COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

In the Matter of the Petition of The Berkshire Gas Company for Approval to Construct Natural Gas Distribution Lines in Northampton and Hatfield, Massachusetts	)	EFSB 05-1

FINAL DECISION

Selma Urman
Presiding Officer
January 13, 2006

On the Decision:
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John Young

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FOR: The Berkshire Gas Company
Petitioner

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FIGURE 1: Map of Primary and Alternative Routes

LIST OF ABBREVIATIONS

Berkshire	The Berkshire Gas Company
1999 Berkshire Gas Decision	Berkshire Gas Company, 9 DOMSB 1 (1999)
1998 Cabot Power Decision	Cabot Power Corporation, 7 DOMSB 233 (1998)
CELCo Decision	Cambridge Electric Light Company, 12 DOMSB 305 (2001)
ComElec Decision	Commonwealth Electric Company, 5 DOMSB 273 (1997)
Company	The Berkshire Gas Company
dBA	decibels, A-weighted
degree days	heating degree-days
Department	Massachusetts Department of Telecommunications and Energy
DPW	Department(s) of Public Works
Dth	dekatherms
2002 F&SP	Berkshire's March 15, 2002 Forecast and Supply Plan, approved by the Department in February 2003
2005 F&SP	Berkshire's January 31, 2005 Forecast and Supply Plan
EFSB	Massachusetts Energy Facilities Siting Board
G.L.	General Laws (of Massachusetts)
HDD	Horizontal directional drilling
I-91	Interstate Route 91
2003 KeySpan Decision	Colonial Gas Company d/b/a KeySpan Energy Delivery New England, 14 DOMSB 49 (2003)
Laurel Compressor	Laurel compressor station in Northampton
LNG	liquified natural gas

MAOP	Maximum Allowable Operating Pressure
Mcfh	thousand cubic feet per hour
MDQ	maximum daily quantity
MECo/NEPCo Decision	Massachusetts Electric Company and New England Power Company, 18 DOMSC 383 (1989)
MHC	Massachusetts Historical Commission
MHD	Massachusetts Highway Department
MMWEC Decision	Massachusetts Municipal Wholesale Electric Company, 12 DOMSB 18 (2001)
1998 NEPCo Decision	New England Power Company, 7 DOMSB 339, at 357 (1998)
NHESP	Massachusetts Natural Heritage and Endangered Species Program
NPV	net present value
2005 NSTAR Electric Decision	Boston Edison Company, d/b/a NSTAR Electric, 14 DOMSB 233 (2005)
2001 NSTAR Gas Decision	NSTAR Gas Company, 13 DOMSB 143 (2001)
propane air	a mixture of propane and air
psig	pounds per square inch, gauge
ROW	right-of-way
pipeline-with-load-management alternative	serve UMass with pipeline gas to 51 degree days
Siting Board	Massachusetts Energy Facilities Siting Board
Tennessee	Tennessee Gas Pipeline Company
total pipeline alternative	serve UMass with pipeline gas to 76 degree days
UMass	University of Massachusetts at Amherst

The Energy Facilities Siting Board hereby APPROVES, with conditions, the petition of The Berkshire Gas Company to construct new natural gas pipeline facilities approximately 3.6 miles in length in the City of Northampton and the Town of Hatfield, Massachusetts.

I. INTRODUCTION

A. Summary of the Proposed Project

The Berkshire Gas Company ("Berkshire" or the "Company") is a local gas distribution company that provides natural gas service to customers in twenty communities in western Massachusetts (Exh. BGC-1 at 2-1 and Att. 2A; EFSB-N-1, Att. at 5). These communities are served by three separate divisions of Berkshire's distribution system, the Greenfield, Pittsfield and North Adams Divisions (Exh. BGC-1 at 2-1 and Att. 2A). The Company proposes to build 3.6 miles of 12-inch diameter pipeline ("proposed project" or "proposed pipeline") in Northampton and Hatfield to accommodate a substantial anticipated incremental demand in connection with a planned new heating plant at the University of Massachusetts at Amherst ("UMass") while maintaining adequate distribution system pressures (id. at 1-1, 1-2, 3-1; Exh. EFSB-G-4).[1]

For most of its route, the proposed pipeline would follow existing 6-inch distribution lines (Exh. BGC-1 at Att. 1-A). The proposed pipeline would begin at the Company's existing pipeline at the intersection of the Northampton Bike Path and Hatfield Street in Northampton and proceed northeasterly along Hatfield Street to the intersection with North King Street, and then proceed north along North King Street to the intersection with Hatfield Road (Exh. EFSB-G-1). The new pipeline would then proceed northeasterly under Interstate Route I-91 ("I-91") and the Springfield Terminal Railway and into Hatfield (id.). In Hatfield, the pipeline would proceed northeasterly along Elm Court to the intersection with Elm Street and then east on Elm Street to the intersection with Prospect Street where the new pipeline would connect with an existing Company pipeline (id.). The proposed pipeline would have a Maximum Allowable Operating Pressure ("MAOP") of 200 pounds per square inch, gauge ("psig") (Exh. EFSB-G-3).

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[1] Berkshire stated that it would also install a 2600-foot service line within the UMass campus to serve the new load at UMass (Exh. EFSB-G-3).

B. Procedural History

On April 11, 2005, Berkshire filed with the Energy Facilities Siting Board ("Siting Board") its petition to construct the proposed project. The Siting Board docketed the matter as EFSB 05-1.

On April 27, 2005, the Presiding Officer directed the Company to supplement its initial petition with an analysis of the environmental impacts of the proposed project and a description of any proposed mitigation to address these impacts (April 27 Siting Board Letter to Company at 1-2). On May 4, 2005, the Company submitted the requested information.

In accordance with the direction of the Presiding Officer, Berkshire provided Notice of Public Comment Hearing and Adjudication. On June 7, 2005, the Siting Board conducted a public comment hearing in Northampton regarding the proposed project. The Siting Board received no petitions to intervene or participate in the proceeding.

The Siting Board conducted two days of evidentiary hearings in this proceeding on September 20 and 21, 2005. Berkshire presented the testimony of three witnesses: Richard E. Nasman, Director of Operations for Berkshire; David M. Grande, Manager of Operations for Berkshire; and André L. Gonthier, Manager of Civil Engineering and Permits/Project Manager for Northstar Industries, Inc.

The Presiding Officer entered approximately 130 exhibits into the record consisting primarily of information request responses and record request responses. On October 17, 2005, the Company submitted a brief.

C. Jurisdiction and Scope of Review

Berkshire 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, Berkshire'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 pipelines in the Commonwealth to meet reliability, economic efficiency, or environmental objectives. See Colonial Gas Company, d/b/a KeySpan Energy Delivery New England, 14 DOMSB 49, at 58 (2003) ("2003 KeySpan Decision"); NSTAR Gas Company, 13 DOMSB

143, at 153 (2001) ("2001 NSTAR Gas 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,[2] 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 (Boston Gas Company, 17 DOMSC 155 (1988)) and to transport natural gas to generating facilities. See 2001 NSTAR Gas Decision, 13 DOMSB at 149; Berkshire Gas Company (Phase II), 20 DOMSC 109 (1990); Bay State Gas Company, 21 DOMSC 1 (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

Berkshire indicated that its Greenfield Division provides natural gas to 8500 customers located in Greenfield, Montague, Deerfield, Sunderland, Whately, Hatfield, Hadley, and Amherst (Exh. BGC-1, at 2-1, Att. 2-A). Berkshire receives natural gas at the Northampton Gate Station in Northampton, supplied from the Northampton Lateral in the Tennessee Gas Pipeline Company ("Tennessee") system (id.). The Northampton Lateral also provides service to Bay State Gas Company, Westfield Gas & Electric Light Department, and Holyoke Gas & Electric Department (id. at 2-1). The Greenfield Division is also supplied with liquified natural gas ("LNG") that is injected at Berkshire's Whately LNG Facility (Exh. BGC-1, at 2-2). The Greenfield Division distribution system operates at pressures up to its MAOP of 200 psig (id.; Tr. 1, at 14).

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[2] 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 and reserve requirements. 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).

The Greenfield Division is served by the Greenfield Feedline, which originates at the Northampton Gate Station and proceeds north approximately 22 miles to Greenfield, and by the Amherst Feedline, which branches off the Greenfield Feedline to serve the Amherst area (Exh. BGC-1, at 2-1, 2-2). The Greenfield Feedline consists of 6-inch diameter pipe for its full length, together with 8-inch or 12-inch loop pipeline paralleling three miles northward from the Northampton Gate Station and also one mile northward from the Laurel Compressor (id. at 2-1, Att. 3-A). The Laurel Compressor (a.k.a. the Northampton compressor station) is located five miles north of the Northampton Gate Station (id. at 2-2).

Berkshire stated that Tennessee is obligated to provide gas to Berkshire at a minimum pressure of 100 psig at the Northampton Gate Station, and in amounts up to Berkshire's contractual delivery limitation or maximum daily quantity ("MDQ") of 12,380 dekatherms ("Dth") (Exh. BGC-1, at 2-1; Exh. EFSB-G-10). The Company stated that Tennessee's Northampton Lateral is currently operating at full capacity (Exh. BGC-1, at 2-1).[3] The pressure at the outlet of the Northampton Gate Station is normally maintained at 200 psig, which is the MAOP of the Greenfield Feedline (Exh. EFSB-RR-1; Tr. 1, at 14). The Company stated that the pressure of the gas at the point it is received from Tennessee depends on the amount of gas drawn from the Northampton Lateral by Berkshire, the Bay State Gas Company, the Westfield Gas & Electric Light Department, and the Holyoke Gas and Electric Department; weather-dependent demand elsewhere in Tennessee's Zone 6; injections of LNG into pipelines; and operation of compressors on the Tennessee system (Tr. 1, at 18-20).

Occasionally (for example, four times in 2003/2004 and eight times in 2004/2005), the pressure at the Northampton Gate Station drops below 200 psig; pressures as low as 180 psig have been experienced on the upstream side of the Northampton Gate Station (Exhs. EFSB-G-10; EFSB-RR-1; Tr. 1, at 14). Berkshire can, if necessary, help maintain 200 psig at the Northampton Gate Station by supplying additional gas to its system from its Whately LNG facility (Tr. 1, at 21-23). The Company also maintains and operates the Laurel Compressor which, when in operation, pushes approximately 425 to 500 thousand cubic feet of

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[3] The Company noted that additional gas capacity on Tennessee facilities would be needed to support an increase in Berkshire's MDQ (Exh. BGC-1, at 2-1, Att. 2-D).

gas per hour ("Mcfh") northward to maintain system pressures at the ends of the system (id. at 2-2; Exh. EFSB-N-2). At the Whately LNG facility, located seven miles north of the Laurel Compressor, the Company can inject gas at up to 650 Mcfh, but stated that injection can be less economical than operating the Laurel Compressor (id.; Exh. BGC-1, at 2-2). The Whately LNG facility has two 70,000-gallon storage tanks, with space for the anticipated installation of three additional tanks (Exh. BGC-1, at 1-3).[4]

Just downstream of the Laurel Compressor, five miles north of the Northampton Gate Station, the 6-inch diameter Amherst Feedline branches off the Greenfield Feedline and proceeds easterly approximately seven miles into the Amherst area (Exhs. BGC-1, at 2-1, Att. 3-A; EFSB-G-12(a), Att.). The Company stated that in order to supply its customers via lower pressure distribution pipelines served by the Greenfield Feedline and the Amherst Feedline, the Company needs to maintain pressures of at least 100 psig at the intakes to its regulator stations located at the extremities of its 200 psig system (Exh. BGC-1, at 2-3).

