribute 66 dBA at 1 meter (Exh. EFSB-NO-17; Tr. 8, at 1118). NSTAR stated it collected continuous sound level data for two locations near the SRA site: on the northern boundary near BJ's Wholesale Club and the Reebok Outlet, and at the southwestern corner of the site (Exh. RR-EFSB-46). The Company reported that the lowest measured L_{90} levels at these locations ranged from 43 to 45 dBA at night and from the low to mid 50 dBAs

⁶⁹ The easternmost voltage compensator, roughly equidistant between the end of Charles Avenue and the two homes on the south side of York Street, is the compensator closest to these residences (Tr. 14, at 1901).

⁷⁰ MDEP administers 310 CMR § 7.10, to limit the sound impact of certain new stationary sources and to respond to complaints of certain excessive sound. The Company stated that MDEP regulates community noise according to MDEP Policy 90-001, which provides that a noise source should not increase L_{90} noise by more than 10 dBA over ambient levels, either at the source property line or at inhabited residences.

during the day (*id.*). NSTAR asserted that project-only noise levels would be higher at the SRA property lines than at the Route 138 site property lines because the SRA site was smaller (Tr. 11, at 1546).

NSTAR noted that the nearest residence to the SRA switching station site is 1,700 feet from the site (Exhs. EFSB-NO-6; ST-11). The Company therefore concluded that the noise increase from the proposed facility would be very close to zero at the nearest residence (Tr. 11, at 1544).

iii. Substations

(a) Hyde Park Substation

To estimate noise impacts of new equipment at the Hyde Park Substation, NSTAR analyzed existing noise levels in the vicinity of the proposed site and the expected changes in noise levels resulting from operation of the new equipment, including a transformer, which generates noise levels of 68 dBA at 1 meter, and a heat exchanger, which generates noise levels of 51 dBA at 50 feet (Exh. EFSB-NO-18).

The Company stated that it measured background noise levels at four NMLs, and calculated the lowest ambient sound levels based on the quietest hour from 96 hours of continuous measurements (Exh. EFSB-NO-18). The Company reported that existing nighttime L_{90} levels near the Hyde Park Substation ranged from 38 to 50 dBA (*id.*). At the nearest residence, located on Hyde Park Avenue 150 feet east of the new transformer, the quietest nighttime L_{90} level was 40 dBA (Exhs. EFSB-NO-18; EFSB-G-1, at Fig. 4.8-2). The Company also provided L_{dn} levels at four PL locations: (1) 73.5 dBA at the east property line on Hyde Park Avenue; (2) 67.2 dBA at the north property line at the MWRA property; (3) 73.6 dBA at the west property line at the MBTA ROW; and (4) 67.8 dBA at the south property line at the NSTAR Service Center (Exhs. RR-EFSB-43; EFSB-G-1, at Fig. 4.8-4).

NSTAR then modeled future noise levels at three residential receptors and four PL receptors (Exh. EFSB-NO-18). The Company estimated that, in the absence of further mitigation, nighttime L_{90} noise increases at residential receptors would range from 1 to 7 dBA, including: (1) an increase of 2 dBA to a level of 46 dBA to the south, at a residential receptor on

Hyde Park Avenue; (2) an increase of 6 dBA to a level of 46 dBA to the east, at a residential receptor across Hyde Park Avenue; and (3) an increase of 7 dBA to a level of 46 dBA to the west, at a residential receptor beyond the MBTA ROW (Exh. EFSB-NO-18). The Company indicated that nighttime L_{90} noise increases at the PL locations would range from 1 to 23 dBA, including: (1) an increase of 13 dBA to 53 dBA at the eastern site boundary; (2) an increase of 16 dBA to 54 dBA at the northern site boundary; (3) an increase of 23 dBA to 62 dBA at the western site boundary; and (4) an increase of 1 dBA to 51 dBA at the southern site boundary (Exh. EFSB-NO-18; Tr. 11, at 1480).

NSTAR noted that the modeled noise increases are worst-case scenarios that assume maximum noise output from the heat exchanger and transformer (Exh. EFSB-G-1, at 5-18; Tr. 11, 1496; Tr. 14, at 1851). The Company noted that the heat exchanger and transformer likely would be operated at well below their full power rating at night, since demand on the grid is lower at night than during the day (Tr. 11, at 1496-1497). NSTAR also indicated that the maximum noise from the heat exchanger occurs when the two fans included as part of the equipment are both operating (Tr. 14, at 1852). The Company stated that this would occur only during a sustained period of high-load operation, which typically would occur only in a contingency situation (*id.* at 1859). NSTAR also noted that a second heat exchanger is to be installed at the other end of the connected circuit at the Baker Street Substation, and indicated that it could rely more heavily on that heat exchanger to reduce noise impacts at the Hyde Park Substation (*id.* at 1851).

The Company asserted that the projected noise levels met MDEP noise guidelines and City of Boston requirements (Exh. EFSB-NO-21(S))⁷¹. However, the Company noted that, for approximately \$80,000, it could install a sound wall on the Hyde Park Avenue side of the

⁷¹ The City of Boston noise regulations set maximum allowable nighttime noise levels of 50 dBA in residential districts and 55 dBA in residential/industrial districts (Exhs. EFSB-NO-27; EFSB-G-1, at 5-18; 5-19). The Company asserted that the 50 dBA limit would apply at the residences on the east side of Hyde Park Avenue, and the 55 dBA limit would apply at the west side of the railroad ROW, and to the residences to the south (Tr. 11, at 1498). NSTAR asserted that since noise from the substation would not exceed 45 dBA at any residence, the substation would be in compliance with the 50 dBA limit (*id.*; Exh. EFSB-NO-18).

transformer, which could hold noise increases to 3 dBA or less at the closest residence to the east of the site (Exh. EFSB-NO-21(S)). Based on its initial design analysis, the Company expected that the sound wall would be approximately 100 feet long and 20 feet above grade and that to provide adequate clearance it would be placed 30 feet from the transformer building (id.; Tr. 14, at 1868-1869). The Company noted that the clearance requirement for the sound wall may leave insufficient space, along its length, for a segment of the landscaping the Company has proposed bordering Hyde Park Avenue (Tr. 14, at 1867-70).⁷² NSTAR stated that there is not enough space to install a sound wall at the western edge of the site because the heat exchanger and other equipment abut the west property line (id.; Tr. 11, at 1489-1490).

(b) K Street Substation

NSTAR stated that it proposes to install two voltage compensators and two transformers at the K Street Substation, and that this equipment will be located at least 600 feet from the nearest residences at the intersection of K Street and East First Street (Exh. EFSB-G-1, at 5-20).

To determine the noise impacts of the new equipment at the K Street Substation, NSTAR analyzed noise levels in the vicinity of the substation and the expected changes in noise levels resulting from operation of the new equipment (Exh. EFSB-NO-20). NSTAR explained that it determined the lowest ambient sound level based on the quietest hour from 96 hours of continuous measurements (id.). The Company stated that the future noise levels at the substation reflect the use of quiet voltage compensators, which generate noise levels of 66 dBA at 1 meter, and transformers, which generate noise levels of 68 dBA at 1 meter (Tr. 11, at 1504). The Company measured background noise levels at two NMLs, and modeled future noise levels at one residential receptor and one PL receptor (Exh. EFSB-NO-20). The Company indicated that: (1) L_{90} noise levels at the nearest residential receptor, located to the southeast of the substation, would increase by 2 dBA to a level of 46 dBA; and (2) L_{90} noise levels at the nearest property

⁷² The Company cited its proposed layout, which shows that a portion of the transformer building would be set back 30 feet from Hyde Park Avenue, although the building setback varies, increasing by over 5 feet from the nearest corner to the opposite front corner (Exh. EFSB-G-1, at figs. 2.6-2, 4,8-4; Tr. 14, at 1856-1870).

line, located to the west of the substation, would increase by 5 dBA to a level of 54 dBA (id.).

(c) Baker Street Substation

NSTAR stated that it proposes to install a new heat exchanger at the Baker Street Substation, which would generate noise levels of 51 dBA at 50 feet, and that this equipment would be located at least 275 feet from the nearest residences (Exhs. BECO-1, at 1-15, Fig. 4-19; EFSB-NO-19).

To determine the noise impacts of the new heat exchanger at the Baker Street Substation, NSTAR analyzed noise levels in the vicinity of the proposed site and the expected changes in noise levels resulting from operation of the proposed facility (Exh. EFSB-NO-19). NSTAR stated that it determined the lowest ambient sound level based on the quietest hour from 24 hours of continuous measurements (id.). The Company measured background noise levels at one NML, and calculated future noise levels at two residential receptors and one PL receptor (id.). The Company's modeling indicated that L_{90} noise at the two residential receptors would not increase, and that L_{90} noise at the nearest property line would increase by 1 dBA to a level of 52 dBA (id.).

iv. Analysis

As discussed in Section III.C.2.c, above, the operation of the proposed transmission line will not cause noise impacts. Thus, any permanent noise impacts associated with the proposed transmission project would be limited to the associated above-ground facilities, including the Route 138 Switching Station, the Hyde Park Substation, the K Street Substation, and the Baker Street Substation.

In previous cases, the Siting Board has reviewed the noise impacts of proposed facilities for general consistency with various applicable governmental limits or guidelines, including MDEP's noise policy, EPA day-night noise (" L_{dn} ") guideline, and local noise regulations. Nickel Hill Energy, LLC, 11 DOMSB 83, at 180-190 (2000); Mirant Kendall, 11 DOMSB 255, at 337-345 (2000); Sithe West Medway Development, LLC, 10 DOMSB 1, at 322 (2000); Altresco Pittsfield, Inc., 17 DOMSC 351, at 401 (1988). In previous transmission line reviews that

included substations, the Siting Board has reviewed results of noise analyses presented by the applicant to assess whether the proposed substation would produce sound levels audible in surrounding community areas, or noise impacts that are inconsistent with relevant regulatory limits or guidelines for community noise. Boston Edison Company, 6 DOMSB at 297-299, 313-315 (1997) (“1997 BECo Decision”); Norwood Municipal Light Department, 5 DOMSB 109, at 166-167, 181 (1997) (“Norwood Decision”); New England Power Company, 5 DOMSB 1, at 68 (1996) (“1996 NEPCo Decision”). Noise analyses in reviews addressing substation noise have focused on nighttime noise impacts, based in most cases on the L_{90} measure of residual noise used in MDEP’s noise policy. 1997 BECo Decision, 6 DOMSB at 297-299, 313-315; Norwood Decision, 5 DOMSB at 166-167, 181.

The record demonstrates that NSTAR has committed to installing noise mitigation at the Route 138 Switching Station that would limit the maximum increase in L_{90} noise at residential receptors to no more than 3 dBA – a change that would not be perceptible.⁷³ The noise mitigation would consist of a three-sided sound wall surrounding the voltage compensator closest to Charles Street. NSTAR also has stated it would add one or two sound walls to the next closest voltage compensator if necessary to reduce modeled noise impacts to 3 dBA or less. The Siting Board concludes that noise impacts at the Route 138 switching station would be minimized.

With regard to the Hyde Park Substation, the record demonstrates that noise increases at the property line would be 13 dBA to the east, fronting on Hyde Park Avenue, and 23 dBA to the west, bordering the MBTA railroad ROW. The expected property line noise increases, including those along the Hyde Park Avenue frontage, are clearly in excess of 10 dBA. The Siting Board notes, however, that the 23 dBA property line increase to the west would affect a railroad ROW, and not an area of residential use or direct access by the public.

At the nearest residential receptors, located further from facility noise sources, noise increases would be 6 dBA to the east across Hyde Park Avenue, and 7 dBA to the west beyond

⁷³ In prior cases, the Siting Board has reviewed projected ambient increases in the L_{90} sound level; in such cases, witnesses have testified that increases in ambient sound of less than 3 dBA would not be perceptible as an increase in noise. See ANP Blackstone, 8 DOMSB 1, at 159; Nickel Hill Energy LLC, 11 DOMSB 83, at 181 (2000); MMWEC Decision, 11 DOMSB at 181.

the MBTA ROW. The maximum noise increases at residences, although less than MDEP's 10 dBA limit, would exceed the minimum level to be perceptible and would affect an area where ambient noise already is high. The record also demonstrates that existing L_{dn} levels in this area are well above the 55 dBA guideline identified by EPA as the level requisite to protect public health and welfare with an adequate margin of safety. Given that outdoor ambient noise levels already are high, and that a perceptible increase in noise is expected with operation of the new equipment, there is reason for the Company to implement cost-effective measures to limit noise increases at residential receptors closest to the Hyde Park Substation site.

NSTAR has indicated that, at an estimated cost of \$80,000, it could install a 20-foot high, 100-foot long sound wall to the east of the substation, inside the fenceline along Hyde Park Avenue. The sound wall could reduce the noise increase at the nearest residential receptor to the east from 6 dBA to 3 dBA or less – a level at which the increase would not be perceptible. The expected increase of 13 dBA at the property line also would be reduced. Given the existing high noise levels at the Hyde Park Substation, the Siting Board concludes that installation of the sound wall may be warranted to minimize noise impacts consistent with minimizing cost.

However, the record also shows that the sound wall, if installed, would be placed in a limited space in proximity to new landscaping, including decorative fencing and arborvitae plantings, which the Company proposes to install along Hyde Park Avenue (see Section III.C. 3.c, above). Thus, while finding merit in the option of additional noise mitigation in the form of a sound wall, the Siting Board recognizes that the design of any noise mitigation should be coordinated with the design of project landscaping, particularly to the extent that such landscaping is intended as mitigation for the visual impacts associated with the proposed project. Further, given NSTAR's request for exemption from site plan review for the substation expansion, the Siting Board concludes that the City of Boston should be consulted about any plan for physical noise mitigation measures.

Estimated residential noise impacts to the west of the Hyde Park Substation site are similar to those estimated to the east, absent the additional sound wall mitigation discussed above. However, at least two other factors affect the appropriateness of providing additional noise mitigation to the west of the site. First, project noise to the west is dominated by the new

heat exchanger, which was assumed to have maximum noise levels that would occur in the daytime under contingency conditions. Given that the estimates of project noise to the west reflect a level of equipment operation expected during the day, the Company's analysis likely overstates maximum nighttime noise to the west. Second, the Company has maintained that there is no space available to the west of the facility to install a sound wall on NSTAR property.

Therefore, in order to minimize noise impacts at the Hyde Park Substation consistent with minimizing visual impacts, the Siting Board directs NSTAR to consult with the City of Boston and neighboring residents on its noise mitigation plan for the Hyde Park Substation and options to further reduce nighttime L_{90} increases from the project at residences east of the site, across Hyde Park Avenue. As part of this consultation, NSTAR shall develop a refined noise mitigation option based on the sound wall approach described in the record that would reduce nighttime L_{90} increases at residences east of the site to no greater than 3 dBA, while also minimizing the sound wall's visual impacts and providing the greatest possible implementation of the Company's proposed landscaping plan. In addition, NSTAR shall develop one or more additional noise mitigation options that entail less visual impact or interference with landscaping, and shall provide information on the level of noise mitigation that could be achieved under these options. NSTAR shall consult with appropriate City of Boston officials and neighboring residents as to the relative desirability of the Company's proposed noise plan (which does not incorporate a sound wall) and the options for additional noise mitigation, and shall develop and implement a final noise mitigation plan based on these consultations. NSTAR shall report to the Siting Board on these consultations and on the opinions of the City of Boston and neighboring residents on its final noise mitigation plan for the Hyde Park Substation. The Siting Board finds that, with implementation of the above condition, the noise impacts of the Hyde Park Substation would be minimized.

The noise increase at residential receptors in the vicinity of the Baker Street and K Street Substations, are zero and two respectively, which are below perceptibility. Overall, the Siting Board finds that with the implementation of the above condition, the permanent noise impacts of the proposed transmission project along the primary route would be minimized.

In comparing noise impacts along the primary, alternative, and hybrid routes, the Siting

Board notes that the noise impacts of the Hyde Park, K Street and Baker Street Substations would be the same for all routes. Thus, differences in noise impacts are limited to the differential impacts of the new switching station at the Route 138 site and at the SRA site. The record indicates that noise increases at the Route 138 site have been reduced to only 3 dBA at the closest residence to the switching station. The record also indicates that property line noise impacts are likely to be higher at the SRA site than the Route 138 site, due to the smaller size of the SRA site. However, it is likely that use of the SRA site would not result in increases over existing ambient noise levels at any residential locations, due to the distance from the site to the nearest residential areas. The record shows that commercial uses, including retail stores, are located adjacent to the SRA site; however, while the proximity of such uses and the small size of that site provide limited buffer, noise impacts would be limited to daytime and early evening periods when ambient noise levels are higher than the nighttime ambient conditions which underlie the noise analysis at the Route 138 site. Thus, on balance, the SRA site provides no significant advantage or disadvantage for minimizing noise impact relative to the Route 138 site.

