COMMONWEALTH OF MASSACHUSETTS
Energy Facilities Siting Board

In the Matter of Braintree Electric Light Department Petition For Approval To Construct a 116 Megawatt Single-Cycle Generating Facility and For a Zoning Exemption from the Bylaws of the Town of Braintree	)	EFSB 07-1/D.T.E./D.P.U. 07-5

FINAL DECISION

Stephen H. August
Presiding Officer
February 29, 2008

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ABBREVIATIONS

1997 Restructuring Act	"the 1997 Electric Restructuring Act" (Chapter 164 of the Acts of 1997)
AALs	Allowable Ambient Levels
AIHA	American Industrial Hygiene Association
ALOHA	Aerial Locations of Hazardous Atmospheres
ANSI	American National Standards Institute
BANCT	Best Available Noise Control Technology
BACT	Best Available Control Technology
BELD	Braintree Electric Light Department
BWSD	Braintree Water and Sewer Department
CELT	Capacity, Energy, Loads, & Transmission (yearly reports provided by NEPOOL)
CEMS	Continuous Emission Monitoring System
CO	carbon monoxide
CO_2	carbon dioxide
CTG	combustion turbine generator
CZM	Massachusetts Office of Coastal Zone Management
dB	decibels, unweighted
dBA	A-weighted decibel
Department	Department of Public Utilities
DOMSB	Decisions and Orders of Massachusetts Energy Facilities Siting Board
DOMSC	Decisions and Orders of Massachusetts Energy Facilities Siting Council
D.T.E.	Department of Telecommunications and Energy
EFSB	Energy Facilities Siting Board
EIS	Environmental Impact Statement
EMF	electric and magnetic field
EPA	United States Environmental Protection Agency
EPC	Engineering, Procurement and Construction

ERPG	Emergency Response Planning Guidelines
EOEEA	Executive Office of Energy and Environmental Affairs
FCM	Forward Capacity Market
FEMA	Federal Emergency Management Agency
GEP	Good Engineering Practice
gpd	gallons per day
gr/ccf	grains per 100 cubic feet
GWh	gigawatt-hours
H_2SO_4	sulfuric acid
Hz	hertz (cycles per second)
ICAP	Installed Capacity
ISO-NE	Independent System Operator of New England
LAER	Lowest Achievable Emissions Rate
kV	kilovolts
L_{90}	sound level exceeded 90 percent of time
L_{dn}	24-hour A-weighted equivalent sound level with a 10 decibel penalty applied to nighttime levels
L_{eq}	time-averaged sound levels
L_{max}	maximum sound levels
Light Department	Braintree Electric Light Department
LSCSF	Land Subject to Coastal Storm Flowage
MAAQS	Massachusetts Ambient Air Quality Standards
MDEP	Massachusetts Department of Environmental Protection
MDMF	Massachusetts Division of Marine Fisheries
MEPA	Massachusetts Environmental Protection Act
MHC	Massachusetts Historical Commission
MHD	Massachusetts Highway Department
m/s	meters per second
µg	microgram
mG	milligauss

mgd	million gallons per day
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MHC	Massachusetts Historical Commission
MLLW	mean lower low water
mm	millimeters
MMBtu	million British thermal units
mph	miles per hour
MVA	mega-volt-amperes
MVAR	mega-volt-amperes-reactive
MW	megawatts
MWh	megawatt-hours
MWRA	Massachusetts Water Resources Authority
N_2	nitrogen gas
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NEPOOL	New England Power Pool
NH_3	ammonia
NOAA	National Oceanic and Atmospheric Administration
NO_X	nitrogen oxides
NO	Nitrogen oxide
NSPS	New Source Performance Standards
NSR	New Source Review
NSTAR	NSTAR Electric Company
Pb	lead
PM-10	particulates
Potter II	95 MW combined-cycle unit at Potter Road
ppm	parts per million
ppmvd	parts per million volumetric dry
PSD	Prevention of Significant Deterioration
RFI	Request for Information

RGGI	Regional Greenhouse Gas Initiative
ROW	right-of-way
RSP	Regional System Plan
SCR	Selective Catalytic Reduction
SILs	Significant Impact Levels
SIS	System Impact Study
Siting Board	Energy Facilities Siting Board
SO_2	sulfur dioxide
SPCC	Spill Prevention, Control and Countermeasure Plan
TELs	Threshold Effects Exposure Limits
tpy	tons per year
TPS	Technology Performance Standards
TSP	Total Suspended Particulates
ULSD	ultra-low sulfur diesel oil
V/m	volts per meter
VOC	volatile organic compounds
Watson Station	proposed generating facility

Pursuant to G.L. c. 164, § 69J¼, the Energy Facilities Siting Board ("Siting Board") hereby APPROVES, subject to the conditions set forth below, the petition of Braintree Electric Light Department for approval to construct a 116 megawatt ("MW") simple-cycle, dual fuel (natural gas and ultra-low sulfur diesel oil ("ULSD")) electric generating facility in Braintree, Massachusetts. The Siting Board also grants Braintree Electric Light Department exemption from certain provisions of the Town of Braintree Zoning Bylaws.

I. INTRODUCTION

A. Summary of the Proposed Project

Braintree Electric Light Department ("BELD" or the "Light Department") is a municipally-owned electric department that was established by two town votes in 1891 pursuant to St. 1891, c.370, § 2. BELD is proposing to construct a 116 MW quick-start, simple-cycle, dual-fuel (natural gas and ULSD oil) electric generating facility ("Watson Station") on approximately two acres of a 23-acre parcel on Potter Road owned by the Town of Braintree, and currently under the control of BELD (Exh. BELD-1, at 1-1, 1-17). The Potter I generating station formerly stood on the same two-acre portion of the BELD Potter Road property (id. at 1-3).[1] BELD also has a 95 MW combined-cycle generating unit ("Potter II") operating at the Potter Road property (id. at 1-6).

BELD stated that the proposed facility would be located on the western bank of the Weymouth Fore River in East Braintree (id. at 1-17). The property is accessed via Potter Road, a 1700-foot-long two-lane road which intersects with Route 53 (Quincy Avenue) (id.). Directly to the north and west of the property is the CITGO marine petroleum terminal (id.). The 775 MW Fore River Station is also located directly to the north, across the Weymouth Fore River in the Town of Weymouth (id.). Residential areas in Weymouth are located across the Weymouth Fore River to the northeast and east while residential areas in Braintree are located to the southeast and south of the proposed facility (id.).

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[1] Potter I was decommissioned in the 1970s and later was demolished in 2007 (Tr. 1, at 38).

BELD stated that the proposed facility would consist of two Rolls Royce Trent 60 WLE gas turbine generators, each with an associated inlet air filter, Selective Catalytic Reduction ("SCR") system, ammonia injection skid, exhaust stack, main step-up transformer, auxiliary transformer and switchgear (id. at 1-25). The proposed facility would also include a two-story control center (approximately 50 feet by 100 feet), a gas compressor station (approximately 50 feet by 50 feet), a trailer mounted demineralizer system, lube oil cooling skid, a 400,000 gallon demineralized water storage tank and a 15,000 gallon ammonia storage tank (id. at 1-25; Exh. EFSB-HS-2, Att. at 2-12, 2-14). Two enclosures for the continuous emissions monitoring system ("CEMS") would be located at the base of the gas turbine exhaust stacks (Exh. BELD-1, at 1-25).

The Light Department indicated that electricity generated by the proposed facility would be conveyed to its existing on-site 115 kilovolt ("kV") switchyard (id. at 1-3). BELD indicated that two existing underground 115 kV transmission lines connect its switchyard with two NSTAR transmission lines which are part of the regional power grid (id.). BELD identified the NSTAR transmission lines as 115 kV transmission lines #478-502 and #478-509 (id.).

Ancillary facilities include a 300 foot 115 kV overhead transmission line to connect the main step-up transformers to BELD substation (Exh. BELD-1, at 1-28). Other associated facilities include a new high pressure gas line to be installed from the existing stub on the Algonquin Gas Transportation line to the new gas meter building (id.). The stub is located about 100 feet to the east of BELD's employee parking lot (id.). The existing approximately 1600 foot distillate oil supply line from the CITGO marine terminal to Potter II would be upgraded to serve the proposed facility (id.).

According to BELD's proposal, the Town of Braintree would connect the proposed facility to the Town water and sewer lines which traverse the Potter Road site. The water line connection would supply the demineralizing system as well as potable water for the control building (id).

B. Procedural History

On February 1, 2007, BELD filed a petition ("Siting Petition") pursuant to G.L. c. 164, § 69J¼ with the Siting Board to construct, operate and maintain a 116 MW simple-cycle electric generating facility and associated ancillary facilities in the Town of Braintree. On February 21, 2007, BELD filed a second petition ("Zoning Petition") pursuant to G.L. c. 40A, § 3 with the Department of Public Utilities ("Department") for approval of specific exemptions as well as a comprehensive exemption from the operation of the Town of Braintree Zoning Bylaws relating to the proposed facility.[2] On March 2, 2007, the two matters were consolidated for review by the Department pursuant to G.L. c. 25, § 4. The Siting Board formally commenced the consolidated proceeding with a public comment hearing on the Light Department's petitions in the Town of Braintree on March 29, 2007.[3]

Two petitions to intervene were filed and the Presiding Officer issued a ruling denying petition to intervene but granting two petitioners, Ruth Kingsley and Roxi Rose, limited participant status in the proceeding on April 23, 2007. On May 24, 2007, BELD submitted its direct case, in the form of written prefiled direct testimony, of four witnesses: (1) Theodore A. Barten, P.E., Managing Principal of Epsilon Associates, Inc.; (2) William G. Bottiggi, General Manager of BELD; (3) Mayhew D. Seavey, Jr., a principal of PLM Electric Power Engineering; and (4) Dr. Peter A. Valberg, a principal of Gradient Corporation. The Siting Board held evidentiary hearings on July 12, July 27 and August 3, 2007.) Over one hundred and forty exhibits were entered into the evidentiary record. BELD filed a brief on September 21, 2007.

C. Jurisdiction and Scope of Review

BELD filed its petition to construct the proposed generating facility in accordance with G.L. c. 164, § 69J¼. Pursuant to G.L. c. 164, § 69J¼, no Applicant shall commence construction

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[2] By letter to the Siting Board dated February 1, 2008, BELD withdrew its request for a comprehensive zoning exemption.

[3] Siting Board staff, including the Presiding Officer, also conducted a site visit on the same day as the public comment hearing.

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, 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 III, 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 Sections III.B through III.J, 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 III.K, below). Finally, 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 IV, below). Southern Energy Kendall, 11 DOMSB 255, at 270-271 (2000).

BELD filed its petition for an exemption from the Zoning Bylaws of the Town of Braintree in accordance with G.L. c. 40A, § 3. Pursuant to G.L. c. 40A, § 3, the Department is authorized to grant exemptions "in particular respects" from the operation of a municipality's zoning ordinance or by-laws for lands or structures used, or to be used, by a public service

corporation if:

> upon petition of the corporation, the [Department] shall, after notice given pursuant to section eleven and public hearing in the town or city, determine the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public . . .

Accordingly, a petitioner seeking exemption from a local zoning by-law pursuant to G.L. c. 40A, § 3 must meet three criteria. First the petitioner must qualify as a public service corporation. Save the Bay v. Department of Public Utilities, 366 Mass. 667 (1975). Second, the petitioner must establish that it requires a zoning exemption(s). Boston Gas Company, D.T.E. 00-24, at 3 (2001). Third, the petitioner must demonstrate that its present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare. Massachusetts Electric Company, D.T.E. 01-77, at 4 (2002); Tennessee Gas Pipeline, D.T.E. 01-57, at 3-4 (2002).

II. SITE SELECTION

A. 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 shall include 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.

The Siting Board also is required to determine whether a proposed facility provides a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. G. L. c. 164, § 69H. 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."

G. L. c. 164, § 69J¼. Site selection, together with project design and mitigation, is an integral part of the process of minimizing the environmental impacts of an energy facility. The Siting Board therefore will review the applicant's site selection process in order to determine whether that process contributes to the minimization of environmental impacts of the proposed project and the costs of mitigating, controlling, and reducing such impacts. In making this determination, the Siting Board also will consider, consistent with its broad mandate under G. L. c. 164, § 69H, the reliability, regulatory, and other non-environmental advantages of the proposed site.

B. Description

The Light Department described limitations on its ability to acquire sites for a proposed project (Exh. BELD-1, at 3-1). The Light Department stated that it is a municipal light department and is therefore, by G.L. c. 40, § 3, unable itself to purchase, sell or hold title to real property (id.).[4] BELD stated that it is unlike private developers or regulated utilities in that it cannot seek out sites to purchase, either within or outside the Town of Braintree (id. at 3-2). The Light Department therefore determined that its universe of possible sites is limited to larger parcels already owned by the Town of Braintree and placed within BELD's custody and control for utility purposes (id.).

The Light Department indicated that it has two available parcels for the proposed project, a 23-acre site on Potter Road and a 1.5 acre site on Allen Street, both in Braintree (id.; Exh. EFSB-S-12). The Light Department indicated that other parcels controlled by BELD would not be suitable for the proposed project due to their small size and present use for essential transmission and distribution purposes (Exh. BELD-1, at 3-2). The Light Department therefore evaluated siting the proposed project at either its Allen Street or Potter Road parcel (id. at 3-2 to 3-14). With respect to the Potter Road location, the Light Department evaluated two sites, an

[4] According to BELD, a parcel first must be acquired by the Town of Braintree; the Town then may vote to place it within the custody and control of the Light Department for the purpose of BELD's operations (Exh. BELD-1, at 3-1). The Light Department stated that the Town of Braintree retains title to the properties it acquires for BELD's use (id.).

alternate site on the south side of the property, and its preferred site, two acres at the northwest corner of the property, currently occupied by Potter I, a decommissioned generating plant (id. at 3-8).

The Light Department evaluated each site on the basis of 12 factors relative to ease of site development and interconnection, community and environmental impacts, and operations and reliability (Exh. BELD-1, at 3-14). These factors included the availability of land (2-acre minimum), the availability or proximity of each of five interconnection requirements -- natural gas, electric lines, fuel oil, water, and wastewater -- the amount of fill and grading required on site, noise control considerations, compatibility with existing or planned site use, proximity to residences, wetland resource impacts, visual considerations and the efficient use of personnel and security (id.). With respect to the category of operational/reliability considerations, the Light Department evaluated one factor, the efficient use of personnel and security (id. at Table 3-1). The Light Department used a qualitative rating format[5] to compare the relative merits of the three sites for each of the 12 factors (id. at 3-14).

The Light Department considered two sites at the Potter Road property for its proposed project -- the preferred site and the alternate Potter Road site (Exh. BELD-1, at 3-8). The Light Department asserted that its Potter Road property would be an excellent location for a 100 MW generation project for a number of reasons (id. at 3-7 to 3-8). The Light Department stated that the property is presently used for power generation, and currently provides on-site access to a suitably sized 115 kV switchyard, a 24-inch high pressure interstate natural gas pipeline, and Town water and sewer connections (id. at 3-7). The Light Department indicated that the site also offers a dedicated access road and the availability of ULSD via direct pipeline from an adjoining

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[5] The Light Department rated as plus (+) a site it considered advantageous with respect to a given factor, as zero (0) a site it considered neither advantageous nor disadvantageous, and as minus (-) a site considered disadvantageous (Exh. BELD-1, at 3-14 and Table 3-1).

marine petroleum terminal and storage facility (id.). The Light Department indicated that BELD's plant operations, maintenance and engineering staff are headquartered on the site, and asserted that this would offer the opportunity for further efficiencies with respect to the proposed project (id.).

The Light Department stated that the area surrounding its Potter Road property includes a mix of industrial, commercial, urban and suburban residential land uses (Exh. BELD-1, at 3-7 to 3-8). The Light Department indicated that found to the north, west, and northwest are industrial and commercial uses, including: a marine petroleum terminal; a former shipyard now used in part for storage of new automobiles and in part as a sludge pelletizing facility; a biofuels processing plant; an electric transmission switching station; and, a 775 MW dual-fuel, combined-cycle generating facility (id. at 3-7 to 3-8). The Light Department indicated that residential areas lie to the northeast, east, and south of the Potter Road property (id. at 3-8). The Light Department stated that residences to the northeast and north are approximately 2,000 feet away, across the Fore River, and that a wooded area separates the Potter Road property from residences to its south (id.).

The Light Department stated that its preferred site, in the northwest corner, had previously been the location of BELD's Potter I generating plant (Exh. BELD-1, at 3-8; Tr. 1, at 38). The Light Department stated that within the Potter Road property, the preferred site would maximize the distance between the proposed facility and residences abutting the Potter Road property to the south (Exh. BELD-1, at 3-8). The Light Department stated that the distance to those homes from the site would range from 650 feet near the southeast corner of the Potter Road property boundary, 800 feet near the boundary to the south, and 1,050 feet near the southeast corner (id.). The Light Department indicated that the preferred site, though disturbed and relatively level, would require fill to raise it from 11 feet to 14-15 feet above sea level (National Geodetic Vertical Datum) (id.). The Light Department indicated that it would raise the site to ensure construction of the proposed project above the 500-year flood zone (id.).

The Light Department stated that the alternate two-acre Potter Road site, located at the south side of the property, would avoid Land Subject to Coastal Storm Flowage ("LSCSF")

(Exh. BELD-1, at 3-9 to 3-13).[6] The Light Department indicated that the alternate Potter Road site abuts a single home to the southeast and additional residences to the west and south (id.). The Light Department stated that the alternate site is currently undeveloped and well vegetated, adding that the vegetation at this location helps to buffer residents along Glenrose Avenue to the south of the Potter Road property from the visual and noise impacts of BELD's existing operations there (id.). The Light Department indicated that construction would necessitate completely clearing vegetation from the area, and would therefore result in reduced mitigation of visual and noise impacts to Glenrose Avenue residents (id.). The Light Department indicated, in addition, that the proximity of the proposed facility to residences would both increase visual and noise impacts requiring mitigation and make their control more difficult and costly (id.). The Light Department also stated that the alternate Potter Road site would likely involve fewer visual impacts than the preferred site for residents to the north, across the Fore River in Weymouth (id.; Exh. EFSB-S-13).[7] The Light Department indicated, however, that the alternate Potter Road site would involve longer natural gas and ULSD connections, with proportionately greater cost, than would the preferred site (Exh. BELD-1, at 3-9 to 3-13). The Light Department stated that, unlike the preferred site, the alternate Potter Road site would not allow shared use of water and sewer utilities that serve existing BELD facilities at the Potter Road property (id.).

The Light Department stated that the Allen Street site, at less than two acres, while large enough to accommodate the proposed facility, would have insufficient space for laydown and parking (Exh. BELD-1, at 3-6). The Light Department indicated that other difficulties with the Allen Street site include: the need to raise the elevation of the site if used for power generation due to its location within a Federal Emergency Management Agency ("FEMA") mapped 100-year flood zone; its distance from existing electric transmission and natural gas interconnection

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6 LSCSF is defined at 310 CMR 10.04 as land subject to inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater (Exh. BELD-1, at 4-46).

7 The Light Department stated that its calculations indicate that stack height for the proposed facility would be lower at the alternate Potter Road property site than at the preferred location (Exh. BELD-1, at 3-13).

points and ULSD supply;[8] and its proximity to residences to the north and south, entailing mitigation concerns for noise and visual impacts of the proposed project (Exhs. BELD-1, at 3-6 to 3-7; EFSB-S-1; EFSB-S-2; EFSB-S-3; EFSB-S-4; EFSB-S-5; EFSB-S-6). The Light Department also stated that it would have to add operation, security, and maintenance staff at Allen Street, but that such personnel and systems were already in place at the Potter Road property (Exhs. BELD-1, at 3-7; EFSB-S-8). The Light Department further asserted that use of the Allen Street parcel for the proposed project would be inconsistent with the Town of Braintree's Master Plan, which calls for the integration of the Allen Street property with existing publicly-owned open space (Exh. BELD-1, at 3-7).

C. Analysis

The record shows that BELD conducted an in-depth evaluation of three sites, a 1.5-acre site at the Light Department's Allen Street property and two 2-acre sites within the confines of the Light Department's larger Potter Road property. BELD eliminated all but these three sites, based primarily on BELD's status as a municipal light department, dependent on the Town of Braintree to undertake any acquisition and control of Town property, if not currently in Town ownership, for BELD's purposes. The record shows that BELD identified and considered a range of alternative locations for construction of its proposed project, given operating constraints related to site acquisition and control.

The Light Department has presented its siting criteria and a matrix showing BELD's application of these criteria to the three identified sites. The criteria are reasonable. In applying the criteria, the Light Department has shown the proposed Potter Road site to be comparable to the Allen Street site with respect to two criteria -- wetland resources and proximity to water supply and wastewater interconnects -- and shown the proposed Potter Road site to be preferable

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[8] The Light Department stated that Allen Street is approximately one mile from BELD's existing 115 kV switchyard and 800 feet from the nearest high pressure natural gas pipeline on Shaw Street (Exh. BELD-1, at 3-6 to 3-7). The Light Department indicated that the Allen Street parcel lacks ready access to a source of ULSD (id.). BELD stated it would therefore have to truck ULSD to the Allen Street property and build ULSD storage at the site (id.).

to the Allen Street site with respect to all other criteria examined. The Light Department has shown the alternate Potter Road site to be preferable to the preferred site with respect to one criterion, wetland resources, and comparable to the preferred site with respect to two criteria -- proximity to electric interconnects and amount of fill/grading required on site, but has shown the proposed Potter Road site to be preferable to the alternate Potter Road site with respect to all other criteria. The Siting Board finds that the Light Department's description of the site selection process used is accurate.

The Light Department has identified advantages of using BELD's existing infrastructure at the Potter Road property. The Siting Board notes that reuse of previously disturbed sites and use of existing infrastructure can limit many of the environmental impacts associated with industrial development. While the Siting Board notes that the benefits of such an approach are necessarily site and facility specific, the Siting Board agrees that in the present case the scale, nature, and physical attributes of the proposed project are consistent with the existing use of the Light Department's Potter Road property.

The Light Department's consideration of the size and transmission constraints of the site as part of its decision to propose a single-cycle peaking facility, rather than a combined-cycle facility, is appropriate. Furthermore, because the proposed facility would operate as a peaking unit, it would most likely avoid contributing to night noise impacts in an area already subject to noise impacts from a nearby base-load facility, the 775 MW Fore River Generating Station.

The record shows that the Light Department would need to minimize, through design or mitigation, environmental impacts that the proposed project would likely have in its vicinity; the record also shows, however, that location of the proposed project at the preferred site would, on balance, minimize its environmental impacts. These issues are discussed in Sections III.B through J, below. Accordingly, the Siting Board finds that the Light Department's site selection process resulted in the selection of a site that contributes to the minimization of environmental impacts and the costs of mitigating, controlling, and reducing such impacts.

III. ENVIRONMENTAL IMPACTS

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 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, including 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 have been 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.

B. Air Quality

This section describes emissions and impacts of the proposed facility, compliance with existing regulations, and emission offsets proposed by the Light Department.

1. Applicable Regulations

The Light Department indicated that regulations governing the air impacts of the proposed facility include National Ambient Air Quality Standards ("NAAQS") and Massachusetts Ambient Air Quality Standards ("MAAQS");[9] New Source Review ("NSR") requirements; Prevention of Significant Deterioration ("PSD") requirements; and New Source Performance Standards ("NSPS") for criteria pollutants (Exh. EFSB-HS-2, Att. at 3-1 to 3-2; BELD-1, at 3-1 to 3-2). The Light Department indicated that all areas of the country are classified as "attainment," "non-attainment," or "unclassified" with respect to NAAQS for six criteria pollutants: sulfur dioxide ("SO_2"), particulates ("PM_{10}"),[10] nitrogen dioxide ("NO_2"), carbon monoxide ("CO"), ground level ozone, and lead (Exh. EFSB-HS-2, Att. at 3-1 to 3-5). According to the Light Department, NSR applies to non-attainment criteria pollutants exceeding certain emission thresholds (id. at 3-2); PSD applies to attainment (and unclassified) pollutants exceeding certain emission thresholds (id. at 3-2 to 3-3); and NSPS apply to pollutants on the basis of process or source category (id. at 3-6 to 3-7).