The Company explained that when gas flowing from the Northampton Gate Station is insufficient alone to maintain sufficient pressures on the system, Berkshire first starts operating the Laurel Compressor because it is the next least cost resource (Exh. EFSB-N-2). The Whately LNG Facility is operated when operation of the Laurel Compressor is insufficient to maintain pressures, when the Laurel Compressor is not available, or when there is a low inlet pressure at the Northampton Gate Station (id.). In addition, the Company stated that it has existing load management rights by which it can reduce supplies to UMass for up to 15 days a year, which provides Berkshire with a measure of load management flexibility which it can use to manage system operation (id.; Exh. BGC-1, at 4-4).

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[4] Pursuant to EFSB 99-2, construction of any of the three additional tanks would require Siting Board approval. Since more than three years have elapsed since issuance of that Decision, the Company would have to file with the Siting Board updated plans for minimizing the environmental impacts, given any changes in applicable environmental laws and regulations, any changes in the site or in surrounding land uses, and any changes in the expected timing and frequency of use of the facilities. 1999 Berkshire Gas Decision, 9 DOMSB 1 at 83.

3. Need for Additional Pipeline Capacity

a. Description

Berkshire modeled the capability of its Greenfield Division and determined that, without an additional energy resource, it would be unable to maintain adequate system pressures with the planned addition of load for the new heating plant at UMass (Exhs. BGC-1, at 3-9; EFSB-PA-8, Table PA-2). The Company stated that the UMass heating plant is scheduled to come on-line in February 2008, but UMass has contracted with Berkshire for a tripling of its gas service by September 2006 (Exhs. EFSB-G-9; EFSB-N-3). To document the requirements of its Greenfield Division customers, Berkshire provided a copy of its most recently approved forecast, prepared March 15, 2002, and approved by the Department of Telecommunications and Energy ("Department") in February 2003, entitled "Forecast and Supply Plan" ("2002 F&SP"), and a copy of its forecast submitted to the Department on January 31, 2005 ("2005 F&SP") (Exhs. EFSB-N-1; EFSB-N-1, Att.(a); EFSB-N-1, Att.(b)).[5] The proposed project is anticipated in both the 2002 F&SP and the 2005 F&SP (Exhs. EFSB-N-1(a), Att. at 9 and Table G21; EFSB-N-1(b), Att. at 8 and Table G21).

In 2002, Berkshire projected that the total annual Company firm throughput, for twenty communities in its overall service territory, would increase at a rate of approximately 1.5% per year between 2002 and 2006 (Exh. EFSB-N-1(a), Att. at 5, 13). In 2005, Berkshire projected that the total annual Company firm throughput would increase by a total of 6.7% between 2004 and 2009, an average of 1.3% per year (Exh. EFSB-N-1(b), Att. at 12). Berkshire asserted that its resource plans provide for reliable service for its expected design day of 75 heating degree-days ("degree days"),[6] as well as seasonal, cold snap, and annual loads (id. at 3; Exh. EFSB-N-1(a), Att. at 4, 57; Tr. 1, at 56). Load estimates in the resource plans are not broken out for the

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[5] A review of the Company's 2005 F&SP, which has been docketed as D.T.E. 05-7, is pending before the Department.

[6] In its 2005 F&SP modeling, the Company began using effective degree days, an indicator that incorporates a measurement of wind velocity (EFSB-RR-3, Att. at 3; EFSB-RR-5; Tr. 1, at 64). However, the Company evaluated the need for the project using the older heating degree-day metric (Tr. 1, at 72).

Greenfield Division (Tr. 1, at 54).

The planned UMass heating plant will be able to switch from gas to alternative fuel (Exh. BGC-1, at 3-2 n.1).[7] However, for firm transportation, the planned UMass heating plant would require up to 215 Mcfh of gas at a pressure of 115 psig at the upstream side of the planned meter to the plant (Exhs. BGC-1, at 3-7, 4-8; EFSB-G-11). The Company stated that, under system peak load conditions, the existing gas supply system in the Greenfield Division would not be able to supply UMass with firm gas transportation while maintaining full service for its existing customers (Exh. BGC-1, at 3-6 to 3-8). Specifically, Berkshire explained that it could not deliver 215 Mcfh of gas to UMass with its existing facilities, and still maintain a minimum of 100 psig at all points of intake to the distribution system from the Greenfield Feedline (id.). This conclusion was based on modeling gas flow in the Greenfield Division under conditions of peak day 2005/2006 sendout for 76 degree days,[8] receipt of gas at 185 psig at Northampton Gate Station, and demand for 215 Mcfh of gas at UMass (id. at 3-7, 3-8, Att. 3-B). The Company modeled future system performance based on an assumption that future peak load in the Greenfield Division would grow by 1.75% annually (id. at Atts. 4-B-1 to 4-B-4).

The Company did not indicate the range of climate conditions below its peak level of 76 degree days for which it would be unable to meet 2005/06 sendout based on its modeling with the increased UMass load. However, the Company indicated that its modeling showed that by 2016, the existing system would be inadequate for the sendout requirements under weather conditions ranging from 51 to 76 degree days (Exh. EFSB-PA-8).

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[7] As described in Section III.B, below, during contract negotiations Berkshire and UMass evaluated curtailment of service to UMass during peak periods, specifically those periods when conditions are more severe than 51 degree days.

[8] The Company modeled future system performance under 76 degree day conditions (i.e., more conservatively than under the 75 degree days conditions used in the 2002 F&SP) because of observed 76 degree day conditions in a recent year (Exh. EFSB-RR-5).

b. 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. 2003 KeySpan Decision, 14 DOMSB 49, at 65; 2001 NSTAR Gas Decision, 13 DOMSB 143, at 158; MECo/NEPCo, 18 DOMSC at 396-403.

Here, Berkshire has proposed to increase system capacity by installing a pipeline parallel to existing facilities in order to transport additional gas to a new heating plant at UMass, while providing reliable service to its other customers. The record shows that Berkshire uses the Greenfield and Amherst Feedlines, the Laurel Compressor, and the Whately LNG facility in combination to deliver gas to customers in eight towns north and east of Northampton, including UMass.

To demonstrate need, the Company modeled peak hour gas flow and delivery pressures through its system, assuming that no additional capacity is added. The Company's modeling demonstrates that, without changes to the existing supply system, the system would be unable to deliver 215 Mcfh of gas at UMass under conditions of peak day 2005/2006 demand. The record thus indicates that the system is not currently capable of supplying UMass with the requested volumes of gas while maintaining adequate pressure for existing customers in the Greenfield Division. The record further indicates that by 2016, the existing system would be unable to deliver 215 Mcfh of gas at UMass for a significant range of peak and near-peak conditions, from 51 degree days to 76 degree days.

Based on model results for the Greenfield Division, the Company has established that its existing system is inadequate to serve its anticipated load at UMass with acceptable reliability. Consequently, the Siting Board finds that there is a need for additional energy resources in the Company's Greenfield Division.

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. Berkshire 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 the Company's most recently approved long-range forecast.

As noted above, Berkshire's 2002 F&SP was approved by the Department in February 2003 (Exh. EFSB-N-1). See The Berkshire Gas Company, D.T.E 02-17 (2002) (Exh. EFSB-N-1(a)). The Company provided a copy of its 2002 F&SP, including load projections for the period 2001/2002 to 2005/2006, and a copy of its 2005 F&SP, including load projections for the period 2004/2005 to 2008/2009 (Exhs. EFSB-N-1(a); EFSB-N-1(b)). In the 2002 F&SP, Berkshire projected that growth in normalized system-wide firm throughput would average 1.5% per year between 2002 and 2006 (Exh. EFSB-N-1(a) at 13; Tr. 1, at 76). In the 2002 F&SP, the Company explained that it used an econometric model, as well as eight years of historical data, to forecast total annual system-wide firm throughput (Exh. EFSB-N-1(a) at 13). In evaluating throughput specifically on the Greenfield Division, which accounts for approximately 25% of total throughput for the Company, the Company described growth of throughput in its Pittsfield and North Adams Divisions as insignificant (Tr. 1, at 76-77). Conversely, the Company indicated that its Greenfield Division experiences more growth than the Company-wide average, and concluded that an annual growth rate of 1.75% would be more representative of future growth in the Greenfield Division than a rate of 1.5%, which was a system-wide projection (id. at 76-80).

In prior cases where the need for a facility has been premised on an electric or gas company's need to serve load in a localized area, the Siting Board has found the facility to be consistent with a previously approved forecast either if the need for the facility was established in that forecast, or if the localized forecast upon which a showing of need was based was methodologically consistent with that forecast. See 2001 NSTAR Gas Decision, 13 DOMSB

143, at 161; Cambridge Electric Light Company, 12 DOMSB 305, at 320 (2001) ("CELCo Decision"); Norwood Municipal Light Department, 5 DOMSB 109, at 127 (1997).

Another class of projects, not clearly anticipated by statute, are those projects designed to serve a specific customer or set of customers, rather than to serve load in a specific section of a company's service territory. While the need for such projects generally is unrelated to the issues typically addressed in a long-range forecast, the choice of project approach may affect, either positively or negatively, a company's ability to reliably meet load requirements in the remainder of its service territory. See 2001 NSTAR Gas Decision, 13 DOMSB 143, at 161.

The Siting Board acknowledges that electric and gas companies may receive requests to serve major new loads, including new generation, at any time during the forecast cycle, and that companies should respond to such requests in a timely fashion, using the best information available at the time of the request. Therefore, when considering a proposed facility designed to serve new generation, the Siting Board will consider the facility to be consistent with a long-range forecast if any issues related to the project's effect on the company's ability to serve load in its service territory are addressed using a forecast that is methodologically consistent with its most recently approved forecast. See 2001 NSTAR Gas Decision, 13 DOMSB 143, at 161; CELCo Decision, 12 DOMSB 305, at 320.

Here, Berkshire has performed a system analysis in order to assess the need for additional energy resources to meet UMass' request for an enhanced gas supply to its new heating plant, using load projections from a Company forecast. The Company also used the system analysis to evaluate various approaches to providing this enhanced gas supply, in light of their effect on the Company's ability to reliably serve its customers in the Greenfield Division (see Section II.B, below).

With respect to forecast consistency, Berkshire has provided information about the following: the methods and results of its most recently approved long-range forecast and its most recently submitted long-range forecast; and an explanation of how its system forecasts are used to derive Greenfield Division throughput. The record indicates that growth is near zero on three-quarters of the Berkshire system. It would therefore be expected that growth on the Greenfield Division would be well above 1.5%, if the observed trend of near zero growth in the

remainder of the Berkshire system is correct. Berkshire's estimate of 1.75% per year increase in the Greenfield Division appears to conservatively reflect higher growth in that portion of its territory. Therefore, the Company has established that it reasonably adjusted its approved forecast for its entire service territory to more accurately represent expected throughput in the Greenfield Division. The Company's modeling of throughput in the Greenfield Division is methodologically consistent with the most recently approved 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. G.L. c. 164, § 69H. 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.[9] G.L. c. 164, § 69J.

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. Boston Edison Company d/b/a NSTAR Electric, 14 DOMSB 233, at 266 (2005) ("2005 NSTAR Electric Decision"); 2003 KeySpan Decision, 14 DOMSB 49, at 69; 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.

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[9] G.L. c. 164, § 69J, also requires an applicant to provide a description of "other site locations." G.L. c. 164, § 69J. The Siting Board reviews the applicant's preferred route, as well as other possible routes, in Section III.B, below.

2005 NSTAR Electric Decision, 14 DOMSB 233, at 266; 2003 KeySpan Decision, 14 DOMSB 49, at 69; MECo/NEPCo Decision, 18 DOMSC at 404-405.