Accordingly, the Siting Board finds that the primary route, the alternative route and the hybrid route would be comparable with respect to permanent noise impacts.

c. Visual

In this section, the Siting Board considers the visual impacts of the proposed transmission project. Because the transmission lines would be located underground along both the primary and alternative routes, except at bridge crossings, this analysis focuses primarily on the visual impacts at switching stations and substations associated with the project.

i. Primary Route

(a) Transmission Lines

NSTAR noted that the proposed transmission lines would be located underground along almost their entire route, and asserted that there would be no permanent visual impacts associated with the underground transmission lines (Exhs. EFSB-G-1, at 5-31; BECO-1, at 5-24, 5-25). At bridge crossings, the transmission lines would be installed in pipe chases beneath the deck of the

bridge, or in a sidewalk; the Company noted that these pipes would be visible at the Southeast Expressway (Exh. EFSB-G-1, at 5-31).

(b) Route 138 Switching Station

The Company stated that the Route 138 switching station would include six new monopole transition poles, ranging from approximately 60 feet to 125 feet high, to be located in an existing transmission ROW, and two incoming line bridges, 60 feet high, and shielding masts at approximately 100 feet to 120 feet high (Exhs. BECO-1, at 1-13; EFSB-G-1, at 2-17; ST-57; RR-EFSB- 58). NSTAR stated that the switching station also would include four voltage compensators, each comprised of a main tank approximately 22 feet high, and entrance bushings to which the 345 kV line would be connected at a maximum of 30 feet above ground (*id.*). NSTAR indicated that approximately two-thirds of the 345 kV bus work would be approximately 22 feet high, and that the remainder would be approximately 38 feet high (*id.*). The Company stated that it would use a rigid bus design, with 22-foot high supports, rather than the 40-foot high A-frame supports initially proposed (Exh. RR-EFSB-28(S)).

The new switching station would be built on a site currently occupied by a working sand and gravel operation, a mulching operation, and a retail nursery supply operation (Exh. BECO-1, at 5-18; Tr. 5, at 722). A Town of Stoughton sewage pump station is located at the northeast portion of the site at York Street (Exh. BECO-1, at 5-18). NSTAR noted that the site presently has 345 kV lattice-structure towers that are approximately 130 feet high located in the ROW (Exh. EFSB-L-3). The Company stated that residences at the end of Charles Avenue, located along the southern border of the site in close proximity to the ROW, have clear views of the existing transmission towers and ROW, and that residences along Ewing Drive, located along the southeastern border of the site, have views of the existing transmission towers, the ROW, and stockpiles of sand and gravel along the southeastern border of the site (Exh. EFSB-G-1, at 5-32, 5-39).

The Company stated that the switching station equipment would be located on approximately four acres of the 14-acre parcel, toward the intersection of Route 138 and York Road, and well below the grade of these roads (Exhs. BECO-1, at 1-12; RR-EFSB-60, Fig. 1;

RR-EFSB-51).⁷⁴ The Company noted that a small area of vegetation located east of the pump station between the northern fence line and the northern property border would be removed during construction (Exh. EFSB-L-25). However, the Company stated that existing mature vegetation on the north and east would not be cleared (Exhs. EFSB-G-1, at 2-19; EFSB-L-2).

Pursuant to the Host Community Agreement, NSTAR has agreed to take reasonable steps to ensure that, to the extent feasible, abutters and passersby to the site would not have an unobstructed view of the switchyard facilities, except for the take-off towers and structures and the lightning masts (*id.*). The Host Community Agreement specified that A-frame structures originally proposed adjacent to the voltage compensators would be eliminated in favor of a rigid-bus design, and that the Company would construct a berm parallel to Route 138 and place vegetation on top of the berm to provide a buffer to the line of site from Route 138 (*id.*). NSTAR agreed to solicit input from the Town regarding the layout and type of vegetative screening to be used on site for screening purposes, but that the Company retains sole discretion as to landscaping design and materials (*id.*).

During the proceeding, NSTAR provided additional information regarding its plans for visual mitigation at the Route 138 site. Along Route 138 and a northwest portion of York Street, the Company proposed planting a mix of 71 evergreen trees 8 to 12 feet tall, 48 smaller white pines 4 to 5 feet tall, 15 understory trees, and 6 canopy trees (Exhs. RR-EFSB-51; RR-EFSB-49; EFSB-L-5). These trees would be planted atop a 10- to 12-foot natural earth berm to be constructed roughly parallel to Route 138 and running a short distance along York Street, for a total of approximately 1,500 feet (Exh. RR-EFSB-28(S); Tr. 14, at 1905). NSTAR stated that it would loam and seed approximately 2.2 acres of the substation site between Route 138/York Street and the switching station fence line (Exh. RR-EFSB-51).

⁷⁴ The Company explained that the elevation of the switching station yard would range from approximately 214 feet on the north side near York Street, to 218 feet on the southerly portion (Exhs. EFSB-G-1, at 5-31; RR-EFSB-51; RR-EFSB-60). According to the Company, the switching station yard therefore would be considerable lower than the western frontage of the site, which ranges from approximately 232 feet at the York Street/Route 138 intersection to 240 feet at the southwest corner along Route 138 (Exh. RR-EFSB-60). The yard would be lower than the existing grade of 248 feet to the south of the switching station (Exhs. ST-57a; RR-EFSB-60).

The Company stated that it is considering additional on-site landscaping, off-site landscaping or a combination of the two to buffer views from the residential areas along Charles Street and Ewing Street to the south of the switching station (Exh. EFSB-L-27). The Company suggested that 60 evergreen trees, 75 small evergreen trees, and 100 shrubs, planted primarily to the southeast of the proposed facility on currently disturbed land, could screen views from residences along Charles Street, Ewing Street, and York Street (Exh. RR-EFSB-51). The Company has also suggested that a 10- to 12-foot berm, similar to that proposed for the western portion of the site, could be installed on the southeastern portion of the site to improve the screening effect of the plantings in that location (*id.*; Exh. RR-EFSB-49; Tr. 14, at 1907). The Company stated that such a berm could screen views from Ewing Street, but that the existing transmission ROW would preclude the installation of a berm that would help screen views from the residences along Charles Street (Exh. EFSB-RR-49).

The Company estimated that the on-site landscaping costs for the landscaping as discussed above, excluding the berm, would be approximately: (1) \$165,000 for the Route 138/York Street area, which includes trees, bark mulch, and loaming and seeding; (2) \$100,000 for the York Street/Charles Avenue/Ewing Street area for trees and bark mulch; and (3) \$110,000 for the loam and seeding of approximately 4 acres of open areas to the east and southeast (Exh. RR-EFSB-51).⁷⁵ In addition to the costs provided, NSTAR estimated that the added cost to provide additional taller deciduous plantings of 15 to 20 feet high, would be approximately \$2,000 to \$3,000 per tree, and that the added cost for comparable evergreen trees would be \$4,000 to \$6,000 (Exh. RR-EFSB-49; Tr. 14, at 1913-1914).

NSTAR identified the two homes at the end of Charles Street, and possibly three homes on Ewing Street, that could benefit from off-site landscaping (Tr. 13, at 1714; Tr. 14 at 1917). Given the difference in elevation between the facility yard and the areas south of the facility, the Company indicated that relatively low screening plantings or fencing placed close to the two homes at the end of Charles should effectively screen views of the switching station equipment,

⁷⁵ For the Route 138/York Street area, the trees and bark mulch costs are between \$75,000 to \$80,000 and the loam and seed cost for 2.2 acres is between \$80,000 to \$85,000 (Exh. RR-EFSB-51).

with the exception of the upper portion of the bridge structure and the shielding masts (Exh. RR-EFSB-60). The Company stated that placing evergreens along the rear yards of two or three residences along Ewing Street could reduce or eliminate sightlines to the proposed switching station from those residences (Exh. RR- EFSB-51). NSTAR noted that it has retained a landscape architect to work with affected landowners on the selection of appropriate plantings (Exhs. EFSB-L-26; EFSB-L-27; Tr. 13, at 1714).

Overall, the Company concluded that its proposed mitigation, including landscaping, berming, and structural changes, would shield views of the switching station from Route 138, York Street, and Charles Street (Exh. RR-EFSB-28(S); Company Brief at 136).

During the proceeding, the Town of Stoughton and NSTAR considered the use of gas-insulated switchgear (“GIS”) as an option for visual mitigation for the proposed switching station. The Company noted that GIS equipment relies on sulfur hexafluoride (“SF₆”) gas as an insulating medium, rather than air, allowing a smaller equipment footprint (Exh. EFSB-ST-2). NSTAR estimated that, for an incremental cost of \$4.8 million, it could install a hybrid GIS system⁷⁶ at the Route 138 site, which would reduce the overall switchyard footprint of approximately 3.8 acres, by up to one-third (Exhs. RR-EFSB-28(S); RR-EFSB-26; Tr. 14, at 1871). NSTAR indicated that a full GIS switchyard could be installed at an incremental cost of \$8.24 million; the Company did not estimate the footprint reduction that would result from using a full GIS system, but asserted that the footprint would not be significantly smaller than that of the hybrid GIS switchyard (*id.*; Tr. 14, at 1896, 1897). NSTAR stated that the use of GIS would not reduce the height of the take-off structures (the most visible component of the substation), or the size or height of the voltage compensators (*id.*).

The Town of Stoughton’s witness provided a sketch of the Route 138 site using a hybrid GIS arrangement which shows the switching equipment occupying approximately 1.24 acres, or less than one third of the area required for the open-air switchyard (Exh. RR-EFSB-58a). However, this layout used a six-breaker configuration, rather than the eight-breaker configuration

⁷⁶ In a hybrid GIS system, the gas insulated switching equipment would be connected to the four voltage compensators using air-insulated equipment, while in a full GIS system, all connections would be made using gas-insulated equipment (Tr. 14, at 1890).

proposed by NSTAR (id.; Exh. RR-EFSB-59).

NSTAR stated that it would provide the switching station with high-pressure sodium lighting; however, standard operation would require no lighting (Exhs. EFSB-G-1, at 2-17). The lighting would generally be used only during emergency conditions, or for maintenance activities that can only be completed in the evening (id.).

ii. Alternative and Hybrid Routes

(a) Transmission Lines

The Company stated that the proposed transmission lines would be located underground from the SRA Switching Station to the terminus at the K Street and Hyde Park Substations (Exh. BECO-1 at 5-25). The Company asserted that there would be no permanent visual impacts associated with the underground transmission lines (id.). NSTAR asserted that the visual impacts of alternative and primary routes are comparable (id.).

(b) SRA Switching Station

As part of the transmission project along the alternative route, NSTAR would construct a new switching station at the SRA site. The switching station equipment would be the same as that installed at the primary site (Exh. BECO-1, at 1-12-1-14). The SRA site is a former landfill site traversed by existing 345 kV transmission facilities, including 130-foot high lattice towers; it has no existing vegetative screening (Exhs. EFSB-L-2; EFSB-L-3). The Company stated that the SRA site is located in a retail/commercial/warehousing area; the nearest residence is 1,700 feet away, and there currently are no sensitive receptors in the vicinity of the site (Exhs. BECO-1, at 5-24; EFSB-NO-6; EFSB-L-5). However, the Company noted that the large number of customers who frequent commercial businesses in the area would have unobstructed views of the proposed switching station facilities (Tr. 5, at 616 -618).

The Company did not propose visual mitigation for the SRA site, stating that the design of the substation and the size of the site leave limited available space to provide screening (Exhs. EFSB-L-5; EFSB-RR-51; Tr. 8, at 1219-1221). However, the Company stated that it would be possible to install limited landscaping, consisting of shrubs and/or compact evergreen trees,

along the western and northern perimeter of the site, as well as loam and seed along the entire perimeter (Exh. RR-EFSB-51). The Company estimated that the cost of this landscaping would be between \$50,000 to \$75,000 (id.).

Overall, NSTAR asserted that the visual impacts of a new switching station at the SRA site would be more significant than those of a new switching station at the Route 138 site, citing the unobstructed views of the SRA site from commercial businesses in the area, and the visual mitigation planned for the Route 138 site (Tr. 5, at 616 -618; Company Brief at 136).

iii. Substations

(a) Hyde Park Substation

The Hyde Park Substation is bounded on the north by the MWRA pump station facility, to the east by Hyde Park Avenue and residences across the street, to the south by the NSTAR Service Center and four triple decker residences, and to the west by MBTA tracks (Exhs. EFSB-G-1, at 4-56; EFSB-L-14). The Company stated that the site is surrounded by a chain link fence with some low shrubbery located along Hyde Park Avenue inside of the fence (Exhs. EFSB-L-5; EFSB-L-6). NSTAR stated that beyond the railroad tracks, a band of vegetation varying in width from approximately 30 feet to 150 feet extends from opposite the pumping station to opposite the Service Center (Tr. 8, at 1200). The Company noted that at present, the four residences immediately to the south of the substation have views of the NSTAR Service Center parking area and the existing substation facilities, somewhat mitigated by the fencing (Exh. EFSB-G-1, at 5-43).

As part of the transmission project, NSTAR intends to install new equipment at the Hyde Park Substation, including an autotransformer 35 feet high, GIS equipment between 12 and 32 feet high, a 10- to 12-foot high control house, and a 10-foot high heat exchanger (Exh. EFSB-L-31). The substation will be provided with high-pressure sodium lighting; however, the lighting generally would be used only during emergency conditions, or for maintenance activities that can only be completed in the evening (Exh. EFSB-G-1, at 5-40).

The Company stated that it is proposing to provide new 8-foot high chain-link black vinyl fencing with brick columns along Hyde Park Avenue to screen views of the expanded substation

from Hyde Park Avenue (Exh. EFSB-L-6). The same fencing, without brick columns, would be placed along the southern border of the site (Tr. 8, at 1200). The Company indicated that it also proposes to plant 5- to 6-foot arborvitae, or similar evergreen shrubbery, along Hyde Park Avenue, and along approximately 80 feet of the southern boundary of the site and approximately 100 feet of the northern boundary (Exhs. EFSB-L-5; EFSB-L-6; EFSB-RR-31(a)). NSTAR explained that the vegetative screening proposed along the southern boundary is intended to extend from Hyde Park Avenue to the back edge of the nearest residence to the south (Exhs. EFSB-L-6(a); EFSB-RR-30). The Company has indicated that plantings along the southern boundary could be extended another 15 to 20 feet to provide screening to the rear porches and backyards of the triple deckers (Tr. 8, at 1184). NSTAR noted that discussions with the City of Boston regarding the Hyde Park Substation have focused on the appearance of the substation, as well as operational issues (Tr. 13, at 1815).

The Company asserted that, due to the bank of the MBTA tracks and the vegetation along the western side of the MBTA tracks, the residences to the west would have very limited views of the new equipment (Exhs. EFSB-G-1, at 5-40; RR-EFSB-31).

(b) K Street Substation

NSTAR stated that the proposed expansion of the present K Street Substation would occur on a vacant portion of the developed 14-acre site (Exh. EFSB-L-3). NSTAR asserted that the new substation equipment would be generally consistent with the existing substation facilities (id.). The proposed expansion, to be situated to the north of the existing distribution-level facilities, would be set back approximately 400 feet from East First Street on the western portion of the site and approximately 800 feet north of East First Street on the eastern portion of the site (Exh. EFSB-G-1, at Fig. 4.8-6). The Company stated that no trees would be cleared at the K Street Substation site (Exh. EFSB-L-2).

NSTAR stated that a site-wide landscaping plan is currently in place at the existing K Street Substation site (Exh. EFSB-L-6). The Company explained that the views toward the facilities have been improved with the addition of evergreen and deciduous trees and shrubs along East First Street (id.). In addition, there will be landscaping along the new sections of the

Harborwalk⁷⁷ located on the north and west sides of the site (id.).

The new sections of the switch and transformer yards will have metal halide yard lighting; however, the lighting would generally be used only during emergency conditions, or for maintenance activities that can only be completed in the evening (Exh. EFSB-G-1, at 5-43).

(c) Baker Street Substation

NSTAR stated that it intends to install a new heat exchanger at the Baker Street Substation, which would be 10 feet high, would occupy an area 50 feet long by 10 feet wide, and would be set back approximately 125 feet from the street (Exh. EFSB-L-3; Tr. 8 at 1212). The Company noted that while the site presently has both above ground and underground transmission facilities, the new equipment would be confined to the heat exchanger and underground transmission facilities (Exh. EFSB-L-3). NSTAR noted that along the edge of Baker Street, at the fence that separates the property from the street, a 150 to 200 foot long row of deciduous trees exists (Tr. 8, at 1212). The Company stated that no trees would be cleared at the Baker Street Substation site (Exh. EFSB-L-2).

The Company stated that the heat exchanger would be installed approximately 17 feet below the grade of Baker Street, and asserted that views of the heat exchanger generally would be shielded by the slopes from the road to the site (Exh. EFSB-G-1, at 4-56; Tr. 8, at 1212; Tr. 13, at 1804). NSTAR also noted that the heat exchanger would be located as far as possible from the residential area to the north of the site (Tr. 13, at 1806). The Company indicated that it does not expect to landscape the site due to the lack of visual impacts associated with the heat exchanger (Exh. EFSB-L-6; Tr. 13, at 1802-1803).