The Light Department stated that Massachusetts regulations for Air Plans Approval require Best Available Control Technology ("BACT")[11] for each regulated pollutant (id. at 3-7 to

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9 The Massachusetts Department of Environmental Protection ("MDEP") has adopted the NAAQS limits as MAAQS (Exh. EFSB-HS-2, Att. at 3-1).

10 The Light Department indicated that it understands that the U.S. Environmental Protection Agency ("EPA") is in the process of revising the NSR and PSD thresholds for $PM_{2.5}$, but that until the thresholds are promulgated, PM_{10} is to serve as a surrogate to address the $PM_{2.5}$ requirements for NSR and PSD (Exh. EFSB-HS-2, Att. at 3-2).

11 The Light Department stated that "Massachusetts BACT" is based on the maximum degree of reduction of any regulated air contaminant, which the MDEP determines, on a case-by-case basis, is achievable taking into account energy, environmental, and

(continued...)

3-8). The Light Department stated that volatile organic compounds ("VOC") and nitrogen oxides ("NO_x") emissions are regulated as precursors to ozone (id. at 3-2). As described in Section III.B.3, below, the Light Department stated that MDEP requires the facility to have Lowest Achievable Emissions Rate ("LAER")[12] technology for NO_x (id. at 4-1 to 4-7). The Light Department stated that the Technology Performance Standards ("TPS") established by the Siting Board require new facilities either to demonstrate that emissions comply with the TPS emissions criteria or to provide data showing that the proposed facility will contribute to a reliable, low-cost, diverse, regional energy supply with minimal environmental impacts (Exh. BELD-1, at 2-1). The Light Department stated that, under the Acid Rain Program, the EPA requires owners of new plants to hold or acquire SO_2 emission allowances to offset their actual annual SO_2 emissions (id. at 4-10).

The Light Department described several other air quality requirements including: a prohibition by MDEP on dust or odor-causing emissions from construction or operation of a fossil-fuel plant; an additional limitation on particulate matter emissions from new fossil-fuel facilities in Massachusetts; and the MDEP air toxics policy (Exh. BELD-1, App. C at 3-8 and 3-9).[13] The Light Department also discussed the Siting Board's policy relative to offsetting carbon dioxide ("CO_2") emissions (id. at 4-19; Exh. EFSB-A-6).

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[11] (...continued)
economic impacts (Exh. EFSB-HS-2, Att. at 3-7 to 3-8, 4-7). BELD further stated that in this case, proposed Massachusetts BACT limits are equal to the proposed Federal level BACT and Lowest Achievable Emission Rate requirements (id.).

[12] The Light Department indicated that EPA defines LAER as "the most stringent emission limitation contained in the implementation plan of any State for such class or category of source, or the most stringent limitation achieved in practice by such class or category of source" (Exh. EFSB-HS-2, Att. at 4-1 to 4-2).

[13] The Light Department also described the MDEP short-term ambient NO_2 policy applicable to sources emitting over 250 tons per year ("tpy") of NO_2; however, the Light Department stated that the proposed facility would not be subject to the policy because the NO_2 emissions would be less than this emissions threshold (Exh. BELD-1, App. C at 3-9).

2. Baseline Air Quality

The Light Department indicated that it determined background concentrations using data from MDEP air quality monitoring stations in Boston, Lynn, and Milton, approximately 8 to 17 miles from the proposed Watson Station site (Exh. BELD-1, App. C at 4-9). The Light Department presented data from these air monitoring stations for 2003 through 2005 (id.).[14] The Light Department indicated that the regional air quality measurements were below NAAQS concentrations each year for all criteria pollutants except ozone, which exceeded NAAQS for the 8-hour averaging period by 0.012 parts per million ("ppm") to 0.016 ppm over the identified three years (id.). From a regulatory standpoint, the Light Department indicated that the Braintree area was "unclassified" (treated as attainment) for SO_2, NO_2, CO, and lead, and estimated to be in attainment for PM_{10}, but that the entire Commonwealth of Massachusetts was classified as a "moderate" non-attainment area for ozone (id. at 4-5 and 4-9).

3. New Facility Emissions, Impacts, and Compliance

The Light Department provided calculated maximum potential annual emissions at the Potter Road property of the proposed Watson Station and the existing Potter II generating unit (Exh. BELD-1, at 4-2 to 4-3). The Light Department provided calculations for NO_x, CO, VOC, PM_{10}, SO_2, CO_2, sulfuric acid (H_2SO_4) mist and lead (Exhs. BELD-1, at 4-3, 4-6; EFSB-A-4). The Light Department stated that it based its potential emissions calculations for the proposed Watson Station on 8,760 hours per year of full load operation, 5,880 hours on natural gas and 2,880 hours on ULSD (Exh. BELD-1, at 4-2).[15] BELD stated that it calculated emissions for Potter II on 12 months' (8,760 hours) operation on distillate oil (0.3 percent sulfur or, equivalently, 3,000 ppm sulfur) (id. at 4-3, 4-6; Exh. EFSB-A-4).

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[14] Observed concentrations were presented for SO_2, NO_2, CO, PM_{10}, $PM_{2.5}$, and ozone (Exh. BELD-1, App. C at 4-9).

[15] BELD indicated that it made its SO_2 calculations conservatively, using the sulfur content of natural gas (23 ppm, versus 15 ppm for ULSD) (Exhs. BELD-1, at 4-2; EFSB-A-1).

The Light Department stated that since the existing BELD Potter II facility will continue to operate as a combined-cycle plant with no increases in operating hours or emissions rates, the net emissions increase for PSD major modification purposes is the calculated potential emissions from the proposed Watson Station (Exh. BELD-1, App. C at 3-3). The Light Department's evaluation of PSD applicability for the proposed project indicated that PSD review applies for NO_x and PM, since emissions of both pollutants will exceed the PSD significant modification thresholds (id. at 3-4). The Light Department stated that, in addition to meeting LAER for NO_x, the project must meet BACT for PM_{10} and NO_x (id.).

The Light Department stated that it proposes the following with respect to Massachusetts BACT, required for each pollutant exceeding thresholds in 310 CMR 7.02: the use of natural gas as the primary fuel, thus lowering all criteria and non-criteria pollutants compared to other fuels; the use of ULSD sulfur (0.0015 percent) oil as a secondary fuel that lowers SO_2 and PM_{10} emissions compared to higher sulfur oils;[16] the use of the selected advanced technology combustion turbine, providing a high level of efficiency and a minimum of incomplete combustion, with associated minimization of VOC, CO, and PM_{10} emissions; and the use of efficient combustion design and an oxidation catalyst to provide further CO and VOC emissions reductions (Exh. BELD-1, at 4-11).

The Light Department indicated in its discussion of LAER requirements, that the proposed Watson Station would be adjacent to, and considered a modification of, its existing Potter II generating unit (Exh. BELD-1, App. C at 3-2).[17] The Light Department indicated that in moderate ozone nonattainment areas (e.g., Braintree), the threshold for applicability of NSR for nonattainment is 50 tpy for new major sources, and 25 tpy for major modifications (id.). The

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[16] The Light Department stated that it will also switch its existing generating unit, Potter II, from 0.3 percent sulfur distillate to ULSD (Exh. BELD-1, at 4-11, n. 7). BELD stated that this fuel switch will reduce potential SO_2 emissions by 1330 tons tpy (id.).

[17] BELD stated that Potter II is a combustion turbine combined-cycle unit, constructed in 1975, and a major source with respect to NO_x due to its potential to emit NO_x emissions in excess of 100 tpy (Exh. BELD-1, at 2-4 and 3-2).

Light Department indicated that because potential VOC emissions of the proposed project are less than 50 tpy,[18] nonattainment NSR for VOC is not required (id.).

The Light Department stated that, because potential NO_x emissions from the proposed Watson Station are 58.8 tpy, i.e., greater than 25 tpy, the proposed project constitutes a major modification to Potter II and is therefore subject to nonattainment NSR for NO_x (Exh. BELD-1, App. C at 3-2) (id.). The Light Department stated, with respect to NO_x, that applicable NSR requirements for nonattainment include application of LAER technology and acquisition of emission offsets (id.). Offset requirements for major sources of NO_x in a moderate ozone nonattainment region are required at a minimum ratio of 1.26 to 1 (58.8 X 1.26 = 74 tpy) (id.). BELD proposes to purchase the necessary NOx offsets from facilities that have generated real and quantifiable reductions in emissions by either shutting down equipment or controlling beyond the regulatory requirement (Exh. BELD-1, at 4-6). For LAER, the Light Department proposes water injection and SCR[19] for combustion of natural gas and ULSD to reduce NO_x emissions (id. at 4-11).

The Light Department stated that applicable NO_x standards for the proposed project turbines under NSPS are 2.3 lb/MWhr (approximately 42 parts per million, volumetric dry ("ppmvd")) when firing natural gas and 5.5 lb/MWhr (approximately 96 ppmvd) when firing oil (id. App. C at 3-6). The Light Department indicated that emissions of NO_x from the project, 0.085 lb/MWhr (2.5 ppm) when firing natural gas and 0.18 lb/MWhr (5 ppm) when firing ULSD, would be 4 percent of the standard on gas and 3 percent of the standard on oil, respectively (id.). The Light Department indicated that sulfur content of both fuels for the proposed project would also readily meet NSPS SO_2 limits (id.).[20]

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[18] Potential VOC emissions for Potter II are approximately 7.6 tpy (Exh. BELD-1, App. C at 3-2).

[19] The Light Department explained that, in the presence of a catalyst, ammonia (NH_3) selectively combines with nitrogen oxides (NO_2, NO) to form water (H_2O) and nitrogen gas (N_2) (Exh. BELD-1, at 1-38).

[20] NSPS SO_2 limits are 20 grains per 100 cubic feet ("gr/ccf") of natural gas or 0.05 percent

(continued...)

With respect to TPS, the Light Department indicated that, as noted above, proponents of new facilities must either demonstrate that the TPS are met or provide data comparing the proposal to other fossil-fuel generating technologies (Exh. BELD-1, at 2-1). The Light Department presented tables comparing TPS against facility emission rates, expressed in lbs/MWhr at 100 percent load at 50 degrees Fahrenheit ("° F") for the primary fuel at a proposed facility (id. at 2-4).[21] The Light Department presented data for criteria pollutants SO_2, NO_x, PM_{10}/Total Suspended Particulates ("TSP"), CO and VOC, as well as for non-criteria pollutants (id. at 2-4 to 2-6).

The data provided by the Light Department indicated that the proposed Watson Station will meet all of the TPS for non-criteria pollutants (id. at 2-6). The proposed project's emissions of SO_2 and PM_{10}, however, will each exceed TPS by seven percent; emissions of CO will exceed TPS by 35 percent (id. at 2-4).[22] The Light Department accordingly presented a comparison, described in Section IV, below, of the proposed project and other fossil fuel technologies with respect to costs, environmental impacts, reliability, and contribution to diversity (id. at 2-6 to 2-7).

The Light Department indicated that it used AERMOD and SCREEN3, dispersion models approved by the EPA, to evaluate projected ambient air quality impacts for its proposed

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20 (...continued)
sulfur by weight in fuel oil (Exh. BELD-1, App. C at 3-6). The estimated sulfur content of natural gas is 0.8 gr/ccf; ULSD distillate will have a 0.0015 percent sulfur content (id.).

21 BELD indicated that Rolls Royce, manufacturer of its proposed turbine, has performance data at 9° F, 59° F, and 91° F (Exh. BELD-1, at 2-4, n. 5). BELD stated that for its TPS analysis, it used the 59° F case, the closest case to the 50° F condition used by the EFSB (id.).

22 The Light Department asserted that the proposed Watson Station's emissions would exceed TPS for the three identified criteria pollutants for two reasons (Exh. BELD-1, at 2-6). BELD asserted, first, that the Light Department used comparatively conservative assumptions in calculating emissions from the proposed project (id. at 2-6 to 2-7). BELD also argued that simple-cycle technology inherently has a higher heat rate than that of the base-load, combined-cycle technology on which the TPS were based (id.).

project (Exh. EFSB-HS-2, Att. at 6-1). As part of its evaluation, BELD compared modeled facility emission concentrations to Significant Impact Levels ("SILs") defined by EPA and MDEP for criteria pollutants, as well as Allowable Ambient Levels ("AALs") and Threshold Effects Exposure Limits ("TELs") established by MDEP for air toxics (id. at 3-5 to 3-6; 6-1 to 6-21; Exh. EFSB-A-9). Based on this comparison, the Light Department predicted that facility-emission concentrations would not exceed SILs, AALs, or TELs (Exh. EFSB-HS-2, Att. at 3-5 to 3-6; 6-1 to 6-21).

The Light Department used atmospheric dispersion modeling of criteria pollutants to compare the air quality impacts of the proposed facility at two different stack heights (Exh. BELD-1, at 4-13). The Light Department conducted its modeling for the proposed two stacks at each modeled height, the proposed height of 100 feet, and the height considered good engineering practice ("GEP") for the facility, 202 feet (id.). With respect to the proposed Watson Station, the Light Department indicated that 100-foot-high stacks would result in criteria air pollutants at modeled ground level concentrations below EPA SILs thresholds (id.; Exh. EFSB-HS-2, Att. App. C).

4. CO_2 Offset Proposals

The Light Department indicated that, assuming a 100 percent annual capacity factor and 120 days of ULSD operations, it calculated that annual CO_2 emissions of the proposed project would be 594,937 tons, or 125 lbs CO_2/MMBtu (1,171 lbs CO_2/MWhr) (Exhs. BELD-1, at 4-18; EFSB-A-4; EFSB-A-7; EFSB-A-18; EFSB-A-19; EFSB-RR-4).

The Light Department indicated that, under the Regional Greenhouse Gas Initiative ("RGGI") to be implemented by MDEP, BELD would be required to purchase allowances at auction for the right to emit CO_2 at Watson Station (Exh. EFSB-A-18). Though the final regulations under RGGI are still unavailable, the Light Department indicated that it anticipates having to use a cap, auction and trade system to mitigate each ton of CO_2 emitted from its proposed facility (id.). The Light Department asserted that its compliance with RGGI would exceed existing EFSB requirements for CO_2 mitigation (id.). The Light Department indicated that, absent or in lieu of RGGI, it would be willing to contribute to one or more cost-effective

CO_2 mitigation programs to offset one percent of the CO_2 emissions from its proposed project (Exh. BELD-1, at 4-18). The Light Department stated that it would offset one percent of the proposed project's CO_2 emissions offset with its existing tree planting program (id.; Exh. EFSB-A-18).[23] Such a contribution would be in keeping with the standard for CO_2 emissions mitigation established by the EFSB (id.). BELD indicated that it has had, since 1992, an ongoing tree-planting program that has planted approximately 2600 maple trees, with a corresponding sequestration of roughly 1000 tons of CO_2 (Tr. 1, at 33). The Light Department stated that it plans to continue its tree planting program (Exh. BELD-1, at 4-19).

Predicted Cumulative Impact Concentrations with Air Quality Standards

Pollutant	Averaging Period	Total Modeled Concentration	Monitored Background ($\mu g/m^3$)	Cumulative Impact ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Cumulative Impacts/ NAAQS	Meteorological Year
NO_2	Annual	17.30	9.00	26.30	100.00	0.263000	2005
SO_2	3-H2H	3.60	84.00	87.60	1300.00	0.067385	2005
	24-H2H	1.20	50.00	51.20	365.00	0.140274	2005
	Annual	0.03	10.00	10.00	80.00	0.125	2005
PM_{10}	24-H2H	58.40	42.00	100.40	150.00	0.6693333	2005
	Annual	0.62	20.00	20.60	50.00	0.412	2005
CO	1-H2H	1230.00	4176.00	5406.00	40000.00	0.13515	2004
	8-H2H	780.00	2668.00	3448.00	10000.00	0.3448	2005

1 Annual concentrations for the proposed project based on 5880 hours firing natural gas and 2880 firing ULSD for all pollutants.

2 Annual concentrations for Potter II turbine based on worst case oil or natural gas firing 8760 hours per year. Diesel engine limited to 1000 hours per year.

Source: (Exh. EFSB-HS-2, Att. at 6-14 to 6-15, Table 6-10).

23 The Light Department stated that, assuming 3,000 hours per year of operations, the proposed project would likely emit 185,000 tpy of CO_2 (Exh. EFSB-A-18). One percent of CO_2 emissions from the proposed project would then be 1,850 tpy.

5. Analysis

The record indicates the proposed facility would provide efficient peaking power based on dual-fuel combustion turbine technology using natural gas and ULSD. 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 provided by BELD, ambient impacts would be below SILs, TELs, and AALs. In addition, maximum concentrations of SO_2, NO_2, PM_{10}, and CO in the area of the proposed Watson Station and existing Potter II facility, together with background, are projected to be below NAAQS limits.

The modeled ambient impacts for the two proposed stacks were calculated assuming a sub-GEP stack height of 100 feet, which would result in less visual impact than the GEP height of over twice that high. BELD's analysis shows facility emission concentrations well below SILS, and combined background and facility emission concentrations below NAAQS. The Siting Board therefore finds that the proposed 100-foot stack height would minimize air quality impacts consistent with the minimization of visual impacts (see Section III.E, below).

The record shows that ULSD will be used at the proposed facility when oil is used, and will replace the 0.3 percent (3000 ppm) distillate currently used at Potter II. BELD proposes to purchase the necessary NOx offsets to meet NSR requirements for ozone nonattainment from facilities that have generated emissions reductions by shutting down equipment or over-controlling beyond their regulatory requirement.

The record shows that the proposed facility is expected to meet applicable air quality standards, including ambient air standards, new source standards, performance standards, and design standards. The MDEP and EPA Air Plans Approval process will evaluate compliance with LAER and BACT, and overall compliance with air regulations. The record also shows, however, that projected emissions of SO_2, PM_{10}, and CO are greater than the levels set in the Siting Board's TPS; consequently, in Section IV, below, the Siting Board reviews the facility's overall compliance with the TPS.

The record shows that the proposed facility would have the potential to emit a maximum of 594,937 tpy of CO_2. The Light Department asserts that BELD and other generators will be required to mitigate CO_2 emissions under prospective RGGI regulations for generation sources, and that the required mitigation will serve the intent of the Siting Board's offset requirement. The record shows that, otherwise, the Light Department is willing to contribute to one or more cost-effective CO_2 mitigation programs to offset one percent of the CO_2 emissions from its proposed project, consistent with the requirements set forth by the Siting Board in Dighton Power Associates, 5 DOMSB 193 (1997). The record also shows that the Light Department proposes to use its existing tree planting program for emissions offsets. The Siting Board notes that while the Light Department's proposal may be reasonable, the resultant offsets must be "proven, incremental reductions" in CO_2 emissions. The Siting Board concludes that the Light Department will need to expand its tree planting program or propose additional mitigation to ensure that its proposed offsets are indeed sufficient, consistent with the Siting Board's criteria.[24]

The record also shows that recently promulgated Massachusetts RGGI regulations apply to the proposed Watson Station facility. The Siting Board's review of these regulations shows that Massachusetts RGGI requirements for CO_2 emissions offsets for the proposed project will exceed existing Siting Board requirements for CO_2 emissions mitigation. Because the Massachusetts RGGI regulations have not yet been implemented, the Siting Board notes it may be necessary for the Light Department to rely on its re-scaled tree planting program or another mitigation proposal, consistent with EFSB direction, if the proposed project commences operation and the Massachusetts RGGI requirements for CO_2 emissions offsets are not yet implemented.

The Siting Board therefore directs BELD, prior to or within the first year of the proposed facility's operation, to provide the Siting Board with a compliance filing with respect to CO_2 emissions based on either (1) conformance with RGGI; or (2) an offset program developed with

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[24] The Light Department's proposed offsets must be incremental to the CO_2 emissions offsets that would have occurred with or without proposed facility construction.

Siting Board staff, consistent with CO_2 emissions offset programs developed in previous cases before the Siting Board.

Accordingly, the Siting Board finds that, with implementation of the foregoing CO_2 mitigation, the air quality impacts of the proposed facility would be minimized.

C. 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, on surface and subsurface water levels and flow, and on wetlands; and (2) the water-related discharges from the facility, including wastewater and stormwater discharges, and their related impacts on wastewater systems, on wetland hydrology, and on other water resources; and (3) wetlands and waterways impacts.

1. Water Supply

The Light Department indicated that water use at the proposed facility would vary depending on ambient temperature, hours of operation, and load, as well as on whether all evaporative coolers and both turbines were running (Exh. BELD-1, at 4-54). The Light Department indicated that maximum possible daily water use at the proposed Watson Station would be 205,000 gallons per day ("gpd") (id.). The Light Department stated that this maximum usage level assumed 24-hour operation of two turbines and all evaporative coolers under 100 percent load at ambient temperatures in the low nineties (Fahrenheit) (id.). The Light Department stated daily water use for a load scenario based on high demand summer conditions might be as much as 137,000 gpd (id.). The Light Department indicated that its high demand summer load scenario assumed 16-hour operation of two turbines and all evaporative coolers under 100 percent load with an ambient temperature of 91° F (id.).[25] The Light Department

[25] The Light Department supplied a table indicating the variation of water requirements for the proposed project with change in ambient temperatures (Exh. BELD-1, at 4-54 to 4-55). According to the table provided by the Light Department, lower ambient

(continued...)

stated that evaporative coolers for the proposed facility would more likely operate between four and eight rather than 16 hours per day, reducing water use under high demand summer conditions to between 106,000 and 117,000 gpd (id.).

BELD noted that its proposed use of open, air-cooled generator technology would minimize the proposed project's overall water use (Exh. BELD-1, at 1-31, 1-35 to 1-36). The Light Department indicated that the proposed project water requirement would consist largely of demineralized municipal water for reduction of NO_x emissions (via water injection into the turbines) and other ancillary uses (id.).[26]

The Light Department stated that it would rely on a 400,000 gallon demineralized water storage tank to provide flexibility with respect to its water supply (Exh. BELD-1, at 4-56). The Light Department stated that it would use water from the tank during periods when demands on the Braintree municipal water supply system are high and fill the tank during hours of low demand on the system (id.). The Light Department anticipated that the proposed project would interconnect with the Braintree municipal water system at an existing line on the Potter Road property (id. at 1-28).

The Light Department stated that the Braintree water system is part of a water supply reservoir system, the Tri-Town system, shared with Holbrook and Randolph (Exh. EFSB-W-10). The Light Department stated that the reservoir system safe yield is 5.6 million gallons/day ("mgd"), and the permitted withdrawal for Braintree is 3.87 mgd (Exh. BELD-1, at 4-56).

The Light Department indicated that the Braintree Water and Sewer Department ("BWSD") restricts water use by its customers as a precautionary measure (id. at 130; Exh. EFSB-W-11). The Light Department indicated that BWSD excludes use of automatic watering

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25 (...continued)
temperatures reduce water use (id.).

26 The Light Department further explained that demineralization of potable water removed dissolved solids which would otherwise be deposited on the turbine blades (Exh. BELD-1, at 4-54). The Light Department indicated that a portable, trailer-mounted demineralization system would be used to treat municipal water (id.). The demineralized water would be stored in a 400,000 gallon tank on the south side of the Project site (id.).

devices from May through September and historically has also limited the hours of outside water use (Exh. EFSB-W-11; Tr. 1, at 118-120, 129-131).[27] The Light Department stated, however, that BELD at no time has been requested to limit its withdrawals from the Braintree water supply system (Tr. 1, at 120).

The Light Department stated that Braintree's water use is 3.7 mgd, on average, 3.4 mgd during non-summer months and 4.6 mgd during the summer months (Exh. EFSB-W-11). The Light Department stated that Braintree has had a peak water use day as high as 5.6 mgd (id.). The Light Department indicated that Holbrook and Randolph together use approximately the same amount of water per day as does Braintree (id.). The Light Department stated that total average summer daily water withdrawal from the Tri-Town water supply is approximately 9.0 to 9.5 mgd (id.).