2. Identification of Project Approaches for Analysis

Berkshire evaluated six project approaches for analysis: (1) additional conservation programs; (2) additional load management programs; (3) expansion or construction of additional LNG facilities; (4) construction of new propane air facilities and related distribution facilities; (5) construction of additional distribution pipeline, combined with the acquisition of additional upstream capacity and expansion of the capacity of the Northampton Gate Station; and (6) construction of additional distribution pipeline without acquisition of additional upstream capacity (Exh. BGC-1, at 4-1).[10, 11] The Company explained that it used an iterative process involving substantial consultation with UMass to identify specific alternatives and select a project approach (id. at 4-2).

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[10] Besides the six project approaches listed here, the Company also considered providing service from Palmer, where Bay State Gas Company has service, or from Ludlow, where Massachusetts Municipal Wholesale Electric Company has service (Exh. EFSB-PA-6). The Company indicated that these locations are at least 16 miles from UMass and that the construction costs and environmental disturbance would be concomitantly increased with the longer construction distance (id.). The Company stated that these options had no complementary benefits and that neither was an economical or environmentally superior alternative (id.).

[11] With respect to installation of additional distribution pipeline, the Company evaluated constructing new pipeline only on the Amherst Feedline (Exh. EFSB-PA-8). This was evaluated at the request of Siting Board staff because the record shows that the bottleneck in moving gas to UMass is downstream of the Laurel Compressor. Specifically, under existing peak day conditions, the Company's modeling showed a pressure drop of only 5 psig between the Northampton Gate Station and the downstream side of the Laurel Compressor (185 psig to 180 psig), but 40 psig from that location to the Amherst area (180 psig to 140 psig) (Exh. BGC-1 at Att. 3-A). The Company therefore evaluated constructing loop pipeline starting at the beginning of the Amherst Feedline near the Laurel Compressor and extending eastward (Exhs. EFSB-PA-8, EFSB-PA-8(b), runs 3 & 8; EFSB-PA-8(e)). The Company stated that such an approach likely would provide sufficient gas to UMass (Exh. EFSB-PA-8). However, the Company indicated that this approach would cause the planned UMass heating plant to rely more heavily on LNG from Whately, and would therefore be relatively expensive over the long term (id.).

a. Additional Conservation Programs

As previously noted, Berkshire would have to supply 215 Mcfh to meet the anticipated load of UMass. This amount would be in addition to a 2005/2006 peak day Greenfield Division throughput estimate of 727 Mcfh (Exh. BGC-1 at Att. 3-A). Berkshire asserted that its historical aggressive performance in promoting conservation programs results in an ability to conserve only a negligible amount of gas, compared to the anticipated UMass load, such that any conservation efforts would be ineffective (Tr. 1, at 89). Therefore, according to the Company, there would not be sufficient conservation potential within the Greenfield Division to meet the identified need (id. at 89-91; Exh. BGC-1, at 4-3).

b. Additional Load Management Programs

The Company stated that there is not sufficient load management potential within the Greenfield Division to meet the identified need, on a stand-alone basis (Exh. BGC-1, at 4-4; Tr. 1, at 89-90). The Company indicated that it had approximately zero percent ability to use load management to obtain resources, since it has no dual-fuel customers in the Greenfield Division (aside from UMass) (Tr. 1, at 89-90). The Company noted that load management might be combined with other alternatives to meet the identified need (Exh. BGC-1, at 4-4) (see, e.g., Section II.B.2.f, below).

c. Installation of Additional LNG Facilities

The Company evaluated the efficacy of adding three additional LNG tanks to its system in 2006. This approach would allow the Company to maintain three days of gas storage while trucking in LNG to supply additional gas to UMass (Exh. BGC-1, at 4-6). The Company indicated that, under this alternative, it has three possible options. Under the first option, the three tanks would be installed in Whately, thereby immediately completing the long-term planned layout at the Whately LNG facility; the Company would also need to construct 29,500 feet of 12-inch gas pipeline to deliver gas to the planned UMass heating plant (id.). This approach would increase costs for UMass by increasing the amount of LNG in the mix used by the planned UMass heating plant, creating a net present value ("NPV") cost of approximately

$30.2 million over 20 years for a project sized to provide gas 365 days per year to the planned UMass heating plant (id. at 4-7, 4-13). A second, less ambitious option would provide gas to the planned UMass heating plant 360 days per year; it would involve installation of the three LNG tanks and construction of 26,500 feet of 12-inch gas pipeline; it would cost $27.4 million over 20 years (id. at 4-7 n.3, 4-13). The third option would involve adding new LNG storage and vaporization in Hadley, instead of adding storage in Whately. According to the Company, this third option would be more costly, with an NPV cost of approximately $36.8 million, and would have more permanent environmental impacts (id. at 4-7; Exh. EFSB-PA-8).

d. Construction of Propane Air Facilities

The Company evaluated the feasibility of installing a facility that would inject a mixture of propane and air ("propane air") into the distribution system (Exh. BGC-1, at 4-4). The Company indicated that propane air injection rates are limited by the need to mix the propane air with natural gas in the pipeline (id. at 4-5). Berkshire indicated that adding propane air facilities would be possible and that it would be feasible to truck in the necessary fuel (id.). However, solving various engineering difficulties would be relatively expensive (id.). The Company indicated that, to achieve an acceptable mixture of fuels, the propane air facilities would have to be placed upstream of the Northampton Gate Station (id.). Also, mechanical systems at the planned UMass heating plant would need to be redesigned and UMass' construction costs would be substantially increased (id.). Because the propane air would need to be injected near the upstream end of the Greenfield Feedline, the Company stated that the propane air alternative would not meet the identified requirements of the planned UMass heating plant (id. at 4-6).

e. Pipeline Construction with Upstream Capacity Increases

The Company evaluated an approach to supplying additional gas to UMass by adding 5160 Dth to its contracted MDQ from Tennessee and installing approximately 26,500 feet of looping pipeline along the Greenfield and Amherst Feedlines from Northampton into Hadley ("total pipeline alternative") (Exh. BGC-1, at 4-9 and Att. 4-B-3). This alternative would also involve upgrading the Northampton Gate Station to transfer additional gas (id. at Att. 4-B-3).

In addition, the Company stated that it likely would have to eventually add a total of three LNG tanks at Whately, one in each of the years 2012, 2018, and 2023 (id.). Berkshire stated that this alternative could meet the identified need using only pipeline gas (id. at 4-9). The NPV cost of this alternative, over 20 years, is approximately $26.1 million (id. at Att. 4-B-3).

f. Pipeline Construction with Load Management

The Company indicated that, subsequent to analyzing the total pipeline alternative, and in consultation with UMass, it evaluated the possibility of installing a portion of the additional pipeline in the total pipeline alternative together with implementing load management under an agreement with UMass ("pipeline-with-load-management alternative") (Exh. BGC-1, at 4-9). The pipeline-with-load-management alternative includes construction of the proposed pipeline, which is approximately 20,000 feet of looping 12-inch pipeline in Northampton and Hatfield (id. at 4-10). This alternative also includes reliance on a load management agreement allowing Berkshire to request that UMass stop taking gas on days colder than 51 degree days (id.). This alternative does not include increasing the MDQ from Tennessee (id.). The NPV cost of this alternative over 20 years is approximately $19.6 million, assuming that UMass uses LNG deliveries from Berkshire as its alternative fuel source (id. at 4-15).

g. Analysis

Berkshire has identified six general approaches to providing additional gas to the planned UMass heating plant. Two of these approaches focus on reducing system load; two turn first to trucking in additional fuel to add to the pipeline stream; and two deliver more gas by expanding the capacity to deliver pipeline gas.

The record indicates that the majority of customers in the Greenfield Division do not have ready access to alternate fuels to substitute for gas as an energy source. The record shows that the additional UMass load would be a proportionately large increase in Greenfield Division throughput. The record indicates that focusing on pursuing additional conservation programs or additional load management on a stand-alone basis would therefore not provide sufficient system

resources to deliver the required additional gas to the planned UMass heating plant. Therefore, the Siting Board concludes that approaches focused on reducing system load would not meet the identified need.

The record indicates that relying on an increase in use of LNG via additional LNG facilities to meet UMass requirements would be costly relative to alternatives relying on pipeline gas, based on estimated NPV costs ranging from $27.4 to $36.8 million for LNG-based alternatives compared to a range of $19.6 to $26.1 million for pipeline-based alternatives. The record indicates that mixing propane into the gas supply for the Greenfield Division would pose significant engineering difficulties and would also be relatively costly. Due to the higher costs of the propane air facilities and additional LNG facilities alternatives, the Siting Board concludes that project alternatives relying first on transporting of fuels by truck are expensive relative to project alternatives relying first on expanding the capacity to deliver pipeline gas.

The project approaches described above, which focus on reducing load and on trucking in fuel, are excluded due to infeasibility and high cost, respectively. The Siting Board therefore focuses its review on (1) the total pipeline alternative (pipeline construction with increased upstream capacity) and (2) the pipeline-with-load-management alternative (the proposed pipeline construction project combined with load management). In the following sections, the Siting Board compares the total pipeline alternative and the pipeline-with-load-management alternative with respect to performance, environmental impacts, and cost.

3. Reliability of Pipeline Alternatives

Berkshire indicated that the total pipeline alternative, which includes pipeline construction and increased upstream capacity, would meet the identified need (Exh. BGC-1, at 4-9). Assuming 200 psig delivery at the Northampton Gate Station during peak 76 degree day conditions in 2005/2006, the Company's model showed that the system would be able to deliver 215 Mcfh of gas to the planned UMass heating plant at 120 psig, while maintaining pressures above 100 psig elsewhere on the system (id. at 4-9, Att. 4-A-3). The Company indicated that later additions of LNG capacity included in the total pipeline alternative would be sufficient to meet need at least through 2015/2016 (id. at 4-9, Att. 4-B-3).

Berkshire indicated that, by reducing the physical requirement for gas at system peak load, the pipeline-with-load-management alternative would also provide adequate delivery capability through 2015/2016 (id. at 4-10, 4-11, Att. 4-A-5, Att. 4-A-6). Assuming 200 psig delivery at the Northampton Gate Station in 51 degree day conditions in 2015/2016, the Company's model showed that the system would be able to deliver 215 Mcfh of gas to the planned UMass heating plant at 115 psig, while maintaining pressures above 100 psig elsewhere on the system (id.). Gas flow to the planned UMass heating plant would be curtailed for several hours on days when weather conditions are more severe than 51 degree days (id. at 4-9, 4-10).

The Company pointed out that its existing Laurel Compressor Station is over 20 years old and potentially subject to breakdown; the facility has had mechanical problems and over the past few winters has occasionally been out of service awaiting repairs (Exhs. EFSB-PA-4; EFSB-PA-7). Therefore, the Company ran the modeling described above without assuming operation of the Laurel Compressor (Exh. BGC-1, at Atts. 4-A-1 to 4-A-6). While the Company could continue to run the compressor when relative prices of pipeline gas and LNG gas make it advantageous to do so, the modeling shows that the full pipeline alternative and the pipeline-with-load-management alternative would each maintain adequate system pressures even without use of the Laurel Compressor (id. at Atts. 4-A-3, 4-A-5, 4-A-6).

The record shows that Berkshire can reliably deliver gas to the planned UMass heating plant at a pressure of at least 115 psig, and to Berkshire's other customers at a pressure of at least 100 psig, under the arrangements for firm or interruptible transportation laid out for either pipeline-based alternative. The record also shows that under either alternative, Berkshire could continue to deliver gas at the indicated pressures even in the event of loss of the Laurel Compressor. Considering each within its own framework, the Siting Board finds that the total pipeline alternative and the pipeline-with-load-management alternative would be comparable with respect to reliability.

