COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

In the Matter of the Petition of Pioneer Valley Energy Center, LLC for Approval to Construct a Generating Facility in the City of Westfield, Massachusetts and the Petition of Pioneer Valley Energy Center, LLC and Westfield Gas & Electric for Approval to Construct a Natural Gas Pipeline in the City of Westfield, Massachusetts	)	EFSB 08-1

FINAL DECISION

Selma Urman,
Presiding Officer
October 19, 2009

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ABBREVIATIONS

1985 MECo/NEPCo Decision	Massachusetts Electric Company/New England Power Company, 13 DOMSC 119 (1985)
2005 NSTAR Electric Decision	Boston Edison Company, d/b/a NSTAR Electric, 14 DOMSB 233 (2005)
2008 BELD Decision	Braintree Electric Light Department, 16 DOMSB 78 (2008)
2008 MMWEC Decision	Massachusetts Municipal Wholesale Electric Company, 16 DOMSB 233 (2008)
2009 Brockton Power Decision	Brockton Power, LLC, EFSB 07-2, D.P.U. 07-58/D.P.U. 07-59 (2009)
AAL	Allowable Ambient Limit
ALOHA	Areal Locations of Hazardous Atmospheres
Andover	Town of Andover v. Energy Facilities Siting Board, 435 Mass 377 (2001)
ANP Blackstone Decision	ANP Blackstone Energy Company, 8 DOMSB 1 (1999)
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
BACT	Best Available Control Technology
BCF	billion [standard] cubic feet
Billerica Decision	Montgomery Energy Billerica Power Partners, 16 DOMSB 317 (2009)
Brockton Decision	Brockton Power, LLC, 10 DOMSB 157 (2000)
CO	carbon monoxide
Company	Pioneer Valley Energy Center, LLC
dBA	A-weighted decibels
DOMSB	Decisions and Orders of Massachusetts Energy Facilities Siting Board
DOMSC	Decisions and Orders of Massachusetts Energy Facilities Siting Council
EFSB	Energy Facilities Siting Board
EMF	electric and magnetic field(s)
ERPG	Emergency Response Planning Guidelines
FAA	Federal Aviation Administration

HDD	horizontal directional drill
HRSG	heat recovery steam generator
IDC Decision	IDC Bellingham LLC, 9 DOMSB 225 (1999)
ISO-NE	Independent System Operator of New England
kV	kilovolts
kV/m	kilovolts per meter
L_{90}	sound level exceeded 90 percent of time
LAER	Lowest Achievable Emission Rate
lbs/mmBtu	pounds per million British thermal units
LNG	liquefied natural gas
MAAQS	Massachusetts Ambient Air Quality Standards
MADEP	Massachusetts Department of Environmental Protection
MassHighway	Massachusetts Highway Department
MECo/NEPCo Decision	Massachusetts Electric Company and New England Power Company,18 DOMSC 383 (1989)
mG	milligauss
Mgd	million gallons per day
MMBtu	million British thermal units
MSDS	Material Safety Data Sheet
MW	megawatts
NAAQS	National Ambient Air Quality Standards
NESCAUM	Northeast States for Consolidated Air Use Management
NHESP	Natural Heritage and Endangered Species Program
Nickel Hill Decision	Nickel Hill Energy, LLC, 11 DOMSB 83 (2000)
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NNSR	Non-attainment New Source Review
PAH	polycyclic aromatic hydrocarbon
Pipeline Applicants	PVEC together with WG&E
$PM_{2.5}$	particulates 2.5 microns or smaller
PM_{10}	particulates 10 microns or smaller
ppm	parts per million

primary route	proposed 2.5-mile natural gas pipeline route
PSD	Prevention of Significant Deterioration
psig	pounds per square inch, gauge
PVEC	Pioneer Valley Energy Center, LLC
RCRA	Resource Conservation and Recovery Act (1976)
ROW	right-of-way
SCR	Selective Catalytic Reduction
SILs	Significant Impact Levels
Sithe Edgar Decision	Sithe Edgar Development, LLC, 10 DOMSB 1 (2000)
Sithe Mystic Decision	Sithe Mystic Development, LLC, 9 DOMSB 101 (1999)
Siting Board	Energy Facilities Siting Board
SO_2	sulfur dioxide
Southern Canal Decision II	Southern Energy Canal II, L.L.C., 12 DOMSB 155 (2001)
SPCC	Spill Prevention, Control and Countermeasure [plan]
TEL	Threshold Effects Exposure Limit
TGP	Tennessee Gas Pipeline Company
tpy	tons per year
TPS	Technology Performance Standards
$\mu g/m^3$	micrograms per cubic meter
ULSD	ultra-low sulfur diesel oil
USEPA	U. S. Environmental Protection Agency
U.S. Gen Decision	U.S. Generating Company, 6 DOMSB 1 (1997)
VOCs	volatile organic compounds
WMECO	Western Massachusetts Electric Company
WG&E	Westfield Gas & Electric
WLDC	Westfield Land Development Company, LLC

Pursuant to G.L. c. 164, § 69J¼, the Massachusetts Energy Facilities Siting Board ("Siting Board") hereby APPROVES, subject to the conditions set forth below, the petition of Pioneer Valley Energy Center, LLC ("PVEC" or "Company") to construct a 400-megawatt dual-fueled combined-cycle electric generation facility at the proposed site in the City of Westfield. Furthermore, pursuant to G.L. c. 164 § 69J, the Siting Board hereby APPROVES, subject to the conditions set forth below, the petition of PVEC and Westfield Gas & Electric ("WG&E") to construct a 2.5-mile natural gas pipeline in the City of Westfield.

I. INTRODUCTION

A. Summary of Proposed Facilities

Pioneer Valley Energy Center, LLC, previously known as Westfield Land Development Company, LLC,[1] is proposing to construct a 400 megawatt[2] ("MW") combined-cycle, dual fuel (natural gas and ultra low sulfur distillate ("ULSD") electric generating facility on approximately 13 acres of a 45-acre site in Westfield (Exh. WLDC-1, at 1). PVEC, in conjunction with WG&E, also proposes to construct an approximately 2.5-mile natural gas pipeline connecting WG&E's gas transmission pipeline system to the proposed generating facility (id.). The Company is seeking approval from the Massachusetts Department of Environmental Protection ("MADEP") to operate the facility for up to 8760 hours per year, including use of a maximum of 21.0 million gallons per year of ULSD fuel, with no daily limit on ULSD use; 21.0 million gallons per year is equivalent to 1440 hours (60 days) per year at the maximum heat rate (id. at 19; Exh. WLDC-3, at 2; Tr. 1, at 12; Tr. 3, at 300). The proposed generating facility would be located on an undeveloped 45-acre industrial zoned property one mile north of the Massachusetts Turnpike on Ampad Road in Westfield (Exh. WLDC-1, at 1). All immediately surrounding property is also zoned for industrial use, and the closest residences are located just over one-half mile from the nearest proposed structure (Exh. EFSB-LU-4).

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[1] On May 29, 2009, the Company notified the Siting Board that the Company's name was changed from Westfield Land Development Corporation, LLC, to Pioneer Valley Energy Center, LLC.

[2] The maximum gross output would be 431 MW (Exh. WLDC-3, at 2; Tr. 3, at 291-295). The 400 MW figure is a round number corresponding to net output at around 45 degrees Fahrenheit (id.).

The proposed generating facility would include a 115-foot tall generator building containing a gas turbine, a heat recovery steam generator, and electric generators (Exh. WLDC-1, at 8, 109). A 180-foot high, 23-foot diameter stack would disperse combustion turbine exhaust gases, and a 241-foot long, 41-foot tall structure would provide wet cooling (id.). The site would contain storage tanks for ULSD fuel, aqueous ammonia, and raw and de-mineralized water (id. at 9).

PVEC stated that it would use water from the Tighe-Carmody Reservoir which is part of the Holyoke reservoir water supply system, supplemented with water from the Westfield municipal water supply system to service the proposed facility (Exh. WLDC-1, at 6). Holyoke's Reservoir would be the primary source of water for the wet cooling system (id.). Water from the Westfield Municipal System would be used for potable uses at the proposed facility, for use in the combustion turbine and HRSG, and as a back-up source for cooling water (id.).

The Company stated that there are two existing, but out-of-use, 20-inch water supply lines which run from the Tighe-Carmody Reservoir to Holyoke, passing within one mile of the proposed generating facility site (Exh. WLDC-1, at 6). PVEC would rehabilitate one or both of these lines from a point near the reservoir to a point near the facility (id.). The Company would construct a new supply line between the rehabilitated 20-inch lines and the new generating facility (id.).[3]

The electricity generated by the generating facility would be distributed to the regional electricity grid by connecting to an existing Western Massachusetts Electric Company ("WMECO") 115 kV transmission line that passes through the site (id. at 13). The existing 115 kV line would be bisected at the interconnection to the facility, by means of a 115 kV ring bus switching station to be constructed within the generating facility site (id.).

The proposed 2.5-mile gas pipeline route ("primary route") would begin at a point on the WG&E delivery system on the south side of the Westfield River in Westfield, extend under the Westfield River by a 550-foot horizontal directional drill ("HDD"), and continue north to the generating facility on the Pioneer Valley Railroad right-of-way (Exh.WLDC-1, at 21). The

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[3] PVEC stated that Holyoke Water Works would own and operate the 20-inch water lines after they are rehabilitated; however, it had not settled the commercial question whether PVEC or Holyoke Water Works would manage the work of re-lining the water lines (Tr. 2, at 282-283).

pipeline would be a 12-inch diameter steel pipe normally operating at approximately 700 pounds per square inch, gauge ("psig"), with a maximum allowable operating pressure of 878 psig and a delivery capacity of 62,000 dekatherms per day (id. at 20). The locations of the proposed generating facility and pipeline are shown in Figure 1, attached.

The alternative route for the gas pipeline is approximately 3.5 miles in length. It would begin at the existing Northampton Lateral at the intersection of North Road and East Mountain Road in Westfield. The pipeline would continue on North Road westbound to an existing electric transmission easement and then south to the proposed site (Exh. WLDC-1, at 41).

B. Jurisdiction and Scope of Review

1. Generating Facility

PVEC filed its petition to construct the proposed facility in accordance with G.L. c. 164, § 69J¼. Pursuant to G.L. c. 164, § 69J¼, no applicant shall commence construction of a "generating facility" unless a petition for approval of construction of that generating facility has been approved by the Siting Board. Pursuant to G.L. c. 164, § 69G, a jurisdictional "generating facility" is defined as "any generating unit designed for or capable of operating at a gross capacity of 100 megawatts or more, including associated buildings, ancillary structures, transmission and pipeline interconnections that are not otherwise facilities, and fuel storage facilities." Because the proposed facility is capable of operating at a gross capacity of 100 MW or more, it is a "generating facility" requiring Siting Board approval under G.L. c. 164, § 69J¼.

In accordance with G.L. c. 164, § 69J¼, before approving a petition to construct a generating facility, the Siting Board must determine that the applicant has met five requirements. First, the Siting Board must determine that the applicant's description of the site selection process used is accurate (see Section II.A, below). Second, the Siting Board must determine that the applicant's description of the proposed generating facility and its environmental impacts are substantially accurate and complete (see Section II.C, below). Third, the Siting Board must determine that the proposed generating facility will minimize environmental impacts consistent with the minimization of costs associated with mitigation, control, and reduction of the environmental impacts (see Section II.C, below). Fourth, the Siting Board must determine that plans for construction of the proposed generating facility are consistent with current health and environmental protection policies of the Commonwealth and with such energy policies as are

adopted by the Commonwealth for the specific purpose of guiding the decisions of the Board (see Section IV, below). Fifth, if the expected emissions from the proposed facility do not meet the applicable technology performance standard, the Siting Board must determine, based on a comparison with other fossil fuel generating technologies, that the proposed generating facility on balance contributes to a reliable, low-cost, diverse regional energy supply with minimal environmental impacts (see Section II.C, below).

2. Gas Pipeline

PVEC and WG&E ("Pipeline Applicants") filed their joint petition to construct a natural gas pipeline 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, the Pipeline Applicants' 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.

Before approving a petition to construct facilities pursuant to G.L. c. 164, §69J, the Siting Board requires an applicant to justify its proposal in three phases. First, the Siting Board requires the applicant to show that additional energy resources are needed (see Section III.A, below). Next, the Siting Board requires that the applicant 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 III.B, below). Finally, the Siting Board requires the applicant to show that it has considered a reasonable range of practical 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 Sections III.C and III.D, below).

C. Procedural History

In accordance with G.L. c. 164, §69J¼, on June 18, 2008, PVEC filed a petition with the Siting Board for approval to construct the proposed generating facility in Westfield, Massachusetts, described above (Exh. WLDC-1). On the same day, PVEC and WG&E filed a joint request pursuant to G.L. c. 164, §69J to construct the proposed gas pipeline facilities described above to interconnect with the proposed generating facility (id.).

The Siting Board staff conducted a public comment hearing in the City of Westfield on August 5, 2008. Siting Board staff granted the petition to intervene filed by WMECO, and the petitions for limited participant status filed by the City of Westfield and Christopher and Kellye Shuman. The Siting Board staff conducted four days of evidentiary hearings between November 25, 2008, and December 12, 2008. The Company presented the testimony of three witnesses: Matthew A. Palmer, Project Manager for PVEC; Dammon M. Frecker, Vice President of Energy and Industrial Services at ESS Group, Inc.; and Dr. Peter Valberg, Principal and Senior Scientist at Gradient Corporation. PVEC was the only party participating in evidentiary hearings, and filed a single brief on January 9, 2009. Neither the intervenor nor the limited participants in this matter filed a brief. The evidentiary record consists of approximately 150 exhibits which are primarily Company responses to information requests and record requests issued by Siting Board staff.

On June 11, 2009, the Siting Board met to consider this matter, and directed staff to draft a tentative decision approving PVEC's petition and the joint petition of PVEC and WG&E with the conditions as set forth below.

II. ANALYSIS OF PROPOSED GENERATING FACILITY

A. Site Selection

1. Standard of Review

G. L. c. 164, § 69J¼ requires the Siting Board to determine whether an applicant's description of the site selection process used is accurate. An accurate description of an applicant's site selection process includes a complete description of the environmental, reliability, regulatory, and other considerations that led to the applicant's decision to pursue the project as proposed at the proposed site, as well as a description of other siting and design options that were considered as part of the site selection process.

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. To accomplish this, G. L. c. 164, § 69J¼ requires the Siting Board to determine whether "plans for the construction of a proposed facility minimize the environmental impacts consistent with the minimization of costs associated with the mitigation, control, and reduction of the environmental impacts of the proposed generating facility." Site selection, together with project design and mitigation, is an integral part of the process of minimizing the environmental impacts of an energy facility.[4]

2. Description

The Company stated that, based on its understanding of the marketplace for generation in the region, the Company identified a need for new base load generation capacity, with a particular preference for natural gas combined-cycle generating facilities (Exh. WLDC-1, at 36). The Company stated that it focused on areas of Massachusetts with suitable conditions for industrial development, and areas where it would have the ability to secure a long-term electricity supply contract (id. at 37; Tr. 2, at 159). PVEC explained that its primary considerations in identifying potential sites included availability of sufficient acreage (15 acres or more) in an industrial zone, proximity to a high pressure gas transmission line and an electric transmission corridor, suitable zoning, a favorable political climate in the community, and adequate buffering from residential neighborhoods and sensitive receptors (id. at 36).

PVEC stated that it identified several areas in Massachusetts where small municipal electric companies are located, including south of Boston, in the vicinity of Worcester, and near Springfield (Exh. WLDC-1, at 37). The Company stated that after reviewing each of these markets in detail, it determined that the Springfield area would benefit from additional generation (id.). After evaluating available properties with sufficient size for the proposed facilities and the receptiveness of communities in the Springfield area, the Company determined that the City of Westfield contained the most suitable sites for the proposed project (id.). PVEC

[4] See Section II.A.3 for further discussion regarding the standard of review for site selection.

explained that Westfield is closest to the main Tennessee Gas Transmission pipeline, and has an active municipal light plant; the Company further stated that Westfield officials are supportive of the proposed project (id.; Tr. 2, at 160).

PVEC stated that it considered three potential sites in Westfield: (1) property near the Westfield River and an existing municipal wastewater treatment plant; (2) property located to the northwest of the Barnes Municipal Airfield; and (3) the proposed site (Exh. WLDC-1, at 38). According to the Company, the site near the Westfield River is proximate to both electric transmission and gas pipeline interconnections, and has sufficient acreage as well as significant buffer between the site and the nearest residence (id.). PVEC determined that since the property is located in a floodway regulated by the Federal Emergency Management Agency, it would be impractical to pursue the proposed project at this site (id.). With respect to the site northwest of the airfield, PVEC stated that it has sufficient acreage, immediate access to an electric transmission interconnection, reasonable access to high pressure gas interconnection, and significant buffer between residences and other sensitive receptors (id.). PVEC stated, however, that Federal Aviation Administration ("FAA") regulations limit the height of any structure at the site to a maximum of 106 feet to avoid impacts on airfield operations (id.). PVEC, therefore, eliminated this site based on the Company's inability to construct a stack of sufficient height to allow for proper dispersion of emissions from the proposed facility (id.).