⁷⁷ NSTAR stated that consistent with Coastal Zone Management Policies, to provide community access to the waterfront where none currently exists, it is licensing and constructing a Harborwalk (Exh. EFSB-G-1, at 5-46, 7-9). The Company indicated that the Harborwalk will be constructed in two phases (id.). The first phase is an 850-foot long segment that runs along the extension of the Reserved Channel on the west of the site, and the second phase is a 175-foot long segment will run along the Reserved Channel on the north of the site (Exh. EFSB-G-1, at 5-46). The Harborwalk project was scheduled to begin in the summer of 2004 and be completed in the fall of 2004; however, the Company indicated that the project may be behind schedule (Exh. EFSB-L-7; Tr. 8, at 1212).

The Company stated that the Baker Street Substation is located in the West Roxbury Community Commercial district and that the zoning bylaws for this district require the front yard of industrial buildings to include an adequate landscape buffer (Exh. BECO-3, at 25 ;Tr. 13, at 1803). The Company acknowledged that the existing substation landscaping may not conform to current bylaws, and stated that it would be willing to provide additional screening for the substation if requested to do so by the City of Boston (Tr. 13, at 1802, 1804, 1807).

iv. Analysis

The record demonstrates that the proposed transmission lines would be installed almost entirely underground along either the primary or the alternative route, and that views of the transmission lines at bridge crossings would be insignificant. Consequently, the permanent visual impacts of the proposed project are confined to those resulting from the construction or expansion of the switching station and substations.

The Route 138 Switching Station would include a number of taller elements similar in scale to existing support structures for the transmission lines that traverse the site – six new transition monopoles, two bridge structures, and shielding masts. These taller elements, all proposed to reach heights of 60 feet or more, would be generally visible from the surrounding area. The remaining substation facilities would consist of buswork and other equipment, most of which would be 22 feet in height or lower; however, one-third of the buswork is proposed to be 38 feet high.

The Company proposes to provide landscaping and other mitigation to screen all but the taller elements of the proposed facility from surrounding areas. NSTAR has proposed a berm with predominantly evergreen trees that would provide a 20-foot high screen of the substation facilities, both to the west along the Route 138 frontage and on the northwest portion of the site toward York Street near Route 138. Although there is existing deciduous vegetation to the northeast toward residences further east along York Street, NSTAR also has included supplemental plantings in its landscape plans to screen the facility from those residences. The record shows that residential areas to the south, at the end of Charles Street, and to the southwest along a portion of Ewing Street, also would have views of the substation, absent any mitigation.

Due to the higher elevation of the Charles Street and Ewing Street areas, and the presence of the intervening transmission ROW, the ability to provide effective on-site screening is limited, and the Company expects to consider use of mitigation in both on-site and off-site areas. Consistent with provisions of the Host Community Agreement, NSTAR will consult with Stoughton regarding all its landscaping plans, including the on-site plans provided in the record and plans being developed to screen areas south of the site. However, the Company has not provided the Siting board with specific landscaping plans.

In order to minimize visual impacts at the Route 138 site, the Siting Board directs NSTAR to develop and implement detailed landscape plans to screen the proposed switching station from residential and roadway locations on all sides, and to consult with the Town of Stoughton regarding the plans. To screen locations to the south and southeast, NSTAR shall consider, in consultation with affected landowners and the Town of Stoughton, use of plantings or other mitigation in off-site as well as on-site areas. NSTAR shall, if agreeable to the affected landowners or appropriate Town officials, include as part of its landscape plans plantings or other mitigation in off-site residential or roadway locations. To ensure a mix of plantings that provides some immediate screening in all directions, NSTAR shall offer the Town and affected landowners larger plantings in lieu of several smaller plantings at selected locations within the areas of vegetative screening planned in different directions from the site. NSTAR shall provide a copy of its final landscape plans to the Siting Board for its information.

NSTAR intends to install a new transformer, heat exchanger, and GIS equipment at its existing Hyde Park Substation. To screen views of the equipment from residences across Hyde Park Avenue and from passersby, NSTAR proposes to install new 8-foot high decorative brick pillar fencing and a border of 5- to 6-foot tall arborvitae, or similar evergreen shrubbery along Hyde Park Avenue. The landscaping will continue around to the north and south of the substation, using the same type of vegetative border, but without the decorative brick pillars. As discussed above, there is a row of triple-decker residences directly to the south of the existing substation, abutting the NSTAR Service Center. The rear property lines of these residences appear to be approximately 100 to 125 feet from Hyde Park Avenue. The nearest of these residences is located less than 50 feet from the proposed fencing and landscaping, and would

benefit from the same decorative fencing proposed for Hyde Park Avenue. Therefore, the Siting Board directs NSTAR to provide a border of 5- to 6-foot arborvitae and decorative brick pillar fencing for a total distance of approximately 100 to 125 feet along the southern border of the Hyde Park Substation site, extending from Hyde Park Avenue to a point flush with the rear property line of the closest residence to the south of the site.

NSTAR also intends to install new equipment at its K Street Substation, which is densely developed with substation and transmission facilities and is located in an industrial area, surrounded on three sides by industrial uses. The K Street Substation already is the subject of a comprehensive landscaping plan that calls for the placement of significant landscaping along East First Street and K Street and the construction of a new Harborwalk. The Siting Board concludes that the visual impacts of the expansion of the K Street Substation will be mitigated to the extent possible by the existing landscaping plan.

NSTAR also intends to install a new heat exchanger at its existing Baker Street Substation. The Company argues that the installation of the heat exchanger would have no visual impacts, because it would be placed behind existing equipment and well below the grade of Baker Street. The Siting Board agrees that installation of the heat exchanger is unlikely to alter views from nearby residences or the neighboring park and playing fields. However, the Siting Board notes that the existing substation landscaping along Baker Street is minimal, and that, under the applicable zoning regulations, the Company likely would be required to upgrade landscaping at the substation as a condition for new construction on the site. In Section IV, below, the Siting Board grants NSTAR an exemption from the City of Boston Zoning Code applicable to this site in order to facilitate the construction of the transmission project; however, it is not our intent to undercut the substance of the bylaws as they relate to landscaping. Therefore, the Siting Board directs NSTAR to provide plantings similar to those proposed for the Hyde Park Substation along those portions of the Baker Street fence line where there is no existing landscaping, and to supplement areas where there are existing deciduous trees with plantings and/or landscaping similar to those proposed for the Hyde Park Substation.

The Siting Board finds that with the implementation of the above conditions, the visual impacts of the proposed transmission project along the primary route would be minimized.

In comparing the primary, alternative and hybrid routes, the Siting Board notes that the underground transmission lines would have no permanent visual impacts, and that visual impacts at the Hyde Park, K Street, and Baker Street Substations would be the same regardless of the route chosen. Thus, differences in visual impacts are limited to the differential impacts of the southern switching station at the Route 138 and SRA sites.

The Company has argued that the visual impacts of the switching station would be greater at the SRA site than at the Route 138 site, because it would be unable to provide anything more than minimal screening at the SRA site, while the larger Route 138 site provides both a natural buffer and room for more significant screening. Both sites are industrially zoned, and in each case the change in view would be from one type of industrial activity to a different type. The record demonstrates that, if the switching station were built on the SRA site, the upper portions of the taller substation elements, and, in early years, the upper portion of the substation buswork, would be visible to passersby. In contrast, views of the switching station at the Route 138 site likely would be limited to the upper portions of taller substation elements from the beginning of project operation; at the same time, some of these views would be from residential areas. In the Siting Board's judgement, the impacts on these residences outweigh the starker views that would be seen by individuals using the businesses near the SRA site. Thus, on balance, the Siting Board finds that the alternative and hybrid routes would be preferable to the primary route with respect to visual impacts.

d. Electric and Magnetic Fields

In this section, the Siting Board reviews the potential impacts of electric and magnetic fields ("EMF") associated with the proposed transmission line, the existing 345 kV transmission line that would be tapped, and the Hyde Park and K Street Substations.

i. Primary Route

NSTAR asserted that EMF impacts associated with the project would be minimized (Company Brief at 177). The Company asserted that the underground 345 kV lines would have no electric field impacts, and that the magnetic field impacts of the project would be well within

the Siting Board's guideline of 85 milligauss ("mG") (*id.* at 178-179, 181-183). In support, the Company provided estimates of EMF levels: (1) from the proposed transmission lines operated at full capacity, (2) at property boundaries and off-site areas surrounding the proposed switching station and existing substation sites, with and without the project, and (3) at the edges of the Walpole-to-Holbrook ROW occupied by the 345 kV line that the proposed facilities would tap, with and without the project (Exhs. BECO-1, at C-1; EFSB-EM-1; EFSB-EM-4).

With respect to the proposed transmission lines, NSTAR predicted that the peak magnetic field for the underground circuits when carrying a total of 1,500 MW would be 1.1 mG (Exh. BECO-1, at C-1). The Company stated that at distances greater than about 15 feet from the centerline of the transmission line, the magnetic field would be undetectable (*id.*). NSTAR stated that because the circuits would be installed underground, no above-ground electric fields would be produced (*id.*).

With respect to the proposed switching station and substation expansions, the Company stated that, in general, the highest EMF levels at affected sites are produced by the power lines entering and leaving each facility (Exh. BECO-1, at C-7). To estimate maximum public off-site EMF, NSTAR explained that it first conducted a walking survey at the accessible portions of the fence or property lines of the properties, taking EMF measurements at regular intervals (Exh. EFSB-EM-1(S) at 1; Tr. 12, at 1586). The Company stated that it then extrapolated the results from power flow (current) conditions on the day of measurement to power flow conditions that represent 2008 peak normal loads, without the proposed project in place (Exh. EFSB-EM-1(S) at 1). The Company then modeled EMF levels under 2008 peak normal load with the proposed project in place (*id.*). The Company characterized these modeled levels as conservative, in that they are maximum rather than typical levels (*id.* at 1-2).

At the property line of the Route 138 site, the Company projected the maximum magnetic field to be 24 mG in 2008 under peak normal load conditions, without the proposed project in place (Exh. EFSB-EM-1(S) at 5).⁷⁸ With the project in place, NSTAR modeled the maximum

⁷⁸ The Company stated that the maximum magnetic field at the property line that it measured on June 10, 2004 was 16 mG, but this figure was not scaled to reflect peak

(continued...)

magnetic field at the property line to be 42 mg (*id.*). The Company stated that the location of this maximum level would be at the intersection of the property line with the overhead transmission line ROW, at Route 138, where it is dominated by the influence of the transmission line (Exh. RR-EFSB-47; Tr. 12, at 1594-1595). The Company noted that at the northern border of the site property (at a point along York Street), the maximum magnetic field under 2008 peak normal load, with the switching station, would be approximately 10 to 12 mG (Exh. EFSB-EM-1, at 2; Tr. 12, at 1596-1597). The Company explained that at this point along the property line, the influence of the overhead ROW is the least (Tr. 12, at 1618). The Company also noted that magnetic fields drop off sharply as the distance from the source increases (Exh. EFSB-EM-1(S) at 2). For example, the Company stated that a magnetic field level of 54 mG at the switching station's northern fence-line (*i.e.*, close to the equipment and not at the property line) decreases to 11 mG at a distance of 50 feet from the fence line, and to 1 mG at a distance of 200 feet from the fence line (Exh. EFSB-EM-1(S) at 3).

At the K Street Substation, NSTAR calculated the maximum magnetic field at the property line, under 2008 peak normal load, without the proposed project, to be 55 mG (Exh. EFSB-EM-1, at 5).⁷⁹ The Company predicted the maximum property-line level associated with the new equipment required for the project to be 30 mG (*id.*). The Company explained that this location is different from the location of the peak level associated with the existing equipment, and that the two values are not additive (*id.*).

Similarly, at the Hyde Park Substation, the Company projected that the maximum magnetic field level at the property line would be 96 mG under 2008 peak normal load without the project, whereas the maximum magnetic field level due to the equipment associated with the project would be 5.2 mG, but at a different point along the property line (Exh. EFSB-EM-1, at 5; Tr. 12, at 1598). The Company explained that the locations of the highest peak magnetic fields

⁷⁸ (...continued)
normal load for 2004 (Exh. EFSB-EM-1(S) at 1, 5).

⁷⁹ The Company stated, that, currently, the maximum magnetic field measured, 33 mG, occurs at the midpoint of the access road to 530 East First Street (Clean Harbors) (Exh. RR-EFSB-47).

(i.e., 96 mG) would be at the fence line along Hyde Park Avenue at the points where low-voltage underground distribution lines exit the substation (Exh. RR-EFSB-47; Tr. 12, at 1603, 1635).⁸⁰ The Company stated that the proposed project would not affect these peak levels, which are driven by customer load on the distribution lines (Tr. 12, at 1602-1603).

With regard to electric field levels, NSTAR stated that the maximum electric field at the property line of the proposed Route 138 switching station site would be 2.5 kV/m in 2008 under peak normal loads, with or without the proposed project, although the average level⁸¹ would increase from 0.08 kV/m to 0.3 kV/m (Exh. EFSB-EM-1(S) at 5). For the K Street Substation, the Company projected maximum electric field levels no higher than 1.9 kV/m, and average levels no higher than 0.7 kV/m, with or without the proposed project (*id.*). The Company stated that at the Hyde Park Substation, the new equipment would not produce any external electric field (*id.*).

The Company stated that it does not propose any changes in the electrical circuitry or electrical structures at the Baker Street Substation (Exh. EFSB-EMF-1 (S)).

With regard to projected changes in magnetic fields associated with the existing overhead 345 kV transmission line between the West Walpole and Holbrook Substations that would be tapped by the proposed facilities, the Company provided the following estimates for 2008 magnetic field levels, with and without the proposed project:

⁸⁰ The Company stated that magnetic fields are attenuated when pipe-type cables are used, but the distribution lines here are not pipe-type cables (Tr. 12, at 1604). The Company also stated that the closest residences to the substation's fence line on Hyde Park Avenue are across the avenue, and that present-day magnetic field readings were on the order of 12 mG on that side of the street (*id.* at 1635).

⁸¹ The Company explained that its "average" figures represented both spatial and temporal averaging (Tr. 12, at 1585-1586).

Table 4: Projected Magnetic Fields (mG) Along Walpole-Holbrook ROW, 2008

	<u>Peak</u>	<u>Off-Peak</u>		<u>Peak</u>	<u>Off-Peak</u>	
<i>Without Project</i>	9.9	13.8		9.9	13.8	<i>Without Project</i>
<i>With Project</i>	43.0	6.3		16.6	22.7	<i>With Project</i>
<-----northern edge of ROW-----> W. Walpole Subst. -----ROW to West-----Switching Station-----ROW to East-----Holbrook Subst. <-----southern edge of ROW----->						
<i>Without Project</i>	76.2	33.7		76.2	33.7	<i>Without Project</i>
<i>With Project</i>	54.0	32.4		40.5	23.5	<i>With Project</i>
	Peak	Off-Peak		Peak	Off-Peak	

Source: Exh. EFSB-EM-4.

These projections indicate that operation of the proposed project would cause magnetic field strength to decrease along the southern edge of the ROW, during both peak and off-peak load conditions, both east and west of the switching station site (Exh. EFSB-EM-4). The Company’s figures also indicate that magnetic field strength would decrease along the northern edge of the ROW west of the switching station during off-peak loadings, but would increase along the northern edge east of the switching station under off-peak conditions, and would increase both east and west of the switching station under peak load conditions (*id.*).⁸² The Company’s data show that the largest increase in magnetic fields, from 9.9 mG to 43 mG, would occur west of the switching station site, on the north side of the ROW under peak normal loading, while the largest decrease would be from 76.2 mG to 40.5 mG to the east of the site, on the south side of the ROW under peak normal loading (*id.*; Tr.12, at 1612).

The Company provided a summary of recent developments in EMF epidemiological research by Gradient Corporation which asserts that, although some studies have reported associations between EMF and adverse health effects, the body of available epidemiological evidence regarding environmental levels of power-line EMF remains inconsistent and

⁸² Use of “switching station site” in this context is generic, and could refer to either the Route 138 or SRA site.

inconclusive with respect to establishing power-line EMF as a human health hazard (Exh. EFSB-EM-3, Att. at 2).

ii. Alternative Route

NSTAR did not provide measurements of present-day EMF at the SRA site. However, the Company asserted that because the SRA site is smaller and the switching station circuitry more complex, future magnetic field levels at the site's property lines would be somewhat greater than at the Route 138 site (Exh. ST-31). The Company projected that, at the point along the future fence line where magnetic fields would be least influenced by the overhead ROW lines, the maximum magnetic field level associated with the new facilities would be 31 mG (id.; Tr. 12, at 1618). The Company stated that the appropriate Route 138 figure to which this should be compared is 12 mG, the maximum level along the northern border of the Route 138 site (furthest from the influence of the overhead ROW lines at that site) (Tr. 12, at 1618).

With respect to magnetic field impacts along the 14.5-mile Walpole-to-Holbrook ROW, the Company stated that siting the switching station as far west as possible (i.e., at the Route 138 site) would minimize the length of ROW subject to magnetic field increases on the northern side of the ROW, while maximizing the length of ROW subject to magnetic field reductions on the southern side (Exh. RR-EFSB-48; Tr. 12, at 1629). The Company explained that magnetic field strength would increase relative to projected levels without the project under some conditions, and would decrease under others, depending upon whether the point of measurement is east or west of the new switching station, whether it is on the north or south side of the ROW, and whether loading on the 345 kV line is at peak or off-peak levels (see Table 4) (Exh. EFSB-EM-4, at 2). Due to these differences, the choice of switching station site could have a differential effect on magnetic fields along the ROW between the two candidate sites (Exh. EFSB-EM-4; Tr. 12, at 1612-1613, 1629).