4. Environmental Impacts of Pipeline Alternatives

Berkshire indicated that pipeline construction would be the activity with the most significant environmental impacts under the two pipeline-based alternatives (Exh. BGC-1,

at 4-18).[12] Having considered residential and commercial abutters, trees, culverts, and adjacent wetlands, the Company asserted that the pipeline construction impacts would be consistent with impacts of its routine gas main construction practices (id.). The Company indicated that the pipeline-with-load-management alternative would involve a shorter length of pipeline construction, compared to the total pipeline alternative and that, unlike the total pipeline alternative, the pipeline-with-load-management alternative would not include any construction extending across or east of the Connecticut River into Hadley (id. at 4-9, 4-10, Att. 4-A-3, Att. 4-A-5; Exh. EFSB-G-12). On the basis of its shorter length, approximately 25% less than the total pipeline alternative, as well as avoidance of possible construction across the Connecticut River, the Siting Board finds that the pipeline-with-load-management alternative would be superior to the total pipeline alternative with respect to environmental impacts.

5. Cost of Pipeline Alternatives

Berkshire estimated that the NPV cost of the total pipeline alternative would be approximately $26.1 million over 20 years, including a cost of $5.9 million in 2006 for distribution pipeline construction, approximately $1.4 million added annual capacity charges for pipeline gas, and approximately $0.5 million annually for LNG charges (Exh. BGC-1, at Att. 4-B-3). The Company estimated that the NPV cost of the pipeline-with-load-management alternative would be approximately $19.6 million over 20 years if UMass chose to take delivery of LNG from Berkshire during peak periods not covered by its load management contract (id. at 4-15, Att. 4-B-4). This NPV cost incorporates a cost in 2006 of $4.5 million for distribution pipeline construction and annual costs of approximately $1.2 million for LNG charges (id. at Att. 4-B-4).

Berkshire stated, however, that UMass has indicated that when it is colder than the 51 degree day level, UMass would likely switch to its alternate fuel, rather than paying for LNG-based supply (Exh. BGC-1, at 4-15). Assuming no delivery of gas to UMass through the

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[12] The Siting Board notes that the two alternatives differ with respect to the amount of gas UMass would use in lieu of other fuels. However, environmental implications of varying fuel use by UMass have not been addressed as part of the analysis of the proposed project.

Whately LNG station, the Company stated that the NPV cost of the pipeline-with-load-management alternative would be approximately $6.2 million (id. at 4-15; Exh. EFSB-PA-11(b)). The Siting Board notes that there would be added cost to UMass for alternative fuel with implementation of the pipeline-with-load-management alternative, if it did not take LNG from Whately, and thus the $6.2 million gas supply cost is not strictly comparable to the costs of other alternatives.

The pipeline-with-load-management alternative is less ambitious than the total pipeline alternative, and does not attempt to provide gas to UMass when gas is scarce on the system due to extreme weather conditions. This scaled-back approach allows UMass to take pipeline gas when it can be delivered, but requires that it use other sources, such as oil or LNG, when pipeline gas is in short supply due to temperatures colder than 51 degree days, in accordance with its contract with Berkshire. By taking this approach, UMass receives pipeline gas at considerably lower cost. At the same time, the system as a whole would move gas at a higher load factor. The record does not identify the relative cost of UMass' alternative fuel supply, so the total cost of the pipeline-with-load-management alternative is not established. However, even were UMass to use LNG from Berkshire rather than oil during peak periods, the pipeline-with-load-management alternative would be less costly than the identified alternatives. Therefore, the Siting Board finds that the pipeline-with-load-management alternative would be superior to the total pipeline alternative with respect to cost.

6. Conclusions

In the sections above, the Siting Board dismissed alternatives focusing on obtaining capacity by conservation programs, load management, addition of LNG facilities, and addition of propane air facilities. The Siting Board then compared an approach of combining pipeline construction with obtaining increased upstream capacity from Tennessee with an approach of combining pipeline construction with load management. The Siting Board found that both the total pipeline alternative and the pipeline-with-load-management alternative would meet the identified need in the Greenfield Division of the Berkshire system.

In Sections II.B.3, II.B.4, and II.B.5, above, the Siting Board found that the total pipeline alternative and the pipeline-with-load-management alternative would be comparable with respect to reliability; that the pipeline-with-load-management alternative would be superior to the total pipeline alternative with respect to environmental impacts; and that the pipeline-with-load-management alternative would be superior with respect to cost. The record shows that, given the cost differences, UMass as principal customer preferred to contract for the pipeline-with-load-management alternative, despite the limitation in supply to 51 degree days. The Siting Board observes that following negotiations with Berkshire, UMass entered into a contract which includes the load management component of the pipeline-with-load-management alternative. Direct environmental impacts, as reflected in the record, would be less for the pipeline-with-load-management alternative. Therefore, weighing need, reliability, environmental impacts and cost, the Siting Board finds that the proposed project, combined with a load management agreement with the primary customer, UMass, would be superior to alternative approaches to providing the planned UMass heating plant with additional gas delivery capacity.

III. ANALYSIS OF THE PRIMARY AND ALTERNATIVE 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 has 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. 2005 NSTAR Electric Decision, 14 DOMSB 233, at 277; 2003 KeySpan Decision, 14 DOMSB 49, at 79; New England Power Company, 21 DOMSC 325, at 376 (1991).

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 2005 NSTAR Electric Decision, 14 DOMSB at 233, at 277; 2003 KeySpan Decision, 14 DOMSB 49, at 79; 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 sites or routes in a manner which ensures that it has not overlooked or eliminated any sites or routes which, on balance, are clearly superior to the proposed site or route. 2005 NSTAR Electric Decision, 14 DOMSB at 233, at 277; 2003 KeySpan Decision, 14 DOMSB 49, at 79-80; 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. 2005 NSTAR Electric Decision, 14 DOMSB at 233, at 277-278; 2003 KeySpan Decision, 14 DOMSB 49, at 80; 1998 NEPCo Decision, 7 DOMSB 333, at 374.

2. Site Selection Process

a. Description

Berkshire indicated that its site selection process considered engineering requirements, the nature of the study area, relevant environmental policy, industry design and operation requirements, and relevant regulatory precedent (Exh. BGC-1(R) at 5-1). Having determined that the preferred project approach was to enhance the capacity of its primary distribution system, the Company stated it began its site selection process by considering the location of its existing infrastructure, together with the location of the planned UMass heating plant (Exh. EFSB-SS-9).

Specifically, Berkshire stated that to enhance its existing system to meet identified needs, it determined that it would install additional pipeline to loop portions of the Greenfield and

Amherst Feedlines (Exh. BGC-1(R) at 5-1 to 5-2). The Company determined that to loop the Greenfield Feedline portion, it would route new pipeline in Northampton, in a corridor between the Connecticut River to the east and an undeveloped area of wetlands and woodlands to the west (id. at 5-2). To loop the Amherst Feedline portion, the Company determined it would route new pipeline in Hatfield, in an area located north and west of the Connecticut River or in Hadley (id.). Given these parameters, the Company developed an approximately 16 square mile study area located in Northampton, Hatfield, and Hadley (Exh. EFSB-SS-9).

The Company stated that a siting team conducted initial field investigations of the study area, as well as a review of the area using United States Geographical Survey maps and tax assessors maps (Exh. BGC-1(R) at 5-4). Berkshire stated that it also consulted with state and local officials and members of the public in the early stages of its planning and selection process (Exh. EFSB-SS-13). The Company stated that to assess whether to include a possible route, it applied several criteria (Exh. BGC-1(R) at 5-8). First, Berkshire concentrated on alignments within existing rights-of-way ("ROW") or parallel to existing utility facilities, to minimize environmental impacts and cost (id.). In addition, Berkshire stated that it looked to identify routes that would avoid locations that resulted in substantial engineering or regulatory requirements that would limit or complicate construction (id. at 5-2). Finally, the Company noted it focused on shorter, more direct routes, thereby using route length as a siting criterion (Brief at 35). The Company indicated that it considered developing a longer alternative through the Town of Hadley, which would cross the Connecticut River (Exh. BGC-1(R) at 5-12). Berkshire stated that a route through Hadley would involve a substantially longer alignment, resulting in greater environmental impacts and a 50% increase in construction costs (id.).[13]

To analyze the remaining routing options, Berkshire determined that a segment analysis would be a beneficial approach that would allow consideration of a large number of overall route alternatives derived from aggregating segments in different combinations (Exh. EFSB-SS-6).

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[13] In addition, during the initial stage of the site selection process, several other routes were rejected, including installing pipeline along I-91; using the Guilford Railroad ROW; constructing new overland ROWs; traversing the area in the vicinity of the Hatfield Mill River dam; and constructing along the Northampton Bike Path(Exh. BGC-1(R) at 5-13).

Based on the general siting criteria, public meetings, and the study area review, the Company identified 28 segments (Exh. BGC-1(R) at 5-14). Of the 28 segments, 11 were located completely in Northampton, 2 were located partially in Northampton and Hatfield, and 15 were completely located in Hatfield (id.). In addition, the Company developed four "legs" that covered the distance between several nodes, comprised of various numbers of contiguous segments (id. at Att. 5-S).

To compare the environmental attributes of the route segments, the Company developed 11 environmental criteria: (1) social receptor density; (2) archeological and historical resources; (3) traffic; (4) residential and commercial/industrial density; (5) community acceptance; (6) soil quality; (7) groundwater presence; (8) location parallel to the Connecticut or Mill Rivers; (9) location within wetlands; (10) location within buffer areas; and (11) location within priority habitat areas (Exh. BGC-1(R) Att. 5-D).

The Company stated that it evaluated and ranked the 28 segments using the 11 criteria described above (Exh. BGC-1(R) at 5-18 to 5-19). For each segment, the Company assigned scores of zero to three, where zero represented the lowest potential impact, and three represented the highest potential impact (id. at 5-20). The Company then length-weighted the score for each segment by multiplying the total segment score by the segment's total distance in miles (id.). In addition, the Company applied adders when it determined that an individual segment had a more substantial impact in a specific category than other segments (Exh. EFSB-SS-16; Tr. 2, at 147). Adders for four criteria were applied to specific segments for traffic, residential and commercial/industrial density, location parallel to the Connecticut or Mill Rivers, and location within wetlands (Exh. EFSB-SS-16; Tr. 2, at 147).[14] Berkshire asserted that the use of an adder

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[14] For the traffic criterion, an increase in the score by a factor of two was applied to segments where a road closing would be necessary; for the residential and commercial/industrial density criterion, a decrease in the score by a factor of two was applied to segments with commercial/industrial areas to reflect that construction in those areas is preferable to construction in residential areas; for the location parallel to the Connecticut or Mill Rivers criterion, an increase in the score by a factor of two was applied to one segment where it directly crossed the Mill River; and for the location within wetlands criterion, an increase in the score by a factor of two was applied to one segment where it was the only stream crossing (Exh. EFSB-SS-16).

for the commercial/industrial and residential density criterion was sufficient to account for the differences between commercial/industrial and residential characteristics (Tr. 2, at 148).

The record showed that based on the results of the environmental scoring, the primary route, consisting of 10 segments, had the lowest or best score, while Alternative 1, consisting of 13 segments and Alternative 2, consisting of 8 segments, had substantially higher scores than the primary route (Exh. EFSB-SS-2).[15] The Company also developed detailed cost estimates for each segment and then analyzed the results to determine which combination of segments resulted in the least cost route alternative (Exh. BGC-1(R) at 5-18). Finally, the Company presented a cost analysis showing that the primary route would have the lowest construction cost (id.).

b. Analysis

Berkshire 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 2005 NSTAR Electric Decision, 14 DOMSB 233, at 288; 2003 KeySpan Decision, 14 DOMSB 49, at 86; 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 developed three possible alternative routes based on 28 different segments. The Company ranked each of the segments based on its environmental criteria, using a length-weighted scoring system. The Company calculated a total environmental score for each route based on a combination of identified segments and developed an estimated cost for each route. Berkshire selected the route that had both the best environmental score and the lowest cost as its primary route.