The Light Department indicated that the annual average water supply withdrawn from the Tri-Town system is approximately 7.0 mgd (Exh. EFSB-W-10). The Light Department stated that reservoirs for the Tri-Town water supply system are filled to capacity over the non-summer months, and that at times during this period water is released from water supply system reservoirs in Braintree to make room for snowmelt and accumulating spring rainfall (id.). The Light Department provided average daily water usage in mgd for the Braintree Water System, years 1997 to 2006 to support its claim that the system would have adequate water supplies to meet the water supply needs of the proposed project (Exh. EFSB-RR-10).[28]

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[27] The Light Department stated that the Town has not entirely prohibited outside use of water or non-essential use of water, options under Section 10 of the BWSD Rules, Regulations, and Guidelines (Exh. EFSB-W-11, Att.; Tr. 1, at 120). The Light Department indicated that BWSD governs water use under a water use policy involving five phases of water use constraints, with Phase 1 being least restrictive and Phase 5 most restrictive (Exh. EFSB-W-11, Att.). The Light Department stated that BWSD regularly institutes Phase 3 water bans in summer months to control water use and reduce drawdown of the Tri-Town water supply system (Tr. 1, at 118-119).

[28] The Light Department indicated that both the BWSD and BELD had options for obtaining supplemental water supplies, the BWSD through the Massachusetts Water Resources Authority ("MWRA")and the Light Department through private water supplies (continued...)

With respect to the water demineralizing process, the Light Department stated that demineralization units would be trailer-mounted and replaced as necessary with a fresh unit (Exh. BELD-1, at 4-56). The Light Department indicated that regeneration of spent units would take place at an offsite commercial facility (id.). The Light Department indicated that trailer replacement is possible within 24 hours of a request for a new trailer (Exh. EFSB-W-3).

2. Wastewater and Stormwater Discharge

The Light Department anticipated no appreciable increase in wastewater flow from BELD offices at its Potter Road property (Exh. BELD-1, at 4-56). The Light Department stated that sanitary wastewater would be discharged at its Potter Road property to an existing Braintree sewer line (id.). The Light Department estimated that wastewater from periodic equipment washdowns would range from a minimum of 300 to a maximum of 750 gallons every other week (Exh. EFSB-W-5). The Light Department stated that wastewater would be collected and removed offsite to a wastewater facility for treatment and discharge (id.). The Light Department indicated that removal would occur approximately quarterly and would in general require one truck per turbine (id.; Exh. BELD-1, at 4-56).

The Light Department presented a comprehensive management plan for minimizing impacts from stormwater discharge and asserted that stormwater runoff conditions at the proposed project site would improve as a result of its stormwater management plan (Exhs. BELD-1, at 4-58; BELD-5, App. F). The Light Department stated that its plan would ensure no new point source discharges at the proposed project site, more extensive treatment of runoff from impervious surfaces, planting of natural buffer, and long-term operations and maintenance planning with respect to stormwater management (Exh. BELD-1, at 4-58 to 4-60).

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[28] (...continued)
(Tr. 2, at 272-273). The Light Department stated that it also had the option of reducing use of its evaporators (id.).

3. Wetlands and Coastal Waters

The Light Department indicated that construction and operation of the proposed project would not require disturbance in Coastal Bank, Coastal Beach, Land Under the Ocean, Anadromous/ Catadromous Fish Run or Bordering Vegetated Wetland (Exh. BELD-1, at 4-45 to 4-53). The Light Department indicated that the proposed project is a Non-Water-Dependent Infrastructure Facility and as such is subject to the provisions of Chapter 91 licensing, implemented by the MDEP Waterways Program (id. at 4-16). The Light Department submitted materials describing how the proposed project would comply with regulations under Chapter 91, including preservation of water-related public rights and conformance with municipal zoning (id. at 4-16 to 4-34; Exhs. EFSB-LU-1-S; EFSB-LU-1-S Att. 1; see Section III.J, below).

The Light Department indicated that portions of the two-acre site at BELD's Potter Road property are within LSCSF (Exh. BELD-1, at 4-45). The Light Department stated that it would add clean fill to raise site elevation above the identified 500-year floodplain elevation (id.). The Light Department asserted that the proposed project would have no measurable impact on the flood control and storm damage prevention functions of the LSCSF, nor on the stability of Coastal Bank, nor on functions of the Coastal Bank presumed significant under the Wetlands Protection Act regulations (storm damage prevention and flood control) (id. at 4-45, 4-48).

4. Analysis

The record demonstrates, based on historic water usage data, that Braintree and the Tri-Town water supply system have previously had more than adequate capacity and yield to meet water supply needs of the proposed project in winter. However, the Tri-Town system is subject to drawdown in some years, specifically during dry weather in summer and fall. The record indicates that both BWSD and BELD may obtain supplemental water supplies and that the Light Department has the option of reducing evaporator use. The record also shows that the proposed facility, because of its size, its use as a peaking unit, and its design, including its reliance on air-cooled technology, would not significantly increase demand on the Light Department's intended source of water supply, including the Braintree water supply system and the Tri-Town water reservoir system that Braintree shares with Holbrook and Randolph.

The Siting Board notes BELD's efforts to reduce water use at its proposed facility and that, as a result, the proposed project would constitute a small overall increase to Braintree's use of Tri-Town water supplies. The Siting Board also notes BELD's and Braintree's access to supplemental water supply outside the Tri-Town system. Nonetheless, given that the Tri-Town system is subject to drawdown beyond safe yield limits during summer and fall months, the Siting Board remains concerned that water supply needs for the proposed facility in dry weather conditions may contribute to drawdown exceeding the safe yield of system supply. The Siting Board therefore requires BELD, as warranted, during dry weather conditions, to monitor water use of its proposed facility in relation to supply conditions in the BWSD and Tri-Town systems, and to coordinate with BWSD with respect to limiting BELD's water use or using BELD's backup supply.

The record shows that the proposed facility would discharge modest quantities of wastewater, including sanitary wastewater, wastewater from equipment washdowns, and stormwater runoff. The record shows that demineralized water used for proposed facility processes would be stored in trailer-mounted units and treated off-site, and that wastewater from equipment washdowns would also be trucked off-site for treatment. The record shows that small quantities of sanitary wastewater would be discharged with no adverse impact to the Braintree sewer system. The record shows that the Light Department has addressed minimizing impacts of stormwater discharge with a comprehensive stormwater management plan.

The record shows that the proposed project would not affect the functions of coastal lands or waters. The record shows that the Light Department would raise site elevation at the base of its proposed project above the identified 500-year floodplain elevation with clean fill. The record further shows that the Light Department's action would not affect services provided by the 100-year floodplain nor contaminate land, surface water, or groundwater at the site of the proposed project.

Accordingly, the Siting Board finds that, with the implementation of the condition with respect to water supply, detailed above, the water resources and wetlands impacts of the proposed facility would be minimized.

D. Solid Waste

1. Description

This section describes the solid waste impacts of the proposed facility and the mitigation proposed by the Light Department.

The Light Department stated that its construction contractor would be responsible for removal of solid wastes that construction of the proposed Watson Station would likely generate and that the Light Department would not be able to recycle (Exhs. BELD-5, at 11-2; EFSB-SW-2).[29] BELD indicated that it would collect and recycle, to the extent possible, solid wastes generated during maintenance and operation of the proposed Watson Station (Exhs. BELD-5, at 12-6; EFSB-SW-1). The Light Department stated that it would otherwise arrange for their disposal as part of the Light Department's standard operations for its existing facilities (Exh. BELD-5, at 12-6). The Light Department estimated that it would dispose of approximately 15 tons of solid waste annually (Exh. EFSB-SW-1). The Light Department also indicated that it would truck demineralizer resins offsite for regeneration (Exhs. BELD-5, at 11-2; EFSB-SW-S-4; see Section III.C, above).[30]

2. Analysis

The record shows that the Light Department would, as possible, recycle, and otherwise contract for proper disposal of, solid wastes generated by construction of the proposed facility. The record shows that the Light Department would, similarly, work to recycle, and thus minimize, solid wastes generated by operation and maintenance of the proposed facility. The record shows that the proposed facility would likely generate 15 tpy of solid wastes for off-site disposal. The record demonstrates that the Light Department would include these solid wastes in

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[29] The Light Department stated that, to the extent possible, it would try to reuse pavement from its demolished Potter I Station in the construction of the proposed Watson Station (Exh. BELD-5, at 12-6).

[30] The Light Department stated that oil firing would not generate bottom ash and that the Light Department would work within the Toxics Use Reduction Act process to minimize the use and production of toxics at the proposed facility (Exh. EFSB-SW-S-4).

disposal arrangements now in place for solid wastes from its existing facilities.

The Siting Board notes that the proposed facility is a peaking facility that will be primarily gas-fired, thus likely to produce less solid waste than a comparable peaking or a base unit primarily fired with oil or other combustible fuel. Furthermore, oil firing will not generate bottom ash, and the Light Department will truck demineralizer resins off-site for regeneration. Finally, the Siting Board notes that the Light Department'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. Accordingly, the Siting Board finds that the solid waste impacts of the proposed facility would be minimized.

E. Visual Impacts

1. Description

This section describes the visual impacts of the proposed facility and the proposed mitigation.

BELD's Potter Road property is located next to a CITGO oil terminal, which contains 18 large storage tanks for petroleum products, is south of the former Quincy shipyard and the Massachusetts Water Resources Authority ("MWRA") sludge pelletizing facility, and is across the river from the Weymouth Fore River Station in Weymouth (Exh. BELD-1, at 4-64). The proposed Watson Station would stand approximately at the same location as the retired Potter I generating station (id.; Tr. 1, at 38). Potter I was approximately 80 feet high (above grade) at its highest rooftop level, with one stack approximately 100 feet above grade (id.). The larger Potter II generating station, which stands immediately to the west of the proposed facility location, is approximately 81 feet above grade with a stack that is approximately 130 feet above grade (Exh. BELD-1, at 4-64). The principal facility components of the proposed Watson Station would be generally less than 40 feet in height with two 100 foot tall stacks (id.).[31]

The Light Department provided a set of photographic renderings of the proposed facility

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[31] The Light Department indicated that, 100-foot-high stacks, less than GEP height, would nonetheless result in criteria air pollutants at modeled ground level concentrations below EPA SILs thresholds (see Section III.B, above).

in the existing setting taken from locations in Braintree and Weymouth. According to BELD, in views from Weymouth, Potter II would remain the dominant visual element at BELD's property (BELD Brief at 68, citing Exh. BELD-1 at 4-66, Figure 4.9-1). The Light Department further indicated that renderings from Gilmore Street in Weymouth show the visibility of the existing lattice electric transmission towers and lines as well as the Potter II plant and the storage tanks at the CITGO terminal (id., citing Exh. BELD-1, at 4-67, Figure 4.9-2). Noting that these residential areas in Weymouth are more than 2,000 feet across the Weymouth Fore River, BELD argues that the character of the view will not change significantly from that which existed prior to Potter I's demolition (id. at 67, citing Exh. BELD-1, at 4-64, Figure 4.9-1).

The Light Department maintains that the proposed facility would be effectively screened from the residential neighborhoods to the west of Quincy Avenue (Route 53) because ground elevation at the new Watson Station would be significantly below that at the residences (Exh. BELD-1, at 4-65). When coupled with the CITGO terminal tanks and Potter II, the terrain in the area would effectively block any view of the proposed facility (id.).

According to the Light Department, any view of the proposed facility from the nearest residence in the residential neighborhood south of BELD's property would be effectively blocked by existing heavy tree cover and vegetation along Potter Road (id. and Figure 4.9-3). The Light Department acknowledges that the proposed facility would be visible along Glenrose Avenue under leaf-off conditions, but noted that views would not differ significantly from the existing view of Potter II and the CITGO fuel tanks (BELD Brief at 67, citing Exh. BELD-1 at 4-65, and Figure 4.9-3).[32]

To mitigate the expected visual impact on the Weymouth Fore River side of the proposed Watson Station, the Light Department proposes on-site landscaping using a mix of shrubs and low-growing trees (Exh. BELD-1, at 4-64). BELD notes in connection with its Chapter 91

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[32] BELD provided an aerial photograph showing that the nearest residences to the south and southwest, adjacent to Potter Road and the site entrance, would be buffered by a 100 to 200 feet width of woods in the direction of the proposed facility. The nearest residences to the southeast would be buffered by a predominantly 50 to 100 foot width of woods in the direction of the proposed facility (Exh. BELD-1, at Figure 3.5-1).

license, that it is proposing to provide the public with access to the Fore River waterfront (Exh. EFSB-G-2, Att. at 4-34).[33] As part of the conceptual landscaping and public access plan, BELD proposes to use species of plants that are salt-tolerant and that will provide usable wildlife habitat (id.).

2. Analysis

The proposed facility would be located at a site – BELD's Potter Road property – that is presently used for electric generation. The record shows that the stacks for the proposed facility would be 100 feet high; while the stacks are less than GEP height, BELD air quality analysis shows modeled ground level concentrations of criteria air pollutants would not exceed EPA SILs thresholds. Furthermore, although the proposed stacks would be comparable in height to the previously existing stack at Potter I, the record shows that the maximum building height of approximately 40 feet at Watson Station would be less than the maximum of 80 feet at the former Potter I unit.

The record shows that the profile of Potter II would overlap some or all of the proposed facility, notably, from residential areas of Weymouth to the east, and the Braintree neighborhoods across Route 53 to the west as well as bordering Potter Road to the southwest. From the end of Glenrose Avenue to the south and southeast, however, overlap with Potter II would be less and the buffer may be limited with visibility in leaf-off conditions. On-site landscaping of the riverfront would soften the view providing a limited amount of mitigation.

The record indicates that, where not fully screened, the views of the proposed facility from the residential neighborhoods to the west and south would be minimally changed compared to the presence of the former Potter I facility. Regarding the unobstructed views of the proposed generating station from the north and east of Watson Station, 2,000 feet or more across the Fore River in Weymouth, the record shows that these views currently include Potter II and the CITGO terminal, and thus the character of the view will not be changed significantly as a result of the

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[33] The Light Department stated that it would complete the proposed path and landscaping in the spring of 2009, after construction of the proposed project (Exh. EFSB-G-2, Att. at 4-34).

newly constructed Watson Station.

The Siting Board has required proponents in past generating facilities cases to provide selective tree plantings and other reasonable mitigation in all residential areas up to one mile from the proposed stack location to mitigate the visibility of the facility and the associated stack. Nickel Hill Energy, 11 DOMSB 83, at 179 (2000) (citations omitted). In three previous cases where existing power plant or industrial buildings were already present (all of which were next to waterways), the Siting Board required off-site tree planting mitigation to reduce the visual impact, limited to specific adjacent residential areas. Southern Energy Canal II, 12 DOMSB at 221 (2001); Sithe Mystic Development, 10 DOMSB at 82-83 (1999); Sithe Edgar Development, 10 DOMSB at 70-76 (2000).

Consistent with Siting Board precedent concerning the minimization of visual impacts, the Siting Board directs BELD 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 in the area along Glenrose Avenue southeast of BELD's Potter Station facilities, where residents may experience changed views.

In implementing this requirement, BELD: (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 potentially affected property owners, 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.

Accordingly, the Siting Board finds that with the implementation of the above-described

mitigation, the visual impacts of the proposed project would be minimized.

F. Noise Impacts

This section describes the noise impacts of the proposed project and mitigation proposed by the Light Department.

The Light Department stated that under 310 CMR 7.10, administered by MDEP, noise is considered to be an air contaminant (Exh. EFSB-HS-2, Att. at 7-1 to 7-2). The Light Department stated that MDEP's policy limits a source to a 10-dBA increase in ambient ("L_{90}")[34] sound measured at the property line for the proposed facility and at the nearest residences to the proposed facility (id.).[35] The MDEP policy further prohibits "pure tone" conditions[36] where one octave band frequency is 3 dBA or more greater than an adjacent frequency band (id.). The Light Department also explained that the Town of Braintree, in § 135-1105 of its Zoning Bylaw, prohibits noise emissions at the property boundary that exceed: 70 dBA in commercial zones ("all times"); 60 dBA in residential zones ("daytime"); or 50 dBA ("all other times") in lands zoned for Open Space (id. at 7-2).

In prior decisions, the Siting Board has reviewed the noise impacts of proposed generating facilities for general consistency with applicable governmental regulations. Southern Energy Canal II, 12 DOMSB 155, at 229; Sithe West Medway, 10 DOMSB 274, at 322; Brockton Power, 10 DOMSB 157, at 217. In addition, the Siting Board has considered the

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[34] The Light Department stated that the ambient level is defined as the background L_{90} measured when the facility is not operating, but during a time period when it would normally operate. For a source which will or could operate 24 hours per day, the ambient level typically occurs during the quietest nighttime period (midnight to 4 a.m.) (Exh. EFSB-HS-2, Att. at 7-2).

[35] According to BELD, for developed areas, MDEP has utilized a "waiver provision" at the property line in certain cases. This is appropriate when there are no noise-sensitive land uses at the property line and the adjacent property owner agrees to waive the 10-dBA limit (Exh. EFSB-HS-2, Att. at 7-1).

[36] An example of a "pure tone" is a fan with a bad bearing that is producing an objectionable squealing sound (Exh. EFSB-HS-2, Att. at 7-2).

significance of expected noise increases which, although lower than 10 dBA, may adversely affect existing residences or other sensitive receptors. Southern Energy Canal II at 229; IDC Bellingham, 9 DOMSB 225, at 311; Sithe Mystic, 9 DOMSB 101, at 164.

1. Description

The Light Department stated that, in total, it measured existing sound levels at nine representative community locations in the vicinity of the proposed project (Exh. BELD-1, at 7-3).[37] The Light Department provided a comprehensive sound level measurement study for the proposed Watson Station, conducted at seven locations during the period from June 16 through June 20, 2006 (Exh. EFSB-HS-2, Att. App. E). The Light Department also provided supplemental measurements conducted at two locations within the former Fore River shipyard during December 8-13, 2006 (Exh. EFSB-HS-2, Att. at 7-3). The Light Department stated that the selected locations generally correspond to the nearest sound-sensitive locations in various directions from the proposed site, as well as higher elevation and cross-water residential locations (id.). The Light Department indicated that it measured nine short term and five continuous monitoring sound levels during 98- and 108-hour periods (id.). The Light Department stated that it co-located its five continuous monitoring locations with five of the short term monitoring locations (id. at 7-3).

The Light Department stated that the results of its measurements indicated ambient (L_{90}) sound levels in the surrounding community areas ranging from 36 to 42 dBA during the quietest part of the nighttime period (Exh. EFSB-HS-2, Att. at 7-3; Tr. 1, at 67-68).[38] From this range, the quietest levels were at the two locations south of the Potter Road property, including 36 dBA

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[37] The Light Department also compared measured sound levels and the anticipated increase in noise at its property line with an adjacent CITGO facility (Exh. EFSB-HS-2, Att. at 7-12). The Light Department indicated a likely increase in noise at this location above the 10 dBA allowed by MDEP policy (id.). BELD stated that it was pursuing a waiver of MDEP noise policy for this location and provided a letter from CITGO indicating CITGO's agreement with BELD's pursuit of said waiver (id. at 7-12 and App. F).

[38] The quietest nighttime period occurred on Sunday night (Exh. EFSB-HS-2, Att. at 7-3; Tr. 1, at 67-68).

near BELD's southwest property boundary on Glenrose Avenue, and 37 dBA at Trefton Drive and Ferncroft Road (Exh. EFSB-HS-2, Att. at 7-5 to 7-6).

The Light Department provided analysis of community noise levels at residential unit property line receptors with operation of the proposed facility, including estimates of noise impacts for both a base case of noise mitigation and a case it currently proposes that includes supplemental noise mitigation. The Light Department indicated that under its base case, without supplemental noise mitigation measures, combined project and background noise at residences on Glenrose Avenue would likely be as high as 18 dBA above nighttime ambient levels (Exh. BELD-1, at 4-30). The Light Department indicated it therefore developed its case with supplemental noise mitigation, including increasing the length of the silencer for SCR by six feet, doubling the thickness of the SCR shell steel, inserting a 14-foot silencer in the stack, installing on-site sound barriers in strategic locations, and reorienting the combustion turbine generator ("CTG") arrangement 180 degrees so the gas turbine air inlets would face northward, away from the residential area to the south (id. at 4-30 to 4-31; Exh. EFSB-HS-2, Att. at 7-17). The Light Department indicated that under its proposed case, with supplemental mitigation, noise impacts above ambient at the residential receptors would range from 0 to 8 dBA at the quietest hours of night and from 0 dBA to 4 dBA during daytime and evening (Exh. BELD-1, at 4-31 to 4-34).

The Light Department also provided estimated day-night sound levels ("L_{dn}"),[39] with and without the proposed facility, based on its June 2006 monitoring at two locations near the southwest and southeast BELD property boundaries and at a third location across the Fore River in Weymouth (Exh. EFSB-H-10). For three 24-hour periods (midnight-to-midnight) at the two BELD property line locations, L_{dn} levels that ranged from 50 dBA to 56 dBA without the project would range from 53 dBA to 57 dBA with the project (id.). At the Weymouth location, L_{dn}

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39 L_{dn} is the 24-hour equivalent sound level, calculated with a 10 dBA "penalty" added to nighttime noise levels (as defined by USEPA, from 10:00 p.m. to 7:00 a.m.) (Exhs. EFSB-H-3, EFSB-H-10). USEPA has identified an outdoor L_{dn} of less than or equal to 55 dBA in residential areas as the noise level requisite to protect public health and welfare with an adequate margin of safety against activity interference and hearing loss (Exh. EFSB-H-3).

levels that ranged from 53 dBA to 58 dBA without the project would range from 54 dBA to 58 dBA with the project (id.).

The Light Department considered, but does not propose, two additional options for noise limitation, an enhanced enclosure package and a sound barrier wall along the south boundary (Exh. EFSB-HS-2, Att. at 7-21 to 7-22).[40] The Light Department indicated that the enhanced enclosure package would provide 0-2 dBA of further noise reduction at the residential receptors at a cost of $1,075,000, while the sound wall, at a cost of $175,000-$250,000, would provide mitigation effective at only a limited number of adjacent residences. The Light Department further indicated that the sound wall would be effective under some, but not all, weather conditions (Exh. EFSB-HS-2, Att. at 7-21). The Light Department argued that neither option for further noise reduction would be cost-effective (id. at 7-21 to 7-22; Exhs. EFSB-RR-5; EFSB-RR-6; Tr. 1, at 67-77).[41]

The Light Department explained, that based on a rerun of its sound model with the CTG enhanced enclosure package, the package would decrease the contribution of each CTG by 5 dBA, with noise from other plant components unchanged (Exh. EFSB-HS-2, Att. at 7-21). The Light Department stated that total plant-only sound levels at receptors decreased by 1-2 dBA at all receptors (id.). When combined with the lowest nighttime background L_{90} sound levels, the package lowered overall sound levels by 0-2 dBA (id.). The Light Department argued that,

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40 The Light Department also considered the option of enclosing the proposed generating units (Exh. EFSB-N-10). The Light Department indicated that enclosure would result in somewhat reduced noise impacts, but that the additional cost to the project of enclosure construction would be as much as $13,000,000 (id.).

41 The Light Department indicated that it modeled a sound barrier wall on the BELD property nearest the residents to the southwest (Exh. EFSB-HS-2, Att. at 7-21). The Light Department indicated that the wall would vary in height from 16 to 26 feet, in conjunction with the changing elevation of the road (id.). The Light Department stated that the sound barrier wall would provide noise mitigation to only the nearest five or six homes, and under some, but not all weather conditions (id.). BELD stated that sound waves would bend over the top of the barrier as though it were not there (1) under temperature inversion conditions, or (2) with wind speeds in excess of 10-12 miles per hour downwind (i.e., along the direction of the sound path from the source to the receptor) (id.).

while technically feasible, it would not be cost-effective to spend over $1,000,000 more to reduce quietest night sound levels by 0-2 dBA given that sound level changes of 3 dBA or less are not noticeable in the community (id.). The Light Department argued that the enhanced enclosure package would not represent best available noise control technology ("BANCT") (id.).

The Light Department also provided a sound level evaluation based on operation of both the proposed Watson Station and the existing Potter II facility (Exh. BELD-1, at 4-36 to 4-37). The Light Department's evaluation indicated that, with the Light Department's proposed noise mitigation, maximum increase at receptors over nighttime and day/evening background sound levels would be 12 dBA and 8 dBA, respectively (id.). The Light Department emphasized that it was unlikely that both facilities would run simultaneously at night unless there were significant problems in the regional power grid (id.; Exhs.EFSB-N-4-S; EFSB-G-2(S) at 4-14).[42]

The Light Department indicated that construction would likely occur over ten months, during which it would normally construct on weekdays from 7:00 a.m. to 5:30 p.m. (Exh. EFSB-N-7). The Light Department stated that it might also schedule Saturday work when necessary, for example, in the event that site work is delayed by bad weather (id.). The Light Department stated that some evening work might also be necessary, but that such work would normally be limited to, for example, inspections or to connecting piping and wiring (id.). The Light Department also indicated that it might schedule delivery of oversized components to avoid traffic, generally at night or over weekends, but that scheduling of such deliveries would be done in consultation with state and Braintree police (id.). The Light Department indicated that BELD and its contractors would, to the extent possible, limit work to normal weekday work hours (id.).