The Company observed that the largest increase in magnetic field level would occur to the west of the switching station (on the north side of the ROW, during peak conditions) and that the largest decrease would occur to the east of the switching station (on the south side of the ROW, during peak loads) (Tr. 12, at 1611, 1629). From this information, the Company

concluded that siting the switching station as far west as possible would provide the most favorable outcome with respect to EMF by limiting the length of line over which the increase occurs and extending the length of line over which the decreases occur (*id.* at 1629).

The Company characterized the land uses between the West Walpole and Holbrook Substations as a mixture of undeveloped land, residential, and commercial/industrial (Exh. RR-EFSB-48). Between the Route 138 and SRA sites in particular, NSTAR characterized the land uses as a mix of residential and open space (*id.*). The Company estimated that there are currently six to eight houses within 200 feet of the south side of the ROW between the Route 138 and SRA sites, and somewhat fewer on the north side (*id.* at Fig. 3; Tr. 12, at 1629-1630).

iii. Analysis

In a previous review of proposed transmission line facilities, the Siting Board accepted edge-of-ROW levels of 85 mG for magnetic fields. 1985 MECo/NEPCo Decision, 13 DOMSC 119, at 228-242. The Siting Board has used this edge-of-ROW level in subsequent facility reviews to determine whether anticipated magnetic field levels are unusually high. See CELCo Decision, 12 DOMSB 305, at 348, 349; Norwood Municipal Light Department, 5 DOMSB 109, at 145 (1997); MASSPOWER, Inc., 20 DOMSC 301, at 401-403 (1990).⁸³ Here, the maximum magnetic field levels associated with the proposed transmission project would be 1.1 mG directly above the proposed underground transmission lines, 12 mG at the switching station northern property line (where it is least influenced by the overhead ROW), 30 mG at the K Street Substation property line, and 5 mG at the Hyde Park Substation property line.

In addition, the maximum magnetic field level along the edge of the existing Walpole-Holbrook ROW would be 54 mG with the project, which represents a decrease from the

⁸³ More recently, the Siting Board has inquired into the current scientific literature regarding the possible impact of exposure to magnetic fields on human health. The Siting Board has consistently found that, although some epidemiological studies suggest a correlation between exposure to magnetic fields and childhood leukemia, there is no evidence of a cause-and-effect association between magnetic field exposure and human health. Southern Energy Kendall, LLC, 11 DOMSB 255, at 385-386 (2000); Nickel Hill Energy, LLC, 11 DOMSB 83, at 134 (2000) (“Nickel Hill Decision”).

maximum level without the project, along the corresponding side and length of the ROW under peak load conditions. Along other portions of the ROW under certain conditions, the maximum magnetic field level would be higher with the project than without it, but in no such cases would it be higher than 43 mG. In addition, all in-street, property-line, and edge-of-ROW levels would remain well below levels found acceptable in the 1985 MECo/NEPCo Decision.

The Siting Board notes that, in the past, electric companies have recognized that some members of the public are concerned about magnetic fields and therefore have incorporated design features into proposed transmission lines that would reduce magnetic fields at little or no additional cost. See, e.g., New England Power Company, 4 DOMSB 109, at 148 (1995). The Siting Board has encouraged the use of practical and cost-effective designs to minimize magnetic fields along transmission ROWs. See, e.g., Nickel Hill Decision, 11 DOMSB at 211; Sithe Edgar Development LLC, 10 DOMSB 1, at 117 (2000); IDC Bellingham LLC, 9 DOMSB 225, at 333. Here, the magnetic fields associated with the proposed pipe-type cables would be low due to the pipes themselves. With regard to the overhead ROW from Walpole to Holbrook, the proposed project would result in lower peak magnetic fields than those which would occur in the absence of the project. Accordingly, the Siting Board finds that the EMF impacts of the proposed transmission project along the primary route would be minimized.

In comparing the primary route to the alternative and hybrid routes, the Siting Board notes that magnetic fields above the proposed transmission line would be the same minimal level along any of the routes. Impacts at K Street and Hyde Park also would be the same, regardless of route selected. While magnetic field levels at the property lines of the SRA switching station site would be somewhat higher than at the Route 138 site, no residential properties are located within 1700 feet of the SRA site.

The principal difference between the two routes is the differential impact along the 14.5-mile section of the Walpole-to-Holbrook ROW between the possible switching station sites. The Company's modeling indicated that, under peak and off-peak loads, the project would result in a decrease in magnetic field levels along the entire southern edge of the ROW regardless of site choice, although they would decrease to a lower level to the east of the switching station. Therefore, this lower magnetic field level would extend over a greater portion of the ROW if the

Route 138 site were selected. Along the northern edge of the ROW, the changes in magnetic field levels would differ for peak and off-peak load, with mixed results both with respect to the direction of change with the project and with respect to whether the resultant magnetic field would be lower east of the switching station site. For the northern edge of the ROW, the model's results do not clearly suggest that either switching station location is preferable to the other.

Accordingly, the Siting Board finds that the primary route would be slightly preferable to the alternative or hybrid routes with respect to EMF impacts.

e. Hazardous Materials

i. Description

NSTAR indicated that the proposed project would require the long-term use of two substances with potential environmental impacts if leaked or spilled: (1) sulfur hexafluoride gas ("SF₆"), an insulator in the switchgear to be installed at Hyde Park; and (2) alkyl benzene, a dielectric fluid used for electrical insulation in the pipe-type cable ("PTC") (Exh. BECO-1, at 1-15, B-2 to B-3; Tr. 7, at 1038; Tr. 8, at 1116; Tr. 9, at 1293). The use of these materials would not be route-dependent.

The Company stated that it uses SF₆ to insulate existing switchgear at the Hyde Park Substation (Tr. 9, at 1293). According to the Material Safety Data Sheet for SF₆, the gas can pose some short-term health risks if inhaled; however, the Company indicated that it was highly unlikely that a leak from the outdoor switchgear would expose a passerby to the gas in a concentration sufficient to induce such effects (Exh. RR-EFSB-36(a); Tr. 14, at 1972). The Company indicated that the environmental concerns with releases of the gas are of greater concern than the direct human health effects (Tr. 14, at 1974-1975). According to the U.S. Environmental Protection Agency ("EPA"), SF₆ is a greenhouse gas that is 22,200 times more potent per pound than carbon dioxide (Exh. RR-EFSB-36, Att. B). To address releases of SF₆ from the electric power sector, EPA administers a program called the SF₆ Emission Reduction Partnership for Electric Power Systems (*id.*). According to EPA, program partners establish what their baseline SF₆ emissions are, develop management strategies, set an SF₆ emission reduction goal, and report on their annual SF₆ usage (*id.*). The Company indicated that it monitors its SF₆-

insulated systems and follows specific protocols to recover the gas when performing maintenance work on these systems (Tr. 9, at 1294), but did not indicate that it participates in the EPA program.

With respect to the dielectric fluid, NSTAR stated that alkyl benzene meets the definition of “oil” under the Massachusetts Contingency Plan, and is thus regulated only if it is released to the environment (Exh. RR-EFSB-35). The Company indicated that alkyl benzene floats on the surface of water, leaving a sheen (Exh. EFSB-CT-12). The Company stated that the PTCs would contain 410,000 gallons of alkyl benzene, with an additional 10,000 gallons to be stored in a 25,000-gallon capacity tank at the pump plant at the Stoughton switching station (Exhs. EFSB-G-1-S Bulk Att., App. G at 13-14; EFSB-CT-16). NSTAR explained that the extra volume in the tank would allow for thermal expansion of the fluid, and that the tank’s concrete foundation would provide containment for 110% of the tank’s volume (Exh. EFSB-CT-16). The Company also indicated that it would use a leak detection system at the new pump plant that would be capable of detecting leaks as slow as one gallon per hour (Exh. BECO-1, at B-7). The Company stated that each of the autotransformers and voltage compensators would have a fluid containment system lined with impermeable fabric and equipped with a special drain that blocks the dielectric fluid (*id.* at 14).

The Company stated that it employs emergency contractors to remediate leaks or spills of dielectric fluid (Exh. BECO-1, at B-7). According to the Company’s Oil Spill Contingency Plan, NSTAR has contracted with two oil spill response companies that have committed to providing cleanup resources within two hours of notification (Exh. RR-EFSB-34, Att. at 4). Depending on the type of impact, the Company explained that remediation may involve the removal of affected soil, the use of absorbent booms or pads, or the pumping of groundwater (Exhs. BECO-1, at B-7; EFSB-CT-12). The Company stated that it has also used bioremediation agents to treat affected soil (Exh. BECO-1, at B-7).

ii. Analysis

The record shows that NSTAR has prior experience with both SF₆ and alkyl benzene. With respect to alkyl benzene, the record shows that the Company would employ appropriate

leak containment and leak detection measures. The record also shows that the Company has established protocols for addressing leaks when they occur. With respect to SF₆, a potent greenhouse gas, the record shows that the Company monitors its SF₆-insulated systems and implements gas-recovery measures when working on this equipment, but does not participate in EPA's SF₆ emissions reduction program. Participation in the EPA program, including developing management strategies and monitoring and reporting emissions, could enhance NSTAR's efforts to control SF₆ emissions from this and other GIS equipment it operates. The Siting Board also notes that such participation would be consistent with the Commonwealth of Massachusetts' Climate Protection Plan. Accordingly, to help ensure that the environmental impacts of facility expansion at the Hyde Park Substation related to SF₆ emissions are minimized, the Siting Board directs NSTAR to study participating in EPA's SF₆ Emission Reduction Partnership and, within six months of the date of the Final Decision in this matter, inform the Siting Board of the Company's decision to join the program or of its reasons for not doing so. The Siting Board finds that with the implementation of this condition, the permanent hazardous materials impact of the proposed transmission project along the primary route would be minimized.

Given that the long-term impacts from alkyl benzene and SF₆ are not route-dependent, the Siting Board finds that the primary, alternative and hybrid routes would be comparable with respect to permanent hazardous materials impacts.

f. Conclusions on Permanent Impacts

The Siting Board has found that, with the implementation of certain conditions and mitigation, the permanent land use, water resource, noise, visual, hazardous material, and EMF impacts of the proposed transmission project would be minimized. In comparing permanent impacts along the three routes, the Siting Board has found that the primary route would be slightly preferable to the alternative and hybrid routes with respect to EMF impacts; that the alternative and hybrid routes would be slightly preferable to the primary route with respect to land use and water resource impacts and preferable with respect to visual impacts; and that the three routes would be comparable with respect to noise impacts and impacts associated with

hazardous materials. On balance, the Siting Board finds that the alternative and hybrid routes would be slightly preferable to the primary route with respect to permanent environmental impacts.

4. Cost

a. Cost Comparison

i. Description

The Company provided several estimates of the cost of the proposed project, representing different assumptions and levels of refinement as project design and permitting advanced (Exhs. BECO-1, at 5-53; EFSB-G-11; COB-F-1; RR-EFSB-16; RR-EFSB-21). For the latest stage at which a fair comparison of the primary, noticed alternative and hybrid routes could be made, NSTAR provided the following cost estimates (with associated circuit lengths for each route):

Table 5: Route Cost Comparison

	Primary Route		Noticed Alternative		Hybrid Route	
	\$ million	length (ft.)	\$ million	length (ft.)	\$ million	length (ft.)
3-Circuit Segments	83.5	55,812	65.9	45,968	89.5	59,384
2-Circuit Segments	37.5	35,306	43.8	39,156	37.5	35,306
1-Circuit Segments	2.7	3,832	12.4	16,952	2.7	3,832
<i>Circuit Subtotal</i>	123.7	94,950	122.1	102,076	129.7	98,522
Stoughton	23.4		19.8		19.8	
Hyde Park	12.7		12.7		12.7	
K Street	22.4		22.4		22.4	
Heat Exchangers	2.3		2.3		2.3	
<i>Station Subtotal</i>	60.8		57.2		57.2	
Project Total	\$184.5		\$179.3		\$186.9	

Source: Exh. RR-EFSB-16.

The Company presented its estimates for the transmission line components broken down by segments corresponding to the number of cables (one, two, or three) in the trench (Exh. RR-EFSB-16). In addition to segment length and number of cables, the Company noted several other factors that affect construction costs along various portion of a route, such as subsurface congestion in urban areas, the need to restrict work hours, the presence of substantial rock, and bridge crossings (Exhs. BECO-1, at 5-51; RR-EFSB-16; Tr. 12, at 1636-1637, 1642). The Company provided detailed information about its assumptions regarding cost adders for these factors (id.).

NSTAR stated that the principal reason that the Route 138 switching station site (primary route) is more expensive than the SRA site (alternative or hybrid route) is that the former contains an active business (Tr. 13, at 1734). However, the Company indicated that its estimate for the cost of Route 138 switching station site was based on a signed agreement, whereas it had not obtained a signed agreement for a permanent easement on the SRA site (Tr. 7, at 1009; Tr. 13, at 1733, 1734). In addition, the Company stated that it assumed for cost estimation that the SRA site would be delivered in a ready-to-build condition, with all landfill waste removed, graded flat, and permitting complete (Exhs. ST-13; RR-EFSB-52 Att. at 3; Tr. 7, at 1002; Tr. 13, at 1745); as discussed in Section III.C.2.d, the Company indicated that these assumptions were somewhat uncertain, and noted that ultimate costs could be different, depending on the outcome of negotiations for the site (Tr. 13, at 1012, 1733).

The Company indicated that the cost of easements was not included in the above estimates, and that two easements would be required along the primary or hybrid routes, only one of which would be required along the alternative route (Tr. 1, at 1670). According to the Company's estimates, the easements would increase costs for the primary or hybrid route by \$250,000, but would increase the cost of the alternative route by only \$200,000 (id.). Some cost differentials also would be associated with proposed or required mitigation not included in the Company's cost estimates. Specifically, on-site landscaping at the Route 138 site could cost approximately \$375,000, whereas landscaping at the SRA site is estimated to total approximately \$50,000 to \$75,000 (Exh. RR-EFSB-51). The Company estimated that a three-sided sound-attenuation wall at the Route 138 site would cost approximately \$110,000 (Tr. 14, at 1902,

1983). On the other hand, the Company calculated that the visual- and noise-attenuation berm at the Route 138 site would represent a savings of approximately \$100,000 in avoided soil disposal costs (id. at 1983). The net effect of these elements would be to increase the cost of the primary route by approximately \$635,000, the cost of the alternative route by approximately \$125,000 and the cost of the hybrid route by approximately \$325,000.

ii. Analysis

The Company's estimate of the cost of the project along the primary route (\$184.5 million) is \$5.2 million higher than its estimate for the noticed alternative route (\$179.3 million) but \$2.4 million lower than its estimate of the hybrid route (\$186.9 million). After factoring in the costs of easements and mitigation, these cost differentials change only slightly: the primary route cost becomes \$5.5 million more than that of the noticed alternative and \$2.1 million less than that of the hybrid route. The difference between the primary route and the hybrid route cost estimates is about one percent of the project total, which, in light of some of the cost uncertainties highlighted by the Company, is likely to be within the margin of error of these estimates. The difference between the primary route and the alternative route is higher, at approximately three percent of total route cost. Accordingly, the Siting Board finds that the alternative route is slightly preferable to the primary and hybrid routes with respect to cost, and that the primary route and the hybrid route are comparable with respect to cost.

b. Total Costs and Financial Impact

As noted above, the Company provided multiple estimates of the cost of the proposed project. As part of NSTAR's "12.C Application,"⁸⁴ the Company submitted to NEPOOL and ISO-NE a substantially higher estimate for the primary route than it presented to the Siting Board – \$217 million vs. \$177.6 million for the original primary route without the American Legion

⁸⁴ A "12.C Application" is a request to ISO-NE that the costs of the transmission project be shared regionally, rather than be borne by the applicant's customers alone. Typically, projects that benefit the regional grid, such as 345 kV transmission lines, are granted such treatment (see: Tr. 15, at 2062-2065).

Highway modification (Exhs. COB-F-1, at 1-9, Fig. 1-3, 3-19; RR-EFSB-21).⁸⁵ The 12.C Application did not contain estimates for the noticed alternative or hybrid routes, and thus could not be used for route-comparison purposes.

The Company explained some of the differences between the cost estimate in the 12.C Application and that provided to the Siting Board for the primary route. For example, the 12.C costs included \$5.2 million for potential circuit breaker replacements at other substations (with associated engineering field supervision and relay modifications) that might be required as a result of the proposed project; \$4.1 million for consultant fees for regulatory and environmental issues, legal expenses, project management costs, and community relations costs; approximately \$3 million as an "Allowance for Funds Used During Construction;" and an approximately \$3 million increase for soil disposal (Exh. RR-EFSB-21; Tr. 5, at 665; Tr. 12, at 1649). The Company also mentioned increased costs of \$6 per foot for pipe and \$4 per foot for cable (Tr. 12, at 1647, 1649), but did not calculate project-wide totals for these items. Based on the circuit lengths for the original primary route along Blue Hill Avenue contained in Exh. RR-EFSB-16, the Siting Board calculated that these two items would total approximately \$2.0 million for that route. The Company also discussed, but did not quantify, additional road restoration activities (Exh. RR-EFSB-21). With respect to substation costs, the Company stated that differences between the 12.C Application estimates and those submitted to the Siting Board, amounting to \$5.5 million in total, were due to updated figures from supplier bids (*id.*). The Siting Board notes that these items total approximately \$17 million, leaving unexplained a \$22.4 million discrepancy between the 12.C costs and those presented to the Siting Board.