This case involves a relatively short pipeline project in which roadway ROW would be used for all or the majority of the route under the identified options. The Company used a disaggregated segment analysis involving close to 30 segments to identify its primary route and

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[15] For the environmental scores, where low scores indicate the advantage, the primary route had a length-weighted score of 38.44, while Alternatives 1 and 2 had scores of 81.30 and 87.91, respectively (Exh. EFSB-SS-2).

presented routing comparisons based largely on segment-by-segment scores grouped for various zones or "legs" of the distance covered. Given the similar characteristics of the routes and the limited choice for a direct route, it is unclear whether a site selection process encompassing all possible street combinations and the disaggregation into four legs was warranted. The route selection process would have been easier to follow if total route alternatives were the focus.

In addition, Berkshire used length-weighting, an approach the Siting Board has previously found to be problematic. In a recent case, in response to the use of length-weighting for a lengthy route (over 15 miles), the Siting Board recommended that future applicants avoid the length-weighting approach and seek a different method. 2005 NSTAR Electric Decision, 14 DOMSB at 290. The Siting Board pointed to the fact that many environmental criteria are best evaluated based on a single number indicating the extent of occurrence, such as total acres of disturbed wetlands, total number of streams crossed, total square footage of tree clearing or disturbance, which is independent of the length of the route. Id. If applied to such criteria, length-weighting raw scores for the criteria could bias the assessment in favor of a shorter route.

Berkshire also used "adder" adjustments to its scores for certain criteria to account for particular conditions along a route segment. However, this adjustment was confined to four criteria; the remaining seven criteria were scored using only length-weighting.

In this case Berkshire did not apply comprehensive numerical weighting of criteria based on their relative importance – an approach the Siting Board has found to be useful in past cases involving power plants, as well as some linear projects. NSTAR Gas Company, 13 DOMSB at 178; CELCo Decision, 12 DOMSB at 331; ANP Blackstone Energy Company, 8 DOMSB 1, at 106 (1999); Altresco Lynn, Inc, 2 DOMSB 1, at 170 (1993). Specifically, applicants have used numerical weighting to reflect the relative importance of criteria, where each criteria is assigned a specific weight based on the importance of its environmental impact (e.g., 1 for low importance, 2 for moderate importance, and 3 for high importance).

The Siting Board notes that in one recent case involving a linear project located underground in roadways, the Siting Board accepted a site selection process that lacked numerical weighting to reflect relative importance of criteria. 2003 KeySpan Decision, 14 DOMSB 49, at 87. Here, Berkshire's identified routing predominantly extends underground

along roadways, and primarily traverses areas of similar land use and encounters similar transitions, such as first traversing the Route 5/ Route I-91 area and then deviating away from that area eastward through Hatfield. As its best alternative, Berkshire selected the in-road route that was clearly the most direct. Therefore, the record in this case establishes that the Company did not overlook any better alternative routes.

Overall, the Siting Board reaffirms its conclusion in the 2005 NSTAR Electric Decision that length-weighting is not well-suited for general use in a site selection process. In addition, as noted above, comprehensive numerical weighing of criteria, based on their relative importance, has been favorably reviewed by the Siting Board as an element of site selection in many previous cases.

The Siting Board also notes that, as presented in the Company's petition, Berkshire's overall analysis of its final route ended with the segment analysis discussed above. In past cases, the Siting Board has separately reviewed, first, a company's site selection process to identify and screen a range of possible sites or routes and, second, a company's comprehensive, comparative analysis of the environmental impacts, cost, and reliability of its final site or route and at least one practical alternative (see Section III.C, below). The separate reviews address analyses that typically entail very distinct methods. As part of the site selection analysis, the Siting Board reviews the process, such as application of quantitative scoring methods, that a company uses to simply but systematically evaluate a broad range of potential sites or routes. As part of the comprehensive, comparative analysis of a company's final site or route and at least one practical alternative, the Siting Board reviews more detailed information on the environmental impacts, cost, and reliability of the primary and alternative routes, including the selection of a final site or route. To support this second review, applicants have generally presented an analysis of the primary and alternative sites or routes that describes in more detail the environmental impacts for the respective alternatives, describes possible and proposed mitigation of those impacts, and compares alternatives assuming proposed mitigation. Thus, the Siting Board is able to review information more detailed than is presented for the more simple screening performed for the site selection analysis.

Berkshire's filing in this case interwove the above two phases. In so doing, the applicant provided, in the petition, an incomplete version of the more detailed evaluation of routes required for the second phase of the Siting Board's evaluation, and instead relied on the initial site selection analysis as the full comparison of the noticed routes. However, to complete the record, during discovery and hearings, the Company elaborated on the results of its segment analysis and more fully described expected impacts and mitigation for noticed routes. The Siting Board recognizes that there is often some overlap between screening-level evaluations of many routes and detailed evaluation of few routes. However, in order to obtain a complete and systematic initial presentation of information relating to site selection and route evaluation, the Siting Board requests that future applicants present, separately, a description of the site selection process used to identify and screen sites or routes, and a full evaluation of the sites or routes selected for detailed analysis.

Accordingly, 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 the ensures that it has not overlooked or eliminated any routes that are clearly superior to the proposed route.

3. Geographic Diversity

The Company stated that it considered combinations of 28 different route segments for the proposed pipeline through the City of Northampton and the Town of Hatfield (Exh. BGC-1(R) at 5-14). Berkshire indicated that the two alternative routes differ from the primary route for most of their length (Company Brief at 41). Further, while all three routes share segments along North King Street in Northampton, each route then crosses I-91 at a different location (Exhs. EFSB-NO-6; BGC-1(R) at Att. A). Berkshire indicated that the Company provided several points of interconnection and alternative routing from the primary route to alternative routes (Exh. BGC-1(R) at 1-C and 5-S).

Consequently, the Siting Board finds that the Company has identified a range of practical route alternatives with some measure of geographic diversity.

4. Conclusions on the Site Selection Process

The Siting Board has found 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 are clearly superior to the proposed project. In addition, the Siting Board has found that the Company has identified a range of practical pipeline routes with some measure of geographic diversity. Consequently, the Siting Board finds that the Company has demonstrated that it examined a reasonable range of practical siting alternatives.

B. Description of the Primary and Alternative Routes

1. Primary Route

The Company indicated that the primary route begins at the end of the Company's existing 12-inch looped pipeline, located at the intersection of Hatfield Street and the Northampton Bike Path in Northampton (Exhs. EFSB-G-1; EFSB-SS-12(s)(a)). The primary route extends approximately 3.6 miles, running through Northampton and Hatfield (Exhs. EFSB-G-1; EFSB-G-4). The Company stated that the proposed pipeline generally would run parallel to Berkshire's existing 6-inch pipeline facilities (Exh. BGC-1(R) at Att. 1-A; Brief at 2).[16]

Specifically, the primary route travels northeasterly along Hatfield Street and North King Street, then crosses under I-91 and the Guilford Railroad ROW near the municipal boundary of Northampton and Hatfield (id.). In Hatfield, the primary route continues northeasterly along Elm Court to the intersection of Elm Street, where it follows Elm Street to the intersection of Prospect Street (id.). The proposed pipeline would be connected with the Company's existing pipeline at the intersection of the Elm Street and Prospect Street (id.).

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[16] The proposed pipeline route follows that of the existing 6-inch pipeline except for an interval between a location along North King Street, approximately 2050 feet south of the Laurel Compressor and the intersection of Elm Street and Elm Court (Exhs. BGC-1(R) at Att. 1-A; EFSB-G-12; Company Brief at 2).

2. Alternative Routes

The Company selected two noticed alternative routes. Both alternatives run through Northampton and Hatfield, and also begin at the end of the Company's existing 12-inch looped pipeline, located at the intersection of Hatfield Street and the Northampton Bike Path (Exhs. EFSB-G-2; EFSB-SS-12(s)(a)). Alternative 1 is approximately 5.4 miles long and travels a short distance northeasterly along Hatfield Street to North Elm Street, continues northwest on North Elm Street, then east on Bridge Road, and northeast on Cooke Avenue to the intersection with Hatfield Street (Exh. EFSB-G-2). The route continues north along North King Street to a tie-in at the Laurel Compressor, and then continues from a separate tie-in north of the intersection of North King Street and Allen Road (id.). The route then crosses under I-91 and the railroad ROW, entering Hatfield and travels to an area near the intersection of Elm Street and Elm Court (id.). The route continues southeasterly along Elm Court to Little Neponsett Road, and then continues east along Little Neponsett Road and an unnamed roadway, to Brook Hollow Road, then north on Brook Hollow to Elm Street (id.). Alternative 1 joins and then follows the same route as the primary route along Elm Street to the tie-in with the existing pipeline at the intersection of Elm Street and Prospect Street (id.).

Alternative 2 is approximately 5.6 miles long and travels a short distance northeasterly along Hatfield Street to North Elm Street, continues southeast on North Elm Street, then north on Prospect Avenue to the intersection with Bridge Road (Exh. EFSB-G-2). The route travels east on Bridge Road, then easterly and northerly on Pine Brook Curve to North King Street (id.). The route continues north along North King Street to a tie-in at the Laurel Compressor, and then continues from a separate tie-in to the north, located at the intersection of West Street and Hatfield Street in Hatfield (id.). The route crosses under I-91 and the railroad ROW, and continues east along Bridge Street to School Street, then east on School Street to Main Street (id.). Alternative 2 then follows Main Street south to the intersection of Bridge Lane, where the pipeline would be connected with the Company's existing pipeline (id.).

C. Environmental Impacts, Cost and Reliability of the Primary 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. 2005 NSTAR Electric Decision, 14 DOMSB 233, at 296; 2003 KeySpan Decision, 14 DOMSB 49, at 89; 1997 BECo Decision, 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. 2005 NSTAR Electric Decision, 14 DOMSB 233, at 297; 2003 KeySpan Decision, 14 DOMSB 49, at 89; 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. 2005 NSTAR Electric Decision, 14 DOMSB 233, at 297; 2003 KeySpan Decision, 14 DOMSB 49, at

89-90; 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 Berkshire's primary and 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 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. Environmental Impacts

In this section, the Siting Board compares the environmental impacts of the proposed facilities along the primary 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 primary route have been minimized. The subsections below consider impacts to adjacent land resources, wetlands and water resources, noise, and traffic.

a. Land Resources

i. Primary Route

Berkshire asserted that the primary route travels within the paved roadways for most of its length, and therefore impact would be minimal upon either the natural or human environment (Exh. EFSB-L-2; Brief at 26). The Company explained that while a portion of the route near the end tie-in point is within a small section of an Natural Heritage Endangered Species Program ("NHESP") habitat area along the Mill River, the proposed construction in that area is beneath an existing paved roadway and therefore there would be no additional or meaningful impact on habitat (Exh. EFSB-L-2). The Company further stated that construction in this area would be at the top of a steep slope extending down to the Mill River, which would isolate the construction from the priority habitat (Exh. EFSB-L-8). Berkshire indicated that any work in this area would require consultation with NHESP staff (Exh. BGC-1(R) App. F).

The Company indicated that any areas adjacent to the route that are identified as having the potential for wood turtle habitat would be monitored, and sensitive areas would be isolated from construction areas with hay bales and/or silt fence barriers (Exh. EFSB-L-9). In addition, any wood turtles discovered in construction areas would be relocated to adjacent, undisturbed areas (id.). Finally, the Company's consultant noted that seasonal restrictions, such as avoiding construction between October and April, would virtually eliminate all direct contact with the wood turtle (Exh. BGC-1(R) App. F at 2).