With respect to mitigating noise impacts of construction, the Light Department stated that it would use its website, mailings, and local press to keep residents and customers apprised of construction progress (id.). The Light Department indicated that it would also identify a

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[42] With respect to Fore River Station in Weymouth, the Light Department stated that it could not anticipate the number of hours that the facility would likely run in the future (Exh. EFSB-N-4-S). The Light Department stated, however, that EPA monitoring of Fore River indicated that the facility operated approximately 80 percent of daytime/evening hours and 20 percent of nighttime hours (id.).

representative to field questions, comments, or complaints from local residents and officials (id.). The Light Department stated that contact information for the community liaison would be published in area newspapers and posted on the BELD website (id.).

With respect to operational noise testing, the Light Department indicated that a one time noise test is typically required as part of the MDEP Air Plan Approval Application process sometime within 90-180 days after facility start-up (Exh. EFSB-N-8). The Light Department stated it was agreeable to conducting another sound level test during its second year of operation, noting that, to avoid seasonal differences, it would do so at the same time of year as the MDEP-required test (id.). The Light Department stated that expected receptor stations would likely include the three nearest residences to the south of the proposed facility along Glenrose Avenue, the nearest residence across the Fore River in North Weymouth, and the nearest residence across the Fore River in the Idlewell neighborhood of Weymouth, to the southeast (id.).[43]

2. Analysis

The record shows that the Light Department has provided a comprehensive sound level measurement study for the proposed Watson Station as well as ambient sound levels in the community surrounding the proposed project. The record shows that with implementation of the Light Department's proposed noise reduction measures, noise impacts at residences closest to the proposed facility would be at most 8 dBA above ambient in the quietest nighttime hours, and at most 4 dBA in day/evening hours.

The record shows that simultaneous operation of the proposed Watson Station and the existing Potter II facility would potentially increase noise in the vicinity of the Light Department's Potter Road property by 12 dBA over nighttime and 8 dBA over day/evening background sound levels. The record also shows, however, that the Light Department's proposed and existing facilities are unlikely to operate at the same time assuming proper function of the regional power grid.

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[43] The Light Department identified the receptors where testing would occur as R1A, R2A, and R3A along Glenrose Avenue, R5 in the Idlewell neighborhood, and R7 in North Weymouth (Exhs. EFSB-N-8; BELD-1, at Fig. 4.3-2).

The record demonstrates that, if evaluated against the quietest modeled nighttime noise levels, the maximum residential noise impact of Watson Station would be an increase of 8 dBA, which falls within the range of noise increases that have been accepted by the Siting Board for projects at comparable sites without existing generation operation at night. In general, the Siting Board considers noise increases at an already noisy location to be more significant than noise increases in other areas. See Sithe West Medway Decision, 10 DOMSB at 327-328. In cases where measured background and calculated facility noise levels at the most affected residential receptors were neither unusually noisy (e.g., noise levels substantially exceeding the EPA's 55-dBA guideline) nor unusually quiet, the Siting Board has accepted or required facility noise mitigation which was sufficient to hold residential L_{90} increases to maximums of 5 to 8 dBA. IDC Bellingham, 9 DOMSB at 311; ANP Bellingham, 7 DOMSB at 190; Berkshire Power Development, Inc. 4 DOMSB 221, at 404.

The record shows that an additional noise reduction of 0-2 dBA from the enhanced enclosure package is possible, at a cost of approximately $1,075,000. The record further shows that noise reduction is possible with installation of a sound barrier wall, constructed at a cost of $175,000 to $250,000. The Siting Board notes that the total expenditure for 0-2 dBA noise mitigation gained would be a small percentage of project cost, but that the expenditure would not guarantee mitigation closer to 2 dBA.[44] The Siting Board also notes that the design of the proposed facility as a peaking unit is likely to result in operation of the proposed facility at times different than the quietest night hours (when demand for electric power generation is generally lower). See Sithe West Medway Decision, 10 DOMSB at 325. The Siting Board concludes, therefore, that in the present instance, the tradeoff of expenditure for likely mitigation of noise impacts would not be cost effective.

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[44] The Siting Board notes that the Light Department suggests that a sound level change of 3 dBA or less would represent a barely perceptible difference from BELD's proposed noise levels. However, to say that a 3 dBA increase would not be noticeable is not to say that the difference between a 6 dBA increase and a 9 dBA increase, both of which are noticable amounts of increase, would be barely perceptible or would not result in different levels of possible concern to residents. See Silver City Energy Limited Partnership, 3 DOMSB 1, at 333-335, 337 (1994).

The record shows that the Light Department stated it would conduct operational noise testing once during its second year of operation in addition to testing required by MDEP at facility start-up. The record shows that the Light Department's proposed second period of operational noise testing would occur at the same time of year as the first period of testing in order to minimize seasonal differences. The Siting Board notes the value of such repeat testing in ensuring that the proposed facility operates within the noise parameters to which BELD has committed itself.

The record shows that the Light Department is also committed, to the extent possible, to limiting the work of BELD and its contractors to weekdays from 7:00 a.m. to 5:30 p.m. The record shows, in addition, that the Light Department would confine evening work to quieter activities such as, for example, inspections or connecting piping and wiring. The record shows, however, that the Light Department anticipates the possibility of Saturday work, if, for example, bad weather or other unavoidable delay slows construction. The record further shows that the Light Department may undertake, in consultation with state and Braintree police, evening or weekend delivery of oversized equipment or components to take advantage of the lighter traffic typical during those hours.

The Siting Board notes that the potential negative impacts on residents of evening and weekend work may be minimized if the Light Department intends that work undertaken at these times will not include noisy construction activities. Based on the record, the Light Department further intends to establish lines of communication to inform residents and others of its construction schedule and to provide opportunities for questions, comments, and complaints.

We note, however, the possibility of noise impact issues arising from construction activities at times other than during the typical workweek timeframe of Monday through Friday, 7:00 a.m. to 5:30 p.m., or from the operation or performance of the proposed facilities once on-line. The Siting Board therefore directs BELD to confine noisy construction activities to weekdays from 7:00 a.m. to 5:30 p.m., and to limit weekend construction to Saturdays, between the hours of 8:00 a.m. and 5:00 p.m., such construction to be undertaken only when necessary, for example, in the event that site work is delayed by bad weather. The Siting Board further requires the Light Department, if scheduling deliveries of large equipment in low-traffic periods

including evening or nighttime hours or on weekends, to notify residents and Braintree and state police officials of such upcoming equipment deliveries, and to work with residents and responsible officials to minimize disruption and noise impacts associated with such deliveries. The Siting Board also requires the Light Department to submit to the Siting Board the results of BELD's start-up and second period operational noise testing, and resolution of any problems that may have arisen.

Accordingly, the Siting Board finds that the noise impacts of the proposed facility, conditioned on the requirements noted above, would be minimized, consistent with minimizing cost.

G. Safety

This Section describes the safety impact of the proposed project with regard to overall safety, materials handling and storage, fogging and icing, emergency response, and existing hazardous conditions.

BELD stated that, as the long-time operator of Potter I and Potter II, it already has an experienced staff of in-house engineers, plant operators and maintenance personnel (Exh. BELD-1, at 4-71). According to the Light Department, it has a longstanding and serious commitment to safety in all aspects of the operations and would bring this commitment to the operation of the new Watson Station (id.). BELD stated that the proposed project design would include the following safety features: (1) a standing emergency response contract with Fleet Environmental of Randolph, MA; (2) monitoring and automatic shut-off equipment for both the natural gas delivery point and the ULSD oil pipeline supplying the proposed facility; (3) a bermed area for unloading aqueous ammonia together with fast-action shut off valves on all delivery vehicles; and (4) fully diked ammonia storage with a level gauge monitored in the control room (Exhs. EFSB-HS-6; BELD-1, at 4-72 to 4-74). In the event that the tank level were to fall at an abnormal rate, an alarm would be activated and emergency response procedures initiated (Exh. BELD-1, at 4-72 to 4-74). BELD stated that its emergency responders from the Town of Braintree and mutual aid communities (Quincy and Weymouth) would be invited to the plant in advance of commercial operations for orientation and a review of planned emergency response

procedures (id. at 4-71).

1. Materials Handling and Storage

BELD stated that the proposed Watson Station would use natural gas as its primary fuel with ULSD as the alternate fuel (Exh. BELD-1, at 4-72). ULSD for both Potter II and the proposed Watson Station would be provided by a terminaling agreement with the adjoining CITGO marine terminal (id.). BELD stated that ULSD would be conveyed from a fully diked tank at the CITGO terminal to an upgraded pipe to BELD's Potter II Station (id.). A short run of new pipeline would convey the ULSD from Potter II to the proposed facility (id.). As a result, oil storage would not be necessary on the BELD property (id.).

BELD stated that should there be a minor leak in the ULSD system, the supply would be shut off and trained BELD personnel would respond using on-site containment and cleanup equipment and materials (Exhs. EFSB-HS-6; BELD-1, at 4-74). BELD's standing emergency response contract with Fleet Environmental would also be in place for a more significant release (Exhs. EFSB-HS-6; BELD-1, at 4-74).

BELD stated that 19.5 percent aqueous ammonia would be stored in a 15,000 gallon welded steel single-walled storage tank to be located in the vicinity of the generators, which represents about 30 days of storage at the maximum usage rate (Exhs. BELD-1, at 1-38 and 4-73; EFSB-HS-7). BELD stated that ammonia is the reagent used in the SCR system to control NO_x emissions (Exh. BELD-1, at 1-38).

According to the Light Department, the vertical tank would be approximately 10 feet in diameter, 25 feet in height and would be placed in a full capacity (110 percent) concrete dike (Exh. EFSB-RR-8). The surrounding dike would be approximately 19.3 feet square with side walls approximately 6 feet high (id.). The dike would include a layer of small floatable spheres used to minimize the amount of exposed surface area of the ammonia solution in the event of a leak or spill (id.). Minimizing the exposed surface area of the ammonia solution would reduce the rate of ammonia evaporation and resulting airborne concentrations in the event of a spill or leak (Exh. BELD-1, at 4-74).

The Light Department proposes to equip the tank with a level gauge, monitored in the

control room (Exh. BELD-1, at 4-74). In the event that the tank level were to fall at an abnormal rate, an alarm would be activated and emergency response procedures initiated. BELD stated that in the event of a small leak (at a valve or pipe joint), BELD plant personnel, wearing appropriate protective gear, would initiate corrective measures (shut off control valves) or make repairs as quickly as possible (id.). In the event of a tank failure or rupture, plant personnel and a pre-arranged emergency response contractor would respond as required by, among other things, pumping the contents of the dike area to emergency response tank trucks (id.). BELD notes that it would notify local emergency response agencies (id.).

Aqueous ammonia would be delivered by a chemical tanker from a regional commercial supplier and BELD would expect to receive one truck delivery per month (Exhs. EFSB-HS-6; BELD-1, at 4-73). According to BELD, a typical tanker has a capacity of approximately 6,000 gallons (Exh. BELD-1, at 4-73). Tankers would be unloaded in a bermed area equipped with a drain to a below ground sump. The bermed area above the sump would be sized for the full volume of the delivery tanker (i.e., approximately 6,000 gallons) (Exh. EFSB-HS-6). The unloading would be accomplished by means of heavy duty rubber hoses connected to a permanent pump/pipe system which transfers the ammonia solution to the adjoining diked storage tank (id.). According to BELD, the delivery trucks would be equipped with "fast-action" shut-off valves in the event that a leak or other problem occurs (id.). A BELD plant operator and the delivery driver would stay with the truck for the entire unloading process (id.).

BELD modeled a worst-case scenario release of ammonia from the storage tank using two methods: (1) EPA's Offsite Consequences Analysis Guidelines; and (2) the American Industrial Hygiene Association's ("AIHA") Emergency Response Planning Guidelines ("ERPG") (Exhs. EFSB-HS-4; EFSB-HS-5). BELD states that the modeling "conservatively" assumes a full tank spill, and wind speed at 1.5 meters/second (3.4 miles per hour) (Exh. EFSB-HS-4).

The modeling, based on the EPA's Offsite Consequences Analysis Guideline, used an ammonia concentration of 200 parts per million ('ppm") as the maximum off-site level or toxic endpoint (Exh. EFSB-HS-5). BELD states that the EPA's Emergency Response Planning Guidance defines the toxic endpoint as:

> the maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action (Exh. EFSB-HS-4).

The Light Department's modeling computed the location of the toxic endpoint at 405 feet from the storage tank (Exh. EFSB-HS-5). To apply AIHA's ERPG, BELD used a separate model developed jointly by the Office of Emergency Management of the EPA and the National Oceanic and Atmospheric Administration ("NOAA"), known as Aerial Locations of Hazardous Atmospheres ("ALOHA"). ALOHA is an emission estimation and air quality dispersion model for estimating the emission rate, movement, and dispersion of gases released into the

atmosphere. The ALOHA modeling used an ammonia toxic endpoint value of 150 ppm, in accordance with a 2006 update of the AIHA modified toxic endpoint guideline for ammonia, known as ERPG-2 (id.).[45]

The record shows that in the case of a full tank release and worst-case meteorological conditions (1.5 meters/second wind speed), the modeled distance to 150 ppm of ammonia is 405 feet (Exh. EFSB-HS-5, at n. 2). According to BELD, this distance is within the BELD property with the exception of a small portion of the adjoining CITGO site, which is normally unused and is not accessible to the public (id.). However, portions of the Light Department's main administration building and the parking lot for the administration building are located within this same 405 foot distance (Exh. BELD-1, at Figure 4.5-1). Members of the public are in the administration building on a regular basis (Tr. 2, at 232).

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[45] AIHA has developed ERPGs for a large number of chemicals that can potentially be released into the air, including ammonia. A series of three EPRGs was recommended for ammonia, including:

- ERPG-3 level of 750 ppm, which is defined as the maximum airborne concentration of ammonia below which it is believed all individuals could be exposed for up to one hour without experiencing or developing life-threatening health effects.

- ERPG-2 level of 150 ppm, which is defined as the maximum airborne concentration of ammonia below which it is believed that 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 protective action.

- ERPG-1 level of 25 ppm, which is defined as the maximum airbone concentration of ammonia below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing other than mild, transient adverse health effects or without perceiving a clearly defined, objectionable odor.

Exh. EFSB-HS-5, at 2.

The closest residence to the BELD property is approximately 600 feet away from the proposed facility (Exh. EFSB-RR-20). At this distance, the calculated ammonia concentration using the ALOHA model is 70.4 ppm, using an assumed wind speed of 1.5 meters/second (id.).

In response to a record request of the Siting Board staff during the evidentiary hearings, BELD examined a number of ways by which the modeled distances to the ERPG-2 150 ppm guideline level might be reduced (Exh. EFSB-RR-8-C).

Option 1: Reduce the Footprint of the Dike

Instead of installing a 19.3 foot square dike, this option incorporates a reduced footprint for the dike surrounding the tank equal to a 16 foot square (Exh. EFSB-RR-8-C at 2). The dike itself would be approximately nine feet high, about three feet higher than the original design (id.). This option would reduce the surface area of the dike by approximately 60 percent, sufficient to reduce the ALOHA modeled distance at 150 ppm to 321 feet from the proposed facility (id. at Table RR-8-1). Using the same input assumptions, the ALOHA modeled distance at 50 ppm would be 567 feet from the proposed facility (id.).

Option 2: Install a Taller, Thinner Tank

This option entails a taller, thinner tank than the originally proposed design, thereby allowing the surface area of the surrounding dike to be reduced further than Option 1 to a 14 foot square (id.). The tank would be 40 feet tall and eight feet in diameter (id.). This option would reduce the surface area of the dike to approximately 146 square feet, sufficient to reduce the ALOHA modeled distance at 150 ppm to 294 feet from the proposed facility under F stability (id.). Using the same input assumptions, the ALOHA modeled distance at 50 ppm would be 519 feet from the proposed facility (id. at Table RR-8-1). According to BELD, this option would be more expensive to build and might require some structural bracing (Exh. EFSB-RR-8-C at 2).

Option 3: Two Smaller Tanks Instead of One Tank

This option would use two tanks each with one half the volume of the originally designed tank. Each tank would be 20 feet tall and eight feet in diameter with an exposed dike area of 146 square feet for each tank (id.). Assuming a failure of one of the two tanks, the modeling results would be the same as Option 2, above (id.). BELD estimates the incremental cost of Option 3 at approximately $60,000 (id.). According to BELD, this design would result in some increased

operational complexity (id.).

Option 4: Use a Larger Tank with a Lower Concentration of Ammonia

This option contemplates a single tank that holds twice the volume of the originally designed tank, but at a concentration of ammonia that is one-half that of the originally proposed 19 percent aqueous ammonia solution (i.e., 9.5 percent) (id.). Thirty thousand gallons of 9.5 percent aqueous ammonia would be stored in a 13 foot diameter, 30 foot high tank, and placed in a 12.5 foot high, 199 foot square dike (id.). Accounting for the more dilute aqueous ammonia, the ALOHA modeled the distance at 204 feet to the 150 ppm level using F stability conditions (id. at 3). Using the same input assumptions, the ALOHA modeled distance at 50 ppm would be 357 feet from the proposed facility (id. at Table RR-8-1).

Option 5: Enclose the Tank

Option 5 places the proposed single wall tank in a building enclosure. The enclosure would be approximately 30 feet high and could be built using the required dike as a foundation or footing (Exh. EFSB-RR-8-C at 3). The metal sided building would be essentially airtight with the exception of a powered ventilation point and ten foot stack at the top of the building. The enclosed tank design would have a modeled maximum concentration of 9 ppm (using SCREEN3 modeling). This maximum modeled maximum concentration is at a distance of approximately 328 feet (id.). The cost of such an enclosure is expected to be less than $100,000 (id.).

BELD argues that it would be willing to modify its original dike design to the smaller footprint represented in Option 1 (BELD Brief at 79, citing Tr. 3, at 353-354). According to BELD, none of the other options is feasible or warranted because each (1) adds significant cost to the proposed facility without sufficient benefit (double walled tank, building enclosure, two tanks); (2) is both expensive and technically problematic (urea pellets, a tall thin tank); or (3) would put the proposed facility's performance guarantees at risk (9.5 percent solution) (id. at 79, citing Exhs. EFSB-HS-7, EFSB-HS-8, EFSB-HS-9, EFSB-RR-7, EFSB-RR-8-C; Tr. 3, at 387-388). BELD maintains that approximately 15 power plants in Massachusetts use SCR systems for NO_X control, and all of these plants have been transporting and storing aqueous ammonia in a 19.5 percent solution safely for many years (BELD Initial Brief at 79, citing Exh. BELD-1, at 4-72; Tr. 3, at 395).

BELD stated that regeneration of the proposed facility's trailer mounted demineralization system would be conducted off-site, eliminating the need to store the typical regeneration reagents on-site (Exh. BELD-1, at 4-74). Similarly, the simple-cycle design does not have a Heat Recovery Steam Generator or a wet mechanical cooling tower. As a result, antiscalants, corrosion inhibitors, oxygen scavengers, biocides and other chemicals required for such systems are not necessary (id.).

According to BELD, the combustion turbine compressor sections are periodicaly washed using a water wash detergent, which is stored in 55-gallon drums in a properly designed drum storage area (id.). BELD stated that other maintenance-related chemicals such as degreasers, parts cleaners, and paints would be stored on-site in appropriate containers in a properly designed storage area (id.).

2. Emergency Response

BELD stated that its existing Spill Prevention, Control and Countermeasure Plan ("SPCC Plan") for the Light Department's Potter Street property would be revised in the first quarter of 2008, and again once Watson Station construction is completed to address oil storage and handling (Exh. EFSB-HS-3). BELD's current SPCC plan does not include measures for ammonia handling, storage and contingency response (id.). BELD stated that it would develop a plan with procedures to address the delivery, transfer and storage of aqueous ammonia (id.). This plan would also address appropriate contingency response plans (id.).

In the fall of 2008, BELD plans to provide supplemental safety training to the Braintree Police and Fire Department at its proposed facility (Exh. EFSB-HS-12). BELD stated that it would purchase the necessary safety equipment in the event of a spill (e.g., protective suits, monitors, etc.) and pre-stage this equipment at an accessible location at BELD's site (id.). BELD indicated that it would inform its on-call hazardous materials cleanup firm that aqueous ammonia is to be unloaded and stored on-site (id.). The on-call contractor would be involved in the supplemental training and response planning (id.). BELD stated that in addition to the trained fire, police and BELD personnel, there is a Regional Hazmat Team trained to handle chemical spills that would serve as a backup to the local trained personnel (id.).

3. Analysis

BELD has demonstrated that it would properly store and handle oil and other non-fuel chemicals in accordance with applicable public safety standards and that it would have in place secondary systems to contain chemical spills or releases. The record also demonstrates that BELD has proposed to store 15,000 gallons of aqueous ammonia in a single-walled storage tank, arguing that this arrangement adequately protects neighboring properties and that using double-walled construction is not a typical practice within the generating industry. However, it appears from the record that in the event of a worst-case ammonia release, ammonia concentrations of 200 ppm would occur in the public parking lot outside BELD's administration offices. The parking lot is directly adjacent to the administration building where members of the public come to pay their bills and arrange for electric and cable service. Indeed, the record indicates that the concentration of ammonia at the administration building itself would be approximately 150 ppm.

Further, as part of the Project's Chapter 91 licensing, BELD is proposing a means for open space and recreation at the site by creating public access to the Weymouth Fore River waterfront, including a planned seating area approximately 225 feet away from the planned ammonia tanks, the location of which would measure well above 200 ppm in the event of a catastrophic failure of the ammonia storage tanks. The Light Department's modeling analysis indicates that Option 4 (the "Dilution Case") provides the greatest mitigation benefit among Options 1 through 4, but still results in a concentration of 150 ppm at approximately the same distance as the closest edge of the public parking lot adjacent to the administration building. We also note that BELD calculated a concentration of 70.4 ppm at the closest residence to the BELD property. While the Siting Board recognizes that the possibility of a catastrophic spill is remote, it is nonetheless desirable to protect the general public from this level of impact. Southern Energy Kendall, 11 DOMSB 255, at 352-353 (2000). In previous cases, parties have generally proposed plans for an enclosure of their ammonia tank(s). IDC Bellingham, 9 DOMSB at 317; ANP Blackstone, 8 DOMSB 1, at 179; ANP Bellingham, 7 DOMSB 39, at 151; Brockton Power, 157, at 226; Sithe Edgar, 10 DOMSB 1, at 98.

BELD maintains that the increased cost of a structure to enclose the aqueous ammonia

storage tank is not warranted at the Potter Road site. The Siting Board disagrees. As described above, ammonia concentrations of 150 ppm (the so-called "toxic endpoint") is the maximum airborne concentration of ammonia below which it is believed that 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 protective action. We note that the cost of an enclosure is not prohibitive or unreasonable in comparison to the total cost of the project and is justified to provide an adequate level of safety to the public. The Siting Board therefore finds that the use of a building enclosure surrounding the proposed ammonia tank is reasonable based on the facts in this case. Accordingly, the Siting Board requires the Light Department to enclose its ammonia tank.

BELD has indicated that it intends to develop emergency procedures and response plans similar to those found acceptable in earlier Siting Board decisions; however, BELD has not yet developed such plans. Accordingly, the Siting Board directs BELD to: (1) update its SPCC plan consistent with the operation of Watson Station; and (2) develop a plan with procedures to address the delivery, transfer and storage of aqueous ammonia together with contingency response plans.

Accordingly, the Siting Board finds that with the implementation of the above conditions requiring an enclosed ammonia storage tank and emergency response plans, the safety impacts of the proposed project would be minimized.

H. Traffic

1. Description

This section describes traffic issues associated with the proposed facility and site, and potential mitigation.