According to the Company, it chose the proposed Ampad Road site because it is the only site that meets required infrastructure requirements, has adequate acreage, has immediate access to 115 kilovolt ("kV") electric transmission lines, has reasonable access to high pressure gas via several potential routes, and is zoned for development of an electric generating facility (Exh. WLDC-1, at 38). In addition, PVEC stated that the proposed site has fewer wetland impacts than the other industrial properties it considered (id.).

In response to Siting Board staff's request for more specific information regarding the Company's site selection process, PVEC provided a matrix setting forth selection screening of the three Westfield sites as well as several others PVEC identified outside of Westfield in Western Massachusetts (Exh. EFSB-SS-2). The additional sites are located in Springfield, West Springfield, and East Longmeadow and, according to the Company, each assessed site, aside from the one selected for development, had a flaw precluding viable development of the proposed generating facility (id.). These sites are summarized in Table 1, below.

Table 1. Summary of Sites					
Site	**Description**	**Proximity to Gas**	**Proximity to Power**	**Public Power Community**	**Flaws**
Ampad Road (chosen site)	45-acre vacant industrial land	Available via proposed pipeline	115-kV lines on parcel	Yes	None
Atlantic Tree Nursery, Westfield	100-acre agricultural land, abuts wastewater treatment plant and Westfield river	Tennessee lateral across street with limited available service	115-kV lines on site	Yes	Located within Westfield River floodway
Campanelli Industrial Park, Westfield	Existing industrial park with 2 vacant sites	Would be available via proposed pipeline	115-kV lines abut site	Yes	Proximity to Westfield airport would preclude sufficiently tall stack
Bondi's Island, West Springfield	24-acre remediated waste site, abuts wastewater treatment plant	High pressure line would need to be extended from Agawam	Lines and substation abut site	No	Structural restrictions due to landfill
Smith & Wesson Development, Springfield	Large remediated industrial site	High pressure line several miles away	Lines and substation abut	No	Near residences; Gas delivery would be expensive
Deer Park Industrial Center, East Longmeadow	Industrial park developed by Western MA Development Council	High pressure line in abutting road	115-kV lines abut site	No	Site too small; near residences

(Exh. EFSB-SS-2)

PVEC maintained that it has accurately set forth the key elements of its site selection process in satisfaction of the requirements of G.L. c. 164, § 69J¼ (Exh. WLDC-1, at 38).

3. Analysis

The record shows that the Company evaluated several areas in Massachusetts where municipal light departments are located (Exh. WLDC-1, at 37). After reviewing these markets, the Company determined that based on proximity to the main Tennessee Gas Transmission pipeline, its active municipal light plant, and the support of its municipal officials, the City of Westfield had the most suitable potential sites for the proposed facility. After investigating three proposed industrial sites in Westfield, the Company determined that the proposed Ampad Road site was the only site that met all of PVEC's infrastructure requirements, and that it had fewer

environmental impacts than the two other Westfield sites under consideration. Overall, PVEC's site selection process was limited.

With respect to site selection, G.L. c. 164, § 69J¼ provides that a petitioner must meet the requirement that "the description of the site selection process used is accurate". The Supreme Judicial Court of Massachusetts in the Town of Andover v. Energy Facilities Siting Board, 435 Mass. 377 (2001) ("Andover") affirmed that the Siting Board's minimum duties with respect to site selection review are limited to a determination of whether the petitioner's description of its site selection process is accurate.[5] Here, there is nothing in the record to indicate that the petitioner's description of its site selection process was inaccurate.

The Siting Board finds that PVEC provided an accurate description of its site selection process.

B. Technology Selection

The Siting Board's Technology Performance Standard ("TPS") requires a proponent to prepare an analysis of alternative fuel technologies if the project does not meet a published set of emissions criteria.

1. Standard of Review

G. L. c. 164, § 69J¼ requires the Siting Board to promulgate technology performance standards for generating facility emissions. The TPS are to be used solely to determine whether a petition to construct a generating facility must include information regarding fossil fuel generating technologies other than the technology proposed by the petitioner. G. L. c. 164, § 69J¼. If the expected emissions of the facility do not meet the technology performance

[5] As we noted in Brockton Power, LLC, EFSB 07-7/D.P.U. 07-58/D.P.U. 07-59, at 9-10 (2009) ("2009 Brockton Decision"), the Siting Board has not addressed the scope of its authority post-Andover. We have held in a number of post-Andover cases that site selection, together with project design and mitigation, is an integral part of the process of minimizing the environmental impacts of a generating facility. Id. However, the Siting Board has not addressed how that scope of review and the holding in Andover should be reconciled nor whether Andover speaks to the Siting Board's *duties* as opposed to its *discretion.* Id. The Siting Board intends to provide guidance on this matter for future generating facility project proponents. Id.

standards in effect at the time of filing, the petitioner must include in its petition a description of the environmental impacts, costs, and reliability of other fossil fuel generating technologies, and an explanation of why the proposed technology was chosen. Id. The Siting Board must then determine whether the construction of the proposed generating facility on balance contributes to a reliable, low-cost, diverse regional energy supply with minimal environmental impacts. Id.

2. Discussion and Analysis

The Company calculated project emission rates for the five criteria pollutants and sixteen non-criteria pollutants for which the Siting Board has set TPS (Exh. WLDC-1, at 31, tables 3.1-1, 3.1-2). For all 21 pollutants, the generating facility's potential emission rates fall below the TPS (id.). Therefore, the Company was not required to provide a comparison of the technology for the proposed generating facility to potential alternatives.

C. Environmental Impacts

1. Standard of Review

G. L. c. 164, § 69J¼ requires the Siting Board to determine whether the plans for construction of a proposed generating facility minimize the environmental impacts of the proposed facility consistent with the minimization of costs associated with the mitigation, control, and reduction of the environmental impacts of the proposed generating facility. In order to make this determination, the Siting Board assesses the impacts of the proposed facility in eight areas prescribed by its statute – air quality, water resources, wetlands, solid waste, visual impacts, noise, local and regional land use, and health – and determines whether the applicant's description of these impacts is accurate and complete. G. L. c. 164, § 69J¼.

The Siting Board also assesses the costs and benefits of options for mitigating, controlling, or reducing these impacts, and determines whether mitigation beyond that proposed by the applicant is required to minimize the environmental impacts of the proposed facility consistent with the minimization of costs associated with the mitigation, control, and reduction of the environmental impacts of the proposed generating facility. Compliance with other agencies' standards does not establish that a proposed facility's environmental impacts would be minimized.

Finally, the Siting Board assesses any tradeoffs that need to be made among conflicting environmental impacts, particularly where an option for mitigating one type of impact has the

effect of increasing another type of impact. An assessment of all impacts of a facility is necessary to determine whether an appropriate balance is achieved both among conflicting environmental concerns and between environmental impacts and cost. A facility proposal which achieves this balance meets the Siting Board's statutory requirement to minimize environmental impacts consistent with minimizing the costs associated with the mitigation, control, and reduction of the environmental impacts of the proposed generating facility.

G.L. c. 164, § 69J¼ also requires the Siting Board to determine whether the plans for construction of a proposed generating facility are consistent with current health and environmental protection policies of the Commonwealth and with such energy policies of the Commonwealth as are adopted by the Commonwealth for the specific purpose of guiding the decisions of the Siting Board. The health and environmental protection policies applicable to the review of a generating facility vary considerably depending on the unique features of the site and technology proposed; however, they may include existing regulatory programs of the Commonwealth relating to issues such as air quality, water-related discharges, noise, water supply, wetlands or riverfront protection, rare and endangered species, and historical or agricultural land preservation.

2. Air Quality

This section describes baseline air quality conditions, emissions and impacts of the proposed facility, and compliance with existing regulations. The plant's turbines would be primarily gas-fired, with up to 8760 hours of operation per year and consumption of no more than 20.9 million gallons per year of ULSD fuel, equivalent to 1440 hours (60 days) per year (Exh. WLDC-1, at 19). The generating facility would have a 180-foot emissions stack (id. at 7).

a. Applicable Regulations

The Company indicated that the principal air quality regulatory programs that apply to the proposed facility are: MADEP's Major Comprehensive Plan Approval and USEPA's Nonattainment New Source Review ("NNSR"), Prevention of Significant Deterioration ("PSD") and Acid Rain Program (Exh. WLDC-1, at 46).

MADEP's regulations require a best available control technology ("BACT") or lowest achievable emission rate ("LAER") analysis, as appropriate, and a demonstration that the project will not cause or contribute to an exceedance of state or national ambient air quality standards

("MAAQS" and "NAAQS", respectively) (id. at 46-48). All areas of the country are classified as "attainment," "non-attainment," or "unclassified" with respect to NAAQS for the criteria pollutants nitrogen dioxide ("NO_2"), sulfur dioxide ("SO_2"), lead, carbon monoxide ("CO"), ground level ozone, and particulate matter (id. at 47). The proposed facility is in a non-attainment area for ozone, so because the proposed facility's potential ozone precursor, nitrogen oxides ("NO_X"), exceeds the major source threshold, review under NNSR is required. The facility will be required to acquire offsets and implement Lowest Achievable Emissions Rate ("LAER") for NO_X (id.). The proposed facility's potential CO and NO_2 emissions exceed the major source thresholds (Tr. 1, at 70-71). The Company provided information indicating that potential emissions of SO_2, lead and particulate matter would not exceed the major source thresholds (id.; Exh. WLDC-3 at table 7-3). Because the proposed facility's potential emissions exceed the major source threshold for at least one criteria pollutant, review under PSD is required (Exh. WLDC-4, at 21; Tr. 1, at 71). The Company stated that, beyond the PSD program, MADEP pre-construction permitting requires at least BACT for all emissions (Exh. WLDC-3; Tr. 1, at 78-79).

b. Baseline Air Quality

Air quality in the project area is in attainment with the NAAQS for all pollutants except ozone (Exh. WLDC-1, at 52). Massachusetts is in attainment for the other criteria pollutants including CO, lead, NO_2, SO_2, and particulate matter (including particulate matter smaller than 10 microns – PM_{10} and particulate matter smaller than 2.5 microns – $PM_{2.5}$) (id.). The Company stated that there are no ambient air monitors located in Westfield (id.). There are three ambient air monitoring stations located in Hampden County: PM_{10} and $PM_{2.5}$ monitors located approximately 8.25 miles south-east of the site in Springfield; CO, SO_2, NO_2, and $PM_{2.5}$ monitors located approximately 8.5 miles southeast of the site, also in Springfield; and ozone, NO_2, and $PM_{2.5}$ monitors located approximately 9.5 miles northeast of the site, at the Westover Air Force Base in Chicopee (id.). The Company asserted that the Chicopee and Springfield monitoring stations are in close proximity to the site, and are representative of the site in terms of topography, climatology, and meteorology (id.). The Company used measured background concentrations recorded at the Springfield and Chicopee air monitoring stations (id. at table 5.2-3).

c. Proposed Facility Impacts

PVEC filed a Comprehensive Plan Approval Application with MADEP as well as a PSD Permit Application with the U.S. Environmental Protection Agency ("USEPA") on November 24, 2008 (Exhs. WLDC-3; WLDC-4). The Comprehensive Plan Approval Application contains appropriate BACT and LAER analyses for air emissions, as required by MADEP (Exh. WLDC-3, at 27-38). Proposed air pollution control systems include dry low-NO_X combustion technology, water injection during ULSD firing and a selective catalytic reduction system to control NO_X, as well as a CO oxidation catalyst for control of CO and volatile organic compounds ("VOCs") (id. at 12). The cooling tower would be equipped with mist eliminators to control particulate matter (id.). A summary of project air emissions is provided in Table 2, below.[6]

Table 2. PVEC Project Emissions

Pollutant	Concentration Using Gas	Concentration Using Oil	Annual Max Emissions	Control Method
NO_2/NO_X	2.0 ppm	5.0 ppm	110.9 tons/yr	Water Injection, Selective Catalytic Reduction
CO	2.0 ppm	6.0 ppm	549.9 tons/yr	Oxidation Catalyst
VOC	1.0 ppm	6.0 ppm	24.8 tons/yr	Oxidation Catalyst
Particulate	0.0040 lb/MMBtu	0.014 lb/MMBtu	51.0 tons/yr	Cooling Tower Mist Eliminators
SO_2	0.0019 lb/MMBtu	0.0017 lb/MMBtu	18.0 tons/yr	Fuel Selection

(Exh. WLDC-3, at 2, Table 3-1, Table 7-3; Tr. 1, at 9-10)

The Company conducted screening level and refined air dispersion modeling to evaluate the project's potential ambient air impacts for criteria pollutants and air toxics (id. at 57). PVEC concluded that the project would not cause or contribute to an exceedance of the health-based NAAQS, and that the maximum predicted worst case impacts of criteria pollutants from the facility are below Significant Impact Levels ("SILs") established by the USEPA (id.). PVEC did

[6] USEPA has not promulgated SILs for $PM_{2.5}$. PVEC stated that MADEP has adopted a draft policy of applying $PM_{2.5}$ SILs recommended by Northeast States for Coordinated Air use Management ("NESCAUM"). Therefore, PVEC used the NESCAUM recommended SILs for its analysis of $PM_{2.5}$ (Exh. WLCD-5 at Table 3.3-1).

not conduct interactive source modeling as part of its air permitting, as its modeling showed that air impacts would be below SILs (Exh. EFSB-A-14).[7]

Air quality impacts of the generating facility, as predicted by adding modeled facility impacts to regional background concentrations, are summarized in Table 3, below.

Table 3. PVEC Project Emissions Impacts

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	Maximum Project Impacts		Background Concentrations ($\mu g/m^3$)	Total Predicted Ambient Concentrations	
				($\mu g/m^3$)	% of SIL		($\mu g/m^3$)	% of NAAQS
CO	1-hr	40,000	2000	104.2	5%	3843	3947	10%
	8-hr	10,000	500	18.2	4%	3028	3046	30%
NO_2	Annual	100	1	0.6	60%	19.1	20	20%
PM_{10}	24-hr	150	5	1.9	38%	53	55	37%
$PM_{2.5}$	24-hr	35	2*	1.9	95%	28.3	30	86%
	Annual	15	0.3*	0.2	67%	10	10	67%
SO_2	3-hr	1300	25	2	8%	99	101	8%
	24-hr	365	5	0.4	8%	56	56	15%
	Annual	80	1	0.04	4%	16	16	20%

(Exh. PVEC-4, at 30, Table 6-19).
* NESCAUM recommended SIL.

With respect to non-criteria pollutants, the Company compared the modeled dispersed facility emission concentrations to Allowable Ambient Levels ("AALs") and Threshold Effects

[7] Staff requested that PVEC perform interactive source-modeling for $PM_{2.5}$ having required a similar analysis in EFSB 07-2 (Exh. EFSB-A-14). According to the Company, MADEP requires inclusion into interactive source modeling of all sources within 10 kilometers of the site with emissions greater than 100 tons per year, as well as all sources within 20 kilometers with emissions greater than 1000 tons per year (Tr. 1, at 41). The Company stated that there are no sources within the above distances that exceed the respective emission thresholds (id.). Upon consultation with MADEP, the Company determined that there are no registered sources of air emissions in the area with which such an interactive analysis would be performed (id.). Therefore, the Company did not perform the interactive source modeling for $PM_{2.5}$ (id.).

Exposure Limits ("TELs") established by the MADEP (Exh. WLDC-3, at 49). Among the non-criteria pollutants, PVEC indicated that none exceeded TELs or AALs (id.)

d. Analysis

The record shows that natural gas is the expected primary fuel of the proposed facility and that ULSD would be used at the proposed facility when oil is used as a substitute for natural gas for up to 60 days per year. Use of natural gas as primary fuel, with a limit on backup use of ULSD to only 60 days per year, minimizes emissions of SO_2, particulates, and other pollutants.

The record shows that oxidation catalyst would control emissions of VOCs and CO. The record shows that NO_X would be controlled by water injection and selective catalytic reduction. Further, the record indicates that emissions from the proposed facility would not cause local or regional air quality to worsen significantly, as compared to ambient conditions and established air quality standards. Based on modeling analyses, ambient impacts would not cause an exceedance of the NAAQS. The record also shows that the proposed facility's emissions would all be below SILs.

If approved as proposed in its Air Plan Application, the project will be permitted to operate on ULSD oil fired operation for the equivalent of 60 days per year. The Siting Board is concerned that the Company could use up its annual allotment of oil before the month of December, and would thereby be left without permission to operate in the event of a natural gas shortage in that month. In a past case, the Siting Board addressed a similar concern by requiring the proponent to reserve a portion of the permitted oil use for the month of December. Massachusetts Municipal Wholesale Electric Company, 16 DOMSB 233, at 262 (2008) ("2008 MMWEC Decision"). Accordingly, the Siting Board directs the Company to limit operation on oil in any one year to the hourly equivalent of 60 days, including no more than 46 days from January 1st to November 30th (and not during ozone season) and reserving at least 14 days for December 1st to December 31st; provided that this limitation on operation on ULSD oil will not apply when natural gas is unavailable to operate the proposed facility (either due to gas transportation disruptions, or supply disruptions or curtailment), the Company has used either its pre-December allotment of 46 days (equivalent) and/or its December allotment of 14 days (equivalent) for any reason, and ISO-NE calls on the facility to operate out of economic merit. The Siting Board further directs the Company to provide the Board with a report of the

hours of ULSD use and the reasons therefor, for each day ULSD was used, for each calendar year, by the following February 1st.