The Company stated that it does not expect to remove any large trees along the primary route (Exh. BGC-1(R)), at Att. 5-AA at 6). Berkshire noted that it may conduct limited tree trimming along Hatfield Street, in the segment between Cooke Avenue and North King Street (Exh. EFSB-L-10). Further, the Company explained that, when traversing areas with trees, it would align the pipeline at or near the center line to the extent possible, in order to minimize potential root damage (id.). Berkshire asserted that it would be working with the Northampton and Hatfield Departments of Public Works ("DPW") and tree wardens to address any concerns (id.; Tr. 2, at 183).

Berkshire asserted that the environmental impacts of the proposed pipeline on geology and soils would be minor and limited to temporary construction impacts (Exh. BGC-1(R) at Att. 5-AA at 2). The Company noted that it has not identified any soil limitations relating to trenching or unusual conditions that would warrant special installation techniques along any of the three routes (id.). Berkshire asserted that it would employ erosion and runoff control, such as hay bale filters, silt fences, diversion trenches, and terracing, as well as any necessary special procedures, to reduce construction impacts (id. at 3). Further, where necessary, specialized revegetation procedures would be implemented to ensure the rapid revegetation and restoration of pre-existing vegetative cover (id.).

The Company provided information gathered from an archeological reconnaissance survey which noted that, in general, both Northampton and Hatfield have a high potential for containing Native American and historic archeological sites (Exh. BCG-1(R) at App. D). However, Berkshire stated that generally there would be no impacts to archeological and historical resources as construction would take place in previously disturbed roadways (id.).

Specifically, for the Northampton portions of the proposed route, the Company noted that it is unlikely to encounter any archeological resources within the established roadways and developed areas, and therefore the Company concluded that additional surveys are not warranted (id.). In addition, although Hatfield has a moderate to high potential to contain Native American sites, the Company does not recommend subsurface testing, as long as construction is limited to paved areas (id.).

The Company provided maps indicating that all of the route alternatives pass through historic districts in the Town of Hatfield, as substantial portions of the town have been designated as historic districts (Exh. EFSB-L-4). The primary route passes through the Elm Street Historic District for the majority of the Hatfield portion of the route (Exh. EFSB-L-4(a)).[17]

ii. Alternative Routes

Alternative 1 passes through an NHESP habitat area for a portion of Little Neponsett Road, and is in close proximity to NHESP habitat areas in the vicinity of Little Neponsett and Brook Hollow Roads (Exhs. BGC-1(R) at App. F; EFSB-L-18). The Company stated that construction in this area could affect wood turtle habitat (Exh. EFSB-L-7). Berkshire stated that the risk of impact to the wood turtle would be greater in the vicinity of the Connecticut River, which is proximate to Alternative 2, along School and Bridge Street in Hatfield (id.; Exh. EFSB-L-9). However, other information provided by the Company stated that the Mill River and other tributaries may support the wood turtle, while it is unlikely that the Connecticut River would support the species (Exh. BGC-1(R) App. F, 11/21/04 Memo). Berkshire indicated that any work in mapped habitat areas would require consultation with NHESP staff (Exh. BGC-1(R) App. F).

The Company stated that trees would need to be cleared for an area of new ROW along Alternative 1 in Hatfield (Exh. EFSB-L-10). The tree clearing would be located in a 1600-foot segment along Little Neponsett Road, consisting of approximately 0.5 acres (id.). The Company

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[17] Along the primary route, the Elm Street Historic District includes portions of Hatfield Road, Elm Court, and Elm Street along the primary route (Exh. EFSB-L-4(a)).

indicated that for Alternative 2, tree clearing would only be necessary at the crossing of the Mill River at Bridge Street, and it would be minimal (id.).

Berkshire stated that based on its analyses, construction along the Little Neponsett Road area of Alternative 1 would present a moderate to high likelihood of encountering archeological or historical resources (Exh. BGC-1(R) at App. D at 9-10). The Company's consultant therefore indicated more extensive testing in this area would be warranted, based on expected construction in unpaved areas and roadways (id.).

The Company noted that the Main Street portion of Alternative 2 in Hatfield traverses areas with National Register resources (Exh. EFSB-L-4). However, Berkshire asserted that the location of the pipeline and associated construction activities in the paved roadway, away from historical structures, would minimize impacts (id.). Alternative 1 also passes through the Elm Street Historic District in Hatfield for a small portion of the route along Little Neponsett Road (Exh. EFSB-L-4(a)). Alternative 2 for its entire Hatfield portion traverses two historic districts, the Hatfield Center Historic District and the Mill Street-Prospect Street Historic District (id.).[18]

Finally, the Company stated that the Little Neponsett Road area along Alternative 1 consists of working farm areas that are regularly worked for agricultural use (Exh. BCG-1(R), at Att. 5-AA at 6). Berkshire therefore categorized the land resources impacts from construction of the proposed pipeline in this area as temporary economic disturbances, rather than as temporary or permanent environmental impacts (id.). The Company noted that it would likely provide financial compensation to affected farmers along Alternative 1 (id.).

iii. Analysis

The record demonstrates that the land resource impacts of the proposed pipeline along the primary route would be temporary and minimal due to the placement of the proposed pipeline under streets. The Company stated that it would work with the Northampton and Hatfield

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[18] The Hatfield Historic District encompasses portions of School Street and Main Street along Alternative 2; and the Mill Street-Prospect Street Historic District encompasses all of Bridge Street, and portions of Prospect Street, School Street and Church Street (Exh. EFSB-L-4(a)).

Conservation Commissions, and the NHESP to ensure that any potential impacts to rare or endangered species are minimized. However, there is nothing in the record to indicate that the Company has submitted specific project plans to NHESP; therefore, there may be additional mitigation required in conjunction with construction of the proposed pipeline, since the tie-in of the primary route at Elm Street and Prospect Street is in close proximity to a potential wood turtle habitat. The Siting Board directs the Company to provide a copy to the Siting Board of final NHESP correspondence addressing any requirements for further monitoring and mitigation, as applicable, with regard to habitat areas along the primary route.

Along the primary route, the proposed pipeline would pass through historic districts in Hatfield, but construction would be located in the roadway, away from historic properties. However, the record does not include any correspondence with the Massachusetts Historical Commission ("MHC") detailing whether there would be any potential effect on identified properties and districts with regard to construction in Northampton and Hatfield. Further, there is no record evidence indicating whether the MHC or the Town of Hatfield would require special construction techniques or other measures to avoid any potential impacts on the Hatfield historic districts, such as impacts on historic structures or landscapes. The Siting Board directs the Company, prior to construction, to consult with the MHC and provide a copy to the Siting Board of MHC correspondence addressing any requirements for further analysis and mitigation that MHC may require relative to construction of the proposed pipeline through Northampton and Hatfield. In addition, the Siting Board directs the Company to collaborate with the MHC and the Town of Hatfield on the placement of the pipeline in the Hatfield historic districts to avoid, to the extent possible, construction impacts from the installation of the pipeline. Accordingly, the Siting Board finds that with the implementation of the above conditions, the land resource impacts of the proposed pipeline along the primary route would be minimized.

The record indicates that construction of the proposed pipeline project along the alternative routes would not have a significant impact on habitat resource areas, or on historic or archeological resources due to construction in the paved roadway. The record further indicates that as with the primary route, impacts to endangered or protected species along Alternative 2 would be minimal, given its routing within paved streets proximate to a limited number of

mapped priority areas. However, because Alternative 1 includes a segment along an unpaved roadway in Hatfield, it would have the potential for greater impacts. The Siting Board finds that the primary route would be comparable to Alternative 2, and preferable to Alternative 1 with respect to land resources impacts.

b. Wetlands and Water Resources

i. Primary Route

Berkshire stated that any impacts to wetland resource areas and buffer zones would be temporary and minor (Exh. EFSB-L-12). The Company asserted that the primary route is not located within any wetlands (id.). The Company explained that along the primary route, it anticipates that it would install the proposed pipeline only in buffer zones and not in any wetland resource areas (Exh. BGC-1(R) at Att. 5-AA at 5). Berkshire asserted that it would install temporary erosion and control measures to minimize the impacts of construction due to siltation and/or sedimentation near streams and wetland areas (id. at 4). Specifically, as the tie-in point on Elm Street is located proximate to the Mill River, the Company explained that it would employ a number of measures to mitigate impacts to the Mill River, including the following: capping the trench at the end of each work day; installing silt fences and hay bales; and suspending construction during periods of heavy precipitation (Exh. EFSB-L-17).

Berkshire asserted that the Northampton DPW has indicated that the Company's proposed construction plans for this area appear to be acceptable and that it is not necessary to impose additional mitigation (Exh. EFSB-RR-11). Berkshire explained that the DPW cited Connecticut River flood control projects and the addition of culverts to affected area roads, as measures that have controlled flooding damage over the past 50 years (id.). Further, the Company indicated that it would comply with requirements of the Northampton and Hatfield conservation commissions with regard to construction techniques near surface water and water resources (Exh. BGC-1(R) Att. 5-AA at 4).

The Company noted the possibility of encountering ground water during excavation due to the presence of seasonally high water tables during the months of November to April (Exh. BGC-1(R) at Att. 5-AA at 4). The Company explained that if trench dewatering is required, it

would pump water to an appropriate vegetated area to avoid erosion, and/or it would use haybales, which would be effective mitigation measures (id. at Att.5-AA at 4; EFSB-L-13).

ii. Alternative Routes

The Company indicated that Alternative 1 crosses approximately 1000 feet of wetland and habitat area near the intersection of Little Neponsett Road and Elm Court (Exh. EFSB-L-12). Alternative 1 travels in close proximity to the Mill River along the eastern portion of Little Neponsett Road, near Brook Hollow Road (Exh. BGC-1(R) at Att.1-B and App. F). Alternative 2 also travels in close proximity to the Mill River along Bridge Street and School Street (id. at Att. 5-M and Att. 1B; Exh. EFSB-L-2). In addition, Alternative 2 crosses the Mill River, which is the only major stream crossing proposed for any of the three routes, and the Company expects wetland impacts at the ends of the crossing (Exhs. BGC-1(R) at Att. 5-N and Att. 1B; EFSB-L-12). Berkshire asserted that additional permitting and mitigation plans would be necessary in order to construct on the portions of Alternatives 1 and 2 in the areas parallel and proximate to the Mill River and the Connecticut River (Exh. BGC-1(R) at 5-27; Brief at 56).

iii. Analysis

The record demonstrates that the primary route would not enter any wetlands, and construction would be confined to wetland buffer zones as it proceeds in paved roadways. Based on the limited encroachment into wetland buffer areas and the use of paved roadways, the Siting Board concludes that construction of the proposed pipeline along the primary route would result in no permanent impacts, and only minimal temporary impacts to water resources. Consequently, the Siting Board finds that the wetlands and water resource impacts of the proposed pipeline along the primary route would be minimized.

Alternative 1 traverses wetlands in the Little Neponsett Road area and is proximate to the Mill and Connecticut Rivers. Alternative 2 crosses the Mill River and most likely would enter wetlands located at each terminus of the crossing. These impacts exceed the very limited temporary impacts to wetlands buffer zones associated with construction along the primary route. The record indicates that construction impacts on groundwater and hydrology along the primary

and alternative routes would be comparable. Overall, the Siting Board finds that the primary route would be preferable to both Alternative 1 and Alternative 2 with respect to wetlands and water resource impacts.

c. Traffic

i. Primary Route

The Company stated that the proposed pipeline would be located within Hatfield Street, North King Street, Hatfield Road, Elm Court, and Elm Street (Exh. EFSB-G-1).