NSTAR stated that the project has been approved by NEPOOL's Reliability Committee

⁸⁵ The Company asserted that the 12.C Application's estimate reflected, among other factors, the additional costs associated with using American Legion Highway (Exh. RR-EFSB-21; Tr. 5, at 672-673). However, all descriptions of the route in the 12.C Application correspond to the Company's originally noticed primary route, not the version using the American Legion Highway variation (*see* Exh. COB-F-1, at 1-2, 1-9, Fig. 1-3). Thus, it appears that the 12.C estimate is for the original primary route. If so, the differential between the 12.C costs and the costs presented to the Siting Board for the same route is \$39.4 million, not the \$32.5 million that the Company stated in RR-EFSB-21.

as meeting all the criteria of a Regional Benefit Upgrade, as defined in the NEPOOL Transmission Tariff (Exh. COB-F-3; Tr. 12, at 1676). According to the Company, subject to similar approval by ISO-NE, all of the project's costs would be included in the regional transmission rate, and Boston Edison's customers would pay only that portion of the costs that represent BECo's share of the regional load, or approximately 13 % (Exh. COB-F-3).

While the Company has defined the need for the proposed project in terms of reliability, it also discussed some of the project's economic benefits. The Company stated that the proposed project would increase the overall import capability of the transmission system supplying the Greater Boston Area by approximately 800 MW with the addition of the first two circuits, and by 1,000 MW at project completion (Exh. BECO-1, at 2-31). The Company stated that the improved import capability would provide access to new, high-efficiency combined-cycle generating facilities located in southeastern Massachusetts (*id.*). NSTAR also asserted that the increased import capability would reduce congestion costs in the Greater Boston Area—that is, the increase in electricity costs that results from the need to run generating units out of merit due to transmission constraints (*id.*). The Company further asserted that the project would reduce or eliminate reliance on “reliability must-run” (“RMR”) generators, which are units that would be shut down were they not required to run to maintain area system reliability (Exh. EFSB—17). NSTAR noted that customers in the northeast Massachusetts (“NEMA”) zone currently pay fixed costs in excess of \$30 million per year to keep the New Boston generator in South Boston, which operates under an RMR contract, in operation (Exhs. EFSB—17; RR-ISO-NE-1). Based on these and other considerations, the Company stated that a conservative estimate of congestion-related savings that would accrue from the proposed project would be in the tens of millions of dollars per year (Exhs. BECO-1, at 2-31; EFSB—17).

5. Reliability

NSTAR asserted that construction of the proposed project along the preferred and alternative routes would provide similar levels of reliability (Exh. BECO-1, at 5-54). The Company noted that the routes are nearly the same length and require approximately the same number of bridge and rail crossings (*id.*). With respect to the switching station facilities, the

Company stated reliability is affected only by differences in the layout of tap lines required at the preferred and alternative switching station sites (id.). The Company stated that work at the Hyde Park and K Street Substations would be the same for either alternative (id.).

a. Switching Station Sites

NSTAR identified differences in the layout of the preferred and alternative switching station sites that could affect transmission system reliability (Exh. BECO-1, at 5-54). The Company stated that at the Route 138 site, no existing lines or structures intervene between the 345 kV circuit to be tapped and the proposed switching station, allowing new overhead lines to drop freely to a bridge structure and into the switchyard (id.). The Company contrasted this layout with the SRA site, where existing 115 kV lines and support structures are located between the 345 kV circuit to be tapped and the switching station, requiring the new taps to pass underneath the 115 kV lines (id.). According to NSTAR, the configuration at the SRA site would pose some risk that one of the existing overhead 115 kV conductors or static (shielding) wires could break or separate from its connectors and fall onto the new 345 kV bus, thereby de-energizing the switching station (id.; Exh. EFSB-R-4; Tr. 9, at 1303-1304). Noting that static wire breakage accounts for the majority of such failures, the Company stated that it could use a stronger, more corrosion-resistant type of static wire in the vicinity of the switching station to reduce somewhat the risk of breakage (Tr. 9, at 1304-1305). The Company further stated that the risk could be minimized by annual corrective maintenance inspections, including aerial inspection and ground patrols to identify and repair weakened connectors (Exh. EFSB-R-4).

b. Operational Reliability of Proposed PTC Design

NSTAR stated that it has extensive experience in the installation and operation of pipe-type cable ("PTC") systems at the 115 kV and 345 kV voltage levels, including 30 years of experience with 345 kV PTC systems (Exh. BECO-1, at B-1). The Company stated that it has encountered very few operating problems with PTCs, but reported several incidents over the last 50 years in which it experienced electrical faults or leaks of dielectric fluid (id. at B-1, B-4 to B-6). According to the Company's accounts, some of the electrical faults led to leaks of dielectric

fluid; other leaks of dielectric fluid were caused by other means, such as corrosion or damage by third parties (*id.* at B-4 to B-6; Exhs. EFSB-CT-9; EFSB-CT-10). NSTAR stated that outages of the cables are considered in the Company's contingency analyses (Tr. 9, at 1251, 1276-1277).

The Company stated that neither the North American Electric Reliability Council nor NEPOOL have any standards for testing, inspecting or maintaining PTCs (Exh. EFSB-CT-6). However, the Company stated that it would inspect the condition of the pipes via the manholes annually (Exh. EFSB-CT-5). In addition, the Company stated that it would survey the cathodic protection system annually (*id.*).⁸⁶

i. Electrical Faults

NSTAR reported that its PTCs have experienced eight electrical malfunctions over the last 50 years (Exh. BECO-1, at B-4). Of these, three occurred shortly after installation and were quickly repaired with no further problems (*id.*). Of the remaining five, the Company stated that three incidents resulted from third-party encroachments, and only two incidents resulted from equipment problems during operation (*id.*).

The Company stated that it uses redundant monitoring systems to detect faults on all its PTCs and that two independent high-speed relay protection systems de-energize and isolate a line within a tenth of a second of detecting a fault (Exh. EFSB-CT-8; Tr. 9, at 1251).⁸⁷ NSTAR explained that it identifies the location of a fault using a technique known as time-domain reflectometry ("TDR"), which involves sending a pulsed signal into the conductor, and then

⁸⁶ NSTAR explained that this is accomplished by using test leads that extend up from the pipe to hand holes in the sidewalk, which can be monitored for low voltages to detect degradation in the pipe's coating (Exh. EFSB-CT-5). The Company stated that the hand holes can also be used to monitor the operating temperature of the PTCs (*id.*).

⁸⁷ The Company explained that its system sends an alarm to NSTAR's Supervisory Control and Data Acquisition ("SCADA") system within a few seconds of fault detection (Exh. EFSB-CT-8). The Company noted that although the alarm informs the SCADA system which circuit breakers opened to isolate the line, it does not tell operators precisely where the fault occurred (Exhs. EFSB-CT-8; EFSB-CT-22).

examining the reflection of the pulse (Exh. ST-26; Tr. 9, at 1252). According to the Company, NSTAR owns some of the specialized equipment needed to perform TDR on lower-voltage cable, but sometimes must bring in outside experts to assist it (Tr. 9, at 1254). For each of two faults it had on 345 kV cables, NSTAR reported that it took approximately one month to pinpoint the locations of the faults (id. at 1254-1255). The Company stated that after locating the fault, repairs can take approximately one additional month (id. at 1255).⁸⁸

ii. Fluid Leaks

NSTAR reported that in 50 years of operating experience with PTC, the Company has experienced 28 instances of leakage of dielectric fluid, of which 22 were due to corrosion (Exh. BECO-1, at B-4). However, the Company noted, due to improvements in the pipes' cathodic protection system, monitoring, and other measures, none of the PTCs installed in the past 25 years have experienced corrosion-related leaks (id. at B-5). NSTAR stated that PTCs that have leaked since 1998 were older structures located on bridges that had been exposed to road salt and stormwater runoff (id.). The Company cited electrical faults, mechanical fretting (rubbing), and third-party encroachment as other causes of fluid leaks (id. at B-5 to B-6; EFSB-CT-10; Tr. 9, at 1245).

The Company stated that, unless they are associated with electrical faults, fluid leaks do not automatically take a cable out of service (Tr. 9, at 1273, 1275). NSTAR explained that pump operations and related parameters are monitored continuously and that abnormal conditions trigger an alarm at NSTAR's System Control Center (id.). The Company stated that it will employ a leak detection system at the new pump plant that will be capable of detecting leaks as slow as one gallon per hour (Exh. BECO-1, at B-7).

NSTAR explained that it uses two different methods to identify the precise location of a leak (Exh. BECO-1, at B-7; ST-59). The "traditional" method starts with inspections of

⁸⁸ The record includes contradictory information on this point: the Company also discussed two cables that were returned to service in 1 to 3 weeks, but another that was out of service for at least 19 months (October, 2002 through at least May, 2004) (Exh. EFSB-CT-9).

manholes and catchbasins along the route for evidence of the fluid (Exhs. BECO-1, at B-7; ST-59). If nothing is found, the Company can take the line out of service, hydraulically sectionalize it, then measure changes in hydraulic pressure to home in on the location of the leak (Exh. ST-59; Tr. 9, at 1265-1266). The Company characterized this method as slow and inefficient for finding a small leak, but better for a large-volume leak (Tr. 9, at 1267).

The second leak identification method involves the use of tracer gas in the dielectric fluid (Exhs. BECO-1, at B-7; ST-59). The Company explained that by conducting air sampling at the surface and then through small holes drilled into the pavement above the cable, this method can ultimately locate the leak to within 5 feet of its source (Exhs. EFSB-CT-21; ST-59). NSTAR stated that, while tracer gas sampling can locate a leak as quickly as in a few days, the contractors who perform the work are not always immediately available (Tr. 9, at 1269-1270).

iii. Bridge Crossings

The Company asserted that the bridge crossings associated with the proposed project will be less subject to corrosion than the bridge crossings that have experienced corrosion-related leaks in the past (Tr. 9, at 1241-1243). First, the Company noted that the coating on the PTCs used in this project would be of the newer, more corrosion-resistant and longer-lifespan variety (Exh. BECO-1, at B-6; Tr. 9, at 1249-1250). The Company explained that to cross the Neponset River along the primary or hybrid routes, the PTC would be buried in sand under the sidewalk of the Neponset River Bridge, exposed to neither the atmosphere nor road salt, and that it would be covered by a one-inch thick steel plate to protect it from damage (Exh. EFSB-G-1, App. G at 16; Tr. 9, at 1242-1245).⁸⁹ Along the alternative route, the Company anticipated that crossing the Neponset River would involve hanging the pipe from the Central Avenue Bridge and around its concrete abutments (Exh. EFSB-L-18). The Company stated it would install the pipe in an area where the bridge's drainage system would not discharge onto it, and would conduct annual

⁸⁹ In the Company's opinion, the greater risk to the PTC across the Neponset River Bridge is mechanical damage due to excavations through the sidewalk (Tr. 9, at 1241-1242). The Company stated it will protect the pipe with a one-inch steel plate in this area (*id.*). The Company noted that none of its PTCs have ever been damaged by third-party encroachment in places where they were protected by such plates (Exh. EFSB-CT-14).

inspections to make sure that neither the drainage system nor other atmospheric factors were causing corrosion of the pipe (Tr. 9, at 1249, 1251). The Company stated that thermal isolation is needed to avoid conflicting movements between the bridge and the pipe, and that electrical isolation from a bridge is necessary for the cathodic protection system to work properly (*id.* at 1248). The Company noted points along both the primary and alternative routes where it would need to take precautions with regard to stray current associated with rail or subway lines, which can interfere with cathodic protection of the cable (*id.* at 1246). NSTAR stated it would add reverse-current switches to address these situations, if necessary (*id.* at 1247).

c. Analysis

The record shows that electrical faults or leaks of the dielectric fluid may cause PTCs to be taken out of service for a period of time. Due to the significant length of time it may take to find and repair faults or leaks, preventing such episodes is critical to the overall reliability of the system. The Company has detailed improvements in the technology that have been made over the past 50 years, and measures it would take to protect the pipes from corrosion or other physical damage. Both the primary and alternative routes use the same technology and would therefore face similar risks due to these factors, although the different bridge crossings would require different measures to prevent damage or corrosion.

The record shows a slight difference in risk associated with the choice of switching station site. Specifically, the location of the existing 345 kV and 115 kV lines in relation to the SRA site would put certain switchyard structures at risk of being downed by overhead lines, should those lines break or become disconnected. This risk appears to be low, but no similar risk exists at the Route 138 site. Thus, the Siting Board finds that the primary route is slightly preferable to the alternative and hybrid routes with respect to reliability.

6. Conclusions on Route Comparison

The Siting Board has found, above, that the primary route is preferable to the alternative and hybrid routes with respect to construction impacts, while the alternative and hybrid routes are slightly preferable to the primary route with respect to permanent environmental impacts. The

Siting Board also has found that the primary and hybrid routes are comparable with respect to cost, while the alternative route is slightly preferable to the other two routes with respect to cost. Finally, the Siting Board has found that the primary route is slightly preferable to the alternative and hybrid routes with respect to reliability. Based on its review of the record, the Siting Board finds that NSTAR has provided sufficient information regarding cost, reliability, and environmental impacts to allow the Siting Board to determine whether it has achieved a proper balance among cost, reliability, and environmental impacts.

Based on the information presented in Sections III.C.2 and III.C.3, above, the Siting Board finds that, with the implementation of the proposed mitigation and conditions, and compliance with all applicable local, state and federal requirements, the temporary and permanent environmental impacts of the proposed transmission project along the primary route would be minimized. The Siting Board also finds that the proposed project along the primary route would achieve an appropriate balance among conflicting environmental concerns as well as between environmental impacts, reliability, and cost.

The record demonstrates the NSTAR has presented the Siting Board with two diverse routes with significant strengths, and that elements of these two routes can be combined to create a third route, also with significant strengths. The record suggests that a case could be made for approving any of the three routes analyzed in this section. In this instance, NSTAR has chosen to present for the Siting Board's approval the primary route, which is preferred by the MHD and affected municipalities along the route including the City of Boston, and the Towns of Milton and Canton. The primary route also appears to have fewer permitting complexities than either the hybrid or the alternative route, as it does not require re-permitting by MDEP to place a switching station in a former landfill, or permits from the Army Corps of Engineers to accomplish a crossing of the Neponset River. On balance, use of the primary route provides the greatest assurance that the proposed transmission project can be put in place in a timely, environmentally sensitive manner. Accordingly, the Siting Board finds that the primary route is preferable to the alternative and hybrid routes with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

IV. ZONING EXEMPTION AND SECTION 72

NSTAR is seeking, pursuant to G.L. c. 40A, § 3, certain zoning exemptions from the Zoning By-laws of the Town of Stoughton regarding the Route 138 switching station site.⁹⁰ NSTAR also is seeking pursuant to Section 6 of Chapter 665 of the Acts of 1956, certain zoning exemptions from the City of Boston Zoning Code regarding modifications to the Baker Street, Hyde Park and K Street Substations. In addition, NSTAR is seeking, in accordance with G.L. c. 164, § 72, a determination that the proposed transmission lines in the City of Boston and the Towns of Canton, Milton, and Stoughton are necessary and will serve the public convenience and be consistent with the public interest.

A. Standard of Review

G.L. c. 40A, § 3 provides, in relevant part, that

Land or structures used, or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning ordinance or by-law if, upon petition of the corporation, the [Department] shall, after notice given pursuant to section eleven and public hearing in the town or city, determine the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public.

Similarly, Section 6 of Chapter 665 of the Acts of 1956 provides:

A building, structure, or land used or to be used by a public service corporation may be exempted from the operation of a zoning regulation or amendment if, upon petition of the corporation, the state [Department] shall, after public notice and hearing, decide that the present or proposed situation of the building, structure, or land in question is reasonably necessary for the convenience or welfare of the public.

Thus, a petitioner seeking exemption from a local zoning bylaw under G.L. c. 40A, § 3 must

⁹⁰ In light of the Siting Board's finding in Section III.C, above, that siting of the proposed 345 kV transmission project along the primary route is superior to the alternative or hybrid routes with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, we will not address the Company's request for an exemption from the Stoughton Zoning By-laws for the SRA site.

meet three criteria. First, the petitioner must qualify as a public service corporation. Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667 (1975) (“Save the Bay”). Second, the petitioner must establish that it requires a zoning exemption(s). Boston Gas Company, D.T.E. 00-24, at 3 (2001) (“Boston Gas”). Finally, the petitioner must demonstrate that its present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare. Massachusetts Electric Company, D.T.E. 01-77, at 4 (2002) (“MECo (2002)”); Tennessee Gas Pipeline Company, D.T.E. 01-57, at 3-4 (2002) (“Tennessee Gas (2002)”).⁹¹

1. Public Service Corporation

In determining whether a petitioner qualifies as a “public service corporation” (“PSC”) for the purposes of G.L. c. 40A, § 3, the Massachusetts Supreme Judicial Court (“SJC”) stated:

...among the pertinent considerations are whether the corporation is organized pursuant to an appropriate franchise from the State to provide for a necessity or convenience to the general public which could not be furnished through the ordinary channels of private business; whether the corporation is subject to the requisite degree of governmental control and regulation; and the nature of the public benefit to be derived from the service provided.