The Light Department stated that the proposed facility would be on BELD property at the end of Potter Road (Exh. BELD-1, at 4-40). The Light Department indicated that Potter Road meets Route 53/Quincy Avenue, a four lane undivided roadway, at a signalized intersection (id.). The Light Department further stated that Quincy Avenue serves a mixture of residential, commercial, and industrial areas (id.). The Light Department indicated, based on Year 2005

Massachusetts Highway Department ("MHD") traffic count data, that Quincy Avenue carries an approximate daily average of 18,000 vehicles (id. at 4-42).[46,47] The Light Department stated that MHD data indicated that traffic along Route 53 had decreased approximately 22 percent, from approximately 23,000 to 18,000 vehicles, between 2002 and 2005 (id.).

The Light Department stated that BELD controls the property on both sides of Potter Road, and has installed a remotely-operated gate on Potter Road about 100 feet from the Quincy Avenue intersection (Exh. BELD-1, at 4-40). The Light Department indicated that the gate is normally open during business hours to give BELD customers access to the BELD administration building (id.). The Light Department stated that Potter Road is also used for access to the BELD complex by delivery vehicles and BELD's 105 current employees (id.). The Light Department stated that it provides parking for its employees in a surface lot adjacent to its administration building and designates additional parking spaces nearby for customers and visitors (id.). The Light Department indicated that the majority of its staff works a typical five day a week schedule; however, positions in electrical system and power plant operations are staffed seven days a week, 16 hours per day and 24 hours per day, respectively (id.).

The Light Department indicated that normal construction hours would be 7:00 a.m. to 5:30 p.m., Mondays through Fridays (Exh. BELD-1, at 4-42). The Light Department indicated that it would provide parking at the proposed project site or at the abutting CITGO property for construction workers (id.). BELD anticipates that its construction crew would arrive somewhat in advance of morning peak traffic hours and would depart before or during evening peak traffic

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46 The Light Department also reported results of a Year 2005 Rizzo Associates study, conducted for a project at 464 Quincy Avenue, about one half mile north of the intersection with Potter Road (Exh. BELD-1, at 4-42). The Rizzo Associates study counted approximately 21,700 weekday trips, with peak volumes from 7:30 a.m. to 8:30 a.m. (approximately 1,700 vehicles) and from 4:30 p.m. to 5:30 p.m. (approximately 1600 vehicles) (id.).

47 The Light Department suggested that some of the decline was attributable to completion of major construction in the area, including construction of the Fore River Generating Station in 2003 and MWRA facilities in 2004 (Exh. BELD-1, at 4-42).

(id.).[48] The Light Department stated that construction of the proposed project, over approximately 10 months, would require 75 skilled workers on average and a total of 125 workers at most (id.). The Light Department estimated that its construction crew would therefore add a maximum of 250 vehicle trips each day, or a maximum of 125 vehicle trips at each peak traffic flow period (id.). The Light Department stated that the anticipated increase would be one percent of average daily traffic volume on Route 53/Quincy Avenue, and asserted that such a change (1) would be within the expected day-to-day variation in current traffic levels, and (2) would still result in a lower volume of traffic than that accommodated by Route 53 as recently as 2002 (id. at 4-42 to 4-43).

The Light Department estimated that truck traffic would vary over the stages of construction of the proposed project (id. at 4-43). Approximately 15 trucks would enter the proposed project site daily during site preparation in months one and two; approximately 12 trucks per day would arrive for foundation construction and delivery of major equipment in months three, four, and five; and approximately 10 truck shipments per day would be necessary for equipment deliveries in months six, seven, and eight (id.). The Light Department stated that after month eight, typical truck traffic would decrease to approximately five trips per day, except that 15 truck trips per day would again be necessary during the two-to-three week period when paving occurs (id.). The Light Department stated that trucks using the site would travel to Route 53 via major roadways Route 3, Interstate 93, and Route 3A, and would, with respect to area roads, use truck routes previously designated for MWRA construction (see n. 2, above) (id.).

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[48] The Light Department anticipated that most construction workers would arrive on site 10 to 15 minutes before the start of their work day (Exh. EFSB-T-4). The Light Department stated that BELD and its Engineering, Procurement, and Construction ("EPC") contractor would not allow construction workers to use heavy equipment before 7:00 a.m. (id.). The Light Department asserted that construction workers arriving before 7:00 a.m. would therefore have no noise impact on abutters to the proposed site (id.; see Section III.F, above).

The Light Department indicated that BELD would coordinate the scheduling of over-size loads with state and local police (id.).[49]

The Light Department indicated that during operation of the proposed facility, aqueous ammonia deliveries would occur one or two times per month (Exh. BELD-5, at 9-6). The Light Department also indicated that it would truck wastewater from the proposed site at the maximum rate of one truck per month (Exh. EFSB-W-12). It would also remove and replace demineralizer storage units by truck on a weekly basis (Exh. BELD-1, at 1-36).

2. Analysis

The record shows that the Light Department's proposed facility would lie at the end of a road used exclusively for access to BELD offices and facilities, including an existing power plant and parking for visitors, service deliveries, and staff. The record shows that BELD's access road ties into a local four-lane roadway, Route 53/Quincy Avenue, at a signalized intersection. The record also shows that Quincy Avenue currently carries an average of 18,000 vehicles per day, but has in relatively recent years carried as many as 23,000 vehicles, very likely due, at least in part, to increased traffic from construction projects now ended. Based on a 2005 study of weekday traffic for Quincy Avenue, average morning and evening peak hour volumes were 1,700 and 1,600 vehicles, respectively, corresponding to an average daily volume of 22,000 vehicles.

The record shows that building the proposed project would produce a temporary increase in trips to and from BELD's Potter Road property as a consequence of construction workers' arrival and departure. The record also shows, however, that the construction crew for the

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[49] The Light Department stated that barge shipment of equipment for the proposed project, especially the turbine generator units, would not reduce cost or improve safety (Exh. EFSB-T-5). The Light Department stated that to ship the turbines by barge, they would first require transportation by road from the assembly plant in Mount Vernon, Ohio to a suitable port (either Cleveland or, more likely, Philadelphia) (id.). The turbines would then require loading onto a barge and, upon arrival to the Boston area, off-loading to a truck for the last leg of the journey (id.). The Light Department asserted that the movement of equipment for the proposed projects on and off barges would only increase the danger and complexity of the transportation process (id.).

proposed project would add, at most, 250 vehicle trips per day, or 125 trips each morning and evening, to local roads -- less than 10 percent of morning and evening peak hour volumes on Quincy Avenue. The record further shows that the early arrival (before 7:00 a.m.) of construction workers would help to minimize impacts of proposed project construction on peak traffic in the morning.

There remains some potential for worker departures to coincide with higher volume traffic periods on local roads. Therefore, to reduce any congestion and thus help minimize traffic impacts, the Siting Board requires the Light Department, as necessary, to stagger the departure times of those construction crew members whose work ends during the 4:30 to 5:30 evening rush hour period.

The record shows that traffic congestion may also increase due to truck traffic associated with construction of the proposed project and its subsequent maintenance and operation. Truck trips to and from the proposed project site would vary according to the stage of construction, and would range from five to 15 round trips daily over an approximately 10-month period. The record shows that trucks would come and go primarily on routes previously designated for truck travel in conjunction with large-scale construction projects in the vicinity of the proposed project. The record shows that a small number of truck trips would occur on a weekly and monthly basis to and from the proposed facility when completed, including a weekly trip for demineralizer storage unit replacement, a monthly trip to remove wastewater from the proposed site, and one or two trips per month, on average, for aqueous ammonia delivery.

To minimize traffic safety and congestion issues that may arise from truck traffic associated with proposed project construction and proposed project maintenance and operation, the Siting Board requires the Light Department, in consultation with state and local police, to use all reasonable traffic mitigation measures, including the use of police details, as applicable.

Accordingly, the Siting Board finds that, with implementation of proposed mitigation and the above conditions, the environmental impacts of the proposed facility would be minimized with regard to traffic.

I. EMF

1. Description

The Light Department provided information with respect to sources of electromagnetic fields ("EMF") associated with operation of its existing and proposed facilities and expected EMF impacts on residential and other uses near the site and area transmission lines (Exh. EFSB-F-1). The Light Department indicated that the power from the proposed project would first feed to an existing, on-site, 115 kV switchyard via 300 feet of overhead lines, and from the switchyard to underground 115 kV transmission lines that supply BELD's distribution system and also interconnect with the NSTAR power grid (id.).

The Light Department indicated that the proposed project site, including the 115 kV switchyard, is surrounded on three of four sides by ocean or industrial property (id.). The Light Department stated that, on the fourth side of its Potter Road property, to the south, the nearest residence is on Glenrose Avenue, approximately 480 feet from the switchyard (id.). The Light Department indicated that, at the boundaries of this property, with the proposed facility in operation, magnetic field levels would be below the level of 85 milligauss ("mG") accepted in a previous Siting Board decision, the 1985 MECo/NEPCo, 13 DOMSC 119, at 228-242 (id.). The Light Department therefore asserted that at this level, EMF associated with electrical transmission lines on the proposed project site would have no significant impact at the property boundaries of the closest residence to the proposed project, as well as elsewhere off-site (id.).

The Light Department conducted baseline monitoring of EMF levels at the boundaries of its Potter Road property, including getaway line exit points, on July 11, 2007 (Exh. EFSB-F-2).[50] The Light Department asserted that baseline monitored levels of EMF at BELD property boundaries were lower than levels typical of the edges of right-of-ways ("ROW") for 115 kV overhead transmission line circuits (id.). The Light Department indicated that although its Potter II generation facility was not operating, 72 MW of power supplied from NSTAR lines was flowing to the BELD system through the on-site 115 kV switchyard (id.).

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[50] The Light Department measured 60 hertz ("Hz") magnetic and electric fields at approximately one meter above grade (Exh. EFSB-F-2).

The Light Department stated that along Glenrose Avenue, adjacent to the south and southeast boundary line of the Potter Road property, monitored magnetic fields generally ranged from 1 to 2 mG, with one reading of approximately 4 mG at a set of underground ducts exiting the Potter Road property near the intersection of Glenrose Avenue and Vinedale Road (id.). The Light Department stated that electric fields were in the range of 1 to 2 volts per meter ("V/m") (id.).

The Light Department reported higher levels of EMF on other portions of the Potter Road property (id.). Based on the information provided by the Light Department, near the switchyard fence, at the west-southwest boundary line of the Potter Road property, and the adjoining CITGO terminal to the west, magnetic fields reached 20 to 35 mG, with electric fields of approximately 800 to 900 V/m (id.). Along the east and northeast boundary line of the Potter Road property, abutting waterway and industrial area, electric and magnetic fields ranged from 0 to 2 V/m and 0.5 to 2.0 mG, respectively (id.). The Light Department indicated that immediately above underground ducts exiting the Potter Road property, at the Potter Road entrance, magnetic fields were a maximum of 8 mG (id.).

The Light Department also provided information on area transmission lines extending from the area of the proposed facility (Exh. EFSB-RR-27). BELD indicated that the electricity grid extends to both the north and south from Fore River Station located across the Fore River from BELD (id.). The Light Department explained that four NSTAR 115 kV overhead circuits [51] connect Fore River Station southward to Holbrook Station,[52] and that in Braintree, BELD 115 kV underground circuits are interconnected and extend in a loop between two of the NSTAR

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[51] The Light Department identified the four 115 kV circuits as lines 478-502, 478-503, 478-508, and 478-509, collectively the "478 lines" (Exh. EFSB-RR-27).

[52] The Light Department stated that two 115 kV circuits also connect Fore River Station to New Boston Station to the north, via North Quincy and Dewar Street Stations, but that the two cables to New Boston Station are often disconnected and carry current only on an as-needed basis (Exh. EFSB-RR-27).

circuits (id.).[53] The Light Department also indicated that area transmission serves both BELD and Fore River generating facilities, which would total nearly 1000 MW in capacity with the addition of the proposed facility (Exh. EFSB-RR-27).[54]

The Light Department stated that, given that an electric field is determined by voltage, the proposed project would not affect electric fields from area transmission because no changes in transmission voltage are proposed (Exh. EFSB-F-1). The Light Department stated that, given that magnetic field is determined by power flow or current, the proposed project would not worsen magnetic fields from area transmission because project operation would not increase power flows (id.). The Light Department explained that current demand on the downstream segment of area transmission lines is basically determined by consumer load demands, which would remain unchanged with operation of the proposed project, and that current on the upstream segment of area transmission lines would decrease with operation of the proposed facility (id.).

The Light Department stated that BELD generation in excess of Braintree demand would typically be dispatched against, i.e., in lieu of, either Fore River generation or generation in the Bellingham area, approximately 36 miles to the southwest (id.). The Light Department indicated that in the former case, upstream load (i.e., toward the Fore River generation facility) on the 478 lines would decrease, and downstream load would be unchanged (id.). In the latter case, upstream load on the 478 lines would be unchanged, but downstream load on the 478 lines would increase, possibly increasing magnetic field levels in the vicinity of NSTAR's 478 lines (id.). The Light Department also stated that, when Fore River Station is operating, loads on the 478 lines south of Braintree may increase with the addition of BELD generation in excess of

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[53] BELD indicated that the underground circuits interconnect with NSTAR line 478-502 at Swift Beach Station, adjacent to the proposed site, and extend south to interconnect with NSTAR line 478-509 at Grove Street Station (Exh. EFSB-RR-27).

[54] The Light Department indicated that the generation capacity of Fore River Station is 775 MW, the generation capacity of Potter II is 89 MW, and the generation capacity of the proposed Watson Station would be 116 MW (20 ° F rating) (Exh. EFSB-RR-27).

Braintree demand, leading to increased magnetic fields (id.).[55] The Light Department stated that, with respect to magnetic fields that are under BELD's control, i.e., at the Potter Road property, magnetic field levels are low and would remain well within Siting Board guidelines with proposed facility operation (id.).

The Light Department provided a copy of NSTAR's System Impact Study ("SIS"), with discussion of NSTAR's analysis testing dispatch of the proposed facility against BELD's Potter II facility, Fore River Station, and the ANP Bellingham facility (Exh. EFSB-RR-27, Att. 1). The SIS indicated that, based on the thermal analysis undertaken as part of the SIS, the proposed facility would potentially overload three BELD 115 kV underground lines (Line 16-11, between Potter Road and Swift's Beach, Line 10-16, between Potter Road and Middle Street, and Line 8-10 between Middle Street and Churchill) (id.). The SIS further indicated that the lines would not be overloaded if (1) net generation at BELD's Potter Road property facilities were held to less than 165 MVA or (2) BELD were to upgrade the three lines to a minimum of 195 megavolt amperes ("MVA") long term emergency ("LTE") capability (id. at 4-5). The SIS noted that, to interconnect the proposed facility to the transmission system, BELD must complete upgrades to its three lines or elect always to dispatch the proposed facility against BELD's existing Potter II unit (id.). According to the SIS, 89 MW from the proposed facility could be dispatched against Potter II and the rest against the Fore River unit without overloading any of BELD's existing transmission lines (id.).[56]

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[55] The Light Department indicated that it is possible that any increased load on the 478 lines would lead to increased magnetic fields (Exh. EFSB-RR-27). The Light Department indicated, however, that it had not investigated whether the design of the NSTAR 478 lines could be reconfigured to minimize magnetic fields as they exist today, or as they might exist as part of the interconnection of the proposed BELD facility (id.).

[56] The SIS indicated that while the loading outside the Fore River - BELD area would not be altered with dispatch of the proposed facility against the Potter II or Fore River facilities, it generally would be higher with dispatch of the proposed facility against the ANP Bellingham generation facility in Bellingham, MA (Exh. EFSB-RR-27, Att. 1, at 5). According to the SIS, all overloads of concern outside of the BELD loop occur for the Holbrook "stuck breaker 8 contingency"(id.). The SIS indicated that these overloads

(continued...)

2. Analysis

In a previous review of proposed 345 kV transmission line facilities, the Siting Board accepted edge-of-ROW levels of 1.8 kV/meter for the electric field and 85 mG for the magnetic field. Massachusetts Electric Company/New England Power Company, 13 DOMSC 119, at 228-242. At the same time, such previously accepted EMF levels are not a standard limiting acceptable impacts, and do not provide the sole or principal basis for our evaluation of EMF impacts in current reviews.

Here, the record shows that electric and magnetic fields in the vicinity of BELD's proposed facility are presently well below the levels found acceptable in Massachusetts Electric Company/New England Power Company, 13 DOMSC 119. The record also shows that EMF at nearby residences would remain well within Siting Board guidelines based on (1) the distance of the proposed generation unit and the existing generation unit and switching station from the closest residences, and (2) the underground locations of the transmission lines exiting BELD's switchyard to the BELD system and NSTAR power grid, and (3) the drop off of electric and magnetic field levels with distance from their source.

The record also shows, however, that the proposed facility may produce or increase the extent of BELD generation in excess of Braintree demand. Such excess generation would typically be dispatched against other local generation, such as Fore River Station, or against generation outside the BELD area, such as the ANP Bellingham facility. Furthermore, the record shows the latter situation may result in increases in magnetic field levels in the vicinity of NSTAR's 478 115 kV transmission lines. At the same time, the SIS indicates BELD must complete system improvements to allow simultaneous full operation of the proposed facility and Potter II. Absent such improvements, the proposed facility would be operated in part against Potter II, and could be operated against generation outside the BELD area for only a portion of its 116 MW capacity. The record shows that the Light Department is committed to minimizing

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[56] (...continued)
comprise a pre-existing concern, which NSTAR already plans to mitigate with installation of a series breaker in 2009-2010 (id.).

impacts of magnetic fields associated with its proposed project, but claims that its ability to minimize such impacts may extend only to facilities within BELD's control.

The Siting Board notes that in previous cases, the Siting Board has asked facility proponents to work with transmission line companies to accomplish reduction in magnetic field levels where cost-effective. Sithe Mystic, 9 DOMSB at 181; ANP Blackstone, 8 DOMSB, at 188; Silver City, 3 DOMSB, at 353-354. The Siting Board has held that, as part of pursuing interconnection plans that require upgrades to the regional transmission system, generating facility applicants also should work with transmission providers to seek inclusion of practical and cost-effective designs to minimize magnetic field levels along affected ROWs. Sithe Mystic 9 DOMSB, at 181; ANP Blackstone EFSB 97-2, at 173; Silver City, 3 DOMSB, at 353-354.

Given the pendency of more complete interconnection plans based on the SIS and final design work, the Siting Board seeks to remain informed as to the progress and the outcome of the Light Department's interconnection plans and on designs for any transmission upgrades, including any upgrades of BELD's own transmission system, as well as any measures incorporated into transmission upgrade designs to minimize magnetic field impacts at such time as BELD reaches final agreement with all transmission providers regarding interconnection.

Accordingly, the Siting Board finds that, with the Light Department's pursuit of an interconnection plan and related designs for upgrading affected transmission lines, as applicable, including provisions that the Light Department and transmission providers determine would best limit magnetic field increases, the environmental impacts of the proposed facility would be minimized with respect to EMF impacts.

J. Land Use

1. Description

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

The Light Department has proposed construction of its facility on an approximately two-acre portion of BELD's Potter Road property, a site which, in total, is comprised of 23 acres within an area zoned as a "Commercial District" under Braintree Zoning Bylaws. The Light

Department indicated that it has used the Potter Road property continuously for power generation purposes for approximately 50 years. The Light Department further indicated that the two-acre parcel where the proposed project would be built was previously the location of BELD's now demolished Potter I facility and adjoins BELD's existing Potter II generating unit (Exhs. BELD-1, at 4-62; EFSB-S-14). The Light Department stated that its Potter Road property also contains an electric substation, natural gas interconnection facilities, an operations center and garage, and BELD's administrative offices (Exh. BELD-1, at 4-62).

The Light Department asserted that the proposed use is compatible with both existing land uses on the site, and land uses surrounding the site (id. at 4-62 to 4-63). The Light Department indicated that the Potter Road property is in a mixed-area, with industrial and commercial uses predominating to the north, west and northwest. The Light Department specified that the industrial and commercial uses surrounding its Potter Road property include a marine petroleum terminal owned by CITGO; the former Fore River Shipyard, now used for a sludge pelletizing facility and storage for new automobiles; a biofuel processing plant; and the Weymouth Fore River generating facility (id. at 4-63).

The Light Department indicated that its Potter Road property is separated from residential areas to the northeast and east by the Weymouth Fore River, and from residential areas to the south by a wooded area along Potter Road (id.). The Light Department stated that the wooded area screens residences to the south during much of the year and indicated that the proposed facility would be consistent with present views of the Potter Road property from residential locations to the northeast and east across the Weymouth Fore River (id.; see Section III.E, above). The Light Department indicated that construction of the proposed facility would not affect existing vegetation and screening at the Potter Road property and neighboring residential areas (id.; Exh. EFSB-LU-2).

The Light Department indicated construction likely would affect approximately 1.5 acres of grassed area at the Potter Road property, but stated that it anticipated replanting all but 0.3 acres with grass or other vegetative covering (Exh. EFSB-LU-6).

With respect to municipal zoning, the Light Department stated that there are specified allowed uses or exemptions in the Braintree Zoning Bylaws that may allow the proposed use as a

matter of right (id. at 4-19). The Light Department indicated, however, that as a conservative measure, it was petitioning the Department for exemption from Braintree Zoning Bylaws for the proposed Watson Station and associated facilities (id. at 4-19 to 4-20).[57]

With respect to preservation of water-related public rights, the Light Department provided a description of its plan for pedestrian access along the waterfront bordering the proposed site (Exhs. BELD-1, at 4-32 to 4-34; EFSB-LU-1-S; EFSB-LU-1-S Att. 1; EFSB-LU-1-S Att. 2).

The Light Department provided a copy of a letter from the Massachusetts Historical Commission ("MHC") indicating the MHC's determination that the proposed project is unlikely to affect significant historic or archaeological resources (Exh. EFSB-LU-5). The Light Department also indicated that the Natural Heritage and Endangered Species Program has not identified any rare species concerns at the Potter Road property, nor is the location mapped as a Priority or Estimated Habitat of wildlife (Exh. BELD-1, at 52 to 53).

2. Analysis

As part of its review of land use impacts, the Siting Board considers whether a proposed facility would be consistent with existing land uses, and state and local requirements, policies, or plans relating to land use and terrestrial resources. The Siting Board notes that the areas immediately surrounding the proposed site are predominantly commercial and industrial, and that BELD currently operates administrative offices and an existing generating facility on the same property. The Siting Board concludes that the construction of the proposed facility is consistent with the present use of BELD's Potter Road property, and operation of the proposed facility would not result in an extension of industrial use beyond the Potter Road property line. The record shows, however, that the Potter Road property is in an area zoned as a "Commercial District" under the Braintree Zoning Bylaws. The record further shows that while there are specified allowed uses or exemptions in the Braintree Zoning Bylaws that may allow the

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[57] On February 21, 2007, the Light Department submitted its petition to the Department, which referred the matter for consolidation into the present proceeding. The Siting Board addresses zoning issues in Section VI, below.

proposed use as a matter of right, the Light Department has petitioned for exemption from selected Braintree Zoning Bylaws for the proposed Watson Station and associated facilities, including the bylaw provisions for allowed uses. As previously noted, BELD's petition, consolidated into the present proceeding, is addressed in Section VI, below.

The record shows that a wooded area along Potter Road buffers residential areas to the south of the Potter Road property during much of the year. The record also shows that the Weymouth Fore River would separate residential areas to the northeast and east from the proposed facility. The record shows that the proposed facility would be consistent with present uses of the Potter Road property and views from residential locations.

The record shows that the Light Department anticipates replanting most of the grass or vegetative covering likely to be disturbed at BELD's Potter Road property by construction of the proposed project.

The record shows that the Light Department has a plan that, with implementation as anticipated, will ensure pedestrian access along the waterfront bordering the proposed site while avoiding impacts to wetland and water resources in the vicinity.

Accordingly, the Siting Board finds that the land use impacts of the proposed facility would be minimized. This finding does not take into consideration BELD's request for a zoning exemption. (See Section VI, below, for a discussion of the zoning exemption.)

K. 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 pollutants over various pathways, as well as possible effects on human health unrelated to emissions of pollutants (e.g., EMF or noise effects). 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.