The Siting Board finds that, with implementation of this condition, the air quality impacts of the proposed generating facility would be minimized.

3. Water Resources and Wetlands Impacts

In this section, the Siting Board addresses the water-related impacts of the proposed facility including: (1) the water supply requirements and related impacts on water supply systems and on surface and subsurface water levels and flow volume; (2) the water-related discharges from the facility, including wastewater and stormwater discharges, and their related impacts; and (3) wetlands impacts.

a. Water Supply

PVEC stated that water for the generating facility would be supplied in part by the City of Holyoke (Holyoke Water Works) and in part by the City of Westfield (Westfield Water Resources Department) (Exh. WLDC-1, at 64). Holyoke Water Works would supply water for the cooling tower makeup via a pipeline from the Tighe-Carmody Reservoir, typically less than 1.9 million gallons per day ("mgd"), with a peak demand of 2.2 mgd (id. at 64-65). Holyoke is authorized to withdraw 8.04 mgd from the Reservoir under the Massachusetts Water Management Act (id. at 65-66). Holyoke's average withdrawals in 2005, 2006, and 2007 were respectively 2.48, 2.82 and 3.6 mgd lower than authorized volumes (id. at 66). The Holyoke Water Works historically delivered water from the Tighe-Carmody Reservoir to Holyoke via two 20-inch cast iron supply lines; water is currently delivered to Holyoke on a different route by a single 42-inch transmission main (id. at 65). The two 20-inch lines remain in place but not in use (id.). PVEC proposes to rehabilitate a section of one or both of the 20-inch lines to provide the cooling water to the proposed generating facility (id. at 66). The existing 20-inch lines would remain in control of Holyoke Water Works (Tr. 2, at 282).

One or both of the 20-inch lines would be connected at one end to the 42-inch main near the Tighe-Carmody Reservoir, and at the other end to a new water supply line where the existing 20-inch lines cross the Pioneer Valley Railroad easement or WMECO transmission line 1302, north of the site (Exh. WLDC-1, at 6). The Company's preferred route for the new supply line would run south 0.9 miles along the existing WMECO transmission line easement from the

connection point with the existing water line to the generating facility (id.). An alternative water supply line route would be approximately 1.3 miles long; from a connection point with the existing water line, it would run south within the Pioneer Valley Railroad easement, then turn east at the Ampad facility and run through a new easement on that property for 0.1 miles to the generating facility (Exhs. WLDC-1, at 25, fig. 1.6-1; WLDC-2, at 34, fig. 2.3-3).

PVEC evaluated an option of using dry cooling instead of the wet cooling proposed. Dry cooling would eliminate water use from the Holyoke Water Works system (Exh. WLDC-5, at 8). The Company indicated that a tall cooling tower would be required for dry cooling, and that two percent more heat input would be required for a given level of electricity production, costing money and causing greater air emissions per unit generation (id.; Tr. 2, at 266; Tr. 3, at 301).

PVEC maintains that the proposed water withdrawal amount would not lead to an exceedance of Holyoke's authorized volume and that no further water supply permitting would be required as a result of water withdrawal for the proposed generating facility (id.). Because no new permitting would be necessary, the Company would not be required to obtain any additional permits under the Water Management Act with the attendant review of the water use often undertaken when such large volumes of water are consumed. PVEC asserted that, due to the surplus capacity, the proposed withdrawal would have no significant impact on the capacity or level of the Tighe-Carmody Reservoir; PVEC even asserted that the project would have no impact to water flows in the Manhan River downstream from the reservoir (Exh. EFSB-W-9; Tr. 1, at 20).

As mitigation for its cooling water use, PVEC proposed to support water conservation efforts that have been initiated for the Holyoke water system (Exh. EFSB-RR-21). The Company proposes to provide $25,000 in funding to complete a leak detection survey begun for the system and to provide Holyoke Water Works with an additional $55,000 for future leak detection and repair activities (id.).

As proposed by PVEC, potable water and water for turbine cooling, steam production and air pollution control would be provided from the municipal system of the City of Westfield (Exh. WLDC-1, at 64). The typical demand would be 0.12 mgd, with a peak demand during ULSD firing of 0.5 mgd (id. at 65). The City of Westfield is authorized to withdraw from eight municipal wells and the Granville Reservoir up to 6.1 mgd on an annual average basis (id.). Westfield's current maximum capacity is approximately 14.6 mgd, with an annual average

withdrawal of 5 mgd and estimated peak usage of 11 mgd (id.). Pursuant to a letter dated December 10, 2008, the Superintendent of the Westfield Water Resources Department "certified" that the Westfield system has adequate water supply to accommodate the peak flow to the proposed generating facility of 0.5 mgd without modification to the City of Westfield's existing infrastructure (Exh. EFSB-W-4(1)).

PVEC also proposes to connect the Westfield water supply line to the cooling tower for backup in the event of a disruption in supplies from the Holyoke Water Works system (Exh. WLDC-1, at 65). PVEC states the connection would be used only for brief periods and in close coordination with the operators of the Westfield system (id.). The Company has had preliminary discussions with the Westfield Water Resources Department regarding the cooling tower backup supply, and stated that it intends to reach an agreement with the Westfield Water Resources Department which will meet the Company's requirements while ensuring that using Westfield water as a backup does not overdraw Westfield's system (Tr. 2, at 255).

b. Wastewater and Stormwater Discharge

The typical wastewater discharge rate from the facility is expected to be less than 229,000 gpd, with a peak discharge rate of 341,000 gpd (Exh. WLDC-1, at 66). The City of Westfield has confirmed that Westfield has the sewerage infrastructure capacity to handle the wastewater discharge from the project (Exh. EFSB-W-4(1)).

PVEC stated that the proposed project would be located over the Barnes Aquifer, and indicated that the Barnes Aquifer is one of the most productive in the state (Tr. 2, at 157). However, the project would not be located in the Zone 2 recharge area (id.).

All impervious surfaces associated with the generating facility would be located within the watersheds of two small swales (Exh. WLDC-1, at 73). Impervious surfaces on site would include the generator building, paved driveways and parking area, the wet-cooling tower and storage tanks (id.). Of the total drainage area of swale A, approximately 5.8 acres, 2.64 acres would be converted to impermeable surfaces; the drainage area of swale B is approximately 8.1 acres, of which 1.99 acres would be converted to impermeable surfaces (Exh. EFSB-W-5).

PVEC indicated that it would seek coverage under general permits under the National Pollutant Discharge Elimination System ("NPDES") for: (a) construction activities, by filing a notice of intent with the USEPA before starting construction, and (b) operational industrial

activities, by filing a second notice of intent 60 days before starting operations (Tr. 1, at 85). The proposed site stormwater management system would collect runoff via a drainage system (Exh. WLDC-1, at 73). The Company stated that its proposed system is designed to remove 80% of total suspended solids as required by MADEP stormwater policy and that the calculated groundwater recharge volume of the infiltration basin is sufficient to satisfy the MADEP capacity requirements (id.).

PVEC stated that it would design and construct for the ammonia off-loading area a spill control system large enough to contain the contents of one ammonia truck (Tr. 4, at 383). The Company stated that a control system extending under all pipes and hoses leading to the ammonia storage tank would minimize the risk of release of ammonia to the soil (id. at 385-386).

c. Wetlands

The site of the proposed generating facility contains two distinct wetland areas: a forested wetland in the central area of the site; and a drainage swale on the western portion of the site along Ampad Road (Exh. WLDC-1, at 68). Both wetlands are classified as Bordering Vegetated Wetlands with associated 100-foot buffer zones and are protected under the Massachusetts Wetlands Protection Act (id.).

According to the Company, there would be no permanent impacts to the forested wetland area; however, transmission wires within the buffer zone may require tree pruning and vegetation clearing (id. at 69). There would be a bridge spanning the drainage swale, and a roadway and bridge crossing would be located within the buffer to the swale (id. at 69-70). There may also be temporary impacts to the swale during construction (id. at 69).

All activities affecting the 100-foot buffer zones are subject to approval by the Westfield Conservation Commission (id. at 69-70). The Company stated that, where necessary, it will temporarily install sediment and erosion control barriers to mitigate impacts to wetland areas (id. at 71).

d. Analysis

The record shows that to meet cooling water make-up needs, the Company would rehabilitate one or both abandoned water lines extending eastward from the Tighe-Carmody Reservoir and also would construct a new water supply line to the generating facility, either 0.9 miles following a WMECO transmission right-of-way, or 1.3 miles largely in the Pioneer

Valley Railroad right-of-way. No differential environmental impact between the two new water supply line routes was identified.

With respect to water supply, the record indicates that the City of Westfield and Holyoke Water Works have sufficient capacity to serve the needs of the proposed generating facility. However, by withdrawing water from the Tighe-Carmody Reservoir, the proposed project would necessarily affect annual flow in the Manhan River. The Siting Board reviewed a similar proposal to obtain cooling water supply by diverting potable water from a municipally operated reservoir and aqueduct system. Berkshire Decision, 4 DOMSB 221, at 148-150, 204-205, 211-212 (1996). There, as here, the municipal system's withdrawal allocation could support the cooling water use, but a sizable amount of high quality water would be consumed, and reservoir spillage and other releases that contribute at times to downstream river flow would be less. Id. at 148-150. The Siting Board imposed a condition requiring the petitioner to work with the municipal system operator to implement, as appropriate, measures to ensure the system's long-term supply capability, including such measures as a backup water supply for the generating facility or pursuit of water conservation programs in the overall municipal system. Id. at 148-150, 211-212.

Here, given the extent of consumption of water, the Siting Board concludes the offered mitigation to support water conservation in Holyoke's water system is warranted. Therefore, the Siting Board directs the Company to provide Holyoke Water Works with the $80,000 proposed to perform leak detection, repair and other water supply system improvements and also to work in conjunction with Holyoke Water Works in support of customer water conservation education efforts.

The record shows that the Company intends to use Westfield municipal water as a backup supply for the cooling tower, and to come to an agreement with the Westfield Water Resources Department regarding this use. The Siting Board directs the Company to provide the Board, within two weeks of its execution, a copy of any agreement reached with the Westfield Water Resources Department regarding use of Westfield water for cooling tower backup, should such an agreement be reached. Further, the Siting Board directs the Company to inform the Board if and when discussions regarding backup water supply have ceased and no agreement is reached.

With respect to wastewater discharge, the record shows that existing Westfield sewer infrastructure is capable of handling the generating facility wastewater. With respect to

stormwater discharge, the record indicates that the proposed stormwater system is designed to remove 80% of total suspended solids and the groundwater recharge volume is sufficient to satisfy MADEP stormwater policy. With respect to wetlands, the record shows that there would be no permanent impact to forested wetlands, but some impacts to the wetlands' 100-foot buffer zones. The record also shows that all work within regulated wetlands would be done in consultation with the Westfield Conservation Commission.

The record shows that the risk of release of ammonia to the soil would be minimized by extending the spill control system for ammonia under all pipes and hoses leading to the ammonia storage tank, which would have its own spill control system. The Siting Board directs the Company to design and operate the proposed project so that all ammonia transfer from parked delivery trucks to the ammonia storage tank is diked or otherwise contained.

The Siting Board finds, with implementation of the above three conditions, that water resources impacts of the proposed generating facility would be minimized.

4. Solid Waste

a. Description

The Company stated that the typical types of solid waste that may be generated during generating facility construction and operation are: excess excavation materials, metal scrap, wood scrap, debris, office waste, and woody debris from site clearing (Exh. WLDC-1, at 14; Tr. 2, at 192-192). The Company stated that depleted selective catalytic reduction ("SCR") and CO catalysts would be sent off-site for reprocessing and that solid wastes would be recycled where possible (Exh. EFSB-SW-3). Additionally, the project would generate hazardous waste, which will be removed from the site by licensed contractors in accordance with applicable regulatory requirements and disposed of at approved facilities. (Exh. WLDC-1, at 14). The Company has outlined its proposed hazardous waste management protocol, which includes using USEPA registered hazardous waste transporters, record-keeping, and on-site maintenance of Material Safety Data Sheets ("MSDS") (id.).

b. Analysis

The record shows that the Company would arrange for proper disposal of solid wastes generated by construction and operation of the proposed facility, and that the amount of solid waste produced would be minimal. The Siting Board notes that the Company's commitment to

recycle, where possible, solid waste from construction, maintenance, and operation of the proposed facility would contribute to minimizing the solid waste impacts of the proposed facility. However, the Siting Board seeks to remain informed regarding the plans and effectiveness of recycling efforts. Therefore, in order to minimize solid waste impacts, the Siting Board directs the Company, prior to the commencement of operation, to provide to the Siting Board a recycling plan, and to report on the Company's recycling rate for construction debris and its anticipated recycling rate for operational wastes. The Siting Board finds that, with implementation of this condition, the solid waste impacts of the proposed facility would be minimized.

5. Visual Impacts

a. Description

The proposed facility would include a 115-foot tall generator building, a 180-foot tall, 23-foot diameter stack, and a 41-foot tall, 241-foot long cooling structure (Exh. WLDC-1, at 109). The proposed generating facility would be situated on an open lot within an industrial park (id. at 116). PVEC provided figures indicating that, within the industrial park, the generating facility would be largely visible from Ampad Road immediately to the west of the site, as well as from neighboring commercial and industrial facilities to the south and to the west of the site (id. at fig. 1.3-2, 5.12-2, and Appendix E). Photographs provided by the Company show that there would be a nearly unobstructed view of the generating facility from the outside edge of the Hampden Village neighborhood located one-half mile to the west of the generating facility site across an intervening privately owned vacant lot ("intervening lot") (id. at 116, fig. 5.12-3B). Maps of the area suggest that occupants of vehicles exiting from the Hampden Village neighborhood onto Root Road might experience a similar view (id. at fig. 1.5-1). The Company asserted that the photos showing the view from Hampden Village neighborhood were taken through a break in a discontinuous line of trees bordering Root Road, which runs between the neighborhood and the generating facility, in order to show the worst-case view (Tr. 1, at 56). The Company is unaware of any imminent development plans for the intervening vacant parcel (Exh. EFSB-RR-5). The top of the generating facility stack would be partially visible from additional residential areas and some more distant viewpoints (Exh. WLDC-1, at 116-117).

The Company stated that it may be possible to place vegetative screening along Root Road in the Hampden Village area, on land controlled by the City along the roadside (Tr. 1, at 57). The Company has expressed willingness to work with affected residents, and with the City of Westfield, to mitigate possible visual impacts (Exh. EFSB-RR-5). The Company has not proposed any vegetative or other visual screening on the vacant parcel or elsewhere, and has not contacted any land owners to discuss visual mitigation options (id.). The Company asserted that there are no historical areas or state parks from which the site would be visible, and that none of the structures would be visible from downtown Westfield (Exh. WLDC-1, at 117).

The Company stated that there is the possibility of a visible water vapor plume on cold days, and on cooler days with high humidity (Exh. EFSB-V-3). Stack plume heights generally would not exceed the equivalent of one or two stack heights (id.). There is also a chance of ground level fog resulting from operation of the cooling tower (Exh. EFSB-V-4). However, the Company stated that this is predicted to be extremely infrequent and occur almost entirely within the boundaries of the parcel (id.). The Company stated that the exterior lighting of the generating facility has been designed to have a minimal impact on surrounding areas and to be consistent with recommended practices (Exh. EFSB-V-7). The 180-foot stack will have FAA compliant lighting consisting of night-time red flashing lights and no daytime lighting (Exh. EFSB-V-8).

b. Analysis

In prior generating facility decisions, the Siting Board has required proponents to mitigate visibility of facilities, including their stacks, by providing selective tree plantings and other reasonable mitigation upon request (by property owners or local officials) in all residential areas within a set distance up to one mile from the proposed stack location. In some previous cases, the Siting Board has required off-site mitigation, such as provision of selective measures on request or other specific mitigation plans, focused on specific nearby residential areas. Montgomery Energy Billerica Power Partners, LP, 16 DOMSB 317, at 374-375 (2009) ("Billerica Decision"); Braintree Electric Light Department, 16 DOMSB 78, at 118-119 (2008) ("2008 BELD Decision"); Nickel Hill Energy, LLC, 11 DOMSB 83, at 179 (2000) ("Nickel Hill Decision"). Cases in which the Siting Board required mitigation focused on specific areas include: (1) sites not warranting wide-area (i.e., 360-degree) mitigation given pre-existing extent

of heavily urbanized or industrial development including pre-existing power plant use in some direction, 2008 BELD Decision at 118-119; Sithe Mystic Development LLC, 9 DOMSB 101, at 155-156 (1999) ("Sithe Mystic Decision"); Sithe Edgar Development, 10 DOMSB 1, at 71-72 (2000) ("Sithe Edgar Decision"); and (2) sites warranting added or specific mitigation in particular directions based on openness or other sensitivity of areas to visibility impacts, U.S. Generating Company, 6 DOMSB 1, at 139-141 (1997); ANP Blackstone Energy Company, 8 DOMSB 1, at 196-197(1999). The Siting Board has also required proponents to maintain a good appearance of a facility for the life of the project. Billerica Decision at 368.