Save the Bay, 366 Mass. at 680. See also, Boston Gas at 3-4; Berkshire Power Development, Inc., D.P.U. 96-104, at 26-36 (1997) (“Berkshire Power”).

The Department interprets this list not as a test, but rather as guidance to ensure that the intent of G.L. c. 40A, § 3 will be realized, i.e., that a present or proposed use of land or structure that is determined by the Department to be “reasonably necessary for the convenience or welfare of the public” not be foreclosed due to local opposition. See Berkshire Power at 30; Save the Bay at 685-686. The Department has interpreted the “pertinent considerations” as a “flexible set of criteria which allow the Department to respond to changes in the environment in which the industries it regulates operate and still provide for the public welfare.” Berkshire Power at 30; see

⁹¹ In evaluating the Company’s petition for zoning relief pursuant to Section 6 of Chapter 665 of the Acts of 1956, the Siting Board relies on the standard of review established for G.L. c. 40A, § 3 petitions.

also Dispatch Communications of New England d/b/a Nextel Communications, Inc., D.P.U./D.T.E. 95-59-B/95-80/95-112/96-113, at 6 (1998) (“Nextel”). The Department has determined that it is not necessary for a petitioner to demonstrate the existence of “an appropriate franchise” in order to establish PSC status. See Berkshire Power at 31.

2. Exemption Required

In determining whether exemption from a particular provision of a zoning bylaw is “required” for purposes of G.L. c. 40A, § 3, the Department looks to whether the exemption is necessary to allow construction or operation of the petitioner’s project as proposed. See MECo (2002) at 4-5; Tennessee Gas (2002) at 5; Western Massachusetts Electric Company, D.P.U./D.T.E. 99-35, at 4, 6-8 (1999); Tennessee Gas Company, D.P.U. 92-261, at 20-21 (1993). It is the petitioner’s burden to identify the individual zoning provisions applicable to the project and then to establish on the record that exemption from each of those provisions is required:

The Company is both in a better position to identify its needs, and has the responsibility to fully plead its own case.... The Department fully expects that, henceforth, all public service corporations seeking exemptions under c. 40A, § 3 will identify fully and in a timely manner all exemptions that are necessary for the corporation to proceed with its proposed activities, so that the Department is provided ample opportunity to investigate the need for the required exemptions.

New York Cellular Geographic Service Area, Inc., D.P.U. 94-44, at 18 (1995).

3. Public Convenience or Welfare

In determining whether the present or proposed use is reasonably necessary for the public convenience or welfare, the Department must balance the interests of the general public against the local interest. See Save the Bay at 680; Town of Truro v. Department of Public Utilities, 365 Mass. 407, at 411 (1974). Specifically, the Department is empowered and required to undertake “a broad and balanced consideration of all aspects of the general public interest and welfare and not merely [make an] examination of the local and individual interests which might be affected.” New York Central Railroad v. Department of Public Utilities, 347 Mass. 586, 592 (1964) (“New York Central Railroad”). When reviewing a petition for a zoning exemption under

G.L. c. 40A, § 3, the Department is empowered and required to consider the public effects of the requested exemption in the State as a whole and upon the territory served by the applicant.

Save the Bay at 685; New York Central Railroad at 592.

4. G.L. c. 164, Section 72

With respect to a petition filed pursuant to G. L. c. 164, § 72, the statute requires, in relevant part, that an electric company seeking approval to construct a transmission line must file with the Department a petition for:

authority to construct and use... a line for the transmission of electricity for distribution in some definite area or for supplying electricity to itself or to another electric company or to a municipal lighting plant for distribution and sale ... and shall represent that such line will or does serve the public convenience and is consistent with the public interest ... The [Department], after notice and a public hearing in one or more of the towns affected, may determine that said line is necessary for the purpose alleged and will serve the public convenience and is consistent with the public interest.⁹²

The Department, in making a determination under G. L. c. 164, § 72, is to consider all aspects of the public interest. Boston Edison Company v. Town of Sudbury 356 Mass. 406, 419 (1969). Section 72, for example, permits the Department to prescribe reasonable conditions for the protection of the public safety. Id. at 419-420. All factors affecting any phase of the public interest and public convenience must be weighed fairly by the Department in making a determination under G.L. c. 164, § 72. Town of Sudbury v. Department of Public Utilities, 343 Mass. 428, 430 (1962).

As the Department has noted in previous cases, the public interest analysis required by G.L. c. 164, § 72 is analogous to the Department's analysis for the "reasonably necessary for the convenience or welfare of the public" standard under G.L. c. 40A, § 3. See New England Power Company, D.P.U. 89-163, at 6 (1993); New England Power Company, D.P.U. 91/117/118, at 4

⁹² Pursuant to the statute, an electric company must file with its petition a general description of the transmission line, provide a map or plan showing its general location, and estimate the cost of the line in reasonable detail. G.L. c. 164, § 72.

(1991); Massachusetts Electric Company, D.P.U. 89-136/136/137, at 8 (1990). Accordingly, in evaluating petitions filed under G.L. c. 164, § 72, the Department relies on the standard of review for determining whether the proposed project is reasonably necessary for the convenience or welfare of the public under G.L. c. 40A, § 3, as set forth above.

B. Analysis and Findings

1. Public Service Corporation Status

NSTAR is an “electric company” as defined by G.L. c. 164, § 1. Commonwealth Electric Company d/b/a NSTAR, D.T.E. 03-7, at 5 (2003). Accordingly, the Siting Board finds that NSTAR qualifies as a public service corporation for the purposes of G.L. c. 40A, § 3 and for the purposes of Section 6 of Chapter 665 of the Acts of 1956.

2. Need for the Requested Exemptions

a. Town of Stoughton-Route 138 Switching Station

NSTAR’s preferred site for a new 345 kV switching station is at the intersection of Route 138 and York Street in Stoughton (see Section III.B, above). The proposed switching station site is located in an industrial district (“ID”) which permits public utility uses (Exh. BECO-3, at 9; and App. A, at Section V.D “Table of Use Regulations”). The Company identified eight sections of the Stoughton Zoning By-laws from which it is seeking an exemption in order to construct and operate the proposed switching station (*id.* at 8- 3). NSTAR stated that the process of obtaining zoning relief locally could delay the Company’s proposed in-service date of 2006 (*id.* at 31).⁹³ The sections for which the Company is seeking zoning relief are described below.

i. Height Requirements

NSTAR is seeking exemption from Section VI of the Stoughton Zoning By-laws, which

⁹³ The Company indicated that pursuant to the Host Community Agreement it has reached with Stoughton, the Town of Stoughton has agreed to relinquish all rights to appeal, challenge, or collaterally attack the Siting Board’s final decision in this matter (Exh. EFSB-62, at 5).

prohibits the construction or alteration of a building or structure that exceeds the height specified for the district in which it is located (Exh. BECO-3, App. A at Section II). Section VI, Table II places a 40 foot height limit on structures in an industrial district (*id.* at App. A at Section VI). According to the Company, the proposed facility would include six new monopole transition poles, ranging in height from approximately 60 to 125 feet, and two line bridges, each 60 feet high (Exh. RR-EFSB-58).

The Company maintained Section II of the Stoughton Zoning By-laws defines “height” in relation to a roof, and that none of the structures in question has a roof as a design element (Exh. BECO-3, at 9-10). Therefore, it is the Company’s position that the structures identified would not exceed the height restriction. NSTAR stated, however, that the building inspector may have a different interpretation of “height” as defined in the Stoughton Zoning By-laws (*id.*). The Company stated that if the building inspector determined that the project fails to comply with the height restriction, the Company would need to appeal the decision to the Stoughton Board of Appeals, or petition directly to the Stoughton Board of Appeals for zoning relief (*id.* at 10).

The record shows that certain project structures may exceed the height requirements in Section VI, Table II of the Stoughton Zoning By-laws. The Siting Board concludes that since the applicability of the Section VI, Table II to the proposed structures is subject to interpretation, it may be necessary for the Company to petition the Stoughton Board of Appeals for relief in order to construct the proposed project. While the proposed project could be built following a petition to the Board of Appeals, the outcome of any Board of Appeals process is uncertain and could delay construction. Accordingly, the Siting Board finds that exemption of the proposed transmission project from Section VI of the Stoughton Zoning By-laws is required within the meaning of G.L. c. 40A, § 3, since the proposed project is time sensitive.

ii. Off-street Parking

NSTAR seeks an exemption from Section VIII of the Stoughton Zoning By-laws, which requires one off-street parking space for each 800 square feet of gross floor area for uses other than office use (Exh. BECO-3, at 10, App. A at Section VIII). NSTAR stated that the 2100 square feet of gross floor area of the proposed new buildings at the Route 138 site would require

three parking spaces under a strict interpretation of the Stoughton Zoning By-laws (Exh. BECO-3, at 10). The Company stated that there will be no full-time employees at the site and that there already are 15 available parking spaces associated with the ongoing business at the site (*id.*). The Company could apply for a variance pursuant to Section X-K of the Stoughton Zoning By-laws for relief from Section VIII.

While the proposed project could be completed following an application for a variance from Section VIII, the outcome of the variance process is uncertain and could delay construction. Accordingly, the Siting Board finds that exemption from Section VIII of the Stoughton Zoning By-laws is required within the meaning of G.L. c. 40A, § 3, Since the proposed transmission project is time sensitive.

iii. Landscaping

The Company seeks exemption from the Section XII of the Stoughton Zoning By-laws, which provides that the Stoughton building inspector must review site landscaping plans for all uses within an industrial district (Exh. BECO-3, at 11; App. A at Section XII). NSTAR stated that the uncertainty related to the building inspector's review of the Company's landscaping plan could jeopardize the Company's in-service date of 2006 (Tr. 13, at 1753).

The record shows that the Stoughton Zoning By-laws require landscaping review for the proposed project. While the proposed project likely could be built without relief from Section XII, the outcome of the landscaping review process is uncertain and could delay construction. Accordingly, the Siting Board finds that exemption from Section XII of the Stoughton Zoning By-laws is required within the meaning of G.L. c. 40A, § 3 to the extent that the proposed transmission project is time sensitive.⁹⁴

⁹⁴ The Siting Board notes that NSTAR and Stoughton have entered into a Host Community Agreement which addresses landscaping issues, and that the Siting Board has addressed landscaping issues in Section III.C, above.

iv. Removal of Earth

NSTAR indicated that Section V of the Stoughton Zoning By-laws requires a special permit in all districts for any removal of earth associated with building construction on a lot (Exh. BECO-3, at 17-18, App. A at Section V).⁹⁵ The Company has not determined whether it will remove earth from the site or use the excavated material for regrading (Tr. 13, at 1791-93). However, NSTAR is seeking an exemption from the special permit requirement of Section V in the event that the Company removes earth from the proposed switching station site (Exh. BECO-3, at 11).

The record demonstrates that the Company would be required to obtain a special permit from Stoughton if there were earth removal from the Route 138 site. While the proposed project likely could be built without relief from Section V of the Stoughton Zoning By-laws, the outcome of the special permit process is uncertain and could delay construction. Accordingly, the Siting Board finds that exemption from Section V of the Stoughton Zoning By-laws is required within the meaning of G.L. c. 40A, § 3, since the proposed transmission project is time sensitive.

v. Environmental Performance Standards

NSTAR stated that Section XI-I of the Stoughton Zoning By-laws sets forth a list of ten environmental performance standards related to emissions, sound levels, vibrations, discharges, storage of hazardous materials and lighting with which the Company must comply (Exh. BECO-3, at 12). According to the Company, it intends to comply with the standards set forth in Section XI-I, but cannot provide “absolute assurances” that construction-stage dust, noise and vibration, as well as operating-stage noise, glare and electrical disturbances would satisfy a literal interpretation of Section XI-I (Exh. EFSB RR-53, at 1-2). The Company explained that, during certain atmospheric, emergency or maintenance conditions when it will require night lighting, it would not be able to comply with the prohibition on “direct or sky reflected glare” (Exh. RR-EFSB-53; Tr. 13, at 1766-67).

The record is not clear as to whether the Environmental Performance Standards apply to

⁹⁵ Section XI.B.5 of the Stoughton Zoning By-laws contains exceptions to this requirement; however, NSTAR stated that it meets none of the exceptions (Exh. BECO-3, at 11).

the construction phase of the proposed project. If the Environmental Performance Standards do apply during construction, the record shows that the Company would not be able to construct the proposed switching station without relief from Section XI-I. The record also shows that the Company would not be able to operate the proposed switching station without relief from Section XI-I (10), which prohibits “direct or sky reflected glare.” However, the record demonstrates that the Company could operate the switching station in accordance with the remaining provisions of Section XI-I. Accordingly, the Siting Board finds that exemption from Section XI-I of the Stoughton Zoning By-laws may be required during construction of the proposed facility, and thus is within the meaning of G.L. c. 40A, § 3. The Siting Board further finds that, during operation of the proposed facility, exemption from only Section XI-I (10) would be required within the meaning of G.L. c. 40A, § 3.

vi. Flood Hazards, Wetlands and Watershed Districts

The Company stated that portions of the Route 138 switching station site are within both wetlands and watershed districts that are governed by Section III-E of the Stoughton Zoning By-laws, which prohibits construction in such districts (“Flood Hazard/Wetland/Watershed Maps of the Town of Stoughton”) (Exh. BECO-3, at 12). The Company explained that the Stoughton Zoning By-laws provide an exception allowing for construction, installation and maintenance of public-utility facilities, including, without limitation, electric transmission lines in wetlands districts (id. at 12 and App. A at Section III.-E.4(a)(xi)). The Company asserted that the proposed switching station falls within this exemption; however, the Company stated that the building inspector may have a different interpretation (id. at 12).

The Company also stated that no new construction is allowed in watershed districts except as allowed in wetlands districts (Exh. BECO-3, at 13 and App. A at Section III-E. (4) (b)). Therefore, the Company explained that an exemption from Section III-E. 4(b) of the Stoughton Zoning By-laws may be required in the event of a determination that the proposed project does not fall within the public utility facilities exception for wetlands districts (id. at 13). The Company further stated that because the Stoughton Zoning Board of Appeals is not authorized to issue use variances, there is no local zoning relief available with respect to Sections III-E.4(a)(xi) and III-E.

4(b)(id. at 12).

The record demonstrates that the Company may not be able to construct the proposed switching station absent relief from Section III-E. 4(a)(xi) and III-E.4(b) of the Stoughton Zoning By-laws. Accordingly, the Siting Board finds that exemption from Sections III-E. 4(a)(xi) and III-E.4(b) of the Stoughton Zoning By-laws may be required within the meaning of G.L. c. 40A, § 3.

vii. Filling of Water, Wet Area, or Depression

NSTAR stated that, pursuant to Section XI-C. of the Stoughton Zoning By-laws, Stoughton regulates the filling of any water, wet area or depression where 500 cubic yards or more of filling is required or where an area to be filled exceeds 10,000 square feet (Exh. BECO-3, at 13, App. A at Section XI.C.). The Company explained that it would be able to comply with many of the requirements of Section XI-C. However, due to the topography of the site, the Company is uncertain that it could comply with certain aspects of this section (e.g., XI-C(6), requiring replacement of at least six inches of topsoil and seeding of all filled areas) without jeopardizing the project schedule (Tr. 13, at 1776-77). The Company indicated that whether or not a zoning exemption is granted, the Company would be required to make a filing with the Conservation Commission regarding the alteration and preservation of wetlands on the site (id. at 1772).

The record demonstrates that the Company may not be able to build the proposed project in a timely fashion absent relief from Section XI-C of the Stoughton Zoning By-laws. Accordingly, the Siting Board finds that exemption from Section XI-C of the Stoughton Zoning By-laws may be required within the meaning of G.L. c. 40A, § 3, since the proposed transmission project is time sensitive.

b. Zoning Relief Requested in the City of Boston

NSTAR stated that certain provisions of the Boston Zoning Code, if applied to the proposed transmission project, would preclude construction by the Company's in service date of 2006 (Exh. BECO-3, at 31-32). The Company identified eight specific exemptions of the Boston Zoning Code that may be needed to permit construction and operation at the existing Baker Street,

Hyde Park, and K Street Substations.⁹⁶

i. Baker Street Substation

NSTAR plans to install a heat exchanger at the Company's existing Baker Street Substation in order to increase the electrical capacity of the existing cables operating between the Baker Street Substation and the Hyde Park Substation (see Section III. C., above)

The Company stated that the substation is in a Community Commercial subdistrict ("CC subdistrict") of the West Roxbury Neighborhood District, governed by Section 56 of the Boston Zoning Code (Exh. BECO-3, at 25). The Company identified two sections of the Boston Zoning Code from which it is seeking an exemption.