The analysis of the health impacts of a proposed generating facility is necessarily closely related to the analysis included in sections above of specific environmental impacts which could

have an effect on human health and any necessary mitigation measures. This section: (i) sets forth information on the human health effects that may be associated with air emissions, including criteria pollutants and air toxics, emissions to ground and surface waters, the handling and disposal of hazardous wastes, EMF and noise; (ii) describes any existing health-based regulatory programs governing these impacts; and (iii) considers the impacts of the proposed facility in light of such programs.

1. Baseline Health Conditions

The Light Department provided summaries of three reports produced within the past ten years documenting health conditions in the geographic area that includes the Town of Braintree (Exh. EFSB-H-2). A report by the Massachusetts Department of Public Health titled "Pediatric Asthma in Massachusetts 2004-2005" concludes that the Town of Braintree, along with several other communities, have pediatric asthma rates (12.2 percent) that are somewhat higher than the Massachusetts average (10 percent) (id.). For asthma hospitalizations, the Braintree annual rate (194 per 100,000) is somewhat lower than the statewide rate (202 per 100,000) (id.).

The Massachusetts Department of Public Health also publishes a "A Profile of Health Among Massachusetts Adults, 2005," in which Braintree is grouped with numerous other cities in the "Metro West" category. Metro West records adult asthma prevalence at 12.6 percent, somewhat lower than the statewide average of 14.2 percent (id.). Generally, the Central and Western sections of Massachusetts have the highest adult asthma prevalence (16.2 and 16.6 percent, respectively) (id.).

Braintree is also part of the Massachusetts Cancer Registry administered by the Massachusetts Department of Public Health. The 2006 Report, titled "Cancer Incidence in Massachusetts, 1999-2003" provides estimates of cancer incidence for each of the 351 cities and towns of Massachusetts for the five-year period 1999-2003 for 23 types of cancer and for all cancer types combined for both males and females (id.). The 2006 Report states that Braintree cancer incidence is about average for most cancers, but is above the state average for male colon cancer, and is below the state average for male prostate cancer (id.). For all cancers combined,

Braintree cancer incidence rates are slightly lower than the statewide averages (males 98 percent; females 99 percent) (id.).

2. Criteria Pollutants

As discussed in Section III.B, above, the MDEP and EPA regulate the emissions of six criteria pollutants under NAAQS: SO_2, PM_{10}, NO_2, CO, ozone ("O_3")and lead ("Pb"). In September 2006, the EPA also promulgated NAAQS for a new fine particulate criteria, $PM_{2.5}$, setting the NAAQS for $PM_{2.5}$ at 35 micrograms per meter^3 ("µg/m^3"), 24 hour average and 15 µg/m^3, annual average (Exh. EFSB-H-7). The EPA sets the NAAQS to be protective of sensitive subpopulations, such as adult and pediatric sufferers of respiratory illnesses, including asthma (id.).

The Clean Air act directs EPA to develop NAAQS for criteria air pollutants (including $PM_{2.5}$) that:

> accurately reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare which may be expected from the presence of [a] pollutant in the ambient air, in varying quantities.

42 U.S.C.A. § 7408. The EPA defines the purpose of the standards as "the attainment and maintenance of [NAAQS] which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health" (Exh. EFSB-H-7). According to EPA, "[i]n addressing the requirement for an adequate margin of safety, EPA considers such factors as the nature and severity of the health effects involved, the size of the sensitive population(s) at risk, and the kind and degree of the uncertainties that must be addressed" (id.). The legislative history for the Clean Air Act specifically identifies asthmatics as a sensitive subpopulation that is to be protected by the NAAQS primary standards (id.).

In addition to NAAQS, both the EPA and the MDEP have adopted SILs for the NAAQS criteria air pollutants for those new sources of air pollution that are large enough to present the potential to significantly alter ambient air quality by virtue of their incremental operation (Exh.

BELD-1, at 4-9). Accordingly, the SILS represent a small fraction of the total NAAQS for each criteria air pollutant (id.).

The record also shows that the EPA has set in place standards for reviewing the compliance of proposed new sources of criteria pollutants, such as the proposed facility, with NAAQS (Exh. BELD-5, at 4-3).[58] In addition, major new sources are required to meet BACT when the area is in attainment or is unclassifiable for a particular pollutant (id.). Proposed new sources of criteria pollutants must obtain emissions offsets and achieve more stringent pollution control requirements (LAER) when a proposed facility is to be located in area designated as nonattainment (id.). The Siting Board notes that this approach is consistent with its own mandate to minimize both the environmental impacts and costs of proposed generating facilities. The Siting Board therefore gives great weight to expected compliance with EPA and MDEP air quality programs as an indicator of whether the health impacts of a proposed facility would be minimized.

BELD provided data on background air quality from MDEP monitoring stations in Boston, Lynn and Milton indicating that the background concentrations of SO_2, PM_{10}, $PM_{2.5}$, NO_2, and CO ranged from 19.6 percent (SO_2) to approximately 96 percent ($PM_{2.5}$) of NAAQS over all measuring periods (Exh. EFSB-HS-2, Att. at 4-15). The Braintree area in Norfolk County is presently unclassified or in attainment for NO_2, SO_2, PM_{10}, $PM_{2.5}$, CO and Pb and classified as a moderate non-attainment area for the 8-hour ozone standard (Exh. BELD-1, at 4-9). Thus, with the possible exception of ozone, Braintree area background levels of criteria pollutants are generally within the standards set for purposes of protecting public health.

The Light Department's air quality modeling results indicate that the refined modeling concentrations from facility emissions are below the SILs for all NAAQS pollutants and averaging periods and below the 1-hour MAAQS NO_2 policy SIL of 32 $\mu g/m^3$ (Exh. BELD-1, at 4-15). As discussed in Section III.B, above, the EPA mandates a PSD review of new major sources of criteria pollutants or major modifications to existing sources. The proposed Watson

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[58] As of March 3, 2003, the Commonwealth of Massachusetts returned administration of both the NSR and PSD regulations in their entirety to the EPA (Exh. BELD-5, at 4-4).

Station is considered a "major modification" to an existing source, and therefore is subject to PSD regulations if net emission increases are equal to or greater than EPA significance criteria for major modifications (id. at 4-6 to 4-7). For PSD purposes, modeling was conducted for the proposed facility together with Potter II and BELD's 2.25 MW diesel generator (id. at 4-16). The combined results were added to background levels and then compared to NAAQS. The cumulative results are below the NAAQS for all pollutants and averaging periods, ranging from 14.7 percent (CO) to 81.6 percent (PM_{10}) of NAAQS (id. at 4-17, Table 4.2-8). As a result, the information in the record indicates that operation of the Watson Station would not cause health-based air quality standards to be violated. Consequently, the Siting Board finds that the cumulative health impacts of criteria pollutant emissions from the proposed facility would be minimized.

3. Air Toxics

Air toxics, or hazardous air pollutants, are pollutants known or suspected to cause cancer or other serious health effects such as birth defects or reproductive effects. Toxics include chemicals such as arsenic, benzene, chlorine, beryllium, lead, mercury, nickel and formaldehyde (Exh. EFSB-HS-2, Att. at 2-17 (Table 2-3)).

Two types of guidelines have been developed by MDEP for air toxics. The TEL is based on consideration of acute and chronic health effects including developmental/reproductive effects. In addition to the effects considered for the TEL, AAL incorporates available information on mutagenicity and carcinogenicity. See generally Southern Energy Canal II, EFSB 98-9, at 91-94 (2001); Southern Energy Kendall, EFSB 99-4, at 115-116 (2000)).

BELD modeled hazardous air pollutant emissions (non-criteria emissions) from the Watson Station on an annual basis using the EPA model known as AERMOD (Exh. BELD-5 at 4-15). The proposed emissions were calculated based on 8,760 hours per year of full operation (5,880 hours on natural gas and 2,880 hours on ULSD) (Exh. EFSB-HS-2, Att. at 2-14). In the case where the natural gas emission rate is higher than the ULSD emission rate, the natural gas rate is assumed for 8,760 hours per year (id. at 2-16). The results of the Light Department's toxic impact assessment demonstrate compliance with each of the MDEP's applicable ambient

air guidelines for both AALs and TELs (Exh. BELD-5, at 4-17). Based on this evidence, and in the absence of facility-specific evidence to the contrary, the Siting Board finds that the cumulative health impacts of non-criteria pollutant emissions from the proposed facility would be minimized.

4. Discharges to Ground and Surface Waters

According to BELD, there would be minimal amounts of sanitary wastewater, and no industrial wastewater discharges (Exh. BELD-5, at 1-17). Demineralizer resins would be regenerated offsite so that there would be no onsite regeneration waste stream (id. at 7-3) . The Light Department states that the facility design meets all relevant MDEP Stormwater Management Guidelines (id. at 1-17; 8-2 to 8-5).

BELD states that the site would be graveled to maximize infiltration of surface water, and that there will be no new point source discharges to the Weymouth Fore River (id.). As described in Section III.C, limited volumes of wastewater from periodic equipment washdowns, principally the gas turbine compressor, would be piped to a water wash drain tank and the collected wash water would be removed and trucked to an off-site wastewater facility for treatment and discharge (id. at 7-3).

BELD maintains that it would provide better treatment for stormwater runoff compared to existing conditions (id. at 8-1). Impervious surfaces would be minimized and groundwater recharge would be maximized by using gravel and crushed stone instead of pavement for the majority of the perimeter access road and in the turbines and auxiliary equipment area. Clean rooftop runoff from the control building would be collected and infiltrated into the ground via drywells; and runoff from the paved portion of the access road would be directed away from the Weymouth Fore River towards the graveled areas and infiltration trenches (id. at 8-1 to 8-2).

As discussed in Section III.C, above, the Siting Board found that the wastewater impacts of the facility on both the Braintree sewer system and the Weymouth Fore River would be minimized. Accordingly, the Siting Board finds that the facility, as proposed, poses no additional health risk related to the sanitary and industrial wastewater discharges arising from the

facility and that the construction of the proposed facility would reduce current health risks associated with the flow of stormwater away from the Weymouth Fore River.

5. Handling and Disposal of Hazardous Materials

In Section III.G, above, the Siting Board reviewed the Light Department's plans for storage and handling of hazardous materials, including 19.5 percent aqueous ammonia for NO_x control and limited amounts of industrial chemicals for facility maintenance and operation, as well as BELD's plans for minimizing and responding to accidental releases of oil or other hazardous materials. As discussed in Section III.G, the operation of the Watson Station will not generate any hazardous wastes. For cumulative storage of greater than 1,320 gallons of oil in containers 55 gallons or larger, BELD is required to develop a SPCC Plan under federal regulations (40 CFR 112). Accordingly, the Siting Board has directed BELD to update its current Spill Control and Prevention Plan consistent with the operation of the proposed facility. See Section III.G.3, above.

The Siting Board determined that oil and other non-fuel chemicals would be properly handled and stored, that emergency supplies and training would be provided concerning the safe handling of hazardous chemicals, and that BELD would be prepared to respond effectively to an accidental release of hazardous materials. The Siting Board also determined that BELD would employ appropriate measures to ensure the safe transport and delivery of oil to prevent oil spills and accidents, and to respond quickly and effectively to any spills that occur.

With respect to ammonia, the Siting Board has determined that, given the Light Department's proposed storage design, ammonia concentrations at or above the toxic endpoint could extend to areas of BELD's property where the public is invited such as the main administration building. Accordingly, the Siting Board has directed BELD to enclose the ammonia storage tank to mitigate the impacts of any potential ammonia spill. This will minimize the risk to public health posed by on-site ammonia storage. Based on the above discussion of mitigation and safety measures to be employed, the Siting Board finds that the health risks of the proposed facility related to the handling and disposal of hazardous materials would be minimized.

6. EMF

As discussed in Section III.I, above, the power from Watson Station will feed first to an existing, on-site, 115 kV switchyard via 300 feet of overhead lines, and from the switchyard to the BELD system and the NSTAR power grid via underground 115 kV transmission lines (Exh. EFSB-F-1). The proposed facility site, including the 115 kV switchyard, is surrounded on three of four sides by waterway or industrial property (id.). BELD estimated that EMF levels along Glenrose Avenue, which is adjacent to the southeast boundary line of the Potter Road site, at approximately 480 feet from the switchyard, would remain near current levels of 1 to 4 mG (Exhs. EFSB-F-1, EFSB-F-2).

The possible health effects of exposure to EMF have been a subject of considerable debate. BELD states that the Siting Board accepted edge-of-right-of-way levels of 85-mG for magnetic fields (BELD Brief at 80, citing 1985 MECO/NEPCo, at 240). According to BELD, in more recent cases the Siting Board has inquired into current scientific literature concerning the possible health impact of exposure to magnetic fields (id. at 81), but consistently found no evidence of a cause-and-effect association between magnetic fields and human health (id., citing Cambridge Electric Light Company, 12 DOMSB 305, at 345-349 (2001).

In Cambridge Electric Light Company, 12 DOMSB 305, at 348 (2001), the Siting Board found that "although some epidemiological studies suggest a correlation between exposure to magnetic fields and childhood leukemia, there is no evidence of a cause-and-effect association between magnetic field exposure and human health." Moreover, as in that case, the electric and magnetic fields in the vicinity of BELD's proposed facility will be well below the levels found acceptable in 1985 MECo/NEPCo. Therefore, consistent with this Siting Board finding, and in light of anticipated EMF impacts here, the Siting Board finds that any increases or decreases in EMF levels anticipated as a result of the proposed facility would not pose a measurable public health concern.

In Section III.I, above, the Siting Board found that the EMF impacts of the proposed facility would be minimized. Accordingly, the Siting Board finds that the health effects, if any, of magnetic fields associated with the proposed facility would be minimized.

7. Noise

As discussed in Section III.F, above, the proposed facility would produce noise that would be noticeable in some surrounding areas during facility construction, and may also produce audible noise during operation of the facility. BELD has assessed the noise impacts of the proposed facility in relation to applicable state and local criteria and federal guidelines for acceptable ambient noise. The record demonstrates that with implementation of BELD's proposed noise reduction measures, noise impacts at residences closest to the proposed facility would be at most 8 dBA above ambient noise in the quietest nighttime hours, and at most 4 dBA above ambient noise levels in day/evening hours. Ambient background sound levels (L_{90}) are between 36 and 42 dBA in the community during the quietest part of the nighttime period, Sunday night (Exh. EFSB-HS-2, Att. at 7-3).

The MDEP has the authority to regulate noise pursuant to 310 CMR 7.10, which is part of the Commonwealth's air pollution control regulations (id. at 7-1). Under its regulations, MDEP considers noise to be an air contaminant, and administers its noise regulations through Noise Policy DAQC 90-001, dated February 1, 1990 (id.). The policy limits a source to a 10-dBA increase in the ambient source measured (L_{90}) at the property line for the facility and at the nearest residences (Exh. BELD-5, at 12-2). MDEP also prohibits "pure tone" sounds, defined as any octave band level which exceeds the levels in the two adjacent octave bands by 3 dB or more. The EPA has established a guideline that identifies an outdoor L_{dn} of less than or equal to 55 dBA in residential areas as the noise level requisite to protect public health and welfare with an adequate margin of safety against activity interference and hearing loss (Exhs. EFSB-H-3; EFSB-H-10).

The Siting Board found that, with the identified mitigation measures set forth in Section III.F, above, noise impacts of construction and operation of the proposed facility would be minimized, consistent with minimizing cost. Accordingly, the Siting Board finds that the health effects, if any, of noise from the proposed facility would be minimized.

8. Conclusions

In the sections above, the Siting Board has reviewed the proposed facility's potential for effects on human health resulting from emissions of criteria pollutants, emissions of air toxics, emissions to ground and surface waters, handling and disposal of hazardous materials, electric and magnetic frequencies, and noise. The Siting Board has found that: (1) the cumulative health impacts of criteria pollutant emissions from the proposed facility would be minimized; (2) the health impacts, if any, of the air toxics emissions from the proposed facility would be minimized; (3) the wastewater impacts of the facility on both the Braintree sewer system and the Weymouth Fore River would be minimized; (4) the health risks of the proposed facility related to the handling and disposal of hazardous materials would be minimized; (5) the health effects, if any, of magnetic fields associated with the proposed facility would be minimized; and (6) the health effects, if any, of noise from the proposed facility would be minimized.

The Siting Board notes that the only indication of potential pre-existing public health problems in the communities surrounding the proposed facility is the existence of statistically elevated levels of certain cancers. However, there is no evidence in the record suggesting that the pollutants which the proposed facility would emit are in any way linked to these types of cancer. The record also shows that the proposed facility emits air toxics, including carcinogens, at levels below TELs and AALs, and that, where adequate information is available, AALs for carcinogens are set to correspond to an incremental lifetime risk of developing cancer of one in one million. Consequently, the Siting Board finds that there is no evidence that the proposed facility would exacerbate existing public health problems in the communities surrounding the proposed facility.

Accordingly, based on its review of the record, the Siting Board finds that the cumulative health impacts of the proposed facility would be minimized.

L. Conclusions on Environmental Impacts

Based on the information in Section sII and III, above, the Siting Board finds that the Light Department's description of the proposed generating facility and its environmental impacts is substantially accurate and complete.

In Section II, the Siting Board has found that BELD accurately described its site selection process.

In Section III.B, the Siting Board has found that, with the implementation of CO_2 mitigation, the air quality of the proposed facility would be minimized.

In Section III.C, the Siting Board has found that, with the implementation of the conditions directing BELD, as warranted, during dry weather conditions, to monitor water use of its proposed facility in relation to supply conditions in the BWSD and Tri-Town systems, and to coordinate with the BWSD with respect to limiting BELD's water use or using BELD's backup supply, the water resources and wetlands impacts of the proposed facility would be minimized.

In Section III.D, the Siting Board has found that the solid waste impacts of the proposed facility would be minimized.

In Section III.E, the Siting Board has found that, with the implementation of the conditions directing BELD to provide, as requested by individual property owners or appropriate municipal officials, reasonable off-site mitigation of visual impacts, in the area along Glenrose Avenue southeast of BELD's Potter Station facilities, where residences may experience changed views, the visual impacts of the proposed facility would be minimized.

In Section III.F, the Siting Board has found that, with the implementation of the conditions directing BELD (1) to limit the hours of noisy construction and the hours of weekend construction, (2) to notify residents and responsible officials of planned delivery of large equipment and to work with them to minimize disruption and noise impacts associated with such delivery, and, (3) to submit to the Siting Board the results of BELD's start-up and second period operational noise testing, and resolution of any problems that may have arisen, the noise impacts of the proposed facility would be minimized.

In Section III.G, the Siting Board has found that, with the implementation of the conditions directing BELD to enclose its ammonia storage tank, update its SPCC plan consistent with the operation of Watson Station, and develop a plan with procedures to address the delivery, transfer and storage of aqueous ammonia together with contingency response measures, the safety impacts of the proposed facility would be minimized.

In Section III.H, the Siting Board has found that, with the implementation of the conditions directing BELD to stagger the departure of construction crew members whose work ends during the evening rush hour, and, in consultation with state and local police, to use, as applicable, all reasonable traffic mitigation measures, including the use of police details, the traffic impacts of the proposed facility would be minimized.

In Section III.I, the Siting Board has found that, with the implementation of the conditions directing BELD to keep the Siting Board informed as to the progress and the outcome of the Light Department'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 at such time as BELD reaches final agreement with all transmission providers regarding interconnection, the EMF impacts of the proposed facility would be minimized.

In Section III.J, the Siting Board has found that the land use impacts of the proposed facility would be minimized.

In Section III.K, the Siting Board has found that the cumulative health impacts of criteria pollutant emissions from the proposed facility would be minimized.

Accordingly, the Siting Board finds that, with the implementation of the above-listed conditions, BELD'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.

IV. COMPLIANCE WITH REQUIREMENTS UNDER THE TECHNOLOGY PERFORMANCE STANDARDS

A. Standard of Review

G. L. c. 164, § 69J¼ requires the Siting Board to promulgate technology performance standards for generating facility emissions. These technology performance standards are to be used solely to determine whether a petition to construct a generating facility shall 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 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.[59]

In Section III.B, above, the Siting Board determined that expected emissions from the proposed generating facility exceed the technology performance standard as set forth in 980 CMR, § 12.00 at the time of filing, and that the proposed generating facility therefore does not meet the Siting Board's technology performance standard. Therefore, in this section the Siting Board reviews the environmental impacts, costs, and reliability of the proposed generating facility and of other fossil fuel generating technologies in order to 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.

B. Description

The Light Department provided quantitative information on the cost, reliability, diversity, and environmental impact of its proposed simple cycle gas turbine (aero derivative) technology as well as six other alternative peaking technologies including: combined-cycle gas turbine (aero derivative); conventional coal fired steam cycle; oil-fired simple cycle turbine (aero derivative);

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[59] In fulfilling its statutory mandate, the Siting Board formerly required a generating petitioner to demonstrate that its proposed project was superior to alternative approaches in the ability to address a previously identified need in terms of cost, environmental impact, and reliability. Three important distinctions are noteworthy in the test now applied by the Siting Board in accordance with G. L. c. 164, § 69J¼. The present test: omits reference to a previously identified need; encompasses the issue of diversity as well as the issues of cost, environmental impacts, and reliability; and, does not require a finding that the proposed generating technology is superior to other generating technologies.

simple-cycle turbine (7 F "frame" series); reciprocating engine; and pumped storage (Exhs. BELD-1, at 2-4 to 2-23; EFSB-AT-1; EFSB-RR-19). In addition, the Light Department provided a general discussion of the costs and environmental impacts of a simple-cycle, quick start, dual-(gas and oil) fuel unit versus a combined cycle unit (Exh. BELD-1, at 2-4 to 2-23).[60,61]

1. Reliability

BELD explained that, as part of a reliable energy supply, the generation mix in the ISO-NE control region must be capable of providing energy, capacity, and reserves, and that these capabilities are administered by ISO-NE through separate markets, including an Energy Market, a Capacity Market, and a Reserve Market which consists of Ten Minute Spinning Reserves ("TMSR"), Ten Minute Non-Spinning Reserves ("TMNSR") and Thirty Minute Operating Reserves ("TMOR") (Exh. BELD-1, at 2-8; Tr. 2, at 156-159, 163-165, 174-175). With respect to energy, BELD stated the Energy Market consists of the Day-Ahead Energy Market and the Real-Time Market (Exh. BELD-1, at 2-8; Tr. 2, at 158).

BELD stated that to serve peak hour demand, New England currently needs approximately 7,000 MW of peaking capacity, corresponding to the margin between base or

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60 The Light Department indicated that it evaluated six specific turbine options submitted by four suppliers in response to a request for information ("RFI") issued by the Light Department at the beginning of 2006 (Exh. BELD-1, at 2-21). The Light Department indicated that its RFI asked for a nominal 100 to 120 MW power island based on combustion turbine technology in either a simple-cycle or combined-cycle configuration (id.).

61 The Light Department indicated that it did not include reciprocating engines or a larger combined-cycle facility in its RFI (Exh. BELD-1, at 2-21). With respect to reciprocating engines, the Light Department stated that it would not be practical to generate approximately 120 MW with reciprocating engines (id.). The Light Department explained that approximately eight engines and five-to-six acres would be required, and that reciprocating engines emit NOx emissions at a rate of 9 ppm on gas and 65 ppm on ULSD compared to 2.5 ppm on gas and 5 ppm on ULSD for a turbine (id.). The Light Department indicated that it did not have the necessary space for a combined-cycle facility on property available to BELD for its proposed project (id.).

off-peak load and peak load (Exh. BELD-1, at 2-12). The Light Department further indicated that existing peaking capacity is only 1,510 MW, approximately 4.9 percent of total New England supply (id. at 2-10, 2-13). The Light Department indicated that present peaking capacity in New England is largely older oil-fired combustion turbines and pumped storage facilities (id. at 2-10). The Light Department stated that oil fuels 66 percent of existing peaking capacity in the New England region; only 19 percent is fueled by both oil and gas (id. at 2-10). The Light Department indicated that the proposed project would be more efficient and would have lower emissions rates than existing fossil-fuel peaking facilities (id. at 2-10 to 2-11).