The record indicates, here, that the generating facility would be visible from the edge of one nearby residential area. The generating facility would be minimally visible from other more distant residential areas.

The record indicates that the view from the edge of the Hampden Village neighborhood may be mitigated by planting trees on the vacant intervening parcel or along Root Road, both of which lie between the affected neighborhood and the generating facility. Accordingly, the Siting Board directs the Company to pursue discussions with the owner of the intervening vacant parcel regarding the possibility of conifer plantings on the parcel, such that views of the generating facility are obscured. Additionally, the Siting Board directs the Company, with the permission of and in consultation with the City of Westfield, to plant vegetative screening along the eastern side of the Root Road public way near Hampden Village, as is practical, such that views of the generating facility are obscured.

In addition, consistent with previous cases, the Siting Board directs the Company to provide, as requested by individual property owners or appropriate municipal officials, reasonable off-site mitigation of visual impacts, including shrubs, trees, window awnings, or other mutually agreeable measures that would screen views of the proposed generating facility and related facilities at affected residential properties and roadways up to one mile from the site where residents may experience changed views. In implementing this requirement, the Company: (1) shall provide shrub and tree plantings, window awnings, or other reasonable mitigation on private property, only with the permission of the property owner, and along public ways, only with the permission of the appropriate municipal officials; (2) shall provide written notice of this requirement to appropriate officials and to all owners of property within one mile of the site, prior to the commencement of construction; (3) may limit requests for mitigation

measures from local property owners and municipal officials to a specified period ending no less than six months after initial operation of the facility; (4) shall complete all agreed-upon mitigation measures within one year after completion of construction, or if based on a request filed after commencement of construction, within one year after such request; and (5) shall be responsible for the reasonable maintenance and replacement of plantings, as necessary, to ensure that healthy plantings become established. Further, the Siting Board directs the Company to maintain the good appearance of the facility, including the stack and on-site landscaping, for the life of the project.

The Siting Board finds that, with implementation of these conditions, the visual impacts of the proposed generating facility would be minimized.

6. Noise Impacts

a. Description

i. Generating Facility Operational Noise

PVEC conducted ambient noise assessment and noise modeling for nine points surrounding the proposed generating facility: the four nearest residences in various directions, and five property boundary points (Exh. WLDC-1, at 105). The Company used the single quietest hourly L_{90} noise level[8] observed over the seven-day measurement period to represent ambient noise levels in its operational noise modeling (Exh. WLDC-3, at 54).

PVEC stated that a single main building would enclose much of the noise-producing equipment of the generating facility, including the gas turbine, the steam generator and compressors (Exh. WLDC-1, at 104). The proposed structure would have engineered sound-attenuating walls which would serve to reduce the noise of the equipment inside the building (Exh. WLDC-3, at 53). The Company has proposed locating the cooling tower in a central location on the 45-acre parcel, installing a silencer for the exhaust stack, and installing a rooftop parapet on the main building (id. at 53). In addition, the Company proposes to implement some cooling tower design modifications, presented below as "Option 1" (id. at 8, 16, Table 8-3).

[8] L_{90} noise is the sound level exceeded for 90% of each hour, and is used to represent background, or baseline ambient sound level.

PVEC modeled operating noise levels at the aforementioned nine receptors. The Company also modeled the resulting noise reductions of five additional mitigation options (id. at 16-20). These included: cooling tower design modifications including shielding the fans and using a single air entry with low noise fans, motors and gear boxes (referred to as "Option 1" in Table 4 below); localized enclosures around the major equipment in the powerhouse ("Option 2"); increased casing thickness and other modifications to the heat recovery steam generator ("HRSG") ("Option 3"); installation of a 23-foot high, 300-foot long sound wall south of the transformers ("Option 4") and increased density of powerhouse walls ("Option 5"). The resulting changes in predicted noise levels of each of these options are shown in Table 4, below, along with projected costs.

Table 4. Operational Noise Mitigation Options

Modeled point	Ambient* (dBA)	Base predicted noise level (plant + ambient) (dBA)	Resulting change in predicted noise levels				
			Option 1: cooling tower option	Option 2: localized enclosures	Option 3: Modify HRSG	Option 4: Noise Barrier	Option 5: Enhanced power-house wall
Property line point 1	41	54	0	0	-8	0	-4
Property line point 2	42	54	-3	0	0	-1	0
Property line point 3	40	63	-5	0	0	0	0
Property line point 4	40	50	-3	0	0	0	0
Property line point 5	43	51	-4	0	0	0	0
Residence at 1 Williams Way	33	38	0	0	-1	0	-1
Residence at 47 Barbara Street	37	40	-1	0	0	0	0
Residence at 21 West Glen Road	41	44	-1	0	0	0	0
Residence at 323 Lockhouse Street	37	41	-1	0	0	0	0
Option Implementation Costs			$1,425,000	$1,240,000	$8,000,000	$345,000	$3,380,000
Selected for Implementation by Company?			**Yes**	No	No	No	No

* Ambient levels are the lowest hourly L_{90} measured over the week-long measurement period. (Exh. WLDC-3, at tables 8-1, 8-3). PVEC stated that this statistic is very conservative and that MADEP has long accepted much shorter monitoring periods (Tr. 3, at 339).

As modeled, Option 1 would reduce predicted noise levels by one A-weighted decibel ("dBA"), as rounded, at three of four residences (Exh. WLDC-3, at 20). The Company determined that only Option 1 was warranted by the cost, as each other option resulted at most in minimal reduction at one modeled location (id.). With the implementation of Option 1, the maximum increase in ambient noise at residential receptors would be three to five dBA (id.).

With respect to property line boundaries, the noise modeling, including implementation of Option 1, suggests that during operation, the facility's noise level would exceed MADEP noise level criteria at two of five modeled boundary points, meaning that operational noise level would be greater than 10 dBA above ambient levels (up to 18 dBA above the ambient level at the loudest measured boundary point) (Exh. WLDC-3, at 16). The Company intends to seek a waiver of MADEP's noise policy due to the industrial, non-noise-sensitive nature of abutters (Exh. WLDC-1, at 107). The Company stated that before a waiver can be granted, the Company must obtain releases from adjacent property owners (Exh. EFSB-G-2(S) at 41).

ii. Generating Facility Construction Noise

The Company stated that construction noise generated at the generating facility site would only occur during what the Company defined as normal daytime working hours – 7:00 a.m. to 9:00 p.m. (Exh. WLDC-1, at 108). Westfield's noise ordinance limits commercial construction to 7:00 a.m. to 9:00 p.m. (Exh. EFSB-RR-23). Further, within these hours, the City of Westfield's noise ordinance prohibits construction noise exceeding 85 dBA at a distance of 50 feet (id.). The total construction period is expected to be two years; and most of the construction noise is anticipated to be in earlier phases: site clearing, excavation and backfill, pile driving, concrete placement and building and steel erection (id.). PVEC estimated construction noise impacts using a construction noise model which accounts for equipment the Company anticipates using (id.). PVEC asserted that none of their equipment is expected to exceed Westfield's construction noise limit (id.). PVEC further predicted the noisiest construction activity will not exceed 65 dBA at 2000 feet; the closest residence is approximately 2000 feet from the project footprint (id. at table 5.11-3).

b. Analysis

In prior decisions, the Siting Board has reviewed the noise impacts of proposed facilities for general consistency with the applicable governmental regulations, including the MADEP 10-dBA standard. Billerica Decision at 380-381; 2008 MMWEC Decision at 267-268; Brockton Power, LLC, 10 DOMSB 157, at 217 (2000) ("Brockton Decision"). In this case, the greatest property boundary increase in L_{90} sound levels would be 18 dBA, exceeding MADEP's standard (Exh. WLDC-3, at 16). It appears that MADEP gives waivers for exceedances on neighboring industrial properties on a case-by-case basis. We do not know whether MADEP would waive the standard for affected neighboring parcels here, as MADEP is precluded from issuing a final permit prior to the Siting Board's issuance of a decision in the case.

As part of reviewing whether projects meet the Siting Board's "minimum environmental impact" standard, the Siting Board has also considered the significance of expected off-site noise increases below the MADEP 10-dBA standard which may none-the-less adversely affect residences. In cases where measured background noise levels at the most affected residential receptors were neither unusually noisy nor unusually quiet, the Siting Board has accepted or required facility noise mitigation sufficient to hold residential L_{90} increases to 5 dBA to 8 dBA.

With respect to generating facility operating noise, the record shows that the increase in noise levels at residential receptors would be three to five dBA, assuming the implementation of Option 1 as listed in Table 4 above (Exh. WLDC-3, at tables 8-1, 8-3). This increase in ambient noise is within Siting Board precedent, and additional identified potential mitigation would be relatively ineffective. With respect to generating facility construction noise, the record indicates that construction noise generated would not exceed 65 dBA at residences, and would comply with the City of Westfield's noise ordinance. The Siting Board directs the Company to implement operational noise mitigation Option 1.

The Siting Board finds that, with implementation of the operational noise mitigation condition, the noise impacts of the proposed generating facility would be minimized.

7. Safety

a. Description

PVEC stated that compressed gases, cleaning solutions, paint, and fuel and lubricating oil in vehicles would be present at the generating facility site during construction (Exh. WLDC-1,

at 15). The Company stated that contractors will use and store chemicals in a manner to prevent and contain any potential spills, and that all fueling would take place in designated areas designed to contain any potential spills (id.). To ensure safe operation, the facility design will include accessibility for emergency equipment, automatic shutdown systems, fire-retardant building materials, fire protection employing city water and carbon dioxide, containment for all liquid storage areas, emergency lighting, and a security fence enclosing the site, with a gated access drive (id. at 16; Exhs. EFSB-S-2; EFSB-S-9).

The proposed generating facility would include a 1,000,000-gallon diesel fuel storage tank and a 20,000-gallon aqueous ammonia storage tank (Exh. WLDC-1, at 8, 10). PVEC has proposed that both the diesel fuel and ammonia tanks be located within concrete containment berms capable of containing fluid leaks up to 110 percent of the tank contents (Exhs. EFSB-S-1, EFSB-S-5). PVEC further proposes to use a passive mitigation measure in the form of large plastic baffles which float on the surface of the aqueous ammonia, reducing the exposed surface area, and thereby reducing the evaporation rate in the event of a release (Exh. EFSB-S-5). In addition, the Company's proposal includes features designed to prevent or contain any possible leaks occurring during transfer of ammonia or oil from truck to tank (Tr. 2, at 178).

PVEC conducted a "worst-case" accidental release scenario analysis for the ammonia to determine what public receptors would be affected and to what extent (Exh. EFSB-S-6). The Company evaluated potential ammonia exposure by modeling ammonia dispersion and comparing modeled concentrations to the Emergency Response Planning Guideline ("ERPG") values established by the American Industrial Hygiene Association (id.). There are three ERPG levels:

- ERPG-1 is the maximum airborne concentration below which nearly all individuals exposed for up to one hour would not experience other than mild transient health effects or would perceive a clearly defined objectionable odor.

- ERPG-2 is the maximum airborne concentration below which nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take action.

- ERPG-3 is the maximum airborne concentration below which nearly all individuals could be exposed for up to one hour without experiencing or developing life-threatening health effects (Exh. EFSB-S-6).

Ammonia dispersion was modeled for using the Areal Locations of Hazardous Atmospheres ("ALOHA") software, for F Class (very stable) atmospheric stability, a wind speed of 1.5 meters per second, and a maximum air temperature of 97 degrees Fahrenheit, for a hypothetical failure of the aqueous ammonia storage tank resulting in a complete release of the contents into the surrounding containment berm (Exh. WLDC-1, at 61).

A summary of the downwind ammonia dispersion modeling results is shown in Table 5, below.

Table 5. Summary of worst-case release scenario for ammonia

Level	Summary of level of exposure	Distance from release	Offsite receptors
ERPG-1 25 ppm	Exposure for up to 1 hour with no more than mild, transient adverse health effects or clearly defined objectionable odor	444 yards	industrial facilities, currently undeveloped industrially zoned land, electric transmission corridor, 2 industrial park public roadways
ERPG-2 150 ppm	Exposure for up to 1 hour without irreversible or other serious health effects or symptoms which could impair individuals ability to take protective action	167 yards	1 industrial park public roadway, currently undeveloped industrially zoned land, and electric transmission corridor
ERPG-3 750 ppm	Exposure for up to 1 hour without life-threatening health effects	70 yards	currently undeveloped industrially zoned land and electric transmission corridor

(Exhs. EFSB-S-6; EFSB-S-10)

The Company stated that commercial distributors use single-wall carbon steel storage tanks for both aqueous and anhydrous ammonia, and that the tanks are built to the standards of the American Society of Mechanical Engineers ("ASME") and the American National Standards Institute ("ANSI") (id.). The Company provided an analysis of the relative merits of additional containment or other measures beyond what is proposed (Exh. EFSB-RR-2). The Company stated that direct statistical comparisons of tank safety are not available (id.). However, the Company did assert that the safety benefits of either using a double-walled tank or enclosing the tank in a building are outweighed by their respective disadvantages, as described below (id.).

Double-walled tank: According to the Company, the purpose of a double-walled tank is that, should one wall rupture or fail, the other wall would contain the contents (Tr. 1, at 35).

However, the Company asserted that tank wall failures are rarely the cause of a release, and instead valves, fittings, hoses and human error during transfer are more likely causes, none of which a double-walled tank would prevent (Exh. EFSB-RR-2). PVEC asserted several disadvantages of double-walled tanks: double-walled tanks are less subject to integrity monitoring, more subject to corrosion, more difficult to repair, and more expensive to construct and maintain (id.). The Company indicated that it would regularly monitor its single-walled aqueous ammonia tank with an ultrasonic tank wall thickness monitoring program, which would provide the Company with information on the rate of any corrosion, such that the Company would therefore be able to prepare to replace the tank in advance of need (Tr. 1, at 35-39). PVEC stated that this method of wall-thickness monitoring is not possible on a double-walled tank (id.). The Company did not provide a cost estimate for the construction of a double-walled tank.

Enclosure: PVEC stated that an enclosure around the ammonia tank would contain ammonia vapor in the event of tank rupture (Tr. 1, at 36). However, the Company asserted that such a solution would cause several safety concerns. PVEC asserted that small leaks are much more common than large releases, and in the event of a small leak within an enclosure, the ammonia vapor would cause a hazardous atmosphere unsafe for personnel and equipment inside the enclosure (id.). While protective equipment would be made available to personnel to enter the enclosure, the Company maintained that avoiding the hazardous condition is a superior approach (id. at 37; Exh. EFSB-RR-2). The Company determined that construction cost for an ammonia storage tank enclosure at a similar project was approximately $500,000 (Exh. EFSB-S-7).

Stainless steel: Following questioning on ammonia tank safety, PVEC put forward the option of fabricating the tank with stainless steel to eliminate external corrosion (Exh. EFSB-RR-2). The Company stated that stainless steel tanks are 30-35% more expensive than carbon steel, but that stainless steel affords greater protection from corrosion without adding risks to plant personnel (id.).

The Company stated that a project Health and Safety plan would be developed prior to the start of any site work, detailing safety measures to be followed during construction, as well as training and safety measures to be followed during operation (Exh. WLDC-1, at 124). This plan has not yet been crafted, nor has a Spill Prevention, Control and Countermeasure plan

("SPCC plan") for ammonia and ULSD fuel. The Company did provide a draft of its Emergency Response Plan (Exh. WLDC-2, at Appx K). The generating facility would be staffed 24 hours per day (Tr. 2, at 120).

b. Analysis

Similar worst-case-ammonia-release analysis was performed by the proponents in EFSB 07-2 (Billerica) for two 18,000-gallon ammonia tanks. In Billerica, the ERPG-1 area was to extend to the closest residences, the ERPG-2 area was to extend off-site but not as far as residences and the ERPG-3 area was to reach the nearby auto junkyard as well as the nearby MBTA Lowell line tracks. Billerica Decision at 385. In that case, the Siting Board included a condition requiring the applicant to enclose the ammonia tanks in a building. Id. at 389. In another recent case, EFSB 07-1 (Braintree), the worst-case-release analysis was performed for one 15,000-gallon ammonia tank, and demonstrated that the ERPG-1 area was to extend to residences,[9] and the ERPG-2 area was to extend to a publicly accessed building and parking lot. 2008 BELD Decision at 135-136. In that case, the Siting Board found that enclosure was warranted and would mitigate potential off-site impacts and required the proponent to enclose the ammonia tank. Id. In a third case, the proponent's proposal included enclosure of the 15,000-gallon ammonia tank. 2009 Brockton Power Decision at 56. A summary of worst-case release analyses in recent Siting Board cases is provided below in Table 6.