(a) Conditional Use Permit

The Company stated that Section 56-45 of the Boston Zoning Code requires NSTAR to obtain a conditional use permit from the Boston Zoning Board in order to install the heat exchanger (Exh. BECO-3, at 25 and App. C at Section 56-45, Table B). NSTAR stated that the overall permitting process, especially in the event of any appeal of the decision, would jeopardize the Company's ability to meet its 2006 in-service date for the project (id.).

The record demonstrates that the Company is required to obtain a conditional use permit for the new equipment at the Baker Street Substation. While this equipment likely could be built without relief from Section 56-45 of the Boston Zoning Code, the outcome of the conditional use permit process is uncertain and could delay construction. Accordingly, the Siting Board finds that exemption of the proposed project from Section 56-45 of the Boston Zoning Code is required within the meaning of Section 6 of Chapter 665 of the Acts of 1956, since the proposed transmission project is time sensitive.

(b) Screening and Buffering

NSTAR also seeks an exemption from Section 56-37 of the Boston Zoning Code which

⁹⁶ The City of Boston did not address on brief the Company's request for an exemption from the Boston Zoning Code (see City of Boston Brief).

NSTAR also seeks an exemption from Section 56-37 of the Boston Zoning Code which requires screening and buffering of certain parcels in the district (Exh. BECO-3, at 25-26 and App. C at Section 56-37). The Company indicated that, because the Baker Street Substation is located across the street from a public park and is in proximity to residences, this section of the Boston Zoning Code applies to the proposed substation expansion (id. at 26). The Company maintains that there is sufficient screening and buffering at the site, and is seeking an exemption from this provision of the Boston Zoning Code (id.; Tr. 17, at 1801-06).

The record demonstrates that Section 56-37 of the Boston Zoning Code requires the Company to provide screening and buffering along property lines abutting public parks and proximate to residences. While the proposed transmission project likely could be built without relief from Section 56-37, the outcome of the landscaping review process is uncertain and could delay construction. Moreover, as set forth in Section III. C, above, the Siting Board has directed the Company to provide plantings along those portions of the Baker Street fence line where there is no existing landscaping, and to supplement areas where there are existing deciduous trees. Accordingly, the Siting Board finds that exemption of the proposed project from Section 56-37 of the Boston Zoning Code is required within the meaning of Section 6 of Chapter 665 of the Acts of 1956, since the proposed transmission project is time sensitive.

ii. Hyde Park Substation

NSTAR proposed to expand its existing Hyde Park Substation to accommodate a new 345 kV transformer, control center building and heat exchanger (see Section III. C.) The existing substation is located in an M-1 district that is zoned for industrial use, including public utilities. (Exh. BECO-3, at 26). The Company identified two sections of the Boston Zoning Code from which it is seeking an exemption (id.).

(a) Height and Dimensional Requirements

NSTAR seeks an exemption from Section 13-1, "Table B: Dimensional Requirements" (Exh. BECO-3, at 27). Section 13-1 provides a 20 foot rear yard setback requirement in an M-1 district (id. at 27 and App. C. at Section 13-1). The Company indicated that the proposed heat

exchangers and the control building would be placed approximately 1 to 2 feet from the rear lot line in order to facilitate operation and maintenance activities and to meet necessary access requirements (*id.* at 27; Tr. 13, at 1809-10). NSTAR stated that it would be required to seek a dimensional variance in order to construct the control building and the heat exchangers (Exh. BECO-3, at 27).

The Company also stated that, depending upon the building inspector's definition of "height", the 2.5-story or 35-foot building height restriction for an M-1 district may apply to the proposed structures at the substation (Exh. BECO-3, at 26 and App. C, Section 13-1). According to the Company, the proposed new 345 kV transformer would be 38 feet high, and the Company might need to seek a variance from this provision (*id.* at 26).

While the proposed modifications to the existing Hyde Park Substation could be completed following an application for a variance from Section 13-1 of the Boston Zoning Code, the outcome of the variance process is uncertain and could delay construction. Accordingly, the Siting Board finds that exemption from Section 13-1 of the Boston Zoning Code for the aforementioned dimensional requirements of the Boston Zoning Code is required within the meaning of Section 6 of Chapter 665 of the Acts of 1956, since the proposed transmission project is time sensitive.

(b) Off-Street Parking

The Company seeks an exemption from Section 23-5 of the Boston Zoning Code, which requires one parking space for every 1200 square feet of gross floor area (Exh. BECO-3, at 27). NSTAR stated that the spacing requirements of the substation equipment and the layout of the existing facilities preclude the Company from creating any additional parking spaces and that the substation is and will remain an unmanned facility after construction and operation of the proposed transmission project (*id.*).

The record demonstrates that the Company could not expand the Hyde Park Substation without relief from Section 23-5 of the Boston Zoning Code. Accordingly, the Siting Board finds that exemption from the off-street parking requirements of the Boston Zoning Code is required within the meaning of Section 6 of Chapter 665 of the Acts of 1956.

iii. K Street Substation

NSTAR proposes to expand the existing substation to include the following facilities: two 345 kV-to-115 kV transformers, shunt reactors, circuit breakers, switching equipment, an emissions monitoring station, disconnection switches, bus work and support structures (Exh. BECO-3, at 28). The site is located in a Waterfront Industrial Zoning District (“W-2 District”), and is within the South Boston Waterfront Interim Planning Overlay District (“IPOD”). In addition, portions of the K Street Substation are on tidelands and governed by G.L. c. 91. The Company identified five sections of the Boston Zoning Code related the K Street Substation expansion for which it is seeking an exemption (id. at 29).

(a) Use Regulations

The Company stated that because the proposed project is located in a W-2 District in South Boston it would be subject to Section 8-7, “ Table A- Use Regulations” of the Boston Zoning Code (Exh. BECO-3, at 29). The Company seeks a comprehensive exemption from this portion of the Zoning Code, or, at a minimum, those provisions imposing dimensional requirements, off-street parking requirements, standards for construction in filled tidelands, development review and design guideline requirements and flood plain restrictions.

NSTAR explained that Section 27P of the Boston Zoning Code governs construction within IPOD districts (Exh. BECO-3, at 29). The Company stated that the proposed expansion of the K Street Substation would comply with all of the Article 27P dimensional requirements except for the waterfront area requirement (id. at 29). Article 27P-11 prohibits buildings or structures in a waterfront yard area, which is defined as 50 feet, measured perpendicularly from either the high tide line or the ends of and sides of piers (Exh. BECO-3, at 29 and App. C at Article 27P-11). According to the Company, several of its proposed structures must be located in the waterfront area, and NSTAR, therefore, is seeking an exemption from Article 27P-11 of the Boston Zoning Code.

Pursuant to G.L.c. 91, § 18, when a project is proposed in tideland areas, a developer must obtain a written recommendation from a local planning board to file with MDEP addressing whether the proposed project: (1) serves a public purpose; and (2) would not be detrimental to the

public's rights to the tidelands (Exh. BECO-3, at 30 and App. C at Section 27P-15). The IPOD provisions set forth the standards for the Boston Redevelopment Authority ("BRA") to use in making its recommendation to MDEP (*id.*). NSTAR explained that exemption from this requirement would not obviate the need for the Company to file with MDEP pursuant G.L. c. 91 and to include an order of conditions from the Boston Conservation Commission (Tr. 13, at 1817).

Pursuant to Section 27P-14 of the Boston Zoning Code, all proposed projects in the South Boston IPOD area must be subject to development review by the BRA and must follow applicable design guidelines (Exh. BECO-3, at 30).

The record demonstrates that the Company could not expand the K Street Substation without relief from Table 8-7 of the Boston Zoning Code. Accordingly, the Siting Board finds that exemption from Table 8-7 of the Boston Zoning Code is required within the meaning of Section 6 of Chapter 665 of the Acts of 1956. The record also demonstrates that the Company could not expand the K Street Substation without relief from Section 27P-11 of the Boston Zoning Code. Accordingly, the Siting Board finds that exemption from Section 27P-11 of the Boston Zoning Code is required within the meaning of Section 6 of Chapter 665 of the Acts of 1956. The record also demonstrates that the Company could not expand the K Street Substation absent relief from Sections 27P-14 and 27P-15 of the Boston Zoning Code. Accordingly, the Siting Board finds that exemption from Sections 27P-14 and 27P-15 of the Boston Zoning Code is required within the meaning of Section 6 of Chapter 665 of the Acts of 1956 to the extent that the proposed transmission project is time sensitive.⁹⁷

(b) Flood Hazard District

The Company stated that the K Street Substation is located within a Flood Hazard District that is subject to Section 25 of the Boston Zoning Code which governs, *inter alia*, new construction of nonresidential structures in Flood Hazard Districts (Exh. BECO-3, at 30-31).

⁹⁷ While the Siting Board finds that relief from the Boston Zoning Code is required, this does not preclude MDEP from exercising its authority pursuant to G.L. c. 91 as it relates to the K Street Substation expansion.

According to the Company, it would not be able to comply with the Section 25 requirement to have the lowest floor of a non-residential structure elevated to the level of base flood elevation (id. at 31).

The record demonstrates that the Company could not expand the K Street Substation without relief from Section 25 of the Boston Zoning Code. Accordingly, the Siting Board finds that an exemption from Section 25 of the Boston Zoning Code is required within the meaning of Section 6 of Chapter 665 of the Acts of 1956.

3. Public Convenience and Welfare

a. Need or Public Benefit of Use

In Section II.A, above, the Siting Board evaluated the need for the proposed project. Based on this analysis, the Siting Board found that additional energy resources are needed for reliability in the Greater Boston Area under certain contingencies. The finding was based on the Company's load flow analyses showing thermal overloads in the Downtown Boston Area as early as 2006.

b. Alternatives Explored

In Section II.B, above, the Siting Board analyzed potential alternatives to the proposed transmission line and a number of routing alternatives. Based on this analysis, the Siting Board found that the proposed 345 kV underground transmission project is preferable to both the lower voltage alternative and the bundled improvements alternative with respect to providing a reliable energy supply for the Commonwealth, with a minimum impact on the environment at the lowest possible cost.

c. Impacts of the Proposed Use

In Section III, above, the Siting Board analyzed the environmental impacts, including traffic, noise, land use, water resources, visual, hazardous materials, and EMF impacts, of the proposed transmission project. The Siting Board found that, with the conditions set forth in Section III, above, the Company has minimized the environmental impacts associated with the

proposed transmission project.

C. Scope of Exemption

The Siting Board found that NSTAR requires an exemption from the following sections of the Stoughton Zoning By-laws for the Route 138 switching station: III-E.4(a)(xi); II-E.4(b); V; VI; VIII; XI-C; XI.I during construction only; XI-I (10) during operation, and XII. The Siting Board also found that NSTAR requires an exemption from the following sections of the Boston Zoning Code for: (1) the Baker Street Substation: 56-45 and 56-37; (2) the Hyde Park Substation: 23-5 and 13-1; and (3) the K Street Substation: 8-7, 25, 27P-11, 27P-14, and 27P-15. NSTAR also has requested a comprehensive exemption from the operation of the Stoughton Zoning By-laws and the Boston Zoning Code. As the Department has noted, petitions for comprehensive zoning relief are infrequently granted but may be appropriate in certain circumstances. For example, the Department will consider the issuance of comprehensive relief where numerous individual exemptions are required or where the issuance of a comprehensive exemption could avoid substantial public harm by serving to prevent delay in the construction and operation of the proposed use. USGen New England, D.T.E. 03-83, at 34 (2004); Tennessee Gas Pipeline Company, D.T.E. 01-57, at 11 (2002).

The Siting Board has found a need for the proposed transmission project, based on its analysis that additional energy resources are required as early as 2006 to ensure reliability in the Greater Boston Area. It is therefore essential to the public interest that construction of the proposed project be completed by 2006.

The Siting Board finds that the advantage to the public in the construction of the proposed transmission project outweighs any benefit that could be obtained from further local review, with the exception set forth below. Accordingly, in light of the substantial advantage in constructing and operating the proposed transmission project to address the need to ensure transmission system reliability in the Greater Boston area, the Siting Board finds that exemption from Sections III-E.4(a)(xi), III-E.4(b) V, VI, VIII, XI-C, XI-I.(1 through 10) during construction, XI-I(10) during operation, and XII of the Stoughton Zoning By-laws is required within the meaning of G.L. c. 40A, § 3. The Siting Board denies the request of the Company for exemption from Section XI-I

(1 through 9) of the Stoughton Zoning By-laws during operation.

The Siting Board further finds that exemption from Sections 8-7, 13-1, 23-5, 25, 56-37, 56-45, 27P-11, 27P-14, and 27P-15 of the Boston Zoning Code is required within the meaning of Section 6 of Chapter 665 of the Acts of 1956. In addition, the Siting Board finds that, with the exception related to enforcement of Section XI-I (1 through 9) of the Stoughton Zoning By-laws during operation of the switching station, it is appropriate in this case to grant NSTAR's request for a comprehensive exemption from the operation of the Stoughton Zoning By-laws and the Boston Zoning Code generally in connection with the Company's use of the sites and the construction, operation and maintenance of the proposed transmission project.

1. G.L. c. 164, § 72

As stated above, in evaluating petitions filed pursuant to G.L. c. 164, § 72, the Department relies on the standard of review established for G.L. c. 40A, § 3 for determining whether the proposed project is reasonably necessary for the convenience or welfare of the public. Based on the record in this proceeding and the above analysis, and with the implementation of mitigation measures proposed by the Company and directed by the Siting Board, the Siting Board finds pursuant to G.L. c. 164, § 72, that the proposed transmission line and ancillary equipment are necessary for the purpose alleged, will serve the public convenience, and are consistent with the public interest.

The Siting Board directs NSTAR to serve a copy of this decision on the Town of Stoughton Board of Selectmen, the Town of Stoughton Planning Board, the Town of Stoughton Zoning Board of Appeals, the City of Boston City Council, the City of Boston Planning Board, and the City of Boston Zoning Board of Appeals within five business days of its issuance. The Siting Board further directs NSTAR to certify to the Secretary of the Department within ten business days of its issuance that such service has been made.

D. Section 61 Findings

The Massachusetts Environmental Policy Act ("MEPA") provides that "[a]ny determination made by an agency of the Commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been

taken to avoid or minimize said impact.” G.L. c. 30, § 61. Pursuant to 301 CMR § 11.01 (3), these findings are necessary when an Environmental Impact Report (“EIR”) is submitted by a petitioner to the Secretary of Environmental Affairs, and should be based on such EIR.

Where an EIR is not required, G.L. c. 30, § 61 findings are not necessary. 301 CMR § 11.01 (3). The record indicates that a single EIR was required for NSTAR’s proposed transmission project and ancillary facilities. Therefore, a finding under G.L. c. 30, § 61 is necessary for the Company’s Zoning Exemption Petition and its Section 72 Petition.

In Section III, above, the Siting Board conducted a comprehensive analysis of the environmental impacts of the proposed transmission project and found that the temporary and permanent impacts of the proposed transmission project along the primary route would be minimized and that the proposed project along the primary route would achieve an appropriate balance among conflicting environmental concerns as well as among environmental impacts, reliability, and cost. Accordingly, the Siting Board finds that all feasible measures have been taken to avoid or minimize the environmental impacts of the proposed facility.

V. DECISION

The Siting Board’s enabling statute directs the Siting Board to implement the energy policies contained in G.L. c. 164, §§ 69H to 69Q, to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G. L. c. 164, § 69H. In addition, the statute requires that the Siting Board determine whether plans for the construction of energy facilities are consistent with current health, environmental protection, and resource use and development policies as adopted by the Commonwealth. G. L. c. 164, § 69J.

In Section II.A, above, the Siting Board found that the existing electric transmission system is inadequate to reliably serve projected loads in the Greater Boston Area under certain contingencies, and thus that additional energy resources are needed for reliability in the Greater Boston Area.

In Section II.B, above, the Siting Board found that the proposed transmission project is preferable to both the 115 kV alternative and the bundled improvements alternative with respect to providing a reliable energy supply for the Commonwealth, with a minimum impact on the environment at the lowest possible cost.

In Section III.A, above, the Siting Board found that the Company has developed and applied a reasonable set of criteria for identifying and evaluating alternatives to the proposed project in a manner which ensures that it has not overlooked or eliminated any routes which are clearly superior to the proposed project. The Siting Board also found that the Company has identified a range of practical transmission line routes with some measure of geographic diversity. Consequently, the Siting Board found that NSTAR has demonstrated that it examined a reasonable range of practical siting alternatives.

In Section III.C, above, the Siting Board reviewed environmental impacts of the proposed transmission project in light of related regulatory or other programs of the Commonwealth, including programs related to wetlands, tidelands and waterways, coastal zone management, rare and endangered species, historic resources, climate protection, and the handling of hazardous materials. As evidenced by the above discussions and analyses, the proposed transmission line along the primary route would be generally consistent with the identified requirements of all such programs.

In Section III.C, the Siting Board found that, with the implementation of the proposed mitigation and conditions, and compliance with all applicable local, state and federal requirements, the temporary and permanent environmental impacts of the proposed transmission project along the primary route would be minimized. The Siting Board also found that the proposed project along the primary route would achieve an appropriate balance among conflicting environmental concerns as well as among environmental impacts, reliability, and cost.