The Light Department stated that the proposed Watson Station, given its quick-start capability and its use of an aero-derivative simple-cycle design, would be suited to serve energy peaking needs and reserve needs, as well as capacity needs (Exh. BELD-1, at 2-9 to 2-13; Tr. 2, at 175-176, 180, 201, 214-215, 217-218). BELD stated that the proposed Watson Station is designed to meet the region's need for low-cost sources of energy and capacity during limited periods, including (1) when electricity demand is high; (2) when a system emergency exists for which emergency power is required; or (3) when other capacity (i.e., lower heat rate capacity or demand-side capacity) is not available (Exhs. BELD-1, at 2-4, 2-7 to 2-9, 2-11 to 2-13, 2-20; BELD-2, at 21 to 22; Tr. 2, at 176, 180, 200-202, 206-208, 214-215, 217, 221).

The Light Department indicated that a quick-start resource such as the proposed project would help with overall ISO-NE system reliability by reducing peak loads during peak demand periods (Exh. BELD-1, at 2-9). The project would improve local reliability in a transmission-constrained sub-area, the South Shore region of Massachusetts (id. at 2-9, 2-13). The South Shore is especially transmission-constrained with respect to the Towns of Braintree, Weymouth, and portions of Quincy (id.).

The Light Department asserted that the proposed Watson Station would provide regional electric reliability benefits by providing 116 MW (nominal) of quick-start capability to meet system reserve requirements (Exh. BELD-1, at 2-8). The Light Department stated that the proposed project would contribute to capacity in the reserve market (id. at 2-9). The Light

Department explained that the reserve market served, essentially, as a real-time backup supply to ensure continuity of service to system customers even in the event of an unexpected outage or other system contingency (id.).

With respect to capacity, BELD stated that the project would come on line in late 2008 or early 2009, thereby helping meet regional reliability needs (Exh. BELD-1, at 2-10; Tr. 2, at 166-167). BELD noted that a simple-cycle unit takes much less time to construct than a combined-cycle unit (Exhs. BELD-1, at 2-20; BELD-2, at 20; Tr. 2, at 166). Thus, the proposed Watson Station can be brought online more quickly than other units to meet the capacity needs of the region and Massachusetts (Exh. BELD-1, at 2-20).

2. Cost

The Light Department stated that cost was one of a variety of factors it considered in its evaluation of competing generating technologies for its proposed project (Exh. BELD-1, at 2-14). The Light Department indicated that, in general, operating costs and net plant heat rate, along with capital costs, are the three major contributors to power plant economics (id. at 2-15). The Light Department stated that fuel costs dominate operating costs (id.). Characteristics that influence capital costs are physically large major components requiring significant field labor for installation, many auxiliary systems, and material handling infrastructure (id.).

The Light Department stated that it reviewed and eliminated a number of technologies based on their drawbacks with respect to the purpose and location of the proposed project (Exh. BELD-1, at 2-15 to 2-17).[62] The remaining generation technologies in the Light

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[62] The Light Department indicated, based on its analysis, that a coal-fired facility of sufficient size to take advantage of economies of scale with respect to fuel costs could not be built at the proposed or alternate sites (Exh. BELD-1, at 2-15 to 2-17). The Light Department indicated that to operate the proposed Watson Station as an oil-only facility, BELD would have to build, site and permit another oil storage tank (id. at 2-20). The Light Department stated that such construction would increase costs by about $1,000,000 (id.). The Light Department stated that, in addition, shorter maintenance

(continued...)

Department's analysis included the proposed project turbine, several other simple-cycle turbines, several combined-cycle turbines, and reciprocating engine and pumped storage technology (Exh. EFSB-RR-19). BELD indicated that costs for simple-cycle turbines were lower than for the other evaluated technologies (Exh. EFSB-RR-19).

The Light Department also favored simple-cycle rather than combined-cycle units (Exh. BELD-1, at 2-20 to 2-21). With respect to its focus on simple-cycle units, the Light Department indicated an interest in addressing reliability objectives not readily met with a combined-cycle unit (id.). The Light Department further stated that, as mentioned in Section VI.B.1, above, a simple-cycle unit could be constructed in a much shorter time than a combined-cycle unit, and brought on-line sooner to meet the capacity and reserve needs in the ISO-NE pool (id.). The Light Department stated that, because a simple-cycle facility would have considerably lower capital and capacity costs than a combined-cycle unit, it would also be better situated from a cost perspective in the ISO-NE forward capacity and reserve markets than a combined-cycle unit (id.).[63]

3. Diversity

The Light Department stated that the trend since deregulation of electricity markets in Massachusetts has been to permit new large power projects to fire natural gas or natural gas with a maximum of 30 days fuel oil (Exh. BELD 2-14). The Light Department indicated that recent applications for new facilities and modification of existing facilities have incorporated provisions to expand oil use as a result from regional concern with respect to potential natural gas shortages during winter months (id.). The Light Department stated that the use at the proposed Watson Station of ULSD for the equivalent of 120 days of full load operation would

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[62] (...continued)
cycles associated with oil firing would result in increased operating and maintenance costs (id.).

[63] The Light Department indicated that the installed cost of the proposed unit per kW, $858, was the lowest of all alternatives studied by BELD, including all simple-cycle turbine alternatives (Exh. EFSB-RR-19).

provide significant fuel flexibility (id.). The Light Department indicated that this flexibility at the proposed project would reduce New England's over-reliance on natural gas, especially during critical winter periods, and would thus offer fuel diversity benefits to the region (id.).

4. Environmental Impacts

The Light Department evaluated the relative environmental impacts, including water resource, noise, visual, and air quality impacts, of alternative technologies for the proposed project (Exh. BELD-1, at 2-23; see Section IV.B, above). The Light Department stated that, for a gas turbine-based power generation facility such as the one proposed, principal environmental considerations include air emissions and water usage (id. at 2-22 to 2-23). The Light Department indicated that all aero-derivative, simple-cycle, frame and combined-cycle units submitted by suppliers to BELD in response to its RFI would meet the LAER and BACT limits for the equipment the Light Department is proposing to use at Watson Station as proposed (id.).

The Light Department stated that heat rates for the simple-cycle units evaluated ranged from 8,915 Btu/kWh to 10,659 Btu/kWh (Exh. BELD-1, at 2-23). The Light Department indicated that the proposed Watson Station unit would have a heat rate of 9,515 Btu/kWh, and that this would result in emissions seven percent higher than those of the evaluated simple-cycle unit with the lowest heat rate (id.). The Light Department stated that the evaluated combined-cycle units would have lower heat rates, and therefore lower air emissions rates, than the evaluated simple-cycle units (id.). The Light Department indicated, however, that the combined-cycle units would also have higher water requirements, assuming the use of wet mechanical cooling (id.).

C. Analysis

BELD has proposed construction of a dual-fuel (natural gas and ULSD) peaking unit with per megawatt emissions that exceed the levels set in 980 CMR, § 12.00. The Siting Board notes that the exceedances result primarily from the Light Department's decision to propose a simple-cycle peaking unit, rather than a more efficient combined-cycle plant. Therefore, as an

initial matter, the Siting Board considers the desirability of additional peaking capacity in the New England region.

The Siting Board recognizes the value of peaking capacity generally, and its contribution to the reliability and cost-effectiveness of New England's electric system. The record shows that peaking facilities provide capacity with fast start-up times and an ability to handle system contingencies and peak electricity needs at a capital cost that is low enough to justify their limited use. The record shows that existing peaking capacity is well below the identified regional peak margin of 7,000 MW, reflecting the current difference between regional off-peak and peak load.

The record also shows that peaking facilities generally have higher emissions of criteria pollutants than combined-cycle facilities on a per MWh basis. However, the Siting Board notes that this disadvantage may be offset by the fact that peaking facilities operate only a limited number of hours per year. Additionally, peaking capacity of a given increment can be provided with a facility of smaller overall size and footprint.

The record shows that peaking capacity in New England presently consists of older combustion turbines and pumped storage facilities, and that two-thirds of this capacity is fueled by oil only. The Light Department has shown that the addition of new dual-fuel peaking capacity would, in general, provide energy more efficiently, at lower cost, with less air pollution and with greater fuel diversity than would result with continued reliance on existing peaking facilities. The record also shows that BELD has provided a basis for comparing its proposed project with alternative fossil-fuel technologies, and demonstrated that, on balance, such dual-fuel capability would be superior to coal- and oil-fired technologies with respect to minimizing cost and environmental impacts, and ensuring reliability.

The record shows that BELD has provided a detailed explanation supporting construction and operation of a quick-start, simple-cycle generation facility given near- and longer-term market considerations. The Siting Board also notes that the proposed construction of a peaking facility in Braintree would help address transmission constraints in the area.

In addition, the record shows a number of local advantages associated with the BELD's decision to use the proposed peaking technology rather than combined-cycle technology: the

smaller footprint, stack height, and construction period of the proposed facility relative to combined-cycle technology would help minimize local environmental impacts of the project.

The Siting Board notes that it does not intend to suggest that such attributes support providing a large amount of the region's electricity by simple-cycle or similar technologies. The significant operating cost and environmental benefits of using more efficient combined-cycle technology to meet baseload demands generally would outweigh the capital cost and site-related benefits associated with smaller scale single-cycle units. However, the addition of limited clean peaking capacity is important in order to ensure the reliability of New England's electric system consistent with the Siting Board's overall mandate. The proposed facility would be sited and designed in a manner that allows it to contribute to regional reliability at a low cost with minimal environmental impacts. Consequently, the Siting Board finds that the construction of the proposed facility on balance contributes to a reliable, low-cost, diverse, regional energy supply with minimal environmental impacts.

V. 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. 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. Therefore, in this section, the Siting Board summarizes the health

and environmental protection policies of the Commonwealth that are applicable to the proposed facility and discuss the extent to which the proposed facility complies with these policies.[64]

B. Analysis

In Sections II and III, above, the Siting Board has reviewed the process by which BELD sited and designed the proposed facility, and the environmental and health impacts of the proposed facility 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 facility. These are briefly summarized below.

As discussed in Section III.B, above, the MDEP, in conjunction with the EPA, extensively regulates emissions of criteria and non-criteria pollutants from new sources such as the proposed facility. BELD has demonstrated that it expects to comply with all applicable MDEP and EPA standards.

As discussed in Section III.C, above, MDEP, in conjunction with EPA and the Army Corps of Engineers, regulate various wastewater discharges as well as construction in wetlands and waterway areas. BELD has demonstrated that it expects to comply with all applicable MDEP, EPA and Army Corps of Engineers standards for water discharges, and for work in wetlands and waterway areas.

As discussed in Section III.F, above, BELD has maintained that it will limit increases in off-site noises caused by operation of the proposed facility to 8 dBA at the nearest residences and property lines (with an MDEP waiver for noise increases at the adjacent property line with CITGO), consistent with MDEP policy 90-001, which limits such increases to 10 dBA.

Accordingly, based on its review above, the Siting Board finds that plans for construction of the proposed facility are consistent with current health and environmental protection policies of

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64 The Siting Board notes that its Technology Performance Standard at 980 CMR § 12.00 could be construed as an energy policy of the Commonwealth adopted for the purpose of guiding the decisions of the Siting Board. The proposed facility's compliance with 980 CMR § 12.00 is discussed in Section IV, above. The Commonwealth has not adopted any other energy policies pertaining to the Siting Board's review of generating facilities since G.L. c. 164, § 69J¼ was enacted.

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.

VI. ZONING EXEMPTION

A. Standard of Review

> General Laws c. 40A, § 3 provides, in relevant part, the following:
> Land or structures used, or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning ordinance or Bylaw if, upon petition of the corporation, the [Department] shall, after notice given pursuant to section eleven and public hearing in the town or city, determine the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public . . . .

Accordingly, a petitioner seeking exemption from a local zoning bylaw under G.L. c. 40A, § 3 must meet three criteria. First, the petitioner must qualify as a public service corporation. New England Power Company/Massachusetts Electric Company, D.T.E. 04-66/04-81, at 4-5 (2005) ("NEP/MECo (2005)"), citing Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667 (1975 ("Save the Bay"). Second, the petitioner must establish that it requires exemption from the zoning ordinance or bylaw. New England Power Company/Massachusetts Electric Company, D.T.E. 04-66/04-81, at 4-5 (2005), citing Boston Gas Company, D.T.E. 00-24, at 3 (2001) ("Boston Gas"). Finally, the petitioner must demonstrate that its present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare. New England Power Company/Massachusetts Electric Company, D.T.E. 04-66/04-81, at 4-5 (2005), citing Massachusetts Electric Company, D.T.E. 01-77, at 4 (2002) ("MECo ("2002"); Tennessee Gas Pipeline Company, D.T.E. 01-57, at 3-4 (2002) ("Tennessee Gas (2002)").

1. Public Service Corporation

In determining whether a petitioner qualifies as a "public service corporation" ("PSC") for the purposes of G.L. c. 40A, § 3, the Massachusetts Supreme Judicial Court ("SJC") stated:

> among the pertinent considerations are whether the corporation is organized pursuant to an appropriate franchise from the State to provide for a necessity or convenience to the general public which could not be furnished through the

> ordinary channels of private business; whether the corporation is subject to the requisite degree of governmental control and regulation; and the nature of the public benefit to be derived from the service provided.

Save the Bay at 680. See also, Boston Gas at 3-4; Berkshire Power Development, Inc., D.P.U. 96-104, at 26-36 (1997) ("Berkshire Power").

The Department interprets this list not as a test, but rather as guidance to ensure that the intent of G.L. c. 40A, § 3 will be realized, i.e., that a present or proposed use of land or structure that is determined by the Department to be "reasonably necessary for the convenience or welfare of the public" not be foreclosed due to local opposition. See Berkshire Power at 30; Save the Bay at 685-686. The Department has interpreted the "pertinent considerations" as a "flexible set of criteria which allow the Department to respond to changes in the environment in which the industries it regulates operate and still provide for the public welfare." Berkshire Power at 30; see also Dispatch Communications of New England d/b/a Nextel Communications, Inc., D.P.U./D.T.E. 95-59-B/95-80/95-112/96-113, at 6 (1998) ("Nextel"). The Department has determined that it is not necessary for a petitioner to demonstrate the existence of "an appropriate franchise" in order to establish PSC status. See Berkshire Power at 31.

2. Exemption Required

In determining whether exemption from a particular provision of a zoning bylaw is required for purposes of G.L. c. 40A, § 3, the Department looks to whether the exemption is necessary to allow construction or operation of the petitioner's project as proposed. NEP/MECO (2005) at 5-6; citing MECo (2002) at 4-5; Tennessee Gas (2002) at 5; Western Massachusetts Electric Company, D.P.U./ D.T.E. 99-35, at 4, 6-8 (1999); Tennessee Gas Company, D.P.U. 92-261, at 20-21 (1993). It is the petitioner's burden to identify the individual zoning provisions applicable to the project and then to establish on the record that exemption from each of those provisions is required:

> The Company is both in a better position to identify its needs, and has the

> responsibility to fully plead its own case . . . The Department fully expects that, henceforth, all public service corporations seeking exemptions under c. 40A, § 3 will identify fully and in a timely manner all exemptions that are necessary for the corporation to proceed with its proposed activities, so that the Department is provided ample opportunity to investigate the need for the required exemptions.

New York Cellular Geographic Service Area, Inc., D.P.U. 94-44, at 18 (1995).

3. Public Convenience or Welfare

In determining whether the present or proposed use is reasonably necessary for the public convenience or welfare, the Department must balance the interests of the general public against the local interest. NEP/MECo (2005) at 6-7, citing Save the Bay at 680; Town of Truro v. Department of Public Utilities, 365 Mass. 407, at 411 (1974). Specifically, the Department is empowered and required to undertake "a broad and balanced consideration of all aspects of the general public interest and welfare and not merely [make an] examination of the local and individual interests which might be affected." New York Central Railroad v. Department of Public Utilities, 347 Mass. 586, 592 (1964) ("New York Central Railroad"). When reviewing a petition for a zoning exemption under G.L. c. 40A, § 3, the Department is empowered and required to consider the public effects of the requested exemption in the State as a whole and upon the territory served by the applicant. Save the Bay at 685; New York Central Railroad at 592.

With respect to the particular site chosen by a petitioner, G.L. c. 40A, § 3 does not require the petitioner to demonstrate that its preferred site is the best possible alternative, nor does the statute require the Department to consider and reject every possible alternative site presented. Rather, the availability of alternative sites, the efforts necessary to secure them, and the relative advantages and disadvantages of those sites are matters of fact bearing solely upon the main issue of whether the preferred site is reasonably necessary for the convenience or welfare of the public. Martarano v. Department of Public Utilities, 401 Mass. 257, 265 (1987); New York Central Railroad at 591.

Therefore, when making a determination as to whether a petitioner's present or

proposed use is reasonably necessary for the public convenience or welfare, the Department examines: (1) the present or proposed use and any alternatives or alternative sites identified; (2) the need for, or public benefits of, the present or proposed use; and (3) the environmental impacts or any other impacts of the present or proposed use. The Department then balances the interests of the general public against the local interest, and determines whether the present or proposed use of the land or structures is reasonably necessary for the convenience or welfare of the public. Boston Gas at 2-6; MECo (2002) at 5-6; Tennessee Gas (2002) at 5-6; Tennessee Gas Company, D.T.E. 98-33, at 4-5 (1998).

B. Analysis and Findings

1. Public Service Corporation Status

The Light Department contends that BELD is a public service corporation (Exh. BELD-2, at 8, citing Braintree Electric Light Department, D.P.U. 90-263 (1991), upheld on appeal Planning Board of Braintree v. Department of Public Utilities, 420 Mass. 22, 26 (1995) ("Planning Board of Braintree")). "Because they have the same duty to serve as private utilities, municipal utilities need to have the same tools available to perform their duty, including the G.L. c. 40A, § 3 exemption." Planning Board of Braintree at 28. Accordingly, the Siting Board finds that BELD qualifies as a public service corporation for the purposes of G.L. c. 40A, § 3.

2. Need for the Requested Exemptions

BELD identified eight sections of the Braintree Zoning Bylaws from which it is specifically seeking an exemption in order to construct and operate the proposed facility (Exh. BELD-2, at 11-18). BELD stated that a delay in the project's development associated with the need to pursue zoning relief from Braintree would make it more difficult to address the region's near-term energy and capacity needs (id. at 19). The sections for which the Light Department is seeking zoning relief are described below.

a. Permitted Uses

BELD requests an exemption from the Table of Principal Uses, § 135-601 (Exh. BELD-2, at 11). BELD states that the project's purpose to generate electricity may not be an allowed use under the definition of "public utility or public works storage yard" in the Commercial

District where the proposed facility is located. According to BELD, the Braintree Zoning Bylaw does not allow use variances, and Massachusetts law prohibits use variances unless explicitly provided for in the local bylaws (id. at 14, citing G.L. c. 40A, § 10). Accordingly, BELD also seeks a zoning exemption from § 135-407, Variances.

b. Dimensional Requirements

BELD requests an exemption from certain dimensional requirements for Commercial Districts in Braintree, as set forth in § 135-709 of the Braintree Zoning Bylaws (Exh. BELD-2, at 14-15). According to BELD, the proposed stack height of 100 feet is not consistent with the Bylaws height requirement, which prohibits nonhabitable buildings in business and commercial districts to exceed 45 feet (id. , App. 1, at § 135-709). Similarly, BELD seeks exemption from the table of dimensional and density regulations found in § 135-701 (id. at 14).

c. Wetland and Floodplain Protection Districts

BELD seeks exemption from § 135-608 of the Braintree Zoning Bylaws, which requires a special permit to construct a building or structure, and land to be filled, excavated or otherwise changed in grade in the Wetlands and Floodplain District. According to BELD, given the proximity of the site to the Weymouth Fore River, the proposed facility would involve construction in the Wetlands and Floodplain Protection Districts under the Braintree Zoning Bylaws (Exh. BELD-2, at 15). According to BELD the Planning Board, which would issue a special permit, could condition the proposed facility in such a way that it causes conflict with state permits, or makes it non-economic, or that the special permit would be granted but appealed by residents, causing delays in construction (id. at 16).

d. Landscaping and Buffer Zones

The Landscaping and Buffer Zones section of the Zoning Bylaws sets forth standards and criteria for landscaping that are required through a site plan review (Exh. BELD-2, App. 1, at § 135-702). BELD stated that it could not strictly comply with all of the criteria provided in § 135-702 relative to the use of drought-tolerant species, minimum tree height at maturity,

securing an agreement for long-term maintenance of plantings, planting requirements in a buffer zone, minimum height of screening, and required structures in a buffer zone (Tr. 2, at 229-234). BELD explained, however, that while its proposed project landscaping may not meet the "letter" of these requirements, BELD expects to implement a well-designed landscaping plan that meets the spirit of § 135-702 and will be appropriate for a generating facility (id. at 230-235). BELD also noted that it would be submitting its landscaping plan to the Conservation Commission in order to satisfy certain Chapter 91 requirements, and that as part of that review process the Planning Board could require BELD to show how the plan would meet § 135-702 criteria (id. at 229-230).

e. Environmental Performance Standards

The Environmental Performance Standards section of the Braintree Zoning Bylaws addresses the construction and ongoing operation of buildings and property to (1) prevent, among other things, dangerous emissions, and excessive noise and vibration, and (2) establish safety requirements for the storage of flammable and explosive materials (Exh. BELD-2, App. 1, at
§ 135-1101). Mr. Barten testified that BELD has developed a well designed and well mitigated power plant proposal that, in general, complies with § 135-1101 of the Braintree Zoning Bylaw (Tr. 2, at 236). However, according to Mr. Barten, the proposed facility may not comply strictly with the following requirements:

- the potential interpretation by others of a provision in Item A (emissions) requiring that emissions be completely and effectively confined within a building (id. at 236-237);

- a provision in Item F (discharges), which arguably would not allow for the expected stormwater runoff associated with the proposed facility (id. at 237-238);

- the potential interpretation by others of certain general statements restricting "unnecessary, excessive and annoying noise and vibration" (id. at 239); and

- certain numerical noise limits which are set out in the Zoning Bylaws in terms of the L_{10} metric, whereas BELD's noise analysis was presented in the L_{90} metric. In other words, BELD used a different noise metric for its analysis (id. at 241; see also Exh. EFSB-Z-1, at 2).

BELD also asserted that it could be required to comply with provisions regarding groundwater discharges, air emissions or other performance factors that are potentially conflicting with requirements of state permits (Exh. BELD-2, at 15-16).

f. Traffic Study Requirements

Section 135-1404 of the Braintree Zoning Bylaws requires a traffic study where the proposed activity would generate 50 or more new trips during the peak hour of a proposed facility's operation (Exh. BELD-2, at 16). BELD stated that the proposed facility would not generate this number of new trips during its operation, but may do so during its construction (Tr. 2, at 243). According to BELD, this requirement could be interpreted to apply during construction activities, rather than during operation only (id. at 243-244). BELD maintains that such an interpretation might lead to a requirement for a full blown traffic study, even though there will be limited new traffic associated with the proposed facility (id. at 244).

g. Analysis

BELD has identified eight specific provisions of the ordinance from which it seeks exemption to minimize delay in the construction and ultimate operation of the Watson Station. The record demonstrates that, regarding the Permitted Uses section, the proposed project may not be an allowable use, and further that, regarding the Dimensional Requirements section, the stack which is required as part of the project may not meet applicable height limitations. Thus, the record reasonably demonstrates an exemption from the Permitted Uses and Dimensional Requirements sections is required.

With respect to the other identified bylaw sections, including provisions relating to wetlands and floodplain protection, landscaping plan requirements, environmental performance standards and traffic study requirements, BELD has maintained that exemption is required to avoid uncertainties for project implementation such as: a possible adverse outcome or delay from the added project review entailed under the bylaw; a possible added burden from required studies or conditions under the bylaw that may be unnecessary or inappropriate for this project or may make the project uneconomic; and a possible delay from an appeal of a favorable zoning

review outcome. BELD has also noted that, with respect to landscaping plan requirements, the purpose of these requirements can be served through a separate local review process, and that, with respect to wetlands and floodplain protection and environmental performance standards, zoning review of the project could overlap and potentially conflict with state permits. The Siting Board acknowledges that while these provisions do not on their face prevent the development of the facility, the record demonstrates a reasonable likelihood that these provisions would result in an adverse outcome, a burdensome requirement, or an unnecessary delay as part of zoning review. Accordingly, the Siting Board finds that the eight identified provisions of the Braintree Zoning Bylaws would or could affect BELD's ability to implement the proposed project.