[9] In the Braintree case, the proponents provided the distance from release for 50 ppm, rather than the ERPG-1 concentration of 25 ppm (per the evidentiary record in EFSB 07-1). Logically, if 50 ppm levels extend to residential areas, so do 25 ppm levels.

Table 6. Comparison of worst-case release of ammonia for recent Siting Board cases

	Distance to Closest Residence	Distance from release, receptors			Ammonia containment
		ERPG-1 (25 ppm)	ERPG-2 (150 ppm)	ERPG-3 (750 ppm)	
Braintree EFSB-07-1 15,000 gallons	200 yards	>> 239 yards* Residences and publicly accessible building and parking lot	135 yards Publicly accessible building and parking lot	Not provided	Condition in Decision requiring enclosure
Billerica EFSB-07-2 36,000 gallon (in 2 tanks)	185 yards	602 yards Several residences, abutting commercial and industrial buildings, access road	233 yards Abutting commercial and industrial buildings, access road	100 yards Access road	Condition in Decision requiring enclosure
Brockton EFSB-07-7 15,000 gallons	480 yards	N/A**	N/A**	N/A**	Proposal included enclosure of ammonia tank
PVEC EFSB-08-1 20,000 gallons	650 yards	444 yards Industrial facilities, 2 industrial park public roadways	167 yards 1 industrial park public roadway	70 yards Currently undeveloped land	

* The distance of 239 yards represents the extent of a concentration of 50 ppm, rather than the ERPG-1 value of 25 ppm. According to the petitioner in Braintree, the health effects at 50 ppm are: a perceived pungent odor that may be accompanied by eye, nose and throat irritation, without expectation of irreversible health effects. The modeled concentration at the nearest residence was 70 ppm.

** In the Brockton case, the proponent's ammonia release modeling included enclosure of the tank in a building.

In the case of the proposed facility, public receptors are further from the ammonia tank than in Billerica, Braintree and Brockton. The record in this case illuminates potential disadvantages of double-wall construction and use of an enclosure that may well offset any advantages in this particular case, given longer distances to residences than in previous, above-cited cases. Regarding choice of tank material, stainless steel is known to be more resistant to corrosion than carbon steel. The Company ultimately proposed to use stainless steel (see Company Brief at 96). The Siting Board directs the Company to use an aqueous ammonia storage tank of stainless steel construction.

The record shows that an SPCC plan has not been developed for the generating facility, nor has a safety plan for the offloading of ammonia been developed. The Siting Board directs the Company to provide the Board with a Spill Prevention, Control and Countermeasure plan which covers the procedures to be followed in the event of an aqueous ammonia or ULSD fuel spill, as well as a safety plan for offloading ammonia, prior to the start of operations testing.

The Siting Board finds that, with implementation of these conditions, the safety impacts of the proposed generating facility would be minimized.

8. Traffic

a. Description

The Company stated that there are two possible driving routes from the Massachusetts Turnpike to the generating facility site as well as two site entry points. The first driving route is: drive north on U.S. Route 202 (Southampton Road) from the Mass Turnpike, two miles to the intersection with Servistar Industrial Way, then travel west 1.2 miles to the proposed generating facility site (Exh. WLDC-1, at 119). This route is 3.5 miles and consists entirely of two-lane paved roads abutted by residential, commercial, and retail properties (id. at 120).

This route provides access to the site via the first entry point off of Servistar Industrial Way which is on the east side of the site and would serve as primary construction access and would not be used for operational access (Exh. EFSB-T-2). In order to make the left-hand turn onto Servistar Industrial Way, all vehicles, including large trucks, would have to cross the southbound lane of U.S. Route 202, a heavily trafficked road. However, the Company stated that there is a paved shoulder on the side of Route 202 which allows traffic to go around vehicles queued to make the left turn (Tr. 4, at 450).

An alternative route is: drive south on U.S. Route 202 from the Mass Turnpike, turn right onto Arch Road which becomes Lockhouse Road, continue for 1.3 miles, turn right onto Servistar Industrial Way for 0.2 miles, turn left onto Ampad Road for 0.3 miles (Exh. WLDC-1, at 119). This route is approximately 2 miles long and consists of two-lane paved roads abutted by residential, commercial and retail properties (id.). The route provides access to the site via the second access point off of Ampad Road which is on the west side of the site and would serve as primary operational access (it also provides secondary construction access) (Exh. EFSB-T-2). Additionally, the first driving route (via Route 202) may be used in conjunction with the

Ampad Road entrance by travelling further down Servistar Industrial Way and turning right onto Ampad Road (id.). Therefore, both driving routes may be used during facility operation.

The total construction period would be approximately 24 months (Exh. WLDC-1, at 17). Peak construction is estimated to last three months, with an estimated 300 personnel per day, and 520 one-way vehicle trips per day including trucks (Exh. RR-EFSB-3). The typical construction workforce would range from 150 in the initial and final months to 200-300 personnel per day for approximately nine months (Exh. WLDC-1, at 17). The majority of work would take place between 7 a.m. and 4 p.m., with a maximum of ten truck trips per day during peak hours (id. at 120).

During facility operation the traffic generated by employees is estimated at 50 one-way trips per day (id.). The proposed generating facility would be staffed 24 hours a day with two 12-hour shifts (id.). There would be two people on site during the night shift and ten to twelve people on site during the day shift (id.). Other traffic associated with the generating facility would involve truck delivery of supplies, as well as an estimated maximum of 25 truck deliveries per day of fuel periodically during the winter months (id.). The Company stated that Pioneer Valley Railroad has expressed interest in extending rail service to the proposed site, which would allow for rail delivery, rather than truck delivery, of ULSD fuel (Exh. EFSB-T-5).

PVEC concluded that traffic impacts of the proposed facility would be negligible and therefore performed no traffic counting program, capacity analysis, or Level of Service analysis for either of the associated routes (Exh. EFSB-T-2).

b. Analysis

The record indicates that the Company expects up to 520 one-way trips per day during construction, but based on existing volume and roadway configuration, does not anticipate any substantial traffic impacts. The record also shows that when the generating facility is operating on ULSD fuel, up to 25 fuel truck deliveries per day may be required, together with other bulk deliveries such as ammonia with the potential to impact traffic on U.S. Route 202. The Siting Board has, in previous cases, directed applicants to avoid peak traffic hours for deliveries of oil and bulk materials. Billerica Decision at 392-392; Brockton Decision, at 71. The Siting Board directs that, during operation of the proposed facility, except in the case of a fuel-supply emergency such as may occur in a cold snap, the Company shall avoid peak travel hours, as

determined by the City of Westfield, for bulk truck deliveries to the proposed facility. In addition, the Siting Board directs the Company to report to the Siting Board, prior to construction, on any traffic plans or agreements developed with local agencies.

The Siting Board finds that, with implementation of these two conditions, the traffic impacts of the proposed generating facility would be minimized.

9. EMF

a. Description

The Company stated that electricity generated by the proposed generating facility would be transmitted through an existing 115 kV transmission line, Line 1302, which runs south-west from Buck Pond Substation through the proposed generating facility site to Pochassic Substation (Exh. WLDC-1, at 122). Electricity flow on Line 1657, which extends north-east beyond Buck Pond Substation to Southampton Junction, would also be affected by the tie-in (id.). Line 1302 and Line 1657 are each on two-circuit steel poles ranging in height from 90 to 115 feet on 100-foot wide rights-of-way (id.). The structures were built with the capability to carry two circuits; however, only one circuit position is being used (id.).

The Company stated that the New England's Independent System Operator for the electric transmission system ("ISO-NE") currently does not expect that this project will require any upgrades to either Line 1302 or 1657 (Exh. EFSB-E-1, at 1). Accordingly, the Company used the current line geometries to estimate both existing and post-project electric and magnetic field ("EMF") levels (id.). The largest change at the edge of a right-of-way in magnetic field strengths, from 12.93 milligauss ("mG") to 66.23 mG, would occur at both the east and west edges of the Line 1302 right-of-way, from the generating facility south to Pochassic Substation (Exh. EFSB-E-1(S)(2)). The nearest residence falls approximately on the west edge of the same right-of-way and therefore would experience the same increase. PVEC indicated that the project would have a negligible effect on electric fields because the lines would continue to carry approximately 115 kV (id.). The Company stated that final interconnect plans would be completed by mid-year 2010, at which time a more accurate EMF impact analysis would be available (Tr. 4, at 417).

b. Analysis

In a previous review of a transmission line facility, operating at 60 hertz, the Siting Board accepted edge-of-ROW levels of 1.8 kilovolts per meter ("kV/m") for electric field and 85 mG for magnetic field. Massachusetts Electric Company New England Power Company, 13 DOMSC 119, at 228-242 (1985) ("1985 MeCo/NEPCo Decision"). In later reviews of proposed electric facilities, the Siting Board has compared estimated EMF impacts to the edge-of-ROW impacts accepted in the 1985 MECo/MEPCo Decision, and as applicable considered whether based on such comparison estimated EMF impacts are unusually high. 2008 BELD Decision at 145; Sithe Mystic Decision at 181-183; Hingham Municipal Lighting Plant, 14 DOMSC 7, at 28 (1986).

The Siting Board did not conclude in the 1985 MECo/MEPCo Decision or any later review referencing that decision, that an edge-of-ROW magnetic field of 85 mG is a level above which harmful effects would necessarily result. Sithe Mystic Decision at 181. Rather, the Siting Board has held that the edge-of-ROW magnetic field level of 85 mG serves as a benchmark of a previously accepted impact along a transmission right-of-way in Massachusetts, not as a limit of acceptable impact. Id.

Here, the record shows that outside the facility site, electric field would be essentially unchanged by the project, and edge-of-ROW levels for both fields would remain below levels previously accepted by the Siting Board. The record shows, however, that the largest change in edge-of-ROW magnetic field would be a fivefold increase from 12.93 mG to 66.23 mG, occurring at both the edges of Line 1302 ROW between the generating facility and Pochassic Substation to the South. Maximum edge-of-ROW levels could extend to one residence located adjacent to the ROW; however, other residences would be minimally affected. The Siting Board notes that, with the current configuration of a single line on the right-of-way, reverse phasing cannot be implemented and no other feasible means to reduce electromagnetic fields was identified.

The record shows, however, that final interconnection plans have not been determined. Because the proposed project would contribute to higher power flows on area transmission lines, the Siting Board seeks to remain informed about PVEC's interconnection plans and any associated transmission upgrades as they may relate to EMF impacts. Accordingly, the Siting Board directs the Company to report to the Board regarding the progress and the outcome of the

Company's interconnection plans and on designs for any transmission upgrades, as well as any measures incorporated into transmission upgrade designs to minimize magnetic field impacts within two weeks of reaching a final agreement with all transmission providers regarding interconnection.

Accordingly, the Siting Board finds that with implementation of the above EMF information condition, the EMF impacts of the proposed facility would be minimized.

10. Land Use

This section describes the land use impacts of the proposed facility, including the impacts to wildlife species and habitat, and significant cultural resources.

a. Description

The Company stated that the site for the proposed generating facility is a 45-acre parcel located entirely within an Industrial A zoning district (Exh. WLDC-1, at 95-96). Neighboring properties are also within the Industrial A zone, and existing neighboring uses include light industrial and commercial uses (id.). The closest residentially zoned property to the generating facility is 1635 feet away, and the closest existing residence is approximately 1950 feet away (Exhs. EFSB-LU-4; EFSB-LU-5). The generating facility would be located within 13 contiguous acres in the northwest portion of the parcel (Exh. WLDC-1, at App. A, drawing G1).

An additional eight to ten acres of the site would be disturbed during construction, but would contain no permanent development (Tr. 4, at 435). The generating facility site lies within mapped Priority Habitat and Estimated Habitat attributable to the eastern box turtle, a species of "Special Concern" listed by the Massachusetts Division of Fisheries and Wildlife (Exh. WLDC-1, at 88). PVEC must obtain a Conservation and Management Permit from the Massachusetts Natural Heritage and Endangered Species Program ("NHESP") which would serve to minimize impacts (Exh. WLDC-5, at 94). The Company stated that it would locate facility equipment according to recommendations from NHESP to minimize destruction of habitat (Exh. WLDC-1, at 89). Furthermore, the Company stated that following construction, the approximately 33 acres of the parcel that are not developed for the generating facility will be placed under conservation restriction explicitly for the protection of eastern box turtle habitat (Exh. WLDC-5, at 61).

The Company indicated that no impact to historical or archaeological resources is anticipated as a result of the project (Exh. WLDC-1, at 103).

b. Analysis

The record shows that the 45-acre site is within an area zoned for industrial use and that areas immediately surrounding the proposed site are predominantly industrial and undeveloped. The Siting Board concludes that the construction and operation of the proposed facility is compatible with surrounding uses.

The record shows that the Company intends to use 13 acres in the northwest portion of the site for the generation facility and will place the remaining approximately 33 acres under conservation restriction. In prior cases, the Siting Board has included conditions regarding land conservation. See, e.g., IDC Bellingham, LLC, 9 DOMSB 225, at 333-334 (1999); Nickel Hill Decision, at 214, 218. The Siting Board directs the Company to provide the Siting Board a copy of a conservation restriction agreement or other documentation that formalizes the disposition of the parcel to serve as conservation land, open space, or permanent undeveloped buffer, including any recording made in relation thereto, within two weeks of the later of finalization or recording of any such documentation. The Siting Board finds that, with implementation of this condition, the land use impacts of the proposed generating facility would be minimized.

11. Cumulative Health Impacts

This section describes the cumulative health impacts of the proposed facility. The Siting Board considers the term "cumulative health" to encompass the range of effects that a proposed facility could have on human health through emission of substances over various pathways, as well as possible effects on human health unrelated to substances. The Siting Board considers these effects in the context of existing background conditions, existing baseline health conditions, and, when appropriate, likely changes in the contributions of other major emissions sources. 2008 BELD Decision at 150; 2008 MMWEC Decision at 298; Sithe Mystic Decision at 189-190.

a. Baseline Health Conditions

PVEC provided a summary of asthma prevalence and cancer incidence study findings for Westfield, available from the Massachusetts Department of Public Health (Exh. EFSB-H-2). Reported pediatric asthma rates for 2005-2006 are statistically lower than Massachusetts as a whole (id.). For asthma prevalence among adults for 2005-2006, Westfield is grouped in the "Western Massachusetts" category which has a higher prevalence rate than the overall statewide average (id.). Westfield rates for "all cancers" for 2001-2005 are slightly below the average for Massachusetts; for lung cancer in males, the rate is statistically above the average for Massachusetts (id.).

b. Criteria Pollutants

The USEPA developed NAAQS to regulate emissions of the criteria pollutants: SO_2, particulate matter, NO_2, CO, ground-level ozone, and lead (Exh. WLDC-1, at 47). The NAAQS, set by the USEPA consist of primary standards and secondary standards, of which the primary standards are intended to protect public health (id.).

PVEC stated that the closest ambient monitoring stations to the site are in Chicopee and Springfield and that both stations are appropriate for representing the existing background air quality in the area of the proposed site (Exh. WLDC-4, at 38). The Company indicated that the Chicopee station is most like the site, because it too is in a suburban location, but that the Chicopee station has monitors for only NO_2 and $PM_{2.5}$ (id. at 38-39). The Company provided ambient data from Chicopee for NO_2 and $PM_{2.5}$, and from Springfield for all other criteria pollutants except ozone (id. at table 6-18). Monitoring data from these locations 2005 to 2007 did not exceed the NAAQS for pollutants other than ozone (id. at tables 6-18, 6-19). Therefore, with the exception of ozone, background levels of criteria pollutants are within standards set for the purpose of protecting public health. As further discussed in Section II.C.2, above, the Company's modeling of background levels plus project impacts indicate that PVEC's cumulative predicted air quality concentrations are below the applicable NAAQS (id. at 39, table 6-19).