The Company indicated that the standard construction work zone would be approximately 25 feet wide, and that construction would progress at approximately 400 feet per day over an approximately six month period (Exh. EFSB-C-14; Tr. 2, at 164).[19] The Company stated that, under the primary and both alternative routes, two-way traffic would not be maintained as it presently exists along any route segment within streets during construction (Exh. EFSB-T-7; Tr. 2, at 218). For the primary route, one travel lane would be maintained along all of the streets except for Hatfield Street in Northampton, which may be completely closed during construction (Exh. EFSB-T-7). Berkshire indicated that it may be possible to maintain two lanes of traffic on wider roads, such as portions of North King Street and Elm Street, if traffic were slowed down substantially by traffic control officers at each end of the roadway (Tr. 2, at 219).

Based on traffic counts, the Company stated that all of the streets with high traffic levels are located in Northampton, while those in Hatfield have moderate and low traffic levels (Exh. BGC-1(R) at Att. 5-I; Tr. 2, at 207-208).[20] The Company noted that Bridge Road in Northampton is heavily traveled, and that at the intersection of Bridge Road and Hatfield Street,

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[19] The Company indicated that in areas where it would be necessary to close an entire street due to the inability to support construction and traffic, the work zone may be increased for ease of construction which could decrease the construction period (Exh. EFSB-C-14).

[20] The Company used the Pioneer Valley Planning Commission Traffic Map (July 2001), to derive average daily traffic volumes for Northampton (Exh. BGC-1(R) at 5-23). The Company determined the estimate of Hatfield traffic volumes using field-based assessments of traffic and a comparative assessment of the Northampton volumes from the Pioneer Valley Traffic Map (id.).

significant traffic delays could occur during construction (Tr. 2, at 210). Berkshire explained its understanding that the City of Northampton would maintain some configuration of traffic flow on Bridge Street since it is a highly traveled road (id. at 213).

Berkshire noted that the proposed I-91 crossings under the primary route as well as the alternative routes require approval of the Massachusetts Highway Department ("MHD") (Exh. EFSB-C-6). The Company explained that the MHD would require horizontal directional drilling ("HDD") for crossing I-91 in order to avoid disruption to traffic and to minimize the need to access MHD property (id.). The Company provided a permit approved by MHD dated August 9, 2005 for an I-91 crossing based on the primary route configuration (Exh. EFSB-C-12).

Berkshire stated that the majority of construction activity would occur during the day, Monday through Friday from 7:00 a.m. to 5:00 p.m. (Exh. EFSB-C-8). The Company explained that construction outside of these time periods would be undertaken in conjunction with the use of HDD equipment and could occur elsewhere in the event of a construction deadline (see Section III.C.2.d.) (id.). The Company indicated that trenching in roadways would generally occur during the summer months, due to weather conditions and asphalt supply availability (Exh. EFSB-C-2).

The Company asserted that any impacts to school bus routes and schedules would be minimal since construction is planned for late spring and summer (Exh. EFSB-T-4). Further, to the extent that construction might coincide with the school year, the Company indicated that it would work with the school department(s) to prevent any disruptions to schools that could occur due to construction of the pipeline (id.).

The Company asserted that it would begin addressing detailed traffic issues and mitigation measures with the local DPWs and state and local police departments when the project contractor is selected (Exh. EFSB-T-8; Tr. 2, at 220). Berkshire indicated that its proposed mitigation measures would insure that: (1) signs and traffic control personnel are available; (2) bus routes and schedules are followed as closely to existing conditions as possible; (3) alternative routing is identified; (4) access to residential and commercial properties is maintained; and (5) emergency vehicle routes are provided (Exh. EFSB-T-3; Tr. 2, at 208). Berkshire noted that in some instances, the City of Northampton would prefer that a road be

closed with detours and rerouting, rather than trying to maintain one lane of traffic (Tr. 2, at 206). Further, the Company stated the mitigation options at the Bridge Road/Hatfield Street intersection could include off-hour construction or boring across Bridge Street, but noted that the short length of the installation at the Bridge Street crossing may not lend itself to boring (id. at 214).

With regard to community outreach and notification of project construction, the Company indicated that it would continue to advise local officials as to the status of the project and related construction activities (Exh. EFSB-T-2). In order to notify businesses and residences of the project schedule and location of construction, the Company stated it would employ a combination of mailed notices, notices posted at the affected residences and businesses, and individual visits (id.).

ii. Alternative Routes

Berkshire asserted that all of the routes and associated segments are comparable with regard to traffic impacts, with the exception of the Little Neponsett Road area in Hatfield, located along Alternative 1 (Segments 16, 22 and 24) (Tr. 2, at 203, 204). Berkshire explained that the area along Little Neponsett Road is in an agricultural area with negligible traffic (id.). The roadways in this area are largely unpaved and account for approximately 2.0 miles of the total 5.4 mile length of Alternative 1 (Exh. BGC- 1(R) at Att. 5-D and App. F). The Company stated that the pipeline along Alternative 1 would be located within Hatfield Street, North Elm Street, Bridge Road, Cooke Avenue, North King Street, Elm Court, Elm Street, Little Neponsett Road, and Brook Hollow Road (Exh. EFSB-G-2). The Company stated that the pipeline along Alternative 2 would be located within Hatfield Street, North Elm Street, Prospect Avenue, Bridge Road, Pine Brook Curve, North King Street, Church Street, Bridge Street (Hatfield) School Street, and Main Street (id.).

The Company stated that the following streets along Alternative 1 could potentially be completely closed during construction: North Elm Street, Cooke Avenue, and Hatfield Street, all located in Northampton (Exh. EFSB-T-7). In addition, the Company stated that the following streets along Alternative 2 could potentially be completely closed during construction: North

Elm Street, Prospect Avenue and Pine Brook Curve, located in Northampton; and Church Street in Hatfield (id.).

iii. Analysis

The record demonstrates that construction of the proposed pipeline along the primary route has the potential to create temporary traffic impacts. The Company provided a list of issues that would be addressed in a Traffic Management Plan, including mitigation measures to address the safety of pedestrian, vehicular and bus traffic. The Company has agreed to work with City of Northampton and Town of Hatfield officials to identify specific measures to further mitigate traffic impacts, but has not yet provided drafts of the Traffic Management Plans for the proposed project. Berkshire has indicated that it would formalize traffic mitigation arrangements with the affected communities when it has selected its contractor. The Siting Board notes that it is crucial that Berkshire and the City of Northampton and the Town of Hatfield develop workable Traffic Management Plans in a time frame that allows for notification to residents and businesses. Consequently, to ensure that all outstanding issues can be resolved in a timely fashion, the Siting Board directs the Company to submit draft Traffic Management Plans to Northampton and Hatfield officials at least two months prior to the commencement of construction. The Siting Board finds that, with the implementation of this condition, the construction traffic impacts of the proposed pipeline along the primary route would be minimized.

The record indicates that traffic impacts during construction along the primary or either alternative route would be temporary, and that proposed mitigation would be similar and could be addressed through Traffic Management Plans developed in consultation with the host communities. The total lengths of each of the three routes are 3.6 miles, 5.4 miles, and 5.6 miles; however, the in-street, paved portions of the primary route and Alternative 1 are similar in length, at 3.6 miles and 3.4 miles respectively, while the in-street paved portion of Alternative 2 is approximately two miles longer. Alternative 2 therefore would require a longer period of in-street construction. Accordingly, the Siting Board finds that the primary route would be comparable to Alternative 1, and preferable to Alternative 2 with respect to construction traffic impacts.

d. Noise

i. Primary Route

Berkshire asserted that the majority of construction would occur during the daytime, and estimated average construction noise is to be between 80-85 decibels, A-weighted ("dBA") at the noise source, and 68-73 dBA at 50 feet away (Exh. EFSB-NO-3). However, noise associated with a backhoe/excavator, which the Company stated is the most commonly used noisier piece of equipment, could be between 85-105 dBA at the noise source, and 73-93 dBA at 50 feet away (Exhs. EFSB-NO-5; EFSB-RR-10(a)).[21] The closest residences to construction activities are 22 feet away from the work zone, located at Hatfield Street in Northampton and Elm Street in Northampton, where the estimated noise levels from a backhoe/excavator would be 79-99 dBA (Exhs. EFSB-NO-5; EFSB-RR-10(a)). Berkshire asserted that the use of the backhoe/excavator would only occur for a portion of a full-day construction period, therefore the associated decibel level would not be continuous over an 8-hour period (Tr. 2, at 226). The Company indicated that based on its construction schedule, it would expect to be in front of a house for one day for pipe laying activities, with additional time for earlier excavation and later restoration activities (id.).

The Company stated that occasional night work may take place and would include the operation of a generator for lighting and the use of a sump pump to dry areas where groundwater is present (Exh. EFSB-NO-2). Berkshire also noted that it may conduct limited daytime weekend work to meet construction deadlines (Exh. BGC-19(R) Att. 5-AA at 11).

The use of HDD at any of the I-91 crossings would be a continuous 24-hours a day operation (Exh. EFSB-C-8; Tr. 2, at 230).[22] The Company explained that most of the HDD work is performed at the entry pit, where the noise levels would be the highest (Exh. EFSB-NO-6).

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[21] The Company stated that other noisier pieces of construction equipment, and the estimated noise levels at 50 feet from the source are: jackhammer, 81-99 dBA; trucks, 83-95 dBA; pavers, 86-89 dBA; welding machines, 71-83 dBA; and slurry pumps, 69-76 dBA (Exhs. EFSB-NO-6; EFSB-RR-10(a)).

[22] As part of the HDD process, a hole is drilled from a drilling pit along the length of the HDD alignment, here extending beneath I-91 (Exh. BCG-1, App. E at 3). The pipeline is then typically pulled through the drill hole by jacks that are pushed against the base and wall of the drilling pit (id.).

The Company asserted that the construction activities at the HDD receiving pit would produce lower noise levels and added that noisy activities at the receiving pit, such as excavation, could be undertaken during the normal, daytime construction hours of operation (id; Tr. 2, at 229).

The entry pit for the primary route is located on an abandoned section of North Hatfield Street, 200 feet from the State Police Barracks on North King Street in Northampton (Exh. EFSB-NO-4). The closest residence to this entry pit is located 300 feet away across North King Street, where the estimated noise level would be 67 dBA during HDD operation (Exh. EFSB-NO-6). The receiving pit for the primary route is located on Elm Court in Hatfield (Exh. EFSB-NO-4). The closest residence to this receiving pit is located 85 feet away on Elm Court, where the estimated noise level would be 63-77 dBA from the weld and slurry pumps, and 67-87 dBA when a backhoe/excavator is used (Exh. EFSB-NO-6; Tr. 2, at 228). The Company stated that the likely duration of HDD operation for the primary route would be eight days at the entry pit and eight days at the receiving pit (Exh. EFSB-C-13).

Berkshire explained that any mitigation relating to HDD work would most likely consist of acoustic material or acoustic blankets around the equipment; however, the Company could not quantify the noise reduction that could be achieved by such measures (Tr. 2, at 227-228).

ii. Alternative Routes

The Company indicated that of the three I-91 crossings, Alternative 1 is located the furthest distance from receptors, and is the overall longest crossing (Tr. 2, at 230).
The entry pit for Alternative 1 is located in the cloverleaf for the I-91 south on ramp in Northampton (Exhs. EFSB-NO-4; EFSB-NO-6). The Company stated that the closest residence to this entry pit is located over 400 feet away across North King Street, and that noise from operation of the HDD would not increase the existing ambient noise levels (Exh. EFSB-NO-6). The receiving pit for Alternative 1 is located in a wooded area approximately 185 feet away from I-91 in Hatfield (id.). The Company stated that the closest residence to this receiving pit is located approximately 650 feet away on Elm Court, and that noise from operation of the HDD would not increase the existing ambient noise levels (Exh. EFSB-NO-6). The likely duration of HDD operation for Alternative 1 would be ten days at the entry pit and twelve days at the

receiving pit (Exh. EFSB-C-13).