3. Public Convenience or Welfare

a. Need or Public Benefit of Use

i. Light Department Position

BELD asserts that the proposed facility would provide regional reliability benefits by providing 116 MW of needed capacity (BELD Brief at 11, 97, citing BELD-1, at 2-10, 2-20; Tr. 2, at 166-167). In support, BELD maintains that ISO-NE's New England Regional System Plan ("RSP"), dated October 2006, identifies a need for new capacity to meet peak load in New England beginning in 2008 or 2009, depending on which of a number of assumed levels of tie-line benefits,[65] from zero up to 2,000 MW, is available to help meet such need. Specifically, for 2008, ISO-NE identified possible need for 1,553 MW of new capacity assuming a zero availability of tie-line benefits, or 518 MW of new capacity assuming 1,000 MW of tie-line benefits is available; there would be surplus capacity and therefore no need that year assuming 2,000 MW of tie-line benefits are available (BELD Brief at 11, 95, citing Exhs. BELD-1, at 2-10; BELD-2, at 19; Tr. 2, at 181-185). By 2009, the level of needed capacity would be 2,415 MW, 1,208 MW or 173 MW, based on assumed availability of zero, 1,000 MW or 2,000 MW of

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[65] The amount of electric capacity available to an electrically integrated region, such as New England, from a second region (e.g., New York) via interconnection transmission facilities between the two regions is known as a tie-line benefit. The amount of tie-line benefits available is limited by both the capacity of the transmission line and the electric capacity available for transmission from the second region (Tr. 2, at 185-187).

tie-line benefits, respectively.

BELD reports that in later years the need for new capacity would trend upward, from 1,035 MW in 2010 to 4,313 MW in 2015 assuming the 2,000 MW level of tie-line benefits; the trend would be higher assuming either of the lower levels of possible tie-line benefits (BELD Brief at 11, citing Tr. 2, at 181-185). In assessing need over the 2010 to 2015 period, BELD asserts that expected trends based on the 2006 RSP may be conservative, citing an analysis it made comparing projections from ISO-NE's 2007 Report of Capacity, Energy, Load and Transmission ("CELT Report") to corresponding 2006 projections used in the 2006 RSP (id. at 12, 97, citing Exh. EFSB-RR-17).[66]

BELD states the ISO-NE Forward Capacity Market ("FCM") has been established to help manage the supply of regional capacity for 2010 and later years, including the entrance of new

capacity, through the use of capacity payments as incentives (Exh. BELD-1, at 2-10; Tr. 2, at 187-188). Citing information generally available in the press, BELD indicated that there is "a lot of interest" in providing new capacity intended for participation in the FCM (Tr. 2, at 188-190). BELD also provided an ISO-NE listing of requests for approval of system interconnection by owners of prospective projects, noting project proponents likely to bid new capacity in the FCM may well be among those having applied for such interconnection approval (id. at 191-193; Exh. EFSB-1).

BELD maintains, however, that it is not clear that the FCM would provide an effective incentive to bring about new capacity development, given that its guarantee of capacity payments would extend for only a few years – possibly not long enough to allow many projects to obtain financing (Tr. 2, at 188-190, 195-197). BELD explained that, other than municipal utilities, few entities would be able to access sufficient financing based on a revenue

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66 BELD first noted the 2007 CELT Report showed a lower load forecast (by 150 MW in 2010, increasing to 385 MW in 2015) than the 2006 CELT Report; at the same time, however, BELD maintained updated CELT projections of available capacity also were lower, by a greater margin (1,100 MW in 2010 declining to 820 MW in 2015), with the net effect that capacity need would be larger over the period (by 435 to 950 MW) (BELD Brief at 12, 97, citing Exh. EFSB-RR-17).

commitment of a few years (id. at 188-189). Regarding its own financing, BELD noted it already has authorization to issue an amount of general obligation bonds sufficient to finance the proposed facility (id. at 191).

BELD also maintains, as discussed in Section IV, above, that a simple-cycle unit such as the proposed facility would take less time to construct than alternative base load designs, such as combined-cycle technology (Exhs. BELD-1, at 2-20; BELD-2, at 20; Tr. 2, at 166). Thus, the proposed facility can be brought online more rapidly than other units to meet regional capacity need (Exh. BELD-1, at 2-20).

BELD asserts, as discussed in Section IV above, that the proposed facility would provide additional regional reliability benefits by providing 116 MW of capability to meet system reserve requirements (BELD Brief at 11, citing BELD-1, at 2-8). BELD explained that, separate from the future need for regional capacity, there is an existing need for approximately 1,500 MW of ten-minute, non-spinning reserve capacity to offset contingency loss of the regional system's largest generating or tie-line element (Tr. 2, at 203-204). BELD stated that the proposed facility would contribute non-spinning reserve capacity through the ISO-NE forward reserve market (Exh. BELD-1, at 2-9; Tr. 2, at 156). BELD asserts the need for reserve capacity can best be supplied by a quick-start, simple-cycle, aero-derivative generator such as the proposed Watson Station (BELD Brief at 98, citing Tr. 2, at 217, 218).[67] BELD notes that, although the proposed facility's quick-start capability would allow it to effectively participate in the reserve market and thereby help meet this identified regional need, it is possible the facility would instead operate in the energy market, if it did not bid or were not selected to operate in the reserve market given market conditions (Tr. 2, at 176-177).[68]

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[67] BELD noted that quick-start resources are facilities that can start and operate at full load in less than 10 minutes (Exh. BELD-2, at 21).

[68] BELD explained that ISO-NE uses the Forward Reserve Market to provide reserves capacity for separate October-to-May and June-to-September contract periods (Tr. 2, at 177-178). For each such contract period, either (1) BELD would elect to bid, and if it were selected would be paid to operate, the proposed facility during that period as a resource continuously available to help meet the required reserve level, and at times

(continued...)

BELD argues that the proposed facility also would provide a quick-start resource that is highly efficient as a peaking supply, and thereby would provide economic and environmental benefits (Tr. 2, at 199-202, 204-205). As discussed in Section IV above, BELD indicates that the proposed facility would efficiently provide capacity to help make up a regional peaking supply of approximately 7,000 MW, the amount required based on the margin between regional off-peak and peak load (id. at 204-205). BELD asserts that the amount of existing generation suited for peaking use, also termed load following or cycling generation, currently is only 1,500 MW; thus 5,500 MW of cycling generation must be supplied by base load units not designed for this purpose (id. at 201-203). Regarding the 1,500 MW of cycling capacity which is currently available, BELD argues that this capacity consists of largely older, less efficient units, and the proposed facility would provide further benefits by serving that requirement more efficiently (id. at 201). BELD maintains that the proposed Watson Station would also contribute to greater fuel diversity among regional generators because Watson Station would be able to burn natural gas and ULSD for up to four months of operation (BELD Brief at 98-99).

The Light Department indicates that the proposed Watson Station would also serve the reliability needs of seven Massachusetts municipal light plants: Braintree, Reading, Taunton, Hingham, Wellesley, Concord and Chicopee. The latter six municipal light plants have entered into unit contracts for entitlements in the proposed Watson Station (Exhs. BELD-2, at 28; BELD-1, at 2-12). The New Hampshire Electric Cooperative, Inc. has also entered into a unit contract with BELD for an entitlement in the proposed Watson Station (id.). As the owner of the proposed Watson Station, BELD would retain thirty percent of the power produced by the proposed facility.

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[68] (...continued)
when called upon by ISO-NE actually operate the facility as a reserve resource producing power at the prevailing energy market rate, or (2) if not so electing to bid or if not so selected to operate in the reserve market, BELD would operate the facility as a resource continuously available to produce power in the energy market, doing so when economic; BELD could not however operate the proposed facility in both the above modes during the same reserve market contract period (id. 2, at 176-178).

According to BELD, the proposed Watson Station would also provide major direct and indirect economic benefits to Braintree, the surrounding communities and the Commonwealth (BELD Brief at 99-100). For example, the proposed Watson Station would redevelop an industrial "brownfield" site that previously held a decommissioned power plant; it would create approximately 75 construction jobs over a one-year period (and up to 125 jobs during the peak construction period); it would be located at a critical spot on the transmission grid; it would offer system reliability on BELD's side of the Holbrook substation; and it would have lower emissions than many of the region's older power plants (id.).

ii. Analysis

BELD has set forth various needs or beneficial purposes that it expects the proposed facility to serve, including regional reliability needs, state/regional cost and environmental impact objectives, and participant or local system area objectives.

With respect to regional reliability, the record establishes projected overall requirements for new capacity that would first arise in 2008 or 2009, and likely reach 1,000 MW in 2010 or earlier and 4,000 MW in 2015 or earlier, based on projected peak electricity demand and currently known generation availability for those years. Expected to be online in 2009, the proposed facility would represent new capacity able to serve or help serve that identified need from 2009 to 2015, and beyond. The record also establishes ISO-NE's existing and presumably ongoing requirement for a total of approximately 1,500 MW of reserve capacity, albeit not identifying a specific need for new reserve capacity to meet any separately forecast reserve capacity deficiency. Given its quick-start capability, the proposed facility would represent new capacity able to help serve the regional reserve capacity requirement, once the facility is online beginning in 2009.

The record also establishes mechanisms ISO-NE currently is using to manage the region's supply of capacity and reserve capacity for the current and upcoming years, including the entrance of new capacity as may be warranted based on expected deficiencies in known available generation. With respect to the supply of capacity, ISO-NE's provisions for capacity payments, together with the new FCM effective for years 2010 and beyond, have spurred interest

in development of generation projects to meet peak system needs. BELD raises uncertainty as to whether projects coming forward would successfully obtain financing in sufficient numbers to meet projected capacity need. However, the record here provides little to show that currently identified regional capacity needs are markedly larger than or different from the past, or that the prospects for prospective generation development are demonstrably more pessimistic. BELD's showing that there is future-year regional capacity need, without more, does little to establish that there is urgency for advancing one or more particular generation projects in order to meet or help meet that need. With respect to reserve capacity, BELD's analysis has identified a capacity requirement but not established any deficiency, although we recognize that new reserve capacity may be warranted or may become so based on future planned or unplanned system changes, such as to allow inefficient existing units to retire.

Separate from capacity need, the record provides support for BELD's argument that the proposed facility would provide dual-fuel, quick-start capability using current technology, with various reliability, efficiency, siting and diversity benefits for Massachusetts and the ISO-NE system. As noted in Section IV above, the Siting Board recognizes the value of new peaking capability generally and that the proposed facility would specifically provide: (1) operating reliability benefits by adding to the supply mix a quick-start unit; (2) cost-effectiveness and environmental benefits by adding a low capital cost, small footprint unit; (3) cost-effectiveness and environmental benefits by adding a unit with a relatively efficient, current peaking technology; and (4) capacity reliability benefits by adding a unit with a short implementation lead time. The Light Department has also shown that the addition of dual-fuel peaking capacity would, in general, provide energy with reliability and cost advantages based on greater fuel diversity.

The record also establishes that the proposed facility likely would provide cost savings to customers of BELD and the other six in-state and one out-of-state participant utilities, either from own-system capacity or power cost savings, or from capacity or power sales benefits derived from operation of the facility in the regional reserve or energy markets. Finally, the record establishes that adding an efficient, quick-start facility along the portion of NSTAR's transmission system extending toward BELD from Holbrook Substation may provide reliability

benefits in serving local load, and local air emissions reduction benefits from displacement of other local generation as part of serving local load.

The Siting Board finds that the proposed facility would serve energy needs or provide energy benefits for both project participants and ISO-NE by providing: peaking power that would be lower cost and have fewer environmental impacts than that from existing peaking generation resources, given proposed use of new efficient, quick-start technology; dual-fuel capacity and power generation that would enhance supply diversity; and added capacity and power generation that would be reliably timed and economically and environmentally advantageous to install compared to other possible new capacity and power generation, given the smaller scale of plant entailed in developing generation based on peaking rather than base load technology.

b. Alternatives Explored

In Section II, above, the Siting Board reviewed BELD's site selection process including its comparison of potential alternatives to the proposed Watson Station site. Based on its analysis, the Siting Board concluded that the proposed site at BELD's Potter Road property offers important attributes for siting the proposed facility, including the site's status as previously disturbed land, its location adjacent to industrial uses on two sides and the Weymouth Fore River on a third side, its existing access to power-related infrastructure for power interconnection and gas and fuel oil delivery, and its accessibility to BELD personnel. In reviewing BELD's alternative site comparison, the Siting Board concluded that the proposed Watson Station site would be preferable to the identified alternatives, the Allen Street site and the alternate site within the Potter Road property, with respect to most environmental impact concerns.

The Siting Board finds that BELD reasonably established that, as site attributes for project development, the proposed site is a largely industrial, previously disturbed setting where BELD has existing property rights and access to power-related infrastructure and operational support personnel, and that by comparison with identified alternatives, the proposed site would

better contribute to the minimization of the cost and environmental impacts of facility development and operation.

c. Impacts of the Proposed Use

In Section III, above, the Siting Board reviewed the environmental impacts, including traffic, noise, land use, water resources, visual, hazardous materials, and EMF impacts of the proposed Watson Station. The review showed that many of the impacts considered would be either a temporary condition, limited to the construction period, or periodic conditions over the life of the facility, limited consistent with the facility's operation as a peaking resource used at some but by no means all times. As part of its review, the Siting Board concluded the proposed facility likely would be consistent with all applicable governmental standards.

The Siting Board found in Section III, above, that with the conditions set forth therein, the environmental impacts associated with the proposed Watson Station would be minimized. In Section IV, above, the Siting Board further found the proposed facility would be consistent with the environmental, health and resource development policies of the Commonwealth.

Based on the foregoing, the Siting Board finds that the proposed facility, with proposed and other mitigation described herein, may result in some modest local adverse environmental impacts extending to off-site areas, including possible air and noise emissions, project views, EMF and construction-period traffic, but generally would result in minimal impacts.

d. Necessity for the Public Convenience or Welfare

The Siting Board has found that the proposed facility would serve energy needs or provide energy benefits for both project participants and ISO-NE by providing: peaking power that would be lower cost and have less environmental impacts than that from existing peaking generation resources, given proposed use of new efficient, quick-start technology; dual-fuel capacity and power generation that would enhance supply diversity; added capacity and power generation that would be reliably timed and economically and environmentally advantageous to install compared to other possible new capacity and power generation, given the smaller scale of plant entailed in developing generation based on peaking rather than base load technology.

The Siting Board has found BELD reasonably established that, as site attributes for project development, the proposed site is a largely industrial, previously disturbed setting where BELD has existing property rights and access to power-related infrastructure and operational support personnel, and that by comparison with identified alternatives, the proposed site would better contribute to the minimization of the cost and environmental impacts of facility development and operation.

The Siting Board has found that the proposed facility, with proposed and other mitigation described herein, may result in some modest local adverse environmental impacts extending to off-site areas, including possible air and noise emissions, project views, EMF and construction-period traffic, but generally would result in minimal impacts.

The Siting Board now must balance the public interest in allowing the proposed use of site, considering identified project benefits and any site advantages, against any adverse local impact of that use. Some identified benefits of the proposed use of site stand out, including the advantages the proposed facility would provide as a new, efficient peaking resource added to the current local and regional supply mix, and the opportunity afforded by the proposed site to use a "brownfield" space well-suited to the project's modest footprint requirement, with valuable access to a range of fixed infrastructure including that for delivery of both project fuels – gas and backup oil – as well as the project's electrical interconnection. With respect to the benefits the project would bring as a new peaking resource, the Siting Board notes these are significant at this time given few such projects have been pursued in recent years and efficient peaking capacity therefore appears to be under-represented in the supply mix. The Siting Board also notes that as a new capacity resource generally, the project may be important to the region based on a likely ability to be online early, given that it appears well-positioned compared to other prospective projects with respect to overall permitting and financing.

Regarding local impact interests, the project would operate for certain periods only, and would be sited on the Potter Road property so as to maximize distance from residential abutters. Further, as described in the body of this decision, the Siting Board has required mitigation concerning visual impacts, noise, CO_2 emissions and ammonia storage safety.

Based on the foregoing, the Siting Board finds that the general public interest in constructing the proposed facility would outweigh any adverse local impacts of the project. Accordingly, the Siting Board finds that the proposed facility is reasonably necessary for the convenience or welfare of the public.

4. Conclusion on Requested Exemptions

Based on the record, the Siting Board has concluded above that (1) BELD qualifies as a public service corporation for purposes of G.L. c. 40A, § 3; (2) the eight identified provisions of the Braintree Zoning Bylaws would or could affect BELD's ability to implement the proposed project; and (3) the proposed project is reasonably necessary for the convenience and welfare of the public.

As described above, the proposed facility offers multiple regional and local benefits; notably it would add efficient quick-start peaking capacity to the supply mix providing cost and environmental advantages, and be a timely means of achieving its reliability and other purposes since the project is well positioned in terms of financing and its ability to meet a relatively near-term in service date.

As also described above, the eight identified zoning bylaw provisions all raise uncertainties for project implementation, although these cannot be fully known in advance and may differ as to the degree or the significance of the uncertainty they pose. Given our finding herein that project benefits would outweigh any adverse local impact, and the importance of timely achieving the identified project benefits, the Siting Board concludes that the requested exemptions generally are warranted.

However, the Siting Board is concerned that one bylaw provision, the Environmental Performance Standards of the Braintree Zoning Bylaws, § 135-1101, regulates not only the nature and characteristics of the facility to be constructed, but also the ongoing operation of the proposed facility and the Potter Street property. Were the Siting Board to grant an overall zoning exemption from § 135-1101, local zoning control over relevant environmental considerations listed in § 135-1101 may no longer be applicable to the ongoing operation of the proposed facility. Accordingly, the Siting Board grants an exemption from those portions of §

135-1101 as may otherwise be necessary to construct the proposed facility at the proposed site, recognizing that the environmental impacts associated with the construction are substantially as described in the record of this proceeding and in this decision. Based on this finding we make it clear that the proposed facility during operation is subject to § 135-1101, as applicable. If necessary, the Siting Board would similarly exercise its own purview over the ongoing operation of the proposed facility to ensure that the environmental impacts of the proposed facility do not unreasonably diverge from those represented by BELD in the record of this proceeding. Accordingly, subject to the above limitation, the Siting Board finds that the identified provisions of the Braintree Zoning Bylaws could affect BELD's ability to construct the proposed project, and exemption from the identified provisions therefore is required. Therefore, subject to the limitation with respect to § 135-1101, the Siting Board grants the petition of BELD for exemption from Sections 135-601, 135-407, 135-709, 135-701, 135-608, 135-702, 135-1101 and 135-1404 of the Town of Braintree Zoning Bylaws.

VII. Section 61 Findings

The Massachusetts Environmental Policy Act ("MEPA") provides that "[a]ny determination made by an agency of the Commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been taken to avoid or minimize said impact." G.L. c. 30, § 61. Pursuant to 301 CMR § 11.01 (3), these findings are necessary when an Environmental Impact Report ("EIR") is submitted by a petitioner to the Secretary of Environmental Affairs, and should be based on such EIR. Where an EIR is not required, G.L. c. 30, § 61 findings are not necessary. 301 CMR § 11.01 (3). The record indicates that a single EIR was required for BELD's proposed generating facility. Therefore, a finding under G.L. c. 30, § 61 is necessary relative to BELD's Zoning Exemption Petition.

In Section III, above, the Siting Board conducted a comprehensive analysis of the environmental impacts of the proposed generating facility and found that the temporary and permanent impacts of the proposed generating facility at the preferred site would be minimized and that the proposed project would achieve an appropriate balance among conflicting

environmental concerns as well as among environmental impacts, reliability, and cost. Accordingly, the Siting Board finds that all feasible measures have been taken to avoid or minimize the environmental impacts of the proposed facility.

VIII. 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.

In Section II, above, the Siting Board has found that the Light Department's description of the site selection process it used is accurate, and that the site selection process resulted in the selection of site that contributes to the minimization of the environmental impacts of the proposed project and the costs of mitigating, controlling, and reducing such impacts.

In Section III, above, the Siting Board has found that with the implementation of listed conditions relative to air quality, water resources and wetlands, solid waste, visual, noise, safety, traffic, and EMF impacts, the Light Department'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 has found that the plans for the construction of the proposed project 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 in Sections III.B, III.C, III.E, III.F, III.G, III.H, and III.I, above, and listed below, the construction

and operation of the proposed project will provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

Accordingly, the Siting Board APPROVES the petition of Braintree Electric Light Department to construct a 116 MW generating facility and for a zoning exemption in Braintree, Massachusetts, subject to the following conditions:

A. In order to minimize CO_2 emissions, the Siting Board directs the Light Department, prior to or within the first year of the proposed facility's operation, to provide it with a compliance filing with respect to CO_2 emissions based on either (1) conformance with RGGI; or (2) an offset program developed with Siting Board staff, consistent with CO_2 emissions offset programs developed in previous cases before the Siting Board.

B. In order to minimize water resources and wetlands impacts, the Siting Board directs the Light Department, as warranted, during dry weather conditions, to monitor water use of its proposed facility in relation to supply conditions in the BWSD and Tri-Town systems, and to coordinate with the BWSD with respect to limiting BELD's water use or using BELD's backup supply.

C. In order to minimize visual impacts, the Siting Board directs the Light Department, consistent with the directives in Section III.E, 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 from affected residential properties and roadways in the area along Glenrose Avenue southeast of BELD's Potter Station facilities, where residents may experience changed views.

D. In order to minimize noise impacts, the Siting Board directs the Light Department (1) to confine noisy construction activities to weekdays from 7:00 a.m. to 5:30 p.m., and to limit weekend construction to Saturdays, between the hours of 8:00 a.m. and 5:00 p.m., such construction to be undertaken only when necessary, for example, in the event that site work is delayed by bad weather, and (2) if

scheduling deliveries of large equipment in low-traffic periods including evening or nighttime hours or on weekends, to notify residents and Braintree and state police officials of such upcoming equipment deliveries, and to work with residents and responsible officials to minimize disruption and noise impacts associated with such deliveries.

E. In order to minimize noise impacts, the Siting Board directs the Light Department to submit to the Siting Board the results of BELD's start-up and second period operational noise testing, and resolution of any problems that may have arisen.

F. In order to minimize safety impacts, the Siting Board directs the Light Department to enclose its ammonia storage tanks, update its SPCC plan consistent with the operation of Watson Station, and develop a plan with procedures to address the delivery, transfer and storage of aqueous ammonia together with contingency response measures.

G. In order to minimize traffic impacts, the Siting Board directs the Light Department, as necessary, to stagger the departure times of those construction crew members whose work ends during the 4:30 to 5:30 evening rush hour period, and, in consultation with state and local police, to use all reasonable traffic mitigation measures, including the use of police details, as applicable.

H. In order to minimize EMF impacts, the Siting Board directs the Light Department to keep the Siting Board informed as to the progress and the outcome of BELD'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 at such time as BELD reaches final agreement with all transmission providers regarding interconnection.

In addition, pursuant to G.L. c. 40A, § 3, the Siting Board has granted, subject to the limitation with respect to § 135-1101, the petition of BELD for exemption from Sections 135-601, 135-407, 135-709, 135-701, 135-608, 135-702, 135-1101 and 135-1404 of the Town of Braintree Zoning Bylaws. Further, related to the zoning exemption, the Siting Board has found,

in accordance with G.L. c. 30A, § 61, that BELD has taken all feasible measures to avoid or minimize environmental impacts of the proposed facility.

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 the Light Department to notify the Siting Board of any changes other than minor variations to the proposal so that the Siting Board may decide whether to inquire further into a particular issue. The Light Department is obligated to provide the Siting Board with sufficient information on changes to the proposed project to enable the Siting Board to make these determinations.

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Stephen H. August
Presiding Officer

Dated this 29th day of February, 2008

APPROVED by the Energy Facilities Siting Board at its meeting of February 28, 2008, by the members and designees present and voting. **Voting for** approval of the Tentative Decision, **as amended**: Ann Berwick (Acting EFSB Chairman/Designee for Ian A. Bowles, Secretary, Executive Office of Energy & Environmental Affairs); Rob Sydney, Designee for Philip Giudice, Commissioner (Division of Energy Resources); Laurie Burt, Commissioner (Department of Environmental Protection); April Anderson Lamoureux, Designee for Daniel O'Connell, Secretary of the Executive Office of Housing & Economic Development; Paul J. Hibbard, Commissioner DPU; Tim Woolf, Commissioner DPU and Carolyn Dykema, Public Member.

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Ann Berwick, Acting Chairman
Energy Facilities Siting Board

Dated this 28th day of February, 2008

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).