With respect to criteria pollutants, the record shows that the Company has presented background data and modeled emissions impacts which fall below USEPA's health protective NAAQS with the exception of ozone. Ground-level ozone is known to result from regional upwind sources of ozone precursors, and as such is not a project-related concern in the vicinity

of the proposed plant. Instead, ozone is regulated as a regional pollutant by MADEP and USEPA. PVEC emissions of ozone precursors would be limited by NO_X controls and fuel technologies as described in Section II.C.2, above, in accordance with health-based MADEP and USEPA regulations. Accordingly, the Siting Board finds that the health impacts of criteria pollutants would be minimized.

c. Air Toxics

PVEC cited a USEPA report that the primary air toxics emitted from natural gas and distillate oil fired combustion turbines would be formaldehyde, polycyclic aromatic hydrocarbons ("PAH"), benzene, toluene and xylenes, while small amounts of metallic hazardous air pollutants carried over from the fuel constituents would also be present (Exh. WLDC-3, at 38). PVEC also cited an industry study that concluded that distillate fuel stocks used in the power industry are "essentially free of toxic metals and pose no risk to the public when fired in a gas turbine" (id. At 49). The Company stated that modeled downwind concentrations of each air toxics compound from the proposed facility would be less than the MADEP 24-hour-average Threshold Effects Exposure Limit ("TEL") and annual average Allowable Ambient Limit ("AAL") (id.). The TPS are also met and the Siting Board finds that the health impacts of non-criteria pollutants would be minimized.

d. Discharges to Ground and Surface Waters

The Company stated that the generating facility's wastewater would be discharged to the Westfield wastewater system, and that Westfield has sufficient capacity to receive the generating facility's wastewater. The Company stated that concrete containment areas would be installed under and around electrical equipment and tanks housing fuels and oils, with runoff from these areas directed to oil/water separators prior to discharge (Exh. WLDC-1, at 73). Also, the Company stated that its stormwater management plan for the generating facility complies with MADEP's Stormwater Management Policy (id.). The record shows that the Company would dispose of wastewater directly in the City of Westfield's waste water system, and that all potentially contaminated stormwater runoff will be contained within the stormwater system and treated before release back into the environment. Accordingly, the Siting Board finds that the health impacts of discharges to ground and surface waters would be minimized.

e. Noise

As discussed in Section II.C.6, above, the Company has proposed to implement noise mitigation at the generating facility sufficient to keep increases at residential receptors to 5 dBA or less. Also noted in Section II.C.6, the noise at the generating facility site boundaries may exceed MADEP's noise criteria of a 10 dBA increase. However, due to the non-noise sensitive nature of abutters, the Company will seek a waiver of this policy from MADEP. In sum, identified project-related increases in noise levels are not expected to pose health concerns. Consequently, the Siting Board finds that, with implementation of the Option 1 noise mitigation condition, health effects of the proposed facility related to noise would be minimized.

f. Handling and Disposing of Hazardous Materials

In Section II.C.7, above, the Siting Board reviewed the Company's plans for storage and handling of hazardous materials, including 19% aqueous ammonia, ULSD, and limited amounts of industrial chemicals for facility maintenance and operation. Section II.C.7 outlines the Company's plans for minimizing and responding to accidental releases of oil or other hazardous materials. With respect to handling and disposal of hazardous materials, the record shows that the Company will establish plans for minimizing and responding to accidental releases of oil, ammonia or other hazardous materials. The Siting Board finds that, with implementation of the conditions set forth in Section II.C.7, above, the health impacts of hazardous materials handling would be minimized.

g. EMF

As discussed in Section II.C.9, above, the power from the proposed facility would be transmitted via existing 115 kV transmission elements that run through the generating facility site. The proposed project would have a negligible impact on electric fields, and maximum edge-of-ROW magnetic fields would increase from 12.93 mG to 66.23 mG (Exh. EFSB-E-1(S)(2)).

The Siting Board has found that although some epidemiological studies suggest a correlation between exposure to magnetic fields and childhood leukemia, there is no evidence of a cause-and-effect relationship between magnetic field exposure and human health. Southern Energy Kendall, LLC, 11 DOMSB 255, at 385-386 (2000); Nickel Hill Decision at 235;

Sithe Mystic Decision at198-199. The proposed project would not lead to an exceedance of the Siting Board's edge-of-ROW precedent of 1.8 kV/m for electric field or 85 mG for magnetic field. Also, no practical means to reduce EMF was identified. The Siting Board finds that, with implementation of the EMF information condition set forth in Section II.C.9, above, health effects of the proposed facility related to EMF would be minimized.

h. Conclusion on Cumulative Health Impact

The record shows that health indices in Westfield are lower for pediatric asthma, higher for adult asthma, higher for male lung cancer, and lower for total cancer than for the state as a whole. The record shows that impacts from air, water, hazardous materials, noise, and EMF would be minimized.

Consequently, the Siting Board finds that there is no evidence that the proposed facility would exacerbate existing health problems in the communities surrounding the proposed facility. Synergistic (i.e., more than additive) effects among these impacts were not identified. The Siting Board finds that cumulative health impacts would be minimized.

12. Conclusions on Environmental Impacts

Based on the information in Section II.C, above, the Siting Board finds that the Company's description of the proposed project and its environmental impacts is substantially accurate and complete.

In Section II.C.2, the Siting Board found that air quality impacts of the proposed facility would be minimized.

In Section II.C.3, the Siting Board found that with the implementation of the water mitigation funding condition, the water resources and wetlands impacts of the proposed facility would be minimized.

In Section II.C.4, the Siting Board found that the solid waste impacts of the proposed facility would be minimized.

In Section II.C.5, the Siting Board found that with implementation of the visual mitigation conditions, the visual impacts of the proposed facility would be minimized.

In Section II.C.6, the Siting Board found that with the implementation of the implementation of the noise mitigation condition, the noise impacts of the proposed facility would be minimized.

In Section II.C.7, the Siting Board found that with implementation of the ammonia storage tank and reporting conditions, the safety impacts of the proposed facility would be minimized.

In Section II.C.8, the Siting Board found that with implementation of the traffic mitigation and reporting conditions, the traffic impacts of the proposed facility would be minimized.

In Section II.C.9, the Siting Board found that with the EMF reporting condition, the EMF impacts of the proposed facility would be minimized.

In Section II.C.10, the Siting Board found that with implementation of the land conservation condition, the land use impacts of the proposed facility would be minimized.

In Section II.C.11, the Siting Board found that the cumulative health impacts of the proposed facility would be minimized.

Accordingly, the Siting Board finds that, with implementation of the above-listed conditions, the Company's plans for the construction of the proposed generating facility would minimize the environmental impacts of the proposed facility consistent with the minimization of costs associated with the mitigation, control, and reduction of the environmental impacts of the proposed generating facility. In addition, the Siting Board finds that an appropriate balance would be achieved among conflicting environmental concerns as well as between environmental impacts and costs.

III. ANALYSIS OF THE PROPOSED GAS PIPELINE

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. 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, 15 DOMSB 269, at 280 (2006); Berkshire Gas Company, 15 DOMSB 208, at 216 (2006); 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, 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 the existing fuel supply system is inadequate to serve the anticipated load with acceptable reliability.[10]

2. Description of the Existing System

Westfield Gas & Electric owns, operates, and maintains hundreds of miles of natural gas distribution pipeline in Westfield, all operating below 90 psig (Exh. WLDC-1, at 28). In 2007, the maximum daily sendout by WG&E was 11,065 million Btus ("MMBtu") (Exh. WLDC-1, at 28). WG&E receives gas through a branch line it operates that interconnects at a point on the Northampton lateral operated by Tennessee Gas Pipeline ("TGP") (id.). TGP operates an interstate natural gas pipeline system that runs from the Gulf of Mexico to eastern Massachusetts and includes the Northampton lateral (Exhs. WLDC-1, at 28; EFSB-G-3). The Northampton lateral extends north from TGP's main line near Southwick, passes on the east side of Westfield, and terminates in Northampton (Exhs. WLDC-1, at 39, EFSB-G-3). PVEC and WG&E

[10] 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. WG&E is a municipal gas company, and is not required to file a long-range forecast pursuant to G.L. c. 164, § 69I.

(collectively, the "Pipeline Applicants") stated that TGP has the capacity to supply approximately 1.7 billion standard cubic feet ("BCF") per day to the New England area, including 1.0 BCF per day from the west through Agawam, 0.6 BCF per day from the east through Dracut, and 0.1 BCF per day from Distrigas in Everett (Exh. EFSB-G-3).

The Pipeline Applicants stated that, at present, there is no natural gas service to the project site (Exh. WLDC-1, at 28). WG&E is in the process of constructing a new connection to the TGP system, designated the Southwick lateral, extending 25,900 feet northward from Southwick to its distribution system, terminating in the center of Westfield (Exhs. EFSB-G-4; EFSB-G-5). The Pipeline Applicants stated that the Northampton lateral is insufficient to meet demand of existing customers, and WG&E's firm capacity is insufficient to meet Westfield's needs. The Pipeline Applicants stated that the Southwick lateral is 12-inch diameter steel pipe, with a normal operating pressure not to exceed 99 psig, and an ultimate capacity of 878 psig (Exhs. EFSB-G-4; EFSB-G-5). Should the generation project be constructed with a pipeline on the primary route, WG&E would be able to apply for permission to up-rate the Southwick lateral to deliver gas to PVEC at the pressure required to supply the gas turbines once that pipeline has been in operation for over 24 months (approximately June 2011) (Exh. EFSB-G-4; Tr. 2, at 136).

3. Need for Additional Fuel Capacity

a. Description

PVEC stated that the generating facility would require a maximum fuel input of 2542 MMBtu/hr (Exh. WLDC-3, at 2). The Pipeline Applicants stated that there is no natural gas service in immediate proximity to the proposed generating facility site (Exh. WLDC-1, at 28).

b. Analysis of Need, and Conclusions

Assuming full operation, 2542 MMBtu/hr would constitute 61,000 MMBtu/day of gas service. There is, at present, no natural gas service to the project site. Consequently, the Siting Board finds that the existing fuel supply system is inadequate to serve the anticipated load and, therefore, there is a need for additional gas resources for the proposed generating facility.

B. Comparison of Proposed Project and Project Alternative Approaches

1. Standard of Review

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

The proposed project approach is to connect the proposed generating facility to the TGP system with a pipeline capable of transporting 62,000 dekatherms per day (Exhs. WLDC-1, at 6; EFSB-G-3). The Pipeline Applicants evaluated only one project alternative for analysis: the use of liquefied natural gas ("LNG") for fuel in place of natural gas. LNG would be the only other feasible fuel delivery to supply, a combined-cycle facility and still meet TPS standards (Exh. WLDC-1, at 32).

3. Reliability of Pipeline Alternatives

The Pipeline Applicants stated that delivery of natural gas from TGP would be limited in the winter months by other entities holding firm capacity contracts and by the price of gas (Exh. EFSB-G-4). Nevertheless, the Pipeline Applicants stated that a properly designed and

installed pipeline is the most reliable means of supplying fuel to a gas fired generating facility (Exh. WLDC-1, at 32).

Use of LNG would require a storage facility and fuel vaporization system, as well as regular truck deliveries of fuel (id.). To assure adequate delivery of LNG to the generating facility would require approximately 36 truck deliveries per day on an ongoing basis (id.). The closest LNG terminal to the generating facility site is approximately 100 miles away (id.). Even if the largest practical amount of LNG were stored on-site, regular truck deliveries to fill the tank would be necessary. The Pipeline Applicants asserted that during periods of winter storms or supply shortages, the use of LNG would be significantly less reliable than using the proposed pipeline (id. at 33).

4. Environmental Impacts of Pipeline Alternatives

Environmental impacts of the proposed gas pipeline are temporary impacts from construction including air emissions, wetlands impacts, noise, and traffic impacts. The Pipeline Applicants asserted that there are no significant or long-term environmental impacts associated with the gas pipeline (Exh. WLDC-1, at 32). The Pipeline Applicants assert that environmental impacts associated with the use of LNG include construction of a storage facility and vaporization facility, resulting in overall greater construction impacts, as well as greater long-term air emissions, land use, noise, and traffic impacts (id.). The Pipeline Applicants explained that air emissions related to the generating facility would be increased by use of LNG due to the regular truck deliveries and the fuel burning vaporization system which would be required (id.).

5. Cost of Pipeline Alternatives

The Pipeline Applicants stated that use of LNG would require building a storage tank and vaporization facility with capital costs estimated to be in excess of $50 million, as well as additional operating costs, and increases fuel cost due to the necessary truck delivery (Exh. WLDC-1, at 34). The Pipeline Applicants stated that capital costs associated with the construction of the proposed gas pipeline would be approximately $5 million, with minimal operational costs (id.).

6. Analysis of Project Approach, and Conclusions

The Pipeline Applicants limited the scope of their project alternatives analysis for the pipeline to projects that would deliver natural gas, on the basis that natural gas would be the only primary fuel that would meet TPS for the generating facility. This limitation conforms to the analysis in Section II.B, establishing that analysis of technology alternatives is not required in the generation facility analysis. For natural gas fuel, the Pipeline Applicants looked at two gas supply approaches: pipeline gas and truck delivery of LNG. The Pipeline Applicants compared the reliability, cost, and environmental impacts of using pipeline gas from TGP[11] versus using LNG trucking.

The record shows that the proposed pipeline would have the capacity to carry 62,000 dekatherms per day – i.e., 62,000 MMBtu/day.[12] The Pipeline Applicants asserted that pipeline gas would provide a more reliable supply than trucking LNG. The record shows that 36 truck deliveries per day of LNG would be needed if the generating facility were in continuous operation, which appears to be the basis of Pipeline Applicants' concern that LNG supply is less reliable than pipeline gas supply. LNG trucking supply is subject to interruption from adverse weather conditions during the winter. However, pipeline gas is also subject to interruption under contingency conditions, such as during extreme cold weather in the winter, because other customers would normally take precedence over an electric generation facility. The record does not quantitatively compare the frequency and duration of interruptions to gas supply between these two sources of gas.

With respect to cost, the record indicates that using LNG would be an order of magnitude more costly than using pipeline gas, including construction costs of $50 million for LNG compared to $5 million for the pipeline. And the record indicates that there would be concomitant higher environmental impacts if LNG were selected. With reliability differences indeterminate, the significantly lower cost and environmental impacts of pipeline gas are sufficiently clear to conclude that use of pipeline natural gas would be preferable. Therefore,

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11 Although not included in the record, it may be noted that the TGP is closer to the project site than other interstate pipelines such as Algonquin.

12 This volume, 62,000 MMBtu/day, slightly exceeds the 61,000 MMBtu/day requirement of the generating facility.

weighing need, reliability, environmental impacts and cost, the Siting Board finds that the proposed pipeline project would be superior to alternative approaches to providing the proposed generating facility with gas delivery capacity.

C. Route Selection

1. Standard of Review

G.L. c. 164, § 69J provides that a petition to construct a proposed facility must include "a description of alternatives to [the applicant's] planned action" including "other site locations." G.L. c. 164, § 69J. In past reviews of alternative site locations identified by an applicant, the Siting Board has required the applicant to demonstrate that it examined a reasonable range of practical siting alternatives. See CELCo Decision, 12 DOMSB 305, at 326-327; MMWEC Decision, 12 DOMSB 18, at 92; 1998 NEPCo Decision, 7 DOMSB 333, at 374. In order to determine whether an applicant has considered a reasonable range of practical alternatives, the Siting Board has required the applicant to meet a two-pronged test. First, the applicant must establish that it developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner which ensures that it has not overlooked or eliminated any routes which, on balance, are clearly superior to the proposed route. CELCo Decision, 12 DOMSB 305, at 326-327; MMWEC Decision, 12 DOMSB 18, at 92; 1998 NEPCo Decision, 7 DOMSB 333, at 374. Second, the applicant must establish that it identified at least two noticed sites or routes with some measure of geographic diversity. CELCo Decision, 12 DOMSB 305, at 327; MMWEC Decision, 12 DOMSB 18, at 92; 1998 NEPCo Decision, 7 DOMSB 333, at 374.

2. Route Selection Process

According to the Pipeline Applicants, there are just two practical locations for interconnecting the TGP to a new pipeline to the proposed generating facility, with one practical route for each one following previously developed rights-of-way (Exh. EFSB-RS-1). The Pipeline Applicants indicated that other routes would extend off of existing rights-of-way and/or be longer (Exh. EFSB-RS-1).

Once the generating facility site was selected, the Pipeline Applicants identified two pipeline routes for gas delivery to the generating facility, one from WG&E's pipeline to the south, and one from the Northampton lateral to the east (Exh. WLDC-1, at 39). The Pipeline

Applicants evaluated potential routes on several criteria: overall length of pipe to achieve interconnection; estimated priority habitat that would need to be traversed; presence of Interim Wellhead Protection Areas; number of stream crossings; linear feet of wetland crossing; degree of bedrock associated along potential routes; and availability of existing rights of way to locate the pipeline (id. at 40). The Pipeline Applicants stated that there were no other feasible alternatives which met their route-selection guidelines (id. at 41).

3. Geographic Diversity

The primary route extends from a point south of the generation facility site, northward along a railroad right-of-way, while the noticed alternative extends from a point northeast of the generation facility site, west along a roadway and south along a transmission right-of-way (Exh. WLDC-1, at figs. 1.5-1, 4.2-1). The two routes do not share a common path in any part (id.).

4. Route Selection Process Analysis and Conclusions

The Pipeline Applicants identified two pipeline routes by considering environmental impacts and land use concerns, issues that the Siting Board has found to be appropriate for the siting of energy facilities. See Colonial Gas Company, 15 DOMSB 269, at 325 (2006); Berkshire Gas Company, 15 DOMSB 208, at 238 (2006); 43; New England Power Company, 4 DOMSB 109, at 167 (1995). In some other cases, applicants have formally considered community acceptability as a factor in route selection. Colonial Gas Company, 15 DOMSB 269, at 324; Berkshire Gas Company, 15 DOMSB 208, at 300 (2006); Berkshire Gas Company, 25 DOMSC 1, at 51 (1992); but see Colonial Gas Company, 14 DOMSB 49, at 83; Boston Edison Company, 6 DOMSB 208, at 228 (1997). The Pipeline Applicants did not list acceptability to the community as a factor in its pipeline route selection process.