The entry pit for Alternative 2 is located at the end of Church Street in Hatfield (Exhs. EFSB-NO-4; EFSB-NO-6). The Company stated that entry pit HDD operation noise would be 85 dBA at a distance of 50 feet and that the closest residence to this entry pit is located approximately 55 feet away (Exhs. EFSB-NO-3; EFSB-NO-6). The receiving pit for Alternative 2 is located at the end of Bridge Street (Exh. EFSB-NO-4). The Company stated that the closest residence to this receiving pit is located approximately 100 feet away, where the estimated noise level would be 63-77 dBA from weld and slurry pumps, and 67-87 dBA when a backhoe/excavator is used (Exh. EFSB-NO-6). The likely duration of HDD operation for Alternative 2 would be seven days at the entry pit and eight days at the receiving pit (Exh. EFSB-C-13).

iii. Analysis

The record demonstrates that the noise impacts of the proposed pipeline along the primary route would be limited to temporary noise associated with construction activities. Construction noise impacts would be minimized by confining work to daytime hours, with the exception of HDD work at the entry pit locations. The Siting Board notes that the Company has not proposed specific noise mitigation measures, with the exception of limiting construction to daytime hours. There are additional measures that focus on the use and placement of construction equipment, such as employing proper muffling, adhering to idling limitations on the equipment, as well as shielding and placement of construction equipment. These mitigation methods would be consistent with approaches to mitigation that the Siting Board has accepted and encouraged in past cases. The Siting Board directs the Company to: (1) employ and maintain sound mufflers on construction equipment; (2) comply with applicable idling limitations when operating construction equipment; and (3) to the extent possible, use shielding and the optimal placement of equipment to minimize construction noise impacts.

Further, with regard to HDD operation and nighttime noise, it appears that while there may be mitigation measures that can be applied to operation of the equipment at the entry pit, they would have limited effect in reducing noise levels. The Company has provided estimates of

noisy work at the receiving pit ranging from 63 dBA to 87 dBA, consisting of welding, slurry pump operation, and excavation. The record shows that noisy HDD work at the receiving pit does not have to be conducted at night, as it is not a 24-hour activity. For the primary route, the receiving pit is located closer to residences than the entry pit, and if HDD activities at the receiving pit were conducted at night, the noise levels could be significant. Therefore, the Siting Board directs the Company to confine noisy HDD operations at the receiving pit, including but not limited to welding, slurry pump operation, and excavation, to the same daytime construction schedule as is proposed for the linear construction activities along the proposed route.

The Siting Board finds that with the implementation of the above conditions, the construction noise impacts of the proposed pipeline along the primary route would be minimized.

The noise impacts of the proposed project along the alternative routes also would be limited to temporary noise impacts associated with construction activities, and the same mitigation measures would be employed. The record shows that with the exception of the HDD crossings, the primary and alternative routes would be comparable with respect to the types and volume of noise generated during construction. The record indicates that construction noise associated with HDD could be significant, and that HDD operations would continue for 24 hours per day at the entry pit. However, with regard to the noise associated with the use of HDD, the location of the entry and receiving pits in relation to residences varies. Specifically, the noise levels at the closest residence to the entry pit during construction would be 67 dBA along the primary route, the noise levels would remain close to the ambient along Alternative 1, and would be close to 85 dBA along Alternative 2. Although the operation of the HDD at the receiving pit can be curtailed in the nighttime, the daytime noise levels at the receiving pit for the primary route and Alternative 2 could be high due to the proximity of the closest residences, while Alternative 1 is located 650 feet away from the closest residence. Further, there is little indication that on-site mitigation could meaningfully reduce the noise levels at the affected residences. Accordingly, the Siting Board finds that Alternative 1 would be preferable to the primary route, which in turn would be preferable to Alternative 2 with respect to noise impacts.

e. Conclusions on Environmental Impacts

In Sections III.C.2.a, III.C.2.b, III.C.2.c, and III.C.2.d above, the Siting Board has reviewed the record evidence regarding the construction impacts and the permanent impacts of the proposed pipeline, and has imposed mitigation where necessary to minimize the environmental impacts of the proposed pipeline. Based on its review of the record, the Siting Board finds that Berkshire has provided sufficient information regarding environmental impacts and potential mitigation measures to allow the Siting Board to determine that the Company has achieved the proper balance among environmental impacts.

In Sections III.C.2.a, III.C.2.c, and III.C.2.d, above, the Siting Board found that, with implementation of the stated conditions, the environmental impacts of the proposed pipeline along the primary route would be minimized. The Siting Board found that the primary route would be comparable to Alternative 2, and preferable to Alternative 1 with respect to land resources impacts; the primary route would be preferable to both Alternative 1 and Alternative 2 with respect to wetlands and water resource impacts; that the primary route would be comparable to Alternative 1, and preferable to Alternative 2 with respect to construction traffic impacts; and Alternative 1 would be preferable to the primary route, which in turn would be preferable to Alternative 2 route with respect to noise impacts.

Thus, in comparing the primary route to Alternative 1 as to overall environmental impacts, the advantages of the primary route with respect to land resource impacts and wetland and water resource impacts must be balanced with the advantage of Alternative 1 with respect to noise impacts. The primary route would avoid construction in agricultural areas and habitat resource areas that are located along Alternative 1. Further, approximately 0.5 acres of trees would need to be cleared along Alternative 1, which would have a permanent impact on the landscape. The advantages of Alternative 1 over the primary route with respect to noise are confined to the use of HDD, which is a small percentage of the overall construction schedule, where overall construction noise is comparable along the two routes. Therefore, on balance, the primary route would be preferable to both Alternative 1 and Alternative 2 with respect to environmental impacts.

Consequently, the Siting Board finds that the environmental impacts of the proposed pipeline along the primary route would be minimized, and that the primary route would be preferable to Alternative 1 and Alternative 2 with respect to environmental impacts.

3. Cost and Reliability

a. Description

Berkshire asserted that the primary route would be the least cost alternative (Exh. BGC-1(R) at 5-18). The Company estimated that the cost of the proposed pipeline along the primary route would be $4,483,773, and the cost of the proposed pipeline would be $7,571,539 along Alternative 1 and $6,526,042 along Alternative 2 (Exhs. BGC-1(R) at App. C; EFSB-G-4; EFSB-G-5). The Company explained that these cost estimates include route-specific costs, as well as the cost of work at the Northampton Gate Station and at the UMass service line and meter, which would be the same for all three routes (Exh. EFSB-G-4). Berkshire stated that total pipeline installation costs were estimated to be $225 per linear foot based upon the Company's past experience with pipeline construction and information received from vendors (Exh. BGC-19(R) at Att. 4-B-3; Brief at 30).

Berkshire stated that it developed specific, distance-based estimates for the pipeline construction and related mitigation (Exh. BGC-1(R) at 5-16). The Company then factored in cost adjustments for area-specific complicated construction, such as the I-91 crossing on each route (id. at 5-17).

With regard to reliability, Berkshire asserted that the primary and both alternative routes would be comparable in terms of reliability and operation flexibility (Exh. EFSB-G-6). The Company recognized that with use of any route, the project would provide some operational benefits since a greater rate of gas throughput could be supplied from the Northampton Gate Station and additional portions of the Greenfield and Amherst Feedlines would be looped (Exh. BGC-1(R) at 5-36). The Company explained that the reliability is similar since each route results in comparable looping of Berkshire's existing distribution system (Exh. EFSB-G-6).

b. Analysis

The Company's estimate of the cost of constructing the proposed pipeline along the primary route is approximately $3 million lower than the estimate for Alternative 1, and approximately $2 million lower than its estimate of Alternative 2. Accordingly, the Siting Board finds that the primary route is preferable to Alternative 1 and Alternative 2 with respect to cost.

With regard to reliability, the record shows that the construction environment and techniques, use of looping, and operational characteristics are similar with each of the three routes. Accordingly, the Siting Board finds that the primary route and Alternative 1 and Alternative 2 are comparable with respect to reliability.

4. Conclusions on Facility Routing

The Siting Board has found, above, that the primary route would be preferable to the alternative routes with respect to environmental impacts and cost. The Siting Board also has found that primary and alternative routes would be comparable with respect to reliability.

Based on its review of the record, the Siting Board finds that Berkshire has provided sufficient information regarding costs, reliability, and environmental impacts to allow the Siting Board to determine whether it has achieved the proper balance between environmental impacts, cost and reliability. Accordingly, the Siting Board finds that the primary route is preferable to Alternative 1 and Alternative 2 with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible 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 to serve the Company's anticipated load at UMass. 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, combined with a load management agreement with the primary customer, UMass, would be superior to alternative approaches 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.C, above, the Siting Board found that with the implementation of listed conditions regarding land resources, traffic, and construction noise, the proposed project would be preferable to the alternative routes 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 conditions regarding land resource, traffic, and construction noise, the environmental impacts of 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, 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, and historic preservation. As evidenced by the above discussions and analyses, the Siting Board finds that the proposed project along the primary 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 land resource and development policies as adopted by the Commonwealth.

Accordingly, the Siting Board finds that, upon compliance with the conditions set forth in Section III.C, above, and listed below, the construction and operation of the proposed project will

provide 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 proposal of The Berkshire Gas Company to construct an approximately 3.6 mile, 12-inch diameter gas pipeline in the City of Northampton and the Town of Hatfield along the primary route, subject to the following conditions:

Prior to commencement of construction of the proposed project:

(A) In order to minimize land resource impacts, the Siting Board directs the Company to provide a copy to the Siting Board of final NHESP correspondence addressing any requirements for further monitoring and mitigation, as applicable, with regard to habitat areas along the primary route.

(B) In order to minimize land resource impacts, the Siting Board directs the Company to consult with the MHC and provide a copy to the Siting Board of MHC correspondence addressing any requirements for further analysis and mitigation to allow construction of the proposed pipeline through Northampton and Hatfield.

(C) In order to minimize land resource impacts, the Siting Board directs the Company to collaborate with the MHC and the Town of Hatfield on the placement of the pipeline in the Hatfield historic districts to avoid, to the extent possible, construction impacts from the installation of the pipeline.

(D) In order to minimize traffic impacts, the Siting Board directs the Company to submit draft Traffic Management Plans to Northampton and Hatfield officials at least two months prior to the commencement of construction.

During construction of the proposed project:

(E) In order to minimize noise impacts, the Siting Board directs the Company to: (1) employ and maintain sound mufflers on construction equipment; (2) comply with applicable idling limitations when operating construction equipment; and (3) to the extent possible, use shielding and the optimal placement of equipment to minimize construction noise impacts.

(F) In order to minimize noise impacts, the Siting Board directs the Company to confine noisy HDD operations at the receiving pit, including but not limited to welding, slurry pump operation, and excavation, to the same daytime construction schedule as is proposed for the linear construction activities along the proposed route.

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 Berkshire 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. Berkshire 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.

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Selma Urman
Presiding Officer

January 13, 2006

APPROVED by a majority of the Energy Facilities Siting Board, at its meeting of January 12, 2006, by the members and designees present and voting. Voting for approval of the Tentative Decision, as amended: Judith F. Judson (Chairman, DTE/EFSB), W. Robert Keating (Commissioner, DTE); David L. O'Connor, (Commissioner, Division of Energy Resources); James Connolly, (Commissioner, DTE); Stephen Pritchard, (Secretary of Environmental Affairs); and Deborah Shufrin (for Ranch C. Kimball, Secretary, of Economic Development).

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Judith F. Judson, Chairman
Energy Facilities Siting Board

Dated this 12th day of January, 2006

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).