In Section III.C, above, the Siting Board found that the proposed facilities along the primary route would be preferable to the proposed facilities along the alternative route and the hybrid route with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

Accordingly, the Siting Board APPROVES the Company's petition to construct a three-circuit 17.5 mile, 345-kilovolt underground electric transmission line in Stoughton, Canton, Milton and Boston, Massachusetts, using the Company's primary route with the use of American Legion Highway and Day Boulevard routing, and, if necessary, using the Glenway Street/Old Road variation and the variation crossing the shopping center parcel near the intersection of

Cummins Highway and American Legion Highway, subject to the following conditions:

- (A) To ensure that the traffic impacts of the proposed transmission project are minimized, the Siting Board directs NSTAR to submit the draft TMP to appropriate officials in the City of Boston, and the Towns of Stoughton, Canton, and Milton, to school administrators in each of these communities, and to the MHD and the MBTA, at least two months prior to the commencement of construction affecting these entities.
- (B) To ensure that the traffic impacts of the proposed transmission project are minimized, the Siting Board directs NSTAR, in consultation with the City of Boston and the Towns of Stoughton, Canton, and Milton, to develop a comprehensive outreach plan for the proposed project. The outreach plan should lay out the procedures to be used to notify the public about: the scheduled start, duration, and hours of construction in particular areas; the methods of construction that will be used in particular areas (including any use of nighttime construction); and anticipated street closures and detours. The outreach plan also should include information on complaint and response procedures, contact information, the availability of web-based project information, and protocols for notifying the MBTA and schools of upcoming construction.
- (C) To ensure that the noise impacts of the proposed transmission project are minimized, the Siting Board directs NSTAR to use portable noise barriers in nighttime periods to mitigate the noise impact of cable splicing wherever cable splicing operations are staged within 50 feet of a residential structure.
- (D) To ensure that the noise impacts of the proposed transmission project are minimized, the Siting Board directs NSTAR to develop a noise mitigation plan covering each residential area where nighttime construction would take place. In

developing the plans, NSTAR should work with appropriate officials to develop an initial noise mitigation plan, conduct public outreach in that area, and then, based on public input, develop a final noise mitigation plan in consultation with appropriate officials. The plans also should include a description of the Company's outreach plan. NSTAR shall provide copies of the final noise mitigation plans to the Siting Board for its information.

- (E) To ensure that the noise impacts of the proposed transmission project are minimized, the Siting Board directs NSTAR to develop construction outreach plans tailored to the neighborhoods surrounding the Hyde Park, Baker Street and K Street Substations, and the Route 138 switching station site, that provide the neighborhoods with regular updates on the timing and progress of work at these locations, provide advance notice when noisier activities are to be undertaken, and provide the neighborhoods with an opportunity to request changes in the scheduling of evening work activities if certain activities prove unduly burdensome.

- (F) To ensure that the noise impacts at the Hyde Park Substation of the proposed transmission project are minimized consistent with minimizing visual impacts, the Siting Board directs NSTAR to consult with the City of Boston and neighboring residents on its noise mitigation plan for the Hyde Park Substation and options to further reduce nighttime L_{90} increases from the project at residences east of the site, across Hyde Park Avenue. As part of this consultation, NSTAR shall develop a refined noise mitigation option based on the sound wall approach described in the record that would reduce nighttime L_{90} increases at residences east of the site to no greater than 3 dBA, while also minimizing the sound wall's visual impacts and providing the greatest possible implementation of the Company's proposed landscaping plan. In addition, NSTAR shall develop one or more additional noise mitigation options that entail less visual impact or interference with landscaping,

and shall provide information on the level of noise mitigation that could be achieved under these options. NSTAR shall consult with appropriate City of Boston officials and neighboring residents as to the relative desirability of the Company's proposed noise plan (which does not incorporate a sound wall) and the options for additional noise mitigation, and shall develop and implement a final noise mitigation plan based on these consultations. NSTAR shall report to the Siting Board on these consultations and on the opinions of the City of Boston and neighboring residents on its final noise mitigation plan for the Hyde Park Substation.

- (G) To ensure that the visual impacts of the proposed transmission project are minimized, the Siting Board directs NSTAR to develop and implement detailed landscape plans to screen the proposed switching station from residential and roadway locations on all sides, and to consult with the Town of Stoughton regarding the plans. To screen locations to the south and southeast, NSTAR shall consider, in consultation with affected landowners and the Town of Stoughton, use of plantings or other mitigation in off-site as well as on-site areas. NSTAR shall, if agreeable to the affected landowners or appropriate Town officials, include as part of its landscape plans plantings or other mitigation in off-site residential or roadway locations. To ensure a mix of plantings that provides some immediate screening in all directions, NSTAR shall offer the Town and affected landowners larger plantings in lieu of several smaller plantings at selected locations within the areas of vegetative screening planned in different directions from the site. NSTAR shall provide a copy of its final landscape plans to the Siting Board for its information.
- (H) To ensure that the visual impacts of the proposed transmission project are minimized, the Siting Board directs NSTAR to provide a border of 5- to 6-foot arborvitae and decorative brick pillar fencing for a total distance of approximately 100 to 125 feet along the southern border of the Hyde Park Substation site,

extending from Hyde Park Avenue to a point flush with the rear property line of the closest residence to the south of the site.

- (I) To ensure that the visual impacts of the proposed transmission project are minimized, the Siting Board directs NSTAR to provide plantings similar to those proposed for the Hyde Park Substation along those portions of the Baker Street fence line where there is no existing landscaping, and to supplement areas where there are existing deciduous trees with plantings and/or landscaping similar to those proposed for the Hyde Park Substation

- (J) To ensure that the hazardous waste impacts of the proposed transmission project are minimized, the Siting Board directs NSTAR to study participating in EPA's SF₆ Emission Reduction Partnership and, within six months of the date of the Final Decision in this matter, inform the Siting Board of the Company's decision to join the program or of its reasons for not doing so.

Because the issues addressed in this Decision relative to this facility are subject to change over time, construction of the proposed facility must commence within three years of the date of the decision.

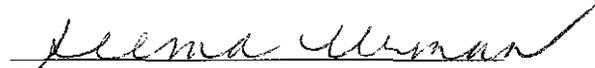
In addition, the Siting Board has found pursuant to G.L. c. 164, § 72 that NSTAR's proposed transmission line is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest.

In addition, the Siting Board has found pursuant to G.L. c. 40A, § 3 and Section 6 of Chapter 665 of the Acts of 1956 that construction and operation of the Company's proposed facility is reasonably necessary for the public convenience or welfare. Accordingly, the Siting Board GRANTS the Company's petition for an exemption from certain provisions of the Town of Stoughton Zoning By-laws. Specifically, the Company shall be exempt from those sections of the Town of Stoughton Zoning By-laws enumerated in Section IV, above, with the exception of Section XI-I(1-9) during operation of the proposed facility. The Siting Board further GRANTS,

with the exception of Section XI-I (1-9) during operation of the proposed facility, the Company's petition for a comprehensive exemption from the operation of the Town of Stoughton Zoning By-laws.

The Siting Board also GRANTS the Company's petition pursuant to Section 6 of Chapter 665 of the Acts of 1956 for an exemption from certain provisions of the City of Boston Zoning Code. Specifically, the Company shall be exempt from those sections of the City of Boston Zoning Code enumerated in Section IV, above. The Siting Board further grants the Company's petition for a comprehensive exemption from the operation of the Boston Zoning Code.

The Siting Board notes that the findings in this decision are based on the record in this case. A project proponent has an absolute obligation to construct and operate its facility in conformance with all aspects of its proposal as presented to the Siting Board. Therefore, the Siting Board requires the Company to notify the Siting Board of any changes other than minor variations to the proposal so that the Siting Board may decide whether to inquire further into a particular issue. The Company is obligated to provide the Siting Board with sufficient information on changes to the proposed project to enable the Siting Board to make these determinations.


Selma Urman
Presiding Officer

Dated this 14th day of January, 2005.

APPROVED by the Energy Facilities Siting Board at its meeting of January 13, 2005, by the members and designees present and voting: Paul G. Afonso (Chairman, DTE/EFSB), W. Robert Keating (Commissioner, DTE); Robert Sydney (for David L. O'Connor, Commissioner, Division of Energy Resources); Stephen R. Pritchard (for Ellen Roy Herzfelder, Secretary of Environmental Affairs); Judith F. Judson (Commissioner, DTE) and Deborah Shufrin (for Ranch Kimball, Secretary of Economic Development).

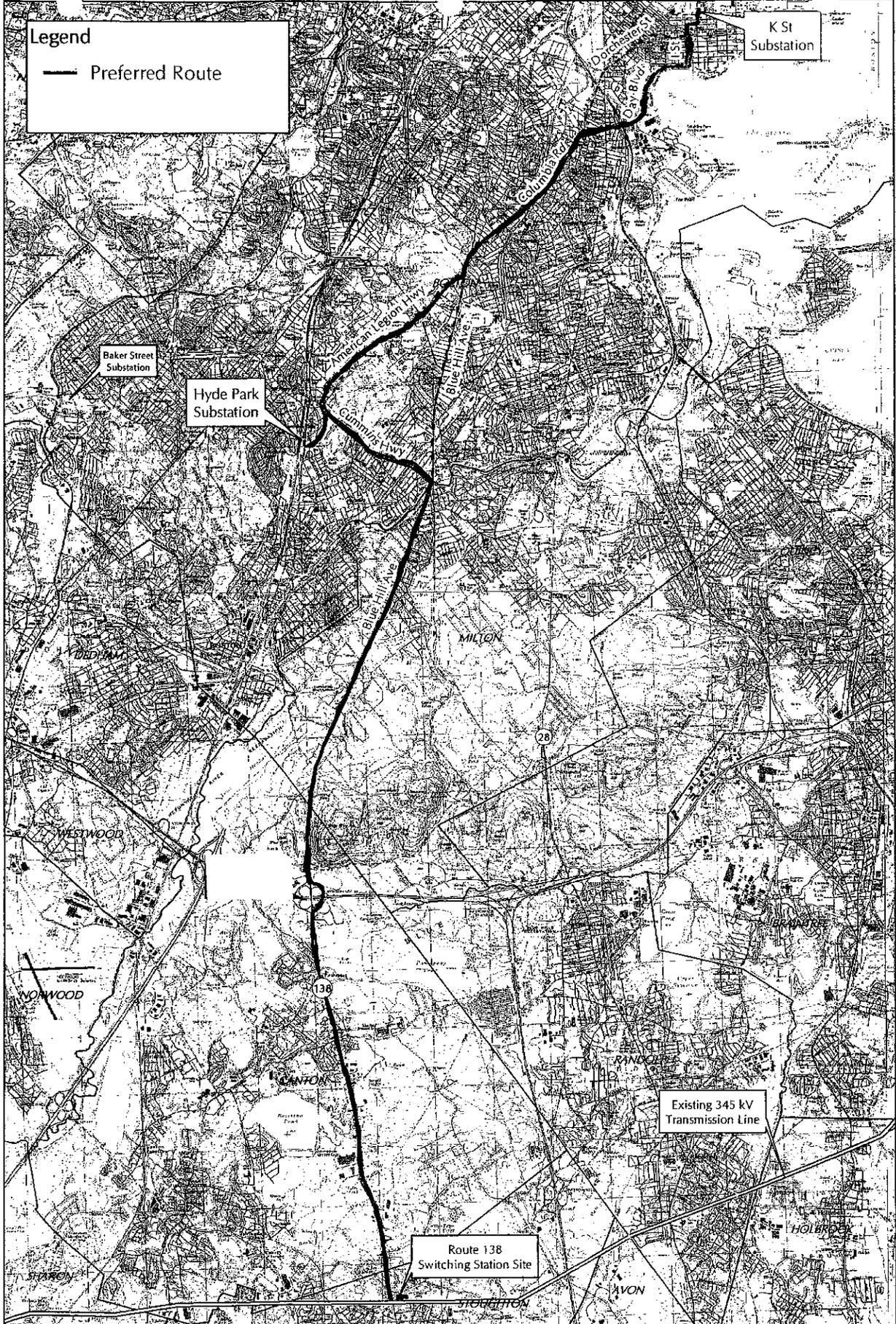


Paul G. Afonso, Chairman
Energy Facilities Siting Board

Dated this 13th day of January, 2005.

Appeal as to matters of law from any final decision, order or ruling of the Siting Board may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the order of the Siting Board be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Siting Board within twenty days after the date of service of the decision, order or ruling of the Siting Board, or within such further time as the Siting Board may allow upon request filed prior to the expiration of the twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the clerk of said court. (Massachusetts General Laws, Chapter 25, Sec. 5; Chapter 164, Sec. 69P).



Legend
 — Preferred Route

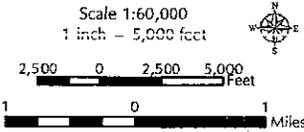
K St Substation

Baker Street Substation

Hyde Park Substation

Existing 345 kV Transmission Line

Route 138 Switching Station Site



Preferred Route

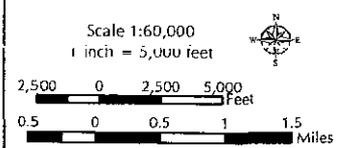
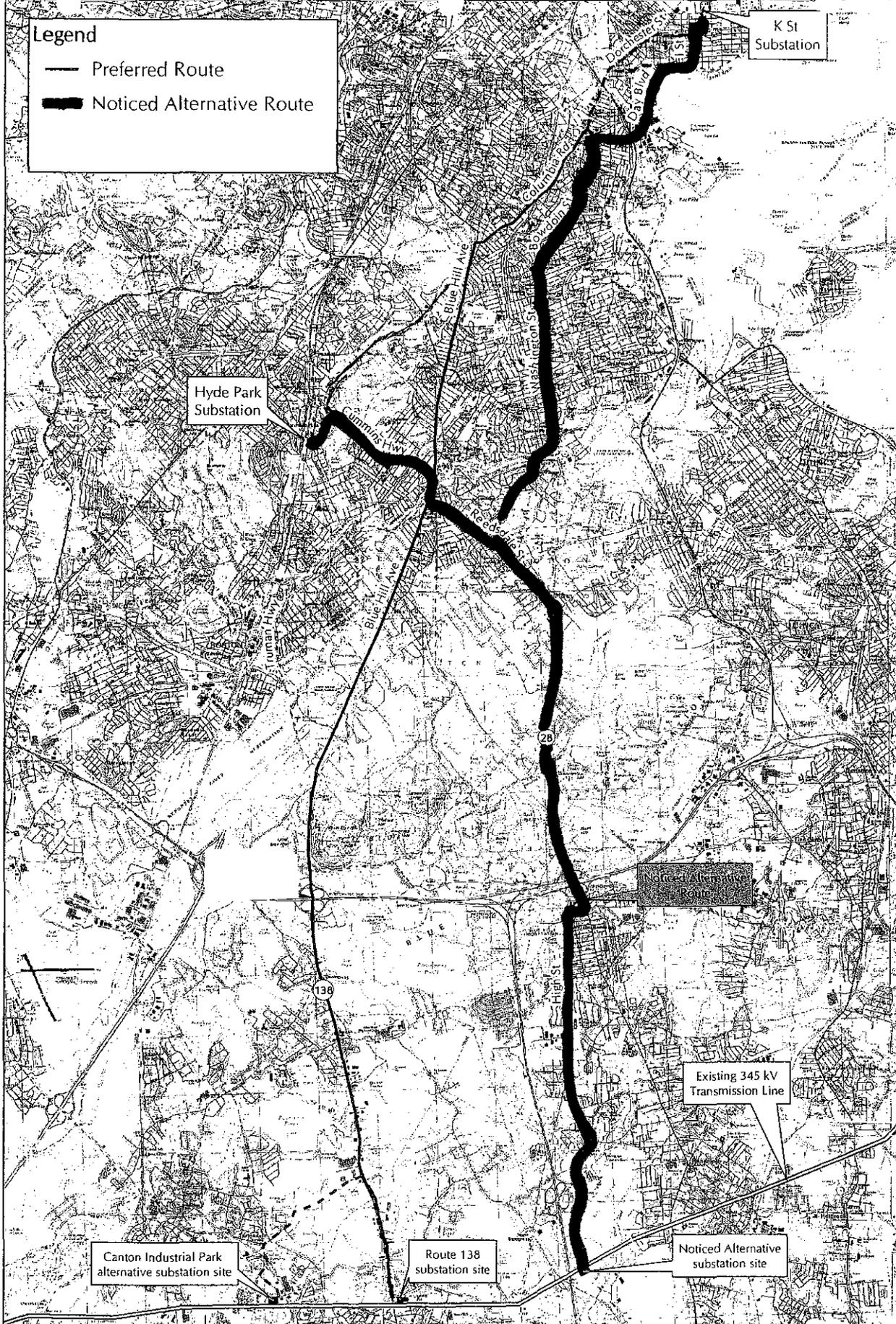


NSTAR Electric 345 kV Transmission Reliability Project



Legend

- Preferred Route
- █ Noticed Alternative Route



Preferred Route and Noticed Alternative Route

NSTAR Electric 345 kV Transmission Reliability Project



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