Where available, existing rights-of-way can be markedly better for pipeline installation purposes than adjacent developed or undeveloped lands. In this case, the Pipeline Applicants identified routes following these types of rights-of-way for their primary and noticed alternative routes. While the site selection process was not deeply developed, the maps in the record do not suggest that there is any significantly superior route to the two that were considered in detail. The Pipeline Applicants reasonably identified two potential routes; the routes thus were not

further screened but retained for comparative analysis as the proposed and noticed alternative routes (see Section III.D, below).

The record indicates that the Pipeline Applicants appropriately considered environmental impacts and land use when identifying the primary and noticed alternative routes. The record shows that the two routes approach the generation facility site from different directions, follow different types of easements, and do not overlap. Consequently, the Siting Board finds that the Pipeline Applicants have identified a range of practical route alternatives with some measure of geographic diversity. The Siting Board also finds that the Pipeline Applicants developed and applied a reasonable set of criteria for identifying and evaluating alternative routes in a manner that ensures that it has not overlooked or eliminated any routes that are clearly superior to the proposed route.

5. Description of the Primary and Alternative Routes

a. Primary Route

The primary route described by the Pipeline Applicants starts on the south side of the Westfield River at the Southwick lateral (near the commercial center of Westfield) and runs north approximately 2.5 miles (Exh. WLDC-1, at 29, 40, fig. 1.5-1). The route starts with a 550-foot HDD across the Westfield River, then continues northward in a longitudinal occupation of, and on property abutting, the right-of-way owned by the Pioneer Valley Railroad (Exh. EFSB-RS-2). The last 0.1 miles of the route turns east off the railroad ROW onto a new easement across property at 66 Ampad Road, to the proposed generating facility site (Exh. WLDC-1, at 40). The primary route crosses Pochassic Street, Notre Dame Street, Twist Street, the Mass Turnpike, Lockhouse Road, Servistar Industrial Way, and Ampad Road, all in Westfield (id. at 40, fig. 1.5-1).

b. Alternative Route

The alternative route is 3.75 miles long and would connect to the existing Northampton Lateral to the east of the generating facility site ("noticed alternative route") (Exh. WLDC-1, at 41, 42). From an interconnection with the Northampton lateral at the intersection of North Road (U.S. Route 202) and East Mountain Road in the northeast corner of Westfield, the pipeline would follow North Road two miles west to an existing electric transmission easement then one

and three-quarters miles south to the site along the easement (id. at fig. 4.2-1). The alternative route would cross Gun Club Road, Saunders Road, Long Pond Road, Old Apremont Way, Old Stage Road, Jaeger Drive, Southampton Road, and Summit Lock Road (id. at 41).

D. 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 first determines whether 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 determines whether 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).

Accordingly, for the gas pipeline, the Siting Board examines in the sections below the environmental impacts, reliability, and cost of the proposed facilities along the primary and alternative gas pipeline 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 of the proposed facilities would be minimized. The subsections below consider impacts to adjacent land resources, wetlands and water resources, noise, and traffic.

a. Land Resources

The primary route is located entirely within Westfield, originating on the south side of the Westfield River and extending north for 2.5 miles to the generating facility site (Exh. WLDC-1, at 97). The majority of the pipeline route is on a railroad right-of-way, and crosses two public roads (id. at 98). A section of the proposed pipeline route 1.4 miles long is located within the same "Industrial A" zoning district as the generating facility site (id.). The remaining portion passes through "Residential A" and "Commercial A - Neighborhood Commercial" zoning districts, for 0.7 miles and 0.1 miles respectively (id.). Approximately one mile of the route is within mapped Priority Habitat and Estimated Habitat associated with the eastern box turtle, a listed species of "Special Concern" (id. at 88, Table 4.2-1). PVEC stated that the Conservation and Management Permit needed for the project would cover this portion of habitat associated with the gas pipeline route as well as the generating facility site (Tr. 4, at 438). The Pipeline Applicants stated that the gas pipeline would have no impacts to land use, as the

pipeline will be located underground primarily within the property adjacent to the existing railroad right-of-way (Exh. WLDC-1, at 98).

The alternative route is also located entirely within Westfield, and would connect the generating facility to the Northampton lateral 3.75 miles to the north and east and primarily follow an existing electrical transmission right-of-way and roads (Exh. WLDC-1, at 41). The alternative route would involve three street crossings, and would run along public roadways for two miles (id. at Table 4.2-1). The alternative route would also impact 1.2 miles of Estimated and Priority Habitat of the eastern box turtle, a species of "Special Concern" listed by the Massachusetts Division of Fisheries and Wildlife (id.).

The record shows that land use impacts of the proposed pipeline, using either the primary or the alternative route, would consist primarily of temporary construction impacts. The record also shows that the alternative route would have greater impacts as it is longer overall, affects areas with a higher mix of residential use, and affects slightly more designated habitat.

The Siting Board finds that the primary route is preferable to the alternative route with respect to land resource impacts. The Siting Board finds that the land resources impacts of the proposed pipeline would be minimized.

b. Water Resources

The proposed gas pipeline would cross below the Westfield River by a 550-foot HDD and cross four small streams and wetland buffer zones; otherwise, the primary route would not cross any wetlands (Exh. WLDC-1, at 70). The alternative route would cross five streams and also traverse 264 linear feet of wetlands and 1.74 miles of wellhead protection areas, the proposed route would be confined to the drainage basin of the Westfield River, while the alternative route would have impacts within the drainage basins of both the Westfield River and the Connecticut River (id. at Table 4.2-1).

The Pipeline Applicants stated that during construction there may be temporary impacts to water resources (id. at 70). Impacts would include temporary excavation in and adjacent to wetlands, and in the 100-foot buffer zones and 200-foot riverfront area (id.). All activities in wetland resource areas would take place only after consultation with the Westfield Conservation Commission (id.). Furthermore, the Pipeline Applicants stated that an environmental

construction specification and work plan would be generated prior to construction of the pipeline to protect and prevent impacts to wetlands and other water resources (id.).

The record shows that the primary route would cross fewer streams than the alternative route, and that the primary route would have a lesser impact on wetlands. Construction across streams and wetlands, and buffer zone and riverfront areas, would be implemented with review by the Westfield Conservation Commission.

The Siting Board finds that, with respect to water resources, the primary route would be preferable to the alternative route. The Siting Board finds that the water resources and wetland impacts of the proposed pipeline would be minimized.

c. Noise

PVEC stated that during construction of the primary route, noise would be transitory as the construction moves along the 2.5-mile route, and would primarily be from backhoe and truck diesel engines (Tr. 2, at 199-205). This work would take place primarily within the day time construction hours; however, due to the need to schedule construction to avoid interference with the railroad, some weekend work may be required (id. at 201-202). The HDD operations on the north side of the Westfield River would be of longer duration and involve more noise producing equipment than the rest of the gas pipeline installation (id. at 207). PVEC anticipates that HDD operations would take place for two to four weeks during regular daytime construction hours (Exh. RR-EFSB-11, at 1). However, the Company stated that sub-surface soil conditions may necessitate continuous HDD operations, including nighttime drilling (id.). The closest residence to the noise generating equipment is approximately 170 feet to the west (id. at 4).

Noise modeling of the daytime and nighttime increase in noise level was conducted for the residence closest to HDD operations with and without a temporary sound-attenuating wall (id. at 5). Projected noise levels at the closest residence were provided for each piece of equipment involved in the HDD operation both with and without use of temporary sound wall(s); the projected noise levels are set forth in Table 7, footnotes (b) and (c) (id. at 5, 7).
The conceptual design for the temporary sound wall(s) includes three 22-foot high sections surrounding the HDD equipment on three sides, a 250-foot section, a 200-foot section and a 100-

foot section (id. at 6).[13] These sections would provide roughly 15 dB of noise reduction at the nearest home (id.). The Company also provided estimated daytime and nighttime/holiday background noise levels at the closest residence, set forth in Table 7 (id.).[14] Based on this information and staff assumptions regarding which equipment will be operating simultaneously, staff estimated the total noise and the increase above background at the nearest residence with the major equipment operating, as shown below in Table 7.

Table 7. Summary of Noise Impacts of HDD Operations

	Noise level at closest residence (dBA)					**Westfield Noise Ordinance limit (dBA)**
	Background	**Total[a]**		**Increase above background**		
		w/out mitigating sound wall[b]	w/mitigating sound wall[c]	w/out mitigating sound wall	w/mitigating sound wall	
Daytime	53	76	61	23	8	85[d]
Nighttime/ holiday	45	76	61	31	16	Residential - 45

(Exh. EFSB-RR-11).

a Based on staff's assumption that four of the seven listed pieces of equipment would be running simultaneously: electric water pump with generator, drilling rig, mud tank trailer and hydraulic power set.

b The four pieces of equipment which comprise this total sound level would each contribute a sound level of 70 dBA at the nearest residence, plus or minus 1 dBA.

c The four pieces of equipment which comprise this total sound level would produce a sound level of 55 dBA each at the nearest residence with installation of a sound mitigating wall, plus or minus 1 dBA.

d For daytime construction noise, the sound level for any piece of equipment may not exceed 85 dBA at 50 feet from the noise generating source.

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13 PVEC stated that the specific details of the noise wall have not been finalized, and that it would likely be installed around two or three sides of the HDD equipment area on the north side of the Westfield River (Exh. WLDC-5, at 45).

14 PVEC estimated background sound levels based on the type of neighborhood, residential suburban near railroad tracks (Exh. WLDC-5, at 44). The ranges and the estimated average were based on figures in reference materials, not on measurements taken at the actual neighborhood in question.

The Westfield noise ordinance has provisions limiting construction noise to 85 dBA at 50 feet; the Company asserted that none of the HDD equipment would exceed Westfield's construction noise limit (Exh. EFSB-RR-11, at 2). The noise ordinance also places limitations on the time of day that construction activities may take place, and a permit for out-of-hours construction must be granted in advance by application to the Superintendent of Building and the Police Chief (id. at 3). Furthermore, the ordinance establishes maximum sound levels for out-of-hours construction[15] within the different zoning districts which may not be exceeded in those districts for any reason short of an emergency (id.). Therefore, if the Pipeline Applicants should obtain an out-of-hours permit to continue construction on evenings, weekends or holidays, it would still be required to operate within these maximum sound levels (id.). The Pipeline Applicants note that even with the sound wall, the predicted noise level in the adjacent residential zoning district is projected to exceed the nighttime maximum noise limit (id. at 7). Therefore, if the Pipeline Applicants did need to conduct nighttime drilling, it would need to further mitigate the noise to stay within the City of Westfield's limits (id.). The estimated cost of the sound wall was from $157,000 to $460,000; the Pipeline Applicants asserted that it cannot make a more precise estimate until further details of the HDD operation are planned (id.).

The noise impacts along the 3.7 miles of the alternative route would be similar, but may be greater in aggregate due to the fact that the alternative route is 50% longer than the primary route. There is no specific analysis of the noise impacts of pipeline construction along any portion of the alternative route. The alternative route is longer and it partly follows a paved road with adjacent houses, which could require pavement cutting, but it does not require HDD and it partly follows an overland transmission away from homes.

The record indicates that gas pipeline construction would result in temporary noise resulting in a day's duration along much of the 2.5-mile primary route. With respect to noise from HDD operations with use of the primary route, the record indicates that without mitigation, there would be an increase above background of 31 dBA at night, 23 dBA during the daytime, and a total noise level of 76 dBA day or night at residential locations. The record also indicates

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[15] Construction on holidays or outside the hours of 7 a.m. to 9 p.m., Monday through Saturday, noon to 9 p.m. and on Sunday is defined as "out of hours construction" (Exh. WLDC-1, at 108). The Westfield noise ordinance limits the sound level from construction during those hours to 45 dBA in residential zones (Exh. EFSB-RR-11).

that with a sound wall, these increases above background would be 16 dBA at night and 8 dBA during the daytime, a total noise level of 61 dBA. The record shows that any of these noise levels would exceed the City of Westfield's nighttime noise limit of 45 dBA.

Overall, outside the HDD area, the primary route provides some noise impact advantages over the alternative route based on shorter length, but that advantage is limited given that impacts are short-lived in any one location along each route. In the HDD area, however, residential noise impacts would be up to 61 dBA even with possible sound wall mitigation, would extend for several weeks, and could occur on a 24-hour basis. On balance, the Siting Board finds that the alternative route is preferable to the primary route, with respect to noise impacts.

Regarding construction noise, Siting Board has, in past cases, directed companies to provide for public outreach or to consult with public officials. Furthermore, in a recent underground electric transmission case, the Siting Board noted that "offering temporary accommodations for residents interested in relocation during construction" is a possible measure to address evening construction noise, and directed the company to "develop a noise mitigation plan covering each residential area where nighttime construction would take place." Boston Edison Company, 14 DOMSB 233, at 331 (2005).

The Siting Board directs the Pipeline Applicants to limit the daytime noise level at the nearest residence to the entry point of the proposed HDD operations (on the north side of the Westfield River) to 61 dBA, the level modeled by the Company as achievable with a sound wall, and to limit the daytime noise level at the nearest residence to the exit point of the proposed HDD operations (on the south side of the Westfield River) to 61 dBA. The Siting Board further directs that, should the Pipeline Applicants determine that overnight HDD operations are necessary, the Pipeline Applicants shall comply with the Westfield nighttime noise limitation of 45 dBA unless they obtain prior permission from the appropriate noise or construction enforcement officials of the City of Westfield regarding such operation and any potential further mitigation. In no event, however, shall nighttime noise exceed the 61 dBA daytime limit described above. Prior to conducing any HDD operation, the Pipeline Applicants shall file with the Siting Board a compliance filing demonstrating the means of mitigating noise from daytime HDD operations to 61 dBA or less and plans for addressing the City of Westfield's nighttime noise limitation. The Pipeline Applicants also shall offer to affected residents, prior to any overnight operations, alternative accommodations on any night when overnight operations will

occur and noise levels will exceed Westfield's nighttime noise limitation in the event that Westfield permits an exceedance, including residents within a distance from the HDD entry and exit points which the Pipeline Applicants shall determine in consultation with appropriate noise or construction enforcement officials of the City of Westfield.

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

d. Traffic

The Pipeline Applicants asserted that the traffic impacts of the primary route would be negligible (Tr. 2, at 216). For the majority of the pipeline construction work, the crew sizes would be between four and eight construction workers (id. at 215). The Pipeline Applicants stated that construction at the HDD site would involve more construction personnel than the rest of the pipeline route, and there may be some short term impacts while bringing large equipment to the HDD site (id.). The Pipeline Applicants stated that there would be sufficient space at the HDD site for construction worker parking (id.). There is no specific information on the record with respect to the traffic impacts of the alternative route. However, the alternative route involves approximately two miles of construction along a public roadway, as well as three street crossings (Exh. WLDC-1, at table 4.2-1).

The record indicates that traffic impacts of both the primary and alternative routes would be minimal; however, large equipment and construction workers will be using public roads, so some traffic impact would occur. The record also indicates that the alternative route is longer than the primary route and additionally would involve working along public roads for approximately two miles. Work on public roads likely would cause some traffic impacts and the greater length of in-road construction on the alternative route would result in a greater traffic impact, compared to the primary route.

The Siting Board finds that the primary route is preferable to the alternative route with respect to traffic impacts. The Siting Board finds that traffic impacts of the proposed pipeline would be minimized.

e. Conclusions on Environmental Impacts

The Siting Board has reviewed the record evidence regarding construction impacts and 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 the Pipeline Applicants have provided sufficient information regarding environmental impacts and potential mitigation measures to allow the Siting Board to determine that the Pipeline Applicants have achieved the proper balance among environmental impacts. The Siting Board found that the primary route would be preferable to the alternative route with respect to land use, water resources, and traffic impacts. The Siting Board found that the alternative route would be preferable to the primary route with respect to noise impacts. On balance, the Siting Board finds that, with above-directed mitigation, the greater noise impacts of the primary route are outweighed by its benefits with respect to land use, water resources, and traffic impacts. Overall, the Siting Board finds that the primary route would be preferable to the alternative route with respect to environmental impacts. Furthermore, with implementation of the noise mitigation condition, the Siting Board finds that the environmental impacts of the proposed pipeline along the primary route would be minimized.

3. Cost and Reliability

The noticed alternative route is 50% longer than the primary route and includes 1.7 miles in which bedrock is present, while the primary route has no areas containing bedrock (Exh. WLDC-1, at 42). The Pipeline Applicants stated that by constructing the pipeline within the Pioneer Valley Railroad right-of-way of the primary route, the regulatory approvals would be minimized, and public way crossings would be avoided (id. at 43). All of these factors contribute to the primary route being less costly than the noticed alternative route; the Pipeline Applicants estimated that the primary route would cost $5 million, and the noticed alternative route would cost $8 million (id.).

The Pipeline Applicants stated that the reliability of both routes is roughly comparable, but the primary route has somewhat less potential for unexpected disruptions in service because it is shorter (Exh. WLDC-1, at 43). The Pipeline Applicants also stated that the primary route would provide for easier maintenance because the majority of the pipeline would be within a single, existing, private right-of-way, as opposed to the noticed alternative route involving

several public ways, resulting in somewhat limited access to the pipe itself (id.). The Pipeline Applicants concluded that the primary route is slightly superior to the noticed alternative route with respect to reliability (id.).

The estimated cost of constructing the proposed pipeline along the primary route is approximately $3 million lower than the estimate for the alternative route. The record shows that the primary route is preferable to the alternative route with respect to cost. With respect to reliability, the record shows that the primary route may have a slight advantage over the alternative route. Accordingly, the Siting Board finds that the primary route is preferable to the alternative route with respect to cost and with respect to reliability.

4. Conclusions on Facility Routing

The Siting Board found, above, that the primary route would be preferable to the alternative route with respect to environmental impacts, cost, and reliability. Based on the review of the record the Siting Board finds that the Pipeline Applicants have 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 the alternative route with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

IV. CONSISTENCY WITH THE POLICIES OF THE COMMONWEALTH

A. Standard of Review

G.L. c. 164, § 69J¼ requires the Siting Board to determine whether the plans for construction of a proposed generating facility are consistent with current health and environmental protection policies of the Commonwealth and with such energy policies of the Commonwealth as are adopted by the Commonwealth for the specific purpose of guiding the decisions of the Siting Board. Similarly, G.L. c. 164, § 69J requires the Siting Board to determine that plans for construction of a new facility are consistent with the current health, environmental protection, and resource use and development policies as adopted by the Commonwealth. The health, environmental protection, and resource use and development policies applicable to the review of a generating facility or pipeline vary considerably depending

on the unique features of the site and technology proposed; however, they may include existing regulatory programs of the Commonwealth relating to issues such as air quality, water-related discharges, noise, water supply, wetlands or riverfront protection, rare and endangered species, and historical or agricultural land preservation. Therefore, in this section, the Siting Board summarizes the applicable policies of the Commonwealth, and discusses the extent to which the proposed facility complies with these policies.

B. Analysis

In Sections II through IV, above, the Siting Board has reviewed the process by which PVEC and WG&E sited and designed the proposed generating facility and gas pipeline, and the environmental and health impacts of the proposed generating facility and gas pipeline as sited and designed. As part of this review, the Siting Board has identified a number of Commonwealth policies applicable to the design, construction, and operation of the proposed facilities. These are briefly summarized below.

As discussed in Section II.C.2, above, the MADEP, in conjunction with the USEPA, extensively regulates emissions of criteria and non-criteria pollutants from new sources such as the proposed facility. PVEC has demonstrated that it expects to comply with all applicable MADEP and USEPA standards.

As discussed in Section II.C.3 and III.D.2.b, above, the MADEP, in conjunction with the USEPA and the Westfield Conservation Commission, regulate various wastewater discharges as well as construction in wetlands and waterway areas. PVEC and WG&E have demonstrated that they expect to comply with MADEP and USEPA standards for water discharges and for work in wetlands and waterway areas.

As discussed in Sections II.C.6, and III.D.2, above, the record indicates that, as mitigated, the noise impacts of the generating facility and pipeline will be minimized. PVEC has maintained that it will limit increases in off-site noise caused by operation of the proposed facility to less than 10 dBA at the nearest residences and property lines, and has represented that it will seek a waiver from MADEP for noise increases on adjacent non-residential properties, consistent with MADEP policy 90-001, which limits such increases to 10 dBA. In Section III.D.2.c., the Siting Board directed the PVEC and WG&E to mitigate daytime HDD noise. Additionally, the Siting Board directed the Pipeline Applicants to comply with the

Westfield noise ordinance for nighttime construction unless they obtain prior approval from the appropriate officials of the City of Westfield. In no event may PVEC and WG&E exceed the daytime noise limit of 61 dBA during nighttime construction.

As discussed in Sections II.C.10 and III.D.2.a, above, the record indicates that the proposed project is not likely to adversely impact endangered species or historical and archaeological resources. PVEC and WG&E have demonstrated that they expect to comply with policies of the Massachusetts Natural Heritage and Endangered Species Program and the Massachusetts Historical Commission.

Accordingly, based on its review above, the Siting Board finds that plans for construction of the generation facility and proposed pipeline are consistent with current health and environmental protection policies and resource use and development policies of the Commonwealth and with such energy policies of the Commonwealth as have been adopted for the specific purpose of guiding the decisions of the Siting Board.

V. DECISION

The Siting Board's enabling statute directs the Siting Board to implement the energy policies contained in G.L. c. 164, §§ 69H-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. Section 69J¼ requires that, in its consideration of a proposed generating facility, the Siting Board review inter alia the site selection process, the environmental impacts of the proposed project, and the consistency of the plans for construction and operation of the proposed project with the environmental policies of the Commonwealth.

Sections II and IV, above, address the proposed generating facility.

In Section II.A, above, the Siting Board found that PVEC provided an accurate description of its site selection process.

In Section II.C, above, the Siting Board found that with the implementation of the listed conditions relative to operation on oil and to water resources, visual, noise, safety, traffic, and EMF impacts, PVEC's plans for the construction of the proposed generating facility would minimize the environmental impacts of the proposed project consistent with the minimization of costs associated with the mitigation, control, and reduction of the environmental impacts of the proposed project.

In Section IV, above, the Siting Board found that the plans for the construction of the proposed generation facility are consistent with current health and environmental protection policies of the Commonwealth and with such energy policies of the Commonwealth as have been adopted by the Commonwealth for the specific purpose of guiding the decisions of the Siting Board.

Accordingly, the Siting Board finds that, upon compliance with the conditions set forth above and listed below, the construction and operation of the proposed generating facility will provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

Sections III and IV, above, address the gas pipeline.

In Section III.A, above, the Siting Board found that the existing system is inadequate to serve the anticipated load and, therefore, there is a need for additional gas resources for the proposed generating facility.

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

In Section III.D, above, the Siting Board found that, with the implementation of listed conditions regarding construction noise, the proposed project 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 IV, above, the Siting Board has found that the plans for the construction of the proposed pipeline are consistent with current health and environmental protection policies and resource use and development policies of the Commonwealth and with such energy policies of the Commonwealth as have been adopted by the Commonwealth for the specific purpose of guiding the decisions of the Siting Board.

Accordingly, the Siting Board finds that, upon compliance with the conditions listed below, the construction and operation of the proposed gas pipeline 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 petition of Pioneer Valley Energy Center, LLC to construct a 400 MW generating facility in Westfield, Massachusetts using either of two proposed water supply line routes, and APPROVES the proposal of Pioneer Valley Energy

Center, LLC, and Westfield Gas & Electric to construct an approximately 2.5-mile, 12-inch diameter gas pipeline in the City of Westfield along the primary route, subject to the conditions below.

A. The Siting Board directs the Company to limit operation on oil in any one year to the hourly equivalent of 60 days, including no more than 46 days from January 1st to November 30th (and not during ozone season) and reserving at least 14 days for December 1st to December 31st, provided that this limitation on operation on ULSD oil will not apply when natural gas is unavailable to operate the proposed facility (either due to gas transportation disruptions, or supply disruptions or curtailment), the Company has used either its pre-December allotment of 46 days (equivalent), and/or its December allotment of 14 days (equivalent) for any reason, and ISO-NE calls on the facility to operate out of economic merit. The Siting Board further directs the Company to provide the Board with a report of the hours of ULSD use and the reasons therefor, for each day ULSD was used, for each calendar year, by the following February 1st.

B. The Siting Board directs the Company to provide Holyoke Water Works with the $80,000 proposed to perform leak detection, repair and other water supply system improvements and also to work in conjunction with Holyoke Water Works in support of customer water conservation education efforts.

C. The Siting Board directs the Company to provide the Board, within two weeks of its execution, a copy of any agreement reached with the Westfield Water Resources Department regarding use of Westfield water for cooling tower backup, should such an agreement be reached. Further, the Siting Board directs the Company to inform the Board if and when discussions regarding backup water supply have ceased and no agreement is reached.

D. The Siting Board directs the Company to design and operate the proposed project so that all ammonia transfer from parked delivery trucks to the ammonia storage tank is diked or otherwise contained.

E. The Siting Board directs the Company, prior to the commencement of operation, to provide to the Siting Board a recycling plan, and to report on the Company's recycling rate for construction debris and its anticipated recycling rate for operational wastes.

F. The Siting Board directs the Company to pursue discussions with the owner of the vacant parcel between the generating facility site and Root Road regarding the possibility of planting conifers on the parcel, such that views of the generating facility are obscured.

G. The Siting Board directs the Company, with the permission of and in consultation with, the City of Westfield to plant vegetative screening along the eastern side of the Root Road public way near Hampden Village, as is practical, such that views of the generating facility are obscured.

H. The Siting Board directs the Company to provide, as requested by individual property owners or appropriate municipal officials, reasonable off-site mitigation of visual impacts, including shrubs, trees, window awnings, or other mutually agreeable measures that would screen views of the proposed generating facility and related facilities at affected residential properties and roadways up to one mile from the site where residents may experience changed views, as further set forth in Section II.C.5.b, above. Further, the Siting Board directs the Company to maintain the good appearance of the facility, including the stack and on-site landscaping, for the life of the project.

I. The Siting Board directs the Company to implement cooling tower design modifications for additional noise mitigation (Option 1 in Section II.C.6.a, above).

J. The Siting Board directs the Company to use an aqueous ammonia storage tank of stainless steel construction.

K. The Siting Board directs the Company to provide the Board with a Spill Prevention, Control and Countermeasure plan which covers the procedures to be followed in the event of an aqueous ammonia or ULSD spill, as well as a safety plan for offloading ammonia, prior to the start of operations testing.

L. The Siting Board directs that, during operation of the proposed facility, except in the case of a fuel-supply emergency such as may occur in a cold snap, the Company shall avoid peak travel hours, as determined by the City of Westfield, for bulk truck deliveries to the proposed facility.

M. The Siting Board directs the Company to report to the Board, prior to construction, on any traffic plans or agreements developed with local agencies.

N. The Siting Board directs the Company to report to the Board regarding the progress and the outcome of the Company's interconnection plans and on designs for any transmission upgrades, as well as any measures incorporated into transmission upgrade designs to minimize magnetic field impacts within two weeks of reaching a final agreement with all transmission providers regarding interconnection.

O. The Siting Board directs the Company to provide the Siting Board a copy of a conservation restriction agreement or other documentation that formalizes the disposition of the parcel to serve as conservation land, open space, or permanent undeveloped buffer, including any recording made in relation thereto, within two weeks of the later of the finalization or recording of any such documentation.

P. The Siting Board directs the Pipeline Applicants to limit the daytime noise level at the nearest residence to the entry point of the proposed HDD operations (on the north side of the Westfield River) to 61 dBA, the level modeled by the Company as achievable with a sound wall, and to limit the daytime noise level at the nearest residence to the exit point of the proposed HDD operations (on the south side of the Westfield River) to 61 dBA. The Siting Board further directs that, should the Pipeline Applicants determine that overnight HDD operations are necessary, the Pipeline Applicants shall comply with the Westfield nighttime noise limitation of 45 dBA unless they obtain prior permission from the appropriate noise or construction enforcement officials of the City of Westfield regarding such operation and any potential further mitigation. In no event, however, shall nighttime noise exceed the 61 dBA daytime limit described above. Prior to conducting any HDD operations, the Pipeline Applicants shall file with the Siting Board a compliance filing demonstrating the means of mitigating noise from daytime HDD operations to 61 dBA or less, and plans for addressing the City of Westfield's nighttime noise limitation. The Pipeline Applicants also shall offer to affected residents, prior to any overnight operations, alternative accommodations on any night when overnight operations will occur and noise levels will exceed Westfield's nighttime noise limitation in the event that Westfield permits an exceedance, including residents within a distance from the HDD entry and exit points which the Pipeline Applicants shall determine in consultation with appropriate noise or construction enforcement officials of the City of Westfield.

Because issues addressed in this Decision relative to this facility are subject to change over time, construction of the proposed generating facility must be commenced within three years of the date of the decision.

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 Pioneer Valley Energy Center, LLC, its successors in interest, and Westfield Gas and Electric to notify the Siting Board of any changes other than minor variations to the proposals so that the Siting Board may decide whether to inquire further into a particular issue. Pioneer Valley Energy Center, LLC, its successors in interest, and Westfield Gas and Electric are obligated to provide the Siting Board with sufficient information on changes to the proposed project to enable the Siting Board to make these determinations. With respect to the conditions in this decision requiring the Applicants to submit certain documentation to the Board [conditions A, C, E, K, M, N, O, and P], the Siting Board reserves the right to request additional materials or information from the Applicants if it determines that the information provided is insufficient.

/s/
Selma Urman
Presiding Officer

Dated October 19, 2009

APPROVED by the Energy Facilities Siting Board at its meeting of October 8, 2009, by the members and designees present and voting. **Voting for** approval of the Tentative Decision, **as amended**: Ann Berwick, Undersecretary for Energy (Acting EFSB Chair/Designee for Ian A. Bowles, Secretary, Executive Office of Energy & Environmental Affairs); Robert Sydney (Designee for Commissioner, DOER); James Colman (Designee for Commissioner, MADEP); Robert Mitchell (Designee for Secretary, EOHED); Tim Woolf, DPU; Jolette Westbrook, DPU; and Dan Kuhs, Kevin Galligan, and Penn Loh, Public Members.

/s/
Ann Berwick, Acting Chair
Energy Facilities Siting Board

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).

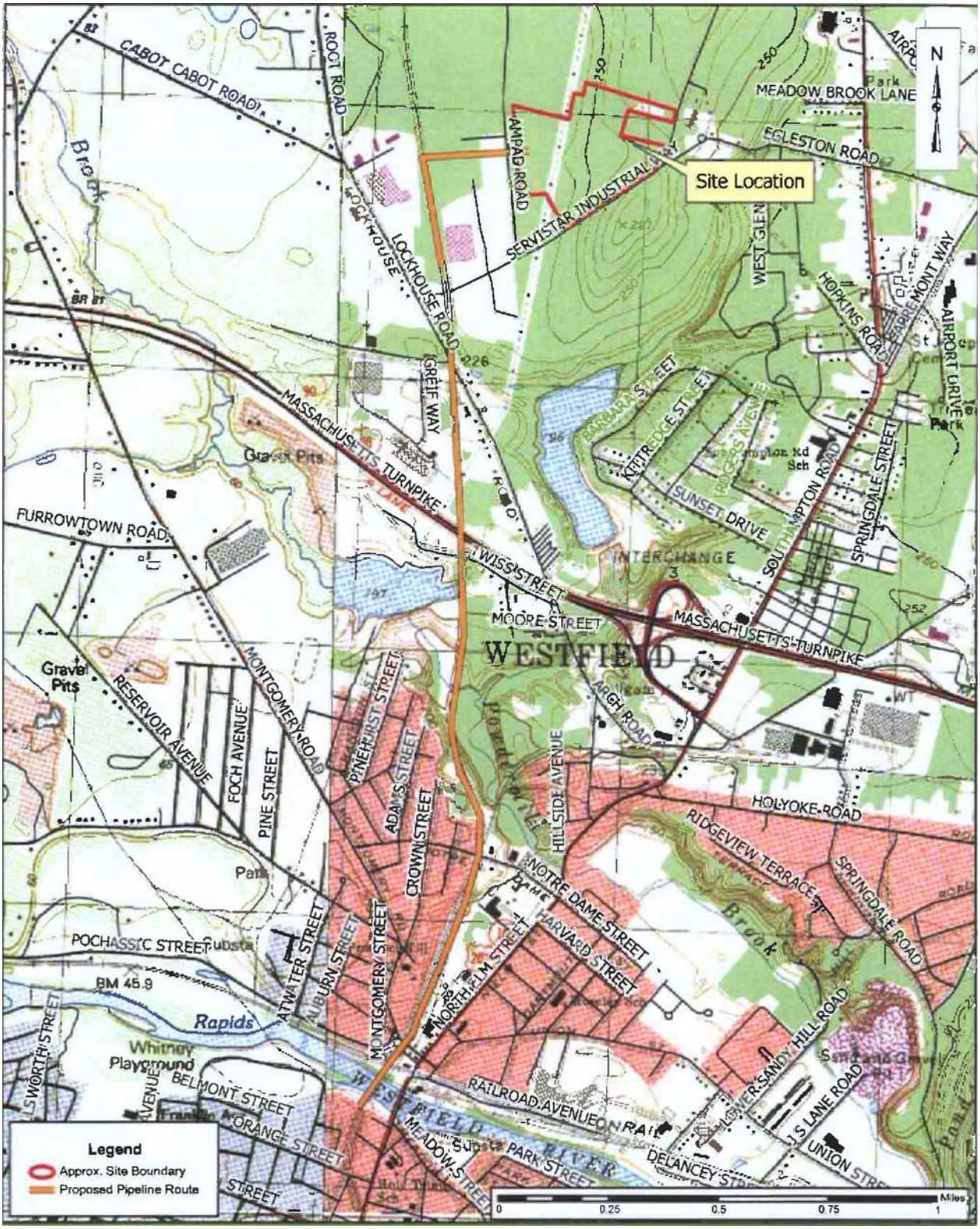

Figure 1. PVEC Generation Facility Site and Proposed Gas Pipeline Route EFSB-08-1
(Exh. WLDC-1 at Figure 1.5